



**CENTER FOR
ENERGY STUDIES** 



Natural Gas Market Integration in the V4 Countries

Jan Osička, Lukáš Lehotský, Veronika Zapletalová, Filip Černoch

muni
PRESS

Natural Gas Market Integration in the V4 Countries

Jan Osička, Lukáš Lehotský, Veronika Zapletalová, Filip Černoč

Masaryk University
Brno 2016

Research support: Technology Agency of the Czech Republic
Project Identification: TB050MZV003
Project Period: 2/2016 – 7/2016
Investor: Ministry of Foreign Affairs of the Czech Republic

All rights reserved. No part of this e-book may be reproduced or transmitted in any form or by any means without prior written permission of copyright administrator which can be contacted at Masaryk University Press, Žerotínovo náměstí 9, 601 77 Brno.

Reviewer: Mgr. Vít Dostál, Ph.D., Association for International Affairs
Proofreading: Djihan Skinner
Typeset: Lukáš Lehotský
Cover photo: Parvesh Kumar on Unsplash
Cover design: Lukáš Lehotský

Published by Masaryk University, Žerotínovo nám. 617/9, 601 77 Brno, Czech Republic
1st edition

Web: <http://energy.fss.muni.cz/>
Mail: osicka@mail.muni.cz

© 2016 Masaryk University
ISBN 978-80-210-8901-3
<https://doi.org/10.5817/CZ.MUNI.M210-8901-2016>

Acknowledgements

The research project was awarded by the Ministry of Foreign Affairs of the Czech Republic. The authors wish to thank all the respondents who took part in the research, the Technological Agency of the Czech Republic and the Masaryk University for administration of the project, Ms. Djihan Skinner for proofreading services, Dr. Vít Dostál for a publication review, and the authors and contributors of the utilized software: R, Discourse Network Analyzer and Visone. (Leifeld, Discourse Network Analyzer (DNA), 2016; Brandes & Wagner, 2016; R Core Team, 2016)

Abstract

Natural gas market integration in the Visegrad 4 (V4) region ranks among the most discussed energy issues in the region. The idea of bringing the individual markets closer together emerged after the 2009 gas crisis. The project seemed to take off during the Polish V4 presidency of 2012-2013. Since then, the process has witnessed ambivalent progress. That is the starting point for this research. Its main purpose is threefold: to provide the audience with a brief outlook on the market integration at the EU level and its relevance vis-à-vis regional projects such as the one of the V4; to provide reflection on the V4 energy cooperation and the importance that gas market integration has within this cooperation; and to map positions of the individual stakeholders towards the process.

Abstract (Czech)

Integrace trhů se zemním plynem v regionu Visegrádské čtyřky (V4) patří mezi nejdiskutovanější problémy regionu. Myšlenka přiblížení jednotlivých trhů k sobě vyvstala po plynové krizi v roce 2009. Tento projekt zdánlivě nabyl vyšší priority během polského předsednictví v letech 2012-2013. Od té doby je však vývoj projektu ambivalentní. Toto je vychodím bodem našeho výzkumu. Jeho hlavní cíl je trojím: poskytnout publiku stručný nástin procesu integrace na evropské úrovni a jeho relevanci vis-à-vis regionálním projektům jako je integrace ve V4; poskytnout reflexi energetické spolupráce krajin V4 a důležitosti integrace trhů se zemním plynem v této spolupráci; a zmapovat pozice individuálních stakeholderů vůči procesu integrace.

Table of contents

1. Introduction	8
2. Research design	9
3. Research limits	10
3.1 Content analysis	10
3.2 Stakeholder analysis	10
4. European level	12
4.1 What is market integration? Discussion of integration models	12
4.1.1 Why the market integration?	12
4.1.2 Anglo-North American Model vs EU Model	13
4.1.3 The EU liberalization framework	16
4.2 Uncertainties	17
4.2.1 Missing driving forces	17
4.2.2 Does the one model fit all?	18
5. Intergovernmental level	21
5.1 V4 energy cooperation	22
5.1.1 Absolute frequencies	22
5.1.2 Co-occurrence correlations	25
5.1.3 Qualitative insight into co-occurrences	28
5.1.3.1 Analysis of relations between codes	31
5.2 V4 gas market integration	32
5.2.1 Absolute frequencies	32
5.2.2 Co-occurrence correlations	34
5.2.3 Qualitative insight into co-occurrences	37
5.2.3.1 Energy security over market benefits	39
5.2.3.2 Analysis of relations between codes	41
6. State level	43
6.1 Discourse networks by category	45
6.2 Discourse networks by country	53
6.3 Discourse networks by functional position	57
7. Interpretations	61
8. Conclusions	67
8.1 Uncertainty	67
8.2 V4 cooperation	67
9. References	69
10. Methodology annex	73
10.1 Content analysis	73
10.1.1 Research process	73

10.1.2	Sample	73
10.1.2.1	List of communications	74
10.1.2.2	List of annual reports of Visegrad Group	79
10.1.2.3	List of Visegrad Group presidency programs	80
10.1.3	Data cleaning and preparation	81
10.1.4	Forming corpuses	81
10.1.5	Frequencies and word list formation	82
10.1.6	Unitizing	82
10.1.7	Co-occurrences	82
10.1.8	Correlations	82
10.1.9	Co-occurrence analysis and coding	83
10.1.10	Manual coding	83
10.1.10.1	Energy	84
10.1.10.2	Market integration”	87
10.2	Stakeholder analysis	89
10.2.1	Research process	89
10.2.2	Codebook	91
10.2.2.1	Goals and expected benefits	92
10.2.2.2	Obstacles	92
10.2.2.3	Questioning	93
10.2.2.4	Uncertainties	94
10.2.2.5	Solutions	94

List of figures, tables and boxes

Tab. 1:	Descriptive statistics of text samples	21
Tab. 2:	Most frequent words in corpus	22
Tab. 3:	Frequencies of term "energy" by year	23
Fig 1:	Relative frequency of term "energy" in time-series	24
Tab. 4:	Terms correlated with "energy" in all documents	26
Tab. 5:	Terms correlated with "energy" by year	27
Fig 2:	Terms correlated with "energy" in time-series	28
Tab. 6:	Explanation of codes	29
Tab. 7:	Code frequencies in text sections containing term "energy"	30
Fig 3:	Codes network	31
Tab. 8:	Absolute and relative frequencies of terms "gas", "market", "integration"	33
Fig 4:	Relative frequencies of terms "gas", "market" and "integration" in time-series	33
Tab. 9:	Correlations of the term "market"	35
Tab. 10:	Annual correlations of term "market"	36
Fig 5:	Annual correlations of term "market" in time-series	37
Tab. 11:	Explanation of codes	38
Tab. 12:	Code frequencies in text sections by year	39
Fig 6:	Occurrence of codes in text sections by year	40
Fig 7:	Codes network	41
Box 1:	Reading bipartite network graphs: an example	44
Fig 8:	Example of a bipartite network graph	44
Tab. 13:	Categories and codes used in the stakeholder analysis	46
Fig 9:	Goals and expected benefits	47
Fig 10:	Perceived obstacles	48
Fig 11:	Questions and doubts	50
Fig 12:	Uncertainties and external factors	51
Fig 13:	Solutions	52
Fig 14:	Stakeholder analysis by country: the Czech Republic	53
Fig 15:	Stakeholder analysis by country: Hungary	54
Fig 16:	Stakeholder analysis by country: Poland	55
Fig 17:	Stakeholder analysis by country: Slovakia	56
Fig 18:	Stakeholder analysis by position: MFAs	57
Fig 19:	Stakeholder analysis by position: MoEs	58
Fig 20:	Stakeholder analysis by position: NRAs	59
Fig 21:	Stakeholder analysis by position: TSOs	60
Fig 22:	Usage of term "energy" in time-series	62
Tab. 14:	Central and relevant codes in country discourses	65
Tab. 15:	Central and relevant codes in stakeholder group discourses	66
Box 2:	Interview questions	89
Tab. 16:	Sources of interview data	90
Tab. 17:	Categories and codes used in the stakeholder analysis	91

List of abbreviations

DNA	Discourse Network Analysis
EC	European Commission
FERC	Federal Energy Regulatory Commission (UK)
GTM	Gas Target Model
MFA	Ministry of Foreign Affairs
MoE	Ministry responsible for energy policy
NRA	National Regulatory Authority
Ofgem	Office of Gas and Electricity Markets (UK)
TSO	Transmission system operator
V4	Visegrad Group

1 Introduction

Natural gas market integration in the Visegrad 4 (V4) region ranks among the most discussed energy issues in the region. The idea of bringing the individual markets closer together, create a common market and enjoy the security and price benefits that could result, emerged after the 2009 gas crisis. The integration project seemed to take off during the Polish V4 presidency of 2012-2013, when several knowledge-building and path-defining documents were issued: On 31 October 2012, the V4 energy ministers signed a Memorandum of Understanding on the integration of the V4 regional gas market. The Memorandum set out a timetable of actions leading to the Road Map towards a Regional V4 Gas Market. (V4, 2013) Prior to signing the Memorandum, analyses of market liquidity by national energy regulation authorities were completed in January 2013, followed by the drafting of guidelines for a V4 gas market model, which was carried out by the Florence school of integration together with Polish think-tank OSW. (Ascari S. , 2013) The Road Map adopted in 2013 identified the following key priorities: (1) to maintain coordinated support for developing key gas infrastructure in the region; (2) to continue work on an optimal market model for the region; (3) to establish the V4 Forum for Gas Market Integration and to use it as an institutional basis of cooperation. (V4, 2013, p. 2)

Since then, the integration process has witnessed ambivalent progress. While the Gas Forum was successfully started, and kept alive and the physical interconnection has certainly improved, the regulatory side of the project has stagnated.

The lack of progress in the integration process is the starting point for this research. Its main purpose is threefold: to provide the audience with a brief outlook on the market integration at the EU level and its relevance vis-à-vis regional projects such as the one of the V4; to provide reflection on the V4 energy cooperation and the importance that gas market integration has within this cooperation; and to map positions of the individual stakeholders towards the process.

The research was awarded by the Ministry of Foreign Affairs of the Czech Republic. The data collection took place between February and June 2016.

2 Research design

The research envisages three particular sections which follow three different levels of analysis. Firstly, we deal with the gas market integration at the European level. As it is an ongoing process that has a profound influence on the shape of the national as well as regional markets the European perspective provides a useful context for the following sections of the research. Secondly, there is the inter-governmental level for which we use the content analysis of the official documents coming from the V4 to reveal the frequency of occurrence of topics and keywords related to natural gas market integration. This provides us with better understanding of what the V4 organization sees in the integration and also illustrates the importance of the issue within the overall V4 energy cooperation. Thirdly, at the state level, we focus on positions that the integration stakeholders – the ministries of foreign affairs (MFAs), ministries responsible for energy (MoEs), national regulatory authorities (NRAs), and transmission system operators (TSOs)¹ – hold towards the project. Using the Discourse Network Analysis (DNA) method, we process the in-depth interviews conducted with representatives of each stakeholder institution to reveal the shared as well as divergent points in their opinions and narratives.

The research design is therefore of a mixed nature, as it combines qualitative and quantitative techniques of data collection and processing, and reflects three levels of analysis: supranational, focusing on the EU perspective on the market integration; intergovernmental, dealing with the V4 as an actor and looking at its achievements in the field of energy; and state level, looking at the positions of the individual stakeholders of the process.

Detailed information regarding the research design and methods can be found in the Methodology annex (chapter 10).

¹ In Hungary two TSOs coexist: state-owned MGT, which operates the Hungary-Slovakia interconnection, and privately-owned FGSZ, which is responsible for the rest of the transmission system. For two reasons, we have only reflected the position of FGSZ in our analysis: (1) it is the key infrastructure institution in the process; (2) we have reflected the position of the Ministry of National Development (MND), Hungary's Ministry responsible for energy (MoE), and since the ownership rights over MGT are executed by MND, we expect their views to be in-line.

3 Research limits

With the design being formulated in this way we feel the need to draw the reader's attention to the research limits and possible sources of error. The main risks of error are related to the interviews and the stakeholder analysis and content analysis as we employ them.

3.1 Content analysis

The main assumption that this research section is based on is a belief that official communications represent the positions of the actors and communicate their beliefs over concepts. (Weber, 1990, pp. 12-13) Based on this assumption, this paper will expect that Visegrad Group members use the programs, annual reports and their communications as a means to communicate their real position. As this assumption helps us in dealing with some validity concerns, the limits of the research are then connected to data availability and coding.

Availability of the data varies across time. While there are near no official communications available for 2000 or 2002, there are far more sources from recent years. Moreover, annual reports from 2002 and 2007 are missing completely. This is an obvious limitation of the research, yet, it is impossible to overcome it. However, absolute frequencies recorded in the corpus will be transformed to relative frequencies, taking the size variation into account.

Coding is limited to units of analysis – sentences. This is an obvious limitation, as contexts of whole articles or even paragraphs of text remain largely hidden. We attempt to overcome this limitation with qualitative assessments of the contexts the most important keywords are embedded in.

3.2 Stakeholder analysis

The main sources of discrepancy in this section of the research is limited representation of the stakeholder institutions.

During the interviews, we spoke only with one to three representatives of each stakeholder institution. Despite all of them personally taking part in the issue and were high-level officials, their view on the problem will always be distorted by the particular thoughts they have on the very day or the very moment of the interview. This way, stakeholders not mentioning for example security of supply as one of the goals of the integration process, could either mean that it is not one of the goals, or that the respondent simply forgot to mention it as one. The presented results should therefore be interpreted cautiously and with this research limit in mind.

Similarly, should the respondent be a person responsible for certain an agenda within the whole process, his/her responses are likely to disproportionately address this particular agenda over the others. In other words, the interviews cannot fully reflect the actual positions of institutions as they are always entangled with the personal opinions of respondents.

Furthermore, the V4 market integration is an ongoing, live issue. The respondents thus tend to be reluctant to speak about issues that may be sensitive. At the same time, however, conducting this research under university auspices helped us with gaining access to and trust of the high-level representatives of the selected institutions. Consequently, the interviews as well as the “Preliminary results presentation” event that took place in Prague on June 29, 2016, provided us with enough data about the discourse which governs the integration project for us to be confident of processing it with the analytical software and presenting the results in this paper.

4 European level

4.1 What is market integration? Discussion of integration models

4.1.1 *Why the market integration?*

The topic of gas market liberalization and market integration began to be the subject of discussions in continental Europe in the latter half of the 1980s, experiencing a rapid increase in significance in the 1990s. (Matlár, 1997) The reasons for initiating the discussion which later brought about the overall changes in the arrangement of the EU gas market are manifold.

Since the beginning of the 1980s, the United Kingdom became a long-term and very active proponent of gas market liberalization, which coincided with the start of the liberalization process in its own country. The role of the UK was instrumental in that it sought to imprint its model of liberalization on the new gas sector arrangement on the continent. (Webber, 2010) The unblocking of the Community crisis in the mid-1980s constituted another internal trigger, especially due to the active approach of the European Commission under the presidency of Jacques Delors. (Hooghe, 2002) Activities of the Commission were primarily geared towards strengthening both political and economic integration of the Community and culminated in the commitment to create a true Single European Market by 1992. The gas sector was also to be included within a reasonable timeframe. (Guibal, 1989) However, Delors' activity with respect to gas market integration was quickly met with resistance from some national champions, especially in the area of open access to networks. (Jabko, 2012)

Another factor was the increasing importance of the environmental dimension in the gradually developing EU energy policy. (Adelle, Russel, & Pallemmaerts, 2012) Natural gas, in part due to its lower carbon dioxide emissions, was increasingly viewed as a viable alternative to fossil fuels such as oil and coal over this period. (Proedrou, 2016) That is also why the EU should have paid more attention to it, especially in view of its gradually increasing share in the energy mix of member states. (Waloszyk, 2014)

Another significant external factor at the beginning of the 1990s was naturally the break-up of the USSR, which prompted the formation of a group of new independent states in the region of Central and Eastern Europe. Moreover, these were countries which not long after becoming independent expressed their determination to join the European Union. (Stern P. J., 1998, pp. 7-9) Eastern Enlargement thus placed the Union in a position where it had to tackle the challenge of incorporating gas markets which had been highly dependent on the gas supplies from Russia and whose relations with this country had long been complicated. (CIEP, 2010) However, the growing dependence on external energy supplies soon became the issue for the entire Union, not just its eastern part. (European Commission, 2006, pp. 3-5)²

² In 2006, the Union's import dependency was 50% of the EU energy requirements with expectation to be growing up to 70 % in the next 20 to 30 years (European Commission, 2006, p. 3).

All of these factors combined precipitated diminishing political legitimacy and political credibility of until then prevalent so called pre-liberalized paradigm in the EU's view of the functioning of natural gas markets. (Talus, 2013, pp. 269-271) This paradigm was mainly based on the strong role national governments played in the energy business and the long-term contracts (LTCs) representing the primary tools for ensuring security of supply. (Cameron, 2007, pp. 20-21) Gas Markets were characterized by the existence of vertically and horizontally integrated companies which positions were seen as highly strategic in national economies and they were also very often state-owned. The stress placed on the aforementioned strategic importance was mainly due to the energy being understood as part of public service³ with particular emphasis on customer price regulation. (Helm, 2005)

The modified arrangement of gas markets both within the Union and internationally was no longer sustainable, with the EU's particular concern over the potential loss of its competitiveness. (European Commission, 2015) The response to it was to be a transition to market restructuring in line with the so called new-liberalized-paradigm, which had been developing primarily in the U.S. and the UK. (Cameron, 2007, pp. 6-9)

4.1.2 Anglo-North American Model vs EU Model

The objective of this chapter is not to give a detailed introduction to the setup of the British or North American model of liberalization, but rather to briefly outline the key principles on which these models hinge. Both the U.S. and UK models actually served as a reference framework in formulating the Union model, to which the at least rhetorically political representatives of the EU referred. (Ruszel, 2015) The reason is quite prosaic, as Sergio Ascari states, North America is the only really competitive gas market in the world. (Ascari S. , 2011, p. 1) On the other hand, as has been mentioned earlier, the UK was the only EU country with practical experience in transforming the gas market structure.

The cornerstone of the British and North American philosophy of gas market liberalization is, in this regard, a widely accepted belief that only through competition and liberalization can efficiency be improved and the lowest gas prices for customers guaranteed. (Ruszel, 2015) The American, and to a lesser extent the UK, models are based on the unbundling of transportation and supply, regulated tariffs, investments and transparency decisions. (Ascari S. , 2011, pp. 1-3)

In these models, the entire process of market structure transformation is viewed as urgent and all steps leading to liberalization should, therefore, be taken as quickly as possible. (Boersma, 2015)

³ The energy as public service is based on the assumption that the energy should be preferably entrusted to the care of a privately or publicly owned national champion. According to this idea it is only the strong position of a national champion who is able to guarantee reliability and continuity of supply. In spite of the lack of coherent ideological framework, this is still an influential idea in some parts of the EU and it shapes the EU model for liberalized energy markets (Cameron, 2010, p. 4). The topic of energy as a public service is also discussed in competitive markets. For example, the UK approach, which has inspired the EU legislation, is based on using the public service model only to correct market failures (Károva, 2012).

An important aspect of both the British and American path to liberalization is then the willingness to transfer competences. In both instances, the strong conviction that strict regulation authorities (FERC⁴ in the U.S. and OFGEM⁵ in the UK) are a key to managing liberalization prevailed. (Newberry, 1997) These institutions thus became one of the driving forces of the liberalization process. With respect to the U.S., the gas sector is mainly organized around private companies, which turned out to be one of the initiators of the liberalization process. (BIPR, 2008) The cause may be found in the very development of the gas sector, which primarily emulates the bottom-up approach. (Glachant, Hallack, & Vazquez, 2013, pp. 1-2) Its functioning can be concisely explained based on the example of transport infrastructure development in the U.S., which was in most cases built by private initiative with the government (on a federal, State and local level) limiting itself to granting authorizations and regulating prices. (De Meulemeester, 2015) The government consequently does not enter the process until there is a broad consensus at the level of companies, and its role is limited to mainly the codification of essential rules and regulations. (Majone, 1996, pp. 9-28) The liberalization process had unfolded in a similar spirit, with consensus first achieved at the private level, after which the government joined in to set the rules, facilitate the establishment of FERC, etc. (De Meulemeester, 2015)

The Union model acknowledged the UK and U.S. precedent at the initial stages, but eventually moved in a different direction. At the general (and at minimum declaratory) level, a long-term commitment of the players concerning gas market liberalization can be observed here as well. However, on the other hand, the players differ in the level of their shared belief in liberalization being the main factor in ensuring adequate improvement of efficiency, sufficient innovation and, at the same time, the lowest gas prices. (Stern P. J., 1998) The most substantial differences of opinion in this regard can be seen between individual EU member states. The reason is the persisting emphasis on concepts such as, energy as a public service and security of supply. (Talus, 2013, pp. 270-271) These are concepts on the basis of which European gas markets developed in the period between World War 2 and the mid-1980s and whose distinctive perception affects the view of gas market transformation in countries such as Poland, France, Hungary, etc. (Wollmann & Marcou, 2010, pp. 2-5)

The differentiation in the approach of member states has a direct impact on the speed of transformation. While in the U.S. and the UK the emphasis is on the fastest possible implementation of changes, the EU opts for a more gradual approach, which affords the member states some room for alternative paths leading to the goal of liberalization (see examples of unbundling in the Third Liberalization Package). (Yafimava, 2013, pp. 2-9) As a matter of fact, the selected approach was the only feasible one, given the diverging level of support between member states. (Heather, 2015)

Furthermore, the Union model is characterized by the low level of willingness to shift competences from EU member states towards supranational institutions. This is well exemplified by the formation of national regulatory authorities (NRAs), namely ACER⁶ as the supranational institution expected to become a player primarily responsible for the functioning of a single gas

⁴ Federal Energy Regulatory Commission (FERC)

⁵ Office of Gas and Electricity Markets (Ofgem)

⁶ European Agency for the Cooperation of Energy Regulators (ACER)

market. While NRAs often harbored misgivings over their factual independence, ACER wrestled with a lack of competences over the long-term. (Haase, 2008, pp. 43-56) That was also why the role of regulators as a significant driving force of Union liberalization had long been called into question. The boosting of the role of regulatory bodies has, however, been one of the EU's central topics over the past few years. (Boersma, 2015)

The overall liberalization process is framed in the EU as a confluence of both national and EU processes to restructure the markets. At the level of member states there had long been diversity in the way individual governments grasped and subsequently implemented market liberalization. This diversity which had also been made possible thanks to some leeway guaranteed in the First Liberalization Package and the Second Liberalization Package and based mainly in the contractually guaranteed right of member states to set the energy mix according to their own national preferences. (Yafimava, 2013) This created an environment where in some countries focused solely on the domestic liberalization process, while others sought to create conditions for the removal of cross border barriers for the benefit of their national champions. (Cameron, 2007)

Liberalization at the level of states was additionally complemented with the process of privatization. The extent of the privatization process ranged from partial privatization, in which the government retained shares in key energy companies, to full privatization with the government giving up its shares in national champions. (Proedrou, 2016, pp. 58-60) Thanks to these diverging approaches, individual member states now have different types of relations between the private sector and the government, which in consequence translates differently into the ability of states to intervene in the decision-making of companies and to affect their development. (Stern & Rogers, 2014, pp. 58-68)

The initiative calling for change in the arrangement of European markets had originally been led by some member states (e.g. the aforementioned Great Britain as well as the Netherlands) and the European Commission (EC). However, over the recent years and in the context of the increasingly strong establishment of common energy policy at the Union level, the focus of activity in this area has seen a shift towards the European Commission. (Maltby, 2013, pp. 437-440) Due to the general setup of competences within the European Union, the implementation of individual rules is in the hands of member states, while the Commission's sole role is to oversee their incorporation in intrastate legislation. (Hadfield, 2011) In comparison with the United States, the EU liberalization process is mainly the result of a political decision of the European Commission and member state governments, which is subsequently applied at the level of companies. The liberalization process in the EU thus follows the top-down approach. (Haase, 2008, p. 2)

In fact, one of the goals of liberalization is the introduction of a balanced relationship between supply and demand on the understanding that these market dynamics should eventually result in the lowering of prices. At the practical level, deregulation has become another essential component of liberalization for member states. It led to the removal of national market rules while prompting the introduction of rules formulated at EU level. This effectively constitutes re-regulation, which, however, has a different (supranational) origin. (Proedrou, 2016, pp. 58-60)

4.1.3 The EU liberalization framework

The above-mentioned basic principles represent the imaginary foundation stones on which the EU liberalization framework was built. At its foundation lies legislation applicable across the Union in the form of three Liberalization Packages. Thanks to these packages, rules were incorporated into national legal systems concerning unbundling, the third-party access (TPA), eligibility of customers to choose gas supplier, incentives for infrastructure integration and creation of independent regulatory bodies with responsibilities for example in setting prices and tariffs, etc. (Talus, 2013) These rules began to gradually transform the structure of national gas markets on the understanding that the next step should involve the creation of a single gas market. However, what was missing was a clear vision shared by all stakeholders as to what form this single market should take and, indeed, how the EU should proceed step-by-step to achieve it. (Yafimava, 2013, pp. 5-6) Without such a vision in place, the liberalization process was in danger of being blocked at state level without ever making it to the level of the EU.

That is why in 2010 a wide-ranging discussion on the development of a Gas Target Model (GTM), which would remove the uncertainty regarding the single market structure, was initiated. (ACER, 2015, p. 5) The broad support of the GTM amongst stakeholders was to be gained on account of the entire discussion being held as part of the Madrid Forum whose participants included representatives of the private sector, EU institutions, NRAs, gas exchanges, transmission system operators (TSOs), gas suppliers and traders, consumers, network users and governments. (Jepma & Katz, 2012) The selected 2011 version of the GTM (GTM 1) in fact replicates the MECO-S model brought into the public discussion by the Florence School of Regulation under the leadership of Jean-Pierre Glachant. (Ascari S. , 2011)

According to MECO-S, the vision of a single market creation is defined as establishing functioning wholesale markets and connecting them with one another as well as ensuring secure supply and economic investment in these markets. Markets based on the GTM were to be structured as entry-exit zones (E-E zones) with each having its own hub or virtual trading point. (ACER, 2015, p. 5) However, the sole establishment of E-E zones is in itself not a sufficient condition for the creation of wholesale markets, which is why a set of indicators which the market must achieve was also provided (the particular form of the indicator set will be addressed in more detail in the following chapter). In contrast to the liberalization packages, this constitutes a non-binding procedure plan whose only ambition is to provide stakeholders with basic guidelines on how to proceed. (Glachant, Hallack, & Vazquez, 2013) In 2015, the original GTM was revised into a second version (hereafter referred to as GTM 2), which focused primarily on reformulating the set of indicators. (ACER, 2015, p. 5)

While the legislation in the form of the liberalization packages set forth the basic concepts for the functioning of national gas markets, the GTM introduced a common vision of the end-point following the removal of barriers between member states. The real and functional design of this vision was to be secured by network codes (NCs), the main tools of harmonization between individual national markets which are able to determine the device of the gas market operation. (European Commission, 2014b) Given the wide disparity in the approaches and interests amongst individual countries and companies, the development of NCs was very gradual. As a result, the last of the four NCs were belatedly approved in 2015. These should, in the

Commission's view, represent the backbone of the harmonization program. Namely, these are network codes focused on Interoperability, Congestion Management Procedures, Capacity Allocation Management, and Balancing. All of the codes are currently at the stage of implementation. (Yafimava, 2013) The actual GTM had an aim of all Member States complying with the Network Codes by the end of 2014. For example, this deadline passed with just two countries (Netherlands and Austria) having reached full implementation of the Balancing Network Code. The 2015 GTM 2 then allows more time for compliance (in some instances up to 2019). There have, however, been reports of possible further delays in the implementation despite this concession due to a lack of will on the part of some member states. (Heather, 2015) An issue remaining to be solved is the form which the planned network code focused on harmonizing transmission tariff structures should take. The problem here primarily lies in the decision on what key the tariffs should be determined, or rather which TSOs will have to substantially adapt and if/how they are to be compensated for any losses sustained as a consequence of said adaptation.

4.2 Uncertainties

The current EU model raises a number of questions whose thorough discussion is essential if its implementation is to be completed at all. In general, these questions can be divided into two broad sets. The first set covers the discussion concerning the roles and tasks of key players with respect to the liberalization process on both EU and national levels. The second set centers on the actual form of the vision leading to a single market as proposed by the GTM and its revision in 2015. Both of these sets will be addressed in the following section.

4.2.1 *Missing driving forces*

The successful completion of the Union model naturally presupposes the existence of driving forces, which would make the creation of a single market their priority that they would be capable of carrying through. On the one hand, these driving forces must act continuously for the duration of the transformation of gas sectors and, on the other hand, they should wield enough influence to be able to push the desired liberalization forward effectively.

As has already been mentioned above, the position of the liberalization process initiator in the Union environment has been gradually assumed primarily by the European Commission. In the long term, this player meets mainly the first part of the conditions leading to the realization of liberalization. The European Commission (e.g. through DG Energy and DG Competition) ponders the question of single market preparation on a regular basis and has long endeavored to maintain the liberalization topic as one of the top priorities of the overall EU agenda. (Maltby, 2013) However, it is failing with respect to the condition of a sufficient level of influence. In line with the current structure of competences within the European Union, the EC only has indirect leverage over the implementation of the entire model. (Waloszyk, 2014)

Member states maintain a key role in this respect. This, however, gives rise to complications. Not all national gas markets are currently in a state where they would be competitive in a single market. It is obvious that some companies engaged in this sector would sustain substantial losses with their position potentially severely compromised. (Heather, 2015) Of course, national governments must respond to this situation, not least because the strong ties between the state

and national champions are often still present. Governments are thus confronted with a serious dilemma. On the one hand is their commitment to implement EU rules and proceed with the creation of a single market despite the potentially negative impact on companies. (Naturalgaseurope.com, 2015) On the other is the domestic pressure they face to prevent potential damage to their position. (Ruszel, 2015) This quandary – a fitting example of which is the discussion on harmonization of transmission tariff structures – is essentially an imprint of seeking a straightforward answer to the question of which players will benefit from the entire process of liberalization and what losses governments are willing to accept in order to achieve a single gas market in the EU.

The determination of national governments to develop a single market is affected by another factor reflected in the enduring differences in gas contracts with external suppliers. (Stern & Rogers, 2014) Some countries within the EU are actually paying less than others for gas from the same supplier. Following the elimination of barriers, some states (or rather companies operating in their territories) purchasing gas at a low price while, at the same time, having a sufficiently developed infrastructure at their disposal would, at least for a limited period of time, gain advantage over the others. (Heather, 2015) Although the proposed solution involving the development of a sufficiently strong cohesive position of the entire EU in relation to suppliers (the Russian Federation in particular), which would lead to the reconciliation of said differences, appears at the declaratory level of policy makers, in practice it is, at least for the time being, nearly unattainable. (European Commission, 2014a)

The obvious reason is the persisting preference of bilateral (quite often widely encompassing) energy relationships with suppliers on the part of governments. Suppliers consequently more often than not encourage relations at the bilateral level by adopting different price policies with respect to individual member states (e.g. actions of Gazprom). The European Commission has long been trying to rectify the situation by promoting a common EU multilateral level of relationships with suppliers. In EC's view, these matters should be dealt with for example by the Energy Charter Treaty or Energy Dialogues. (Maltby, 2013) The EC's success rate in pushing through these multilateral tools has, however, been very low. A very frequently cited example of the unwillingness of member states to promote solidarity in negotiations with suppliers has of late been the original Polish proposal behind the Energy Union. (Buchan & Keay, 2016) The proposal of common purchase of gas, put forward by Donald Tusk, was met with a negative response among governments and companies alike. (Beckman, 2015)

4.2.2 Does the one model fit all?

The vision of a single market as presented in the GTM has been designed as a one-model-fits-all system, where the European wholesale market is viewed purely as a spot market with E-E zones with hub or virtual trading points whose functionality is measured by a set of indicators. What does it mean in practice? The GTM is not based on the way national gas markets in Europe are (and at least for the medium-term will be) structured.

That is to say that it introduces different understanding of LTCs. Gas originating from these contracts will no longer be transported to internal delivery points, but its transportation should stop at EU border points from which the gas will then be injected into a virtual point, namely the hub of a national, regional or multi-regional spot-market. The long-term contracted gas is then

traded from hub-to-hub until it is delivered to the appropriate retailer or consumer. Price formation is consequently dominated by hub-pricing. (ACER, 2015)

This approach thus does not reflect the current differences between Eastern and Western markets. (Naturalgaseurope.com, 2015) The diverse pricing policy can be used as an example. While in 2014 the Gas Region of the North West was dominated by hub-pricing, with 88% of supplies sold on that basis, and the remaining 12% being the residual levels of oil indexation in the LTCs, in Central Europe has just over half of its gas supplies priced at hubs but still 38% in relation to oil. It also has a quite significant 15% at regulated prices, a level which has barely changed in 10 years. (Heather, 2015)

In southern Europe, the differences are even more notable. In the same year in the Mediterranean region only 30% of gas is sold at hub prices (virtually all of which was in Italy), leaving a large 64% still oil-indexed, spread across the remaining countries of Spain, Portugal, Greece and Turkey. (Heather, 2015) The unwillingness of governments to deregulate prices is primarily due to concerns over increasing price volatility. (Cameron, 2007)

As the example shows, changes in Eastern markets take place rather gradually. The realization of the GTM-presented vision is, therefore, down the road yet for southeast Europe. (European Commission, 2014a) There have even been voices maintaining that the GTM in its current form came too soon for these countries. Based on this viewpoint, these countries should have first concentrated on the establishment of liberalization concepts arising from the Third Liberalization Package and only then should barriers between states have been removed and a single market developed. (Jepma & Katz, 2012)

The indicator of wholesale market functionality in the original GTM was primarily understood in terms of liquidity, which in itself sparked contradictory reactions. (Frontier Economics, 2014) The reason was the failure to include some aspects such as security of supply or competitiveness, which are an equally important component of a functioning market. (Jepma & Katz, 2012) In addition, the original set of indicators in the form of HHI⁷, RSI⁸, the number of sources of gas servicing that market, the size of aggregate market demand, and the churn rate were adjusted in the 2015 revision due to their inability to present a sufficiently detailed picture of the situation in gas markets. The new version of the GTM introduces new metrics for measurement. This new conceptual framework has two sides - measuring the market participant needs⁹(via indicators - order book volume, bid offer spread, order book price sensitivity, and number of trades), and measuring the market health¹⁰ (via indicators - HHI, RSI, different supply sources, newly market concentration for bid and offer activities, and also newly market concentration for trading activities). (ACER, 2015) The question, however, is to what extent the establishment of new metrics is beneficial at a time when the GTM as a whole primarily corresponds with Western Markets, whereas its application to Eastern Markets is not as opportune.

⁷ Herfindahl-Hirschman Index (HHI)

⁸ Residual Supply Index (RSI)

⁹ This means that products and liquidity are available that enable effective management of wholesale market risk.

¹⁰ Meaning that the wholesale market area is demonstrably competitive, resilient and has a high security of supply.

Both the GTM and more so the harmonization tools in the form of network codes are still in development. Their realization depends directly on the level of interest and willingness of all involved players to take part in the process, which, of course, also requires effective management. (Yafimava, 2013) But at this point we revert to the problem already once mentioned in this chapter, which is that the EU lacks effective driving forces capable of pushing the entire process forward. Moreover, partly due to the uniqueness of the model, it remains to be seen in what timeframe and form the application of all harmonizing rules will impact the market. (Naturalgaseurope.com, 2015) In addition, it is not completely clear as to whether or not some type of barriers needing to be removed will still remain in place. Considering all of these factors, the achievement of the goal of the entire process – i.e. the development of a single gas market – can be expected to encounter further delays. The question is what the EU's reaction will be and if the upcoming 2017 revision will be of purely technical character or if it will introduce a more fundamental reform.

5 Intergovernmental level

This section of the research will focus on the content analysis of the official communications of the Visegrad Group. The content analysis will cover all the available public communication from the Visegrad Group official website <http://www.visegradgroup.eu>, thus taking into account all political statements available.

The research is limited by the availability of textual sources. As official communication, three different available types of textual data will be taken into account:

- Programs of Visegrad Group presidencies
- Annual reports of Visegrad Group presidencies
- Official communications of the Visegrad Group, namely joint statements, communiques, press releases and their like.

For more information on the methodology, please consult Methodology annex (chapter 10). The size and number of all documents is listed in table 1. Basic descriptive statistics of the corpus lengths in number of words are also provided.

Tab. 1: Descriptive statistics of text samples

Document type	Number	Years	Average length	Median length	Min. length	Max. length	Overall length
Presidency programs	16	2000 2016	7 164.75	6 012	625	16 854	114 636
Annual reports of presidencies	13	2000 2015	10 915.54	7 757	1 200	34 646	141 902
Official communications	181	2000 2016	762.64	668	89	2 523	138 038

5.1 V4 energy cooperation

5.1.1 Absolute frequencies

The term “energy” is the 14th most used word in all the available texts, appearing 1175 times over the whole period. This observation itself gives a hint at the priority the Visegrad group assigns to the issue. Absolute frequencies of most-frequently used words are listed in table 2.

Tab. 2: Most frequent words in corpus

Term	Frequency (words)	Representation in corpus (%)
country	3982	1.923
cooperation	2759	1.332
european	2556	1.234
visegrad	2532	1.223
meeting	2354	1.137
group	1950	0.942
presidency	1625	0.785
ministers	1489	0.719
policy	1406	0.679
minister	1393	0.673
support	1382	0.667
development	1375	0.664
state	1230	0.594
energy	1175	0.567
republic	1154	0.557
joint	1084	0.524
project	996	0.481
common	947	0.457
international	914	0.441
issue	912	0.440

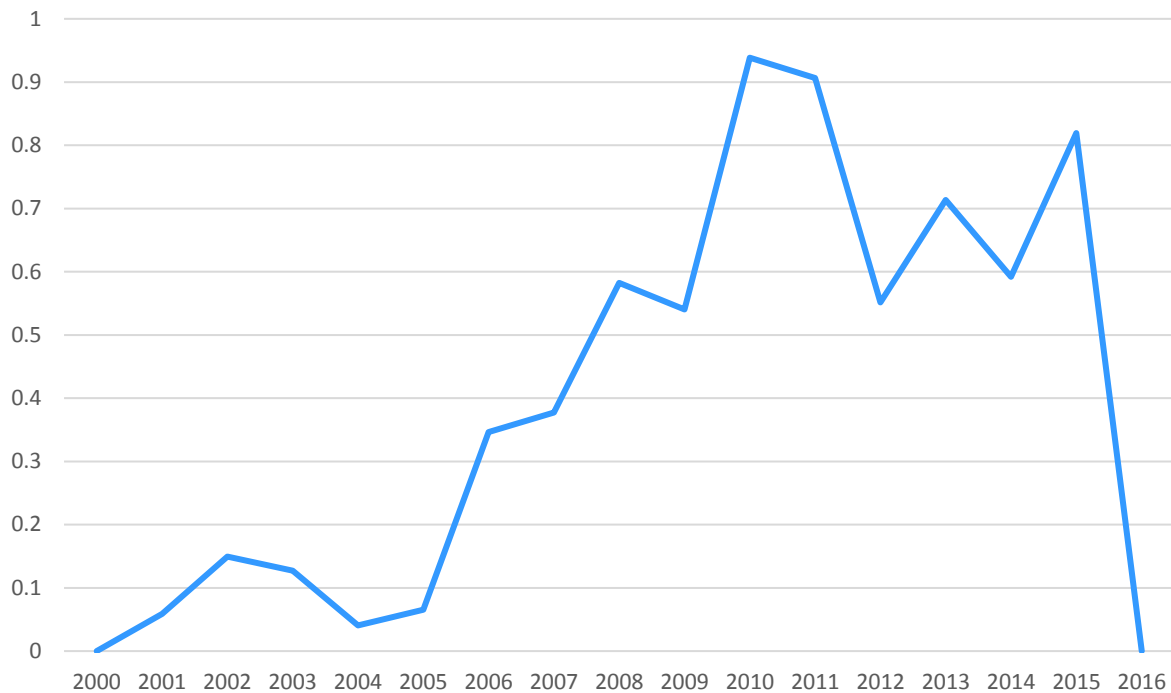
It might be useful to break frequencies of the term usage into individual years to better observe the trends in term usage. The absolute and relative frequency of the term “energy” is visible in Table 3. Relative frequency is calculated as a share of the term “energy” from amongst all words used in texts published in each particular year. This is a measure that controls the differing size of individual texts. An additional measure – the rank of the term compared to all terms used in the whole corpus is included in the table as well. Ranking is such that the most frequent word occupies rank 1 and the least frequent words (appearing once) together occupy a last rank. If

more than one term has the same frequency, the average of the ranking is calculated. A visual representation of relative frequencies is presented in Figure 1.

Tab. 3: Frequencies of term "energy" by year

Year	Absolute frequency	Relative frequency (% of overall texts)	Rank
2000	0	0	-
2001	5	0.058665	367
2002	3	0.149402	166
2003	10	0.127097	159
2004	4	0.040729	522
2005	4	0.065232	353
2006	22	0.346402	45.5
2007	30	0.377121	33
2008	61	0.582561	18
2009	80	0.540395	19.5
2010	120	0.938527	6
2011	114	0.906561	7
2012	77	0.551418	18
2013	171	0.713541	10
2014	194	0.591933	15
2015	280	0.819552	5
2016	0	0	-

Fig. 1: Relative frequency of term "energy" in time-series



The presence of the term “energy” in documents is relatively sparse in the period 2000 to 2005. It appears in the documents 26 times over 5 years, with no appearance in 2000 and only sparse appearance by 2006. The term starts to appear more frequently from 2006, increasing by 2010. Absolute frequencies fall in the period of 2011 and 2012. A steep rise is visible in 2013 and again in 2015. In the period from 2009 to 2016, the term appears 1036 times out of an overall 1175 appearances, with 280 occurrences in 2015 only.

It is necessary to note that texts from the period since 2010 are significantly longer and at the same time, there are more texts available, compared to previous periods. Therefore, an additional metric should be introduced in order to overcome this bias.

A relative metric will thus be used as well. Term usage in each year will be divided by overall number of words used in the period, which will result in a percentage that indicates the representation of the term in all of the texts for a given year. Even when introducing the relative measure, the observation of the rising importance of the term “energy” since 2006 is visible. The relative measure reveals that the rapid increase in absolute frequencies in 2013 and 2015 does not translate into a significant increase in relative numbers, showing the effect of the different availability and lengths of texts.

A short detour will be made, with a brief overview of the presidency programs, as well as annual reports. This will show that the increase in usage does not come from more communiqués or press releases, but rather from the conceptual documents using the term more frequently.

Absolute and relative frequency of individual terms, as well as the term’s rank, may serve as rough measures for a change in term importance, yet, it is necessary not to overestimate the value of

these observations – there is no context of the word included in these observations. Hence, more analysis should follow suit.

5.1.2 Co-occurrence correlations

An analysis of terms co-occurring with the term “energy” will be performed. This approach identifies terms appearing most frequently with the term of interest, within a chosen unit of analysis. For the purposes of this study, sentences are chosen as units of analysis. For more information over the choice of units, consult the Methodology annex (chapter 10).

Such an approach overcomes the constraint of analysis of individual words and potentially allows meanings to be uncovered, in which the term ‘energy’ is used, even if language is used more loosely.

Correlations of the term “energy” will be uncovered both for the whole corpus, as well as on a yearly basis. The correlation coefficient for each term may be interpreted as a percentage of intersection of two sentence sets – one set containing sentences with the word “energy” and the other set containing a co-occurring term of interest. It is important to note that this approach omits absolute frequencies and only shows the ratio between the two terms in relative numbers. Thus, terms co-occurring in 4 sentences out of 5 in both sets will result in a higher correlation than terms co-occurring in 35 sentences out of 50.

Despite this, the relative measure is valuable in terms of the exploration of the corpus, providing insight into the relations between terms. These relations produce questions, which are tested in the qualitative part of the investigation. The twenty-three (due to a similar correlation coefficient of several last terms) terms co-occurring most frequently with the term “energy” in the whole corpus are listed in Table 4.

It is evident that the term “energy” is highly correlated with terms related to environmental issues - the most often with the term “renewable”, with the term “climate” in third place and “efficiency” in fourth place. Terms “carbon” or “biomass” may be associated with the environmental context as well.

The security-oriented context is present as well, with the term “security” in the second place. Terms “source”, “infrastructure”, “indigenous”, “supply” and “diversification” might be used in the security context as well. Terms usually used in business connotations are also present – the term “price” is the highest correlated, followed by “market” and “liquid”.

The analysis of correlations may be more nuanced when looking at the correlations in a time-series. Correlations of 14 terms with the highest average of yearly correlations with the term “energy” are listed in Table 5. The highlighted ones are also visually represented in the time-series chart in Figure 2.

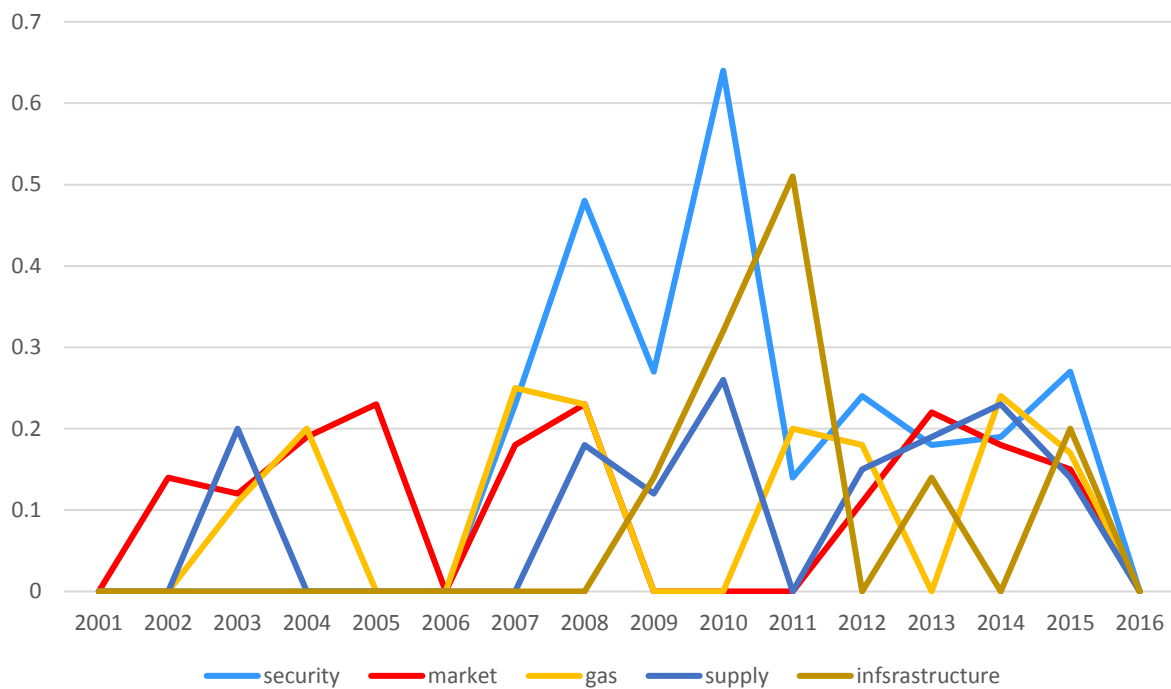
Tab. 4: Terms correlated with "energy" in all documents

Term	Co-occurrence with term energy
renewable	0.36
security	0.25
climate	0.22
efficiency	0.21
price	0.19
source	0.19
infrastructure	0.17
nuclear	0.17
gas	0.16
indigenous	0.16
supply	0.16
affordable	0.15
carbon	0.15
market	0.15
mix	0.15
liquid	0.14
low	0.14
biomass	0.13
concurrent	0.13
diversification	0.13
internal	0.13
maturity	0.13
priorities	0.13

Tab. 5: Terms correlated with "energy" by year

	renewable	security	source	efficiency	oil	climate	nuclear	market	sector	gas	supply	privatization	electricity	infrastructure
2001	0	0	0	0	0.52	0	0	0	0.17	0	0	0.3	0	0
2002	0	0	0	0	0	0	0	0.14	0.28	0	0	0	0	0
2003	0	0	0	0	0	0	0	0.12	0	0.11	0.2	0	0	0
2004	0	0	0	0	0	0	0	0.19	0.17	0.2	0	0	0	0
2005	0	0	0	0	0	0	0	0.23	0.13	0	0	0.82	0	0
2006	0.63	0	0.42	0.45	0	0	0	0	0.23	0	0	0.31	0.11	0
2007	0.59	0.23	0.47	0.33	0.44	0.28	0.31	0.18	0	0.25	0	0	0.44	0
2008	0.47	0.48	0.35	0.42	0.4	0.34	0.39	0.23	0	0.23	0.18	0	0.3	0
2009	0.58	0.27	0.33	0.13	0	0.18	0.26	0	0	0	0.12	0	0.26	0.14
2010	0.34	0.64	0.14	0.15	0	0	0.13	0	0.16	0	0.26	0	0	0.32
2011	0.25	0.14	0	0.1	0.13	0.11	0	0	0.24	0.2	0	0	0	0.51
2012	0.37	0.24	0.19	0.15	0.17	0.13	0.31	0.11	0.19	0.18	0.15	0	0	0
2013	0.47	0.18	0.17	0.25	0	0.29	0.17	0.22	0	0	0.19	0	0	0.14
2014	0.44	0.19	0.21	0.17	0.15	0.25	0.23	0.18	0.1	0.24	0.23	0	0.14	0
2015	0.24	0.27	0.15	0.23	0.15	0.23	0	0.15	0	0.17	0.14	0	0.14	0.2
2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Fig. 2: Terms correlated with "energy" in time-series



The time-series table points to the importance of the connection between the terms “energy” and “security” as well, and also proves the importance of the environmental dimension.

Analysis also suggests that there is an increase in usage of the phrase “energy security” over time, with an increase after 2006, and highest peak in 2010. From 2011, the correlation is much lower. It is interesting to observe that the correlation of the terms “energy” and “security” has not increased radically in 2009, as would be expected due to the so-called natural gas crisis.

Correlation of the terms “energy” and “infrastructure” was highest between 2009 and 2011, which might suggest its heightened importance after the crisis. The term “market” is apparently more correlated with term “energy” only in periods before 2009 and after 2012. The term “natural gas” is not correlated to the term “energy” in 2009 – a rather surprising outcome.

This observation is rather crude, but points to several important questions about market integration of natural gas. The goal of the next part of the analysis will be to uncover, in what contexts and how often security, market, or infrastructure concepts are invoked in the corpus of texts, and how these contexts link with each other.

5.1.3 Qualitative insight into co-occurrences

This part of the analysis will examine all individual sentences in which the term “energy” appears. The content of these sentences will be read and analyzed for their meaning in order to expand and build upon the outcomes of the previous chapter. It is important to say that only sentences containing the term “energy” were analyzed in this part, thus parts of text referring to energy through other terms might be left out of the picture for now. Conclusions from the analysis will be further developed in the chapter on market integration. For deeper explanation of this choice,

as well as for the explanation of the content of individual codes, please consult table 6 and the Methodology annex (chapter 10).

Table 7 depicts the distribution of topics across sentences based on coding. It is worth noting there is no relationship between a code capturing general notions about energy and energy security and particular energy security measures, despite the fact that these may overlap.

Tab. 6: Explanation of codes

Code	Meaning of the code
gener.c	General statements about energy and energy security.
en.sec	Concepts tied to energy security.
market	References to energy markets.
nuclear	References to nuclear energy.
exter.	References to third countries.
climate	References to environmental issues.
intra.v4	References to cooperation of national authorities inside V4 and generation of common structures.
infrast.	References to infrastructure.
ener.mix	References to energy mix.
russia	References to the Russian Federation.
ukraine	References to Ukraine.
en.union	References to the EU Energy Union.

In the period from 2000 up to 2005, there is relatively sparse occurrence of the term “energy” itself, as pointed out before. There is no single occurrence of the phrase “energy security” and only one reference to supply security in 2003 appears in the documents. The context, in which the term is used, is rather general, as the data reveals/highlights.

The phrase “energy security” appears for the first time in 2006. Other instances of the term “energy” in that and following years are either general notions over cooperation in the sphere, or related to environmental issues.

Particular references to the energy security context increased over time, rising in frequency from 2008 and becoming particularly frequent in 2010 and 2013. This was already suggested in the correlational analysis. Coding proved this trend, pointing to the fact that the energy security context rose both in general references, as well as in particular suggestions, over supply security or diversification references. The energy security context – in particular the one mentioning measures – is where the term “energy” most frequently appears.

The environmental context, noted in the correlational analysis, proves to be present in the individual text pieces as well, being the second most frequent in absolute terms.

Tab. 7: Code frequencies in text sections containing term "energy"

	Relevant texts	Irrelevant texts	gener.c	en.sec	market	nuclear	exter.	climate	intra.v4	infrast.	ener.mix	russia	ukraine	en.union
2000	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2001	3	0	0	0	0	0	0	0	3	0	0	0	0	0
2002	2	1	0	0	1	0	0	0	2	0	0	0	0	0
2003	7	2	5	1	1	0	0	0	0	1	0	0	0	0
2004	3	1	1	0	1	0	0	0	1	0	0	0	0	0
2005	3	0	0	0	1	0	0	1	1	0	0	0	0	0
2006	13	3	4	2	1	0	0	6	0	2	0	0	0	0
2007	22	2	10	0	0	0	1	13	0	0	0	0	0	0
2008	38	4	18	7	2	1	2	11	0	2	0	0	0	0
2009	51	8	16	11	5	1	3	17	6	9	0	3	2	0
2010	73	15	30	21	5	1	5	4	6	19	0	0	0	0
2011	68	8	14	9	5	4	2	19	10	21	0	0	0	0
2012	45	10	18	5	5	6	8	12	1	8	5	0	1	0
2013	121	11	16	32	24	9	12	40	7	20	2	1	0	0
2014	111	34	32	34	17	7	25	24	6	19	8	3	8	0
2015	169	26	46	34	17	9	37	41	14	24	5	3	18	38
2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sum	729	125	210	156	85	38	95	188	57	125	20	10	29	38

Notions related to the market start to appear more frequently from 2013. Interestingly, when connected with the term "energy", the market framing of energy is never higher than security framing. This may be a basis for discussion on market integration, which will be further developed in a separate investigation.

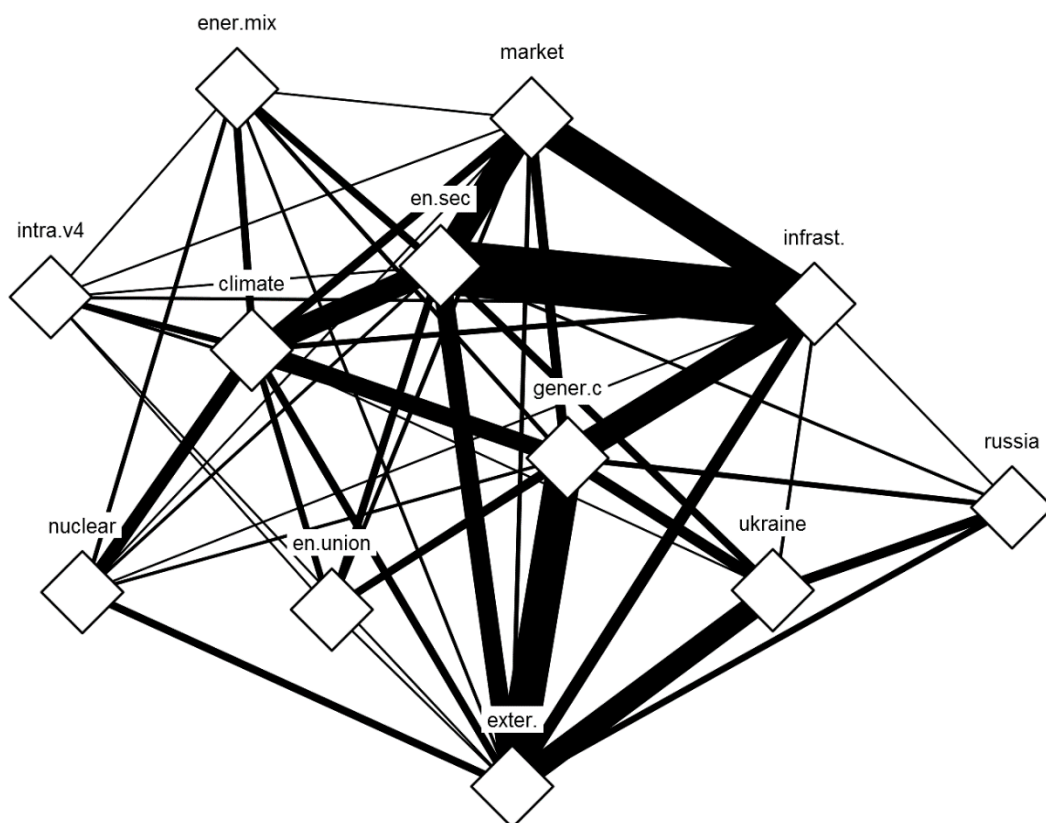
Interestingly, since 2009, the infrastructural context is used more frequently each year than market context. Notions of infrastructure development, corridors, or interconnectors are used quite frequently, with approximately comparable absolute frequency for 2010, 2011, and 2013 to 2015.

One of the less expected observations is the fact that in some issues, there is seeming omission of the topic representation in the documents. Note that Russia is mentioned very little in connection with the term energy. There are only 3 notions referencing Russia and 2 referencing Ukraine in 2009. Compared to that, Energy Union as a program announced in 2015, resonates massively in that year, being second only to energy security.

5.1.3.1 Analysis of relations between codes

These observations are analyzed even further by establishing relationships between individual codes and counting their co-occurrence. A co-occurrence of two codes is counted if two codes are assigned to the same unit of text. These connections are best visualized through a network chart, which may be found in figure 3. The number beside each code represents the absolute appearance of the code, while numbers depicted on the links connecting nodes represent the absolute number of co-occurrence. In some cases, the codes occur independently of the other codes. In other instances, codes do co-occur. These links are visualized as connections between codes in the network chart. The thicker the line, the stronger the connection. The count of co-occurrences is always displayed on the middle of the connection. If a code has more connections to other codes, it appears more in the middle of the network.

Fig. 3: Codes network



It is apparent that general claims and energy security occupy a fairly central role in the network. The most commonly connected codes are notions of particular energy security measures and notions invoking infrastructural projects (48). Infrastructure appears as the most-often co-occurring code, connected to other contexts.

When looking at contexts in which the code “market” appears, it is most commonly linked to the codes “infrastructure” (27 times) and “energy security” (23 times). To explain these connections, a brief insight into the texts would be helpful. When looking at the connection between the market

and energy security, these co-occurrences portray the market as a means to achieve energy security (a key to energy independence, important enhancement of energy security, sustainability of energy supply). Connections between market and infrastructure portray infrastructure as a precondition of market integration, or as a key component of market integration.

It is interesting that the environmental dimension represented by the “climate” code is also most linked to energy security. When referring to the texts, it is predominantly caused by notions which establish energy efficiency and supply security, tying it to natural gas. Energy efficiency is portrayed as a measure which may reduce dependence on supplies from third countries and will therefore lead to increased supply security and availability of gas. Other than that, there are also references to utilization of renewable energy sources, biofuels and clean energy sources in order to achieve higher security of supply and higher competitiveness in the industry.

The previous mention of an underrepresentation of references to Russia, is clearly visible from the network chart. The code representing Russia is linked to particular energy security measures only twice throughout all documents. The first one occurred in 2013, referring to “Russian stop of supplies” during the gas crisis of 2009, the second one in 2015, supporting the trilateral negotiations between Russia, Ukraine and EU over supply security. In addition, there is only one notion referring to the gas crisis in 2009, and only in a general context. This points to a discrepancy between media and rhetoric discourse and documents. This may be explained in two ways. Firstly, it is likely that Russia does not occupy a pivotal role in Visegrad Group discussions, focusing more on repercussions of supply security. This would mean that averting a possible supply shock is much more important than focusing on particular actors who may instigate the supply shock. Secondly, it is likely that the Visegrad Group is not a primary vehicle for dealing with Russia as an actor. States may instead turn to the EU level or address the Russian Federation at the level of national foreign policy.

5.2 V4 gas market integration

This chapter will analyze the content of official Visegrad Group documents once again, this time focusing solely on gas market integration. The selection of documents, as well as methodology for data preparation, is the same as in the chapter dealing with the term “energy”. Absolute frequencies of individual terms will be explored first. Subsequently, correlations of the term “market” will be undertaken, aiming to explore contexts in which the term appears most frequently. Thirdly, qualitative analysis of the co-occurrences of terms relevant to market integration will be qualitatively analyzed and coded.

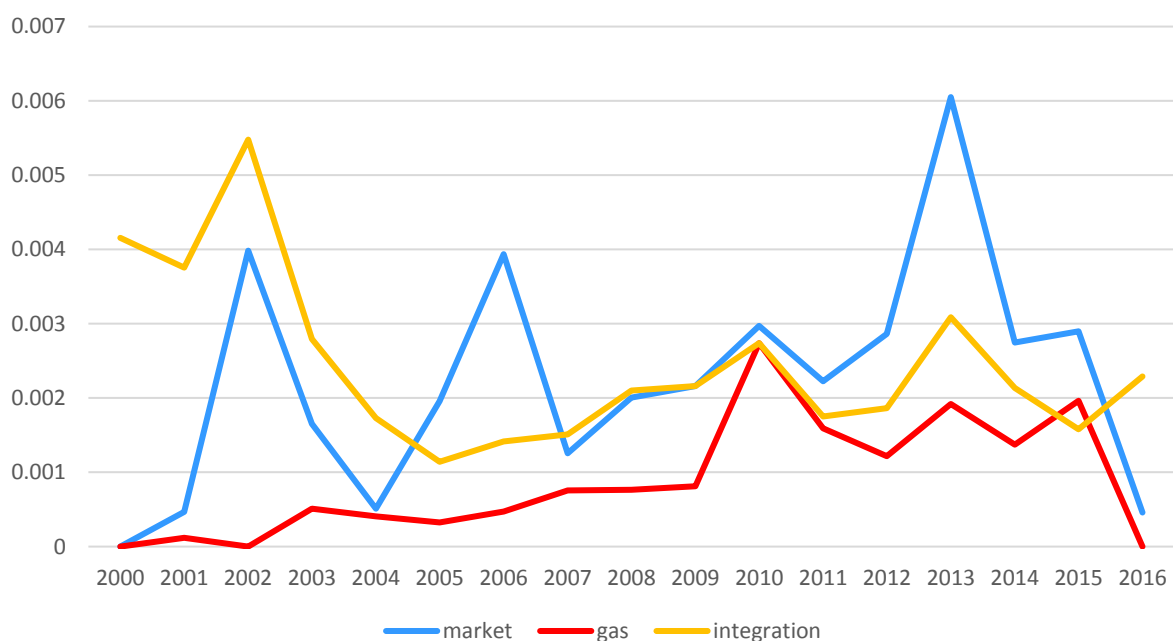
5.2.1 *Absolute frequencies*

To begin with, analysis of the appearance of the three most relevant terms – “market”, “integration” and “gas” will be undertaken. Table 8 lists absolute and relative frequencies of these three terms. Figure 4 then provides visual representation of their relative frequencies (adjusted for the overall length of documents in each respective year).

Tab. 8: Absolute and relative frequencies of terms "gas", "market", "integration"

Year	Market Absolute f.	Market Relative f.	Gas Absolute f.	Gas Relative f.	Integration Absolute f.	Integration Relative f.
2000	0	0	0	0	3	0.4155
2001	4	0.0469	1	0.0117	32	0.3755
2002	8	0.3984	0	0	11	0.5478
2003	13	0.1652	4	0.0508	22	0.2796
2004	5	0.0509	4	0.0407	17	0.1731
2005	12	0.1957	2	0.0326	7	0.1142
2006	25	0.3936	3	0.0472	9	0.1417
2007	10	0.1257	6	0.0754	12	0.1508
2008	21	0.2006	8	0.0764	22	0.2101
2009	32	0.2162	12	0.0811	32	0.2162
2010	38	0.2972	35	0.2737	35	0.2737
2011	28	0.2227	20	0.159	22	0.175
2012	40	0.2865	17	0.1217	26	0.1862
2013	145	0.605	46	0.1919	74	0.3088
2014	90	0.2746	45	0.1373	70	0.2136
2015	99	0.2898	67	0.1961	54	0.1581
2016	1	0.0458	0	0	5	0.229

Fig. 4: Relative frequencies of terms "gas", "market" and "integration" in time-series



Absolute frequencies of all three terms increased over time, with the term “market” appearing at most 145 times in 2013. After adjusting frequencies for length of documents, it is apparent that the development of appearance of terms is not so straightforward. The term “market” has been occurring most in the year 2013, even in relative terms, yet this does not necessarily mean that it is solely linked to gas market integration without further analysis. The term “gas”, however, is most frequently used in 2010, and does not spike more significantly later. The term “integration” seems to be used most frequently in the pre-accession period, most probably used in the context of the EU integration of V4 countries.

Yet, it is not possible to draw significant conclusions out of this, as the frequency analysis does not provide relationships between individual words. Co-occurrence correlations should provide some more descriptive insights, while subsequent qualitative analysis of co-occurrences will provide a context.

5.2.2 Co-occurrence correlations

As a basic exploratory measure, correlations of the term “market” will be analyzed as well, both in the whole corpus of texts, as well as on a year-by-year basis. Correlations are – as before – based on co-occurrence of terms in individual sentences. It is important to bear in mind that there is no information over absolute or relative frequency of these co-occurrences included in this analysis, as explained in the previous chapter. Correlations of the term “market” with other terms in the whole corpus for all years are listed in Table 9.

It is interesting to observe that the terms “internal” and “single” appear the most frequently with the term “market”. This would suggest that discussion over the market may appear more in the EU market context than in the context of a regional market. Both these terms might, however, be used in contexts other than those which are energy-related. Therefore, this claim needs to be corroborated by further analysis. The highest energy-relevant context is related to the term “gas”. “Gas” and “market” overlap in individual sentences roughly a quarter of the time. The Term “integration” appears in connection with the term “market” only in 15 percent of the instances of these words.

Interestingly, the term “price” is not correlated with the term “market” at all. Similarly, the term “liberalization” co-occurs with the term “market” only in 5 percent of instances – a rather insignificant result. While the focus on infrastructure proved to be fairly important, when analyzing the context of usage of the term “energy”, the term “infrastructure”, or other terms hinting at the importance of infrastructural projects, do not appear significant in correlations with the term “market”.

A matrix of a breakdown of the correlations into years is shown in table 10, with terms in bold shown visually in figure 5. The correlations are ordered from left to right based on their average correlation over the entire period of time. It is important to mention that the term “integration” was not occurring at one of the highest averages of correlated terms, however, it is included due to the topic of interest.

Tab. 9: Correlations of the term "market"

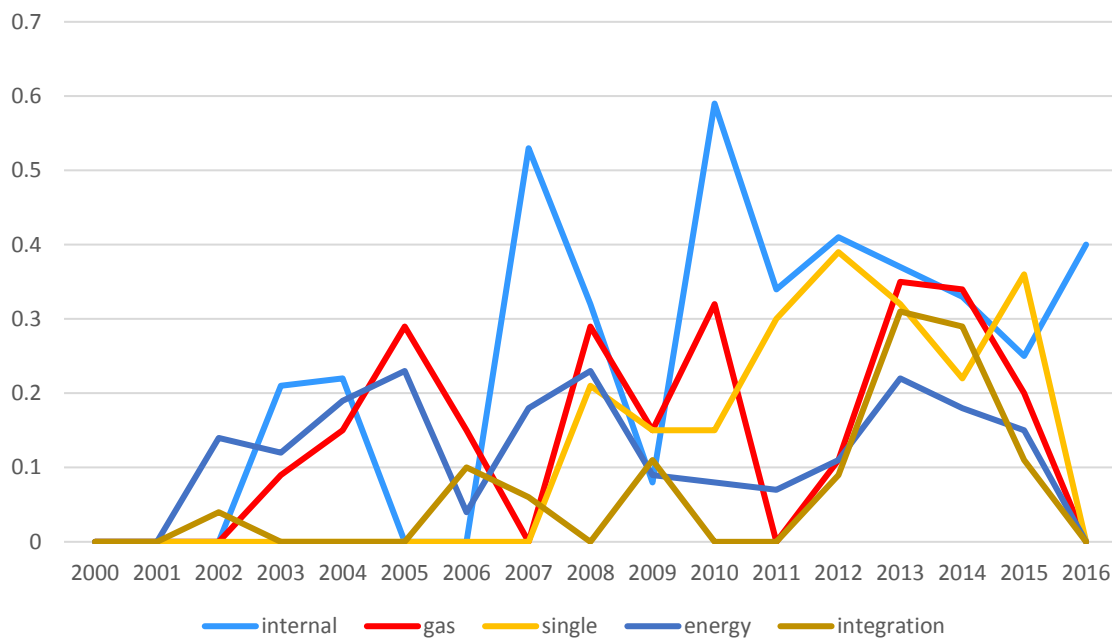
Term	Co-occurrence with term market
internal	0.3
labor	0.26
single	0.26
gas	0.24
electricity	0.19
coupling	0.18
employed	0.15
energy	0.15
integration	0.15
liquidity	0.15
model	0.12
couple	0.11
digital	0.11
marketing	0.11
stepping	0.11
access	0.1
bureaucracy	0.1
completion	0.1
economy	0.1

In the year-by-year breakdown, the term "internal" co-occurs with the term "market" the most (based on the average of the yearly numbers), increasing from 2007 and peaking in 2010. It is interesting that the correlation of the term "market" and term "integration" is more apparent only from 2012, with a correlation similar to that between "market" and "gas". However, correlations appear to fluctuate significantly over time, not allowing any bold conclusions at this stage. It is therefore necessary to analyze the context of appearance of market integration qualitatively.

Tab. 10: Annual correlations of term "market"

	internal	labour	gas	single	energy	electricity	product	employment	access	economy	surveillance	marketing	Movement	goods	integration
2000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2001	0	0	0	0	0	0	0	0	0	0.18	0	0	0	0.29	0
2002	0	0	0	0	0.14	0	0.77	0	0	0.12	0.84	0.26	0.18	0	0.04
2003	0.21	0	0.09	0	0.12	0	0.18	0	0	0	0.34	0.16	0	0	0
2004	0.22	0	0.15	0	0.19	0	0	0.76	0	0.29	0	0	0.65	0.19	0
2005	0	0.64	0.29	0	0.23	0	0	0.28	0.14	0.11	0	0	0	0	0
2006	0	0.55	0.15	0	0.04	0	0.15	0.41	0	0.08	0	0.19	0	0.17	0.1
2007	0.53	0.3	0	0	0.18	0	0	0	0.38	0.08	0	0	0.3	0.53	0.06
2008	0.32	0.09	0.29	0.21	0.23	0.31	0	0	0.47	0.14	0	0	0.18	0.08	0
2009	0.08	0.3	0.15	0.15	0.09	0.18	0.12	0.04	0.04	0	0	0.37	0	0.1	0.11
2010	0.59	0.1	0.32	0.15	0.08	0.39	0.1	0	0.18	0.09	0.15	0.2	0	0	0
2011	0.34	0.35	0	0.3	0.07	0.26	0.21	0.09	0.18	0.15	0.09	0.06	0	0	0
2012	0.41	0	0.11	0.39	0.11	0.08	0.18	0.06	0	0.05	0.06	0.1	0	0	0.09
2013	0.37	0.18	0.35	0.32	0.22	0.17	0.05	0	0.06	0.14	0.04	0	0.05	0	0.31
2014	0.33	0.44	0.34	0.22	0.18	0.38	0	0.11	0.13	0.09	0	0.09	0.1	0.1	0.29
2015	0.25	0.16	0.2	0.36	0.15	0.06	0.04	0.04	0.09	0.06	0	0.08	0.05	0	0.11
2016	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Fig. 5: Annual correlations of term "market" in time-series



5.2.3 Qualitative insight into co-occurrences

This part will provide a twofold analysis. The first one is the analysis of content based on codes. The second will focus on connections between these codes.

Despite the regular occurrence of the terms “internal”, “market”, “integration” and “gas”, apparent from the previous analysis, there is relatively little content that is actually addressing the gas market integration. The qualitative analysis was performed by identifying sentences containing various combinations of words: “energy”, “price”, “supply”, “affordable”, “market”, “gas”, “integration”, “integrate”, “liquid”, “liquidity”, “internal”, “target”, “model”, “compete”, “competition”, “trade”, “trading”. This resulted in 245 relevant bits of text.

In addition, sentences not included in the above-mentioned sample containing any of the following keywords: “gas”, “market”, “integrate”, “integration”, “integrated”, “roadmap”, “liberalization”, liberalizationn [sic!], “interconnection”, “diversity”, “pipeline”, “infrastructure”, were also included and read in order to verify that relevant text portions were not left out of the analysis.

All of the recorded text bits were read, analyzed and sorted into 12 codes, resulting in 114 relevant text sections. Codes are explained in Table 11. More information about codes is located in the Methodology annex (chapter 10).

Tab. 11: Explanation of codes

Code	Meaning of the code
elec.m.i	Integration of electricity markets
mark.insuff	Market is not a sufficient solution to issues in the region
en.sec	Energy security – particular measures
EU.m.i	Integration EU internal gas market
infrast.m.i	Infrastructure directly linked to market integration
infrast.gen	Any reference to infrastructure (inc. the above code)
mark.open	Opening and liberalization of the market
global.m	Reference to global energy/gas market
benefits.m.i	Business-related benefits of market integration
region.m.i	Integration of the gas market in the V4
gen.coop	Pledge to cooperation and general energy references
m.i.means	Reference to particular market integration measures

Appearances of text sections which connect energy or gas with market, are very sparse by 2009. Since then, there is an increase in notions over energy market, yet, these are divided between integration of electricity and gas markets. Discussion about the electricity market was left out of the analysis, since it is not of primary interest to this study. Tallies of the gas market-related sentences listed in the documents after the analysis and sub-setting are indicated in table 12. The table also contains codes, which were assigned to individual sentences and subsequently counted. It is necessary to point to the fact that codes are not mutually exclusive – one text section might be marked with several codes.

The expectation that the peak of the discussion over gas market integration will be reflected in documents of 2013 was confirmed. Furthermore, the 2013 documents show the highest frequency of relation of these statements to the idea of the establishment of the regional gas market.

Building on the observation from the correlation table, the term “internal” (most correlated to term “market”) is apparently important in the market integration domain. It frequently appears in the call for establishment of a European internal energy market. While notions of regional gas market appear twice in 2009 and subsequently more frequently only since 2013, calls for completion of the internal energy market appear since 2008 and more frequently since 2010. Overall, in 4 instances are both concepts addressed together.

Tab. 12: Code frequencies in text sections by year

	Relevant texts	Irrelevant texts	gen.coop	mark.open	infrast.m.i	infrast.gen	en.sec	EU.m.i	m.i.means	region.m.i	benefits.m.i	elec.m.i	mark.insuff	global.m
2000	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2001	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2002	1	0	1	0	0	0	0	0	0	0	0	0	0	0
2003	2	2	1	1	0	0	0	0	0	0	0	0	0	0
2004	1	0	1	0	0	0	0	0	0	0	0	0	0	0
2005	2	0	0	1	0	0	0	0	0	0	0	0	0	0
2006	2	2	1	1	0	1	0	0	0	0	0	0	0	0
2007	2	2	0	2	0	0	0	0	0	0	0	0	0	0
2008	3	9	0	1	0	0	2	2	0	0	0	0	0	0
2009	6	4	0	2	3	0	3	2	1	2	0	0	0	0
2010	12	14	0	0	3	0	5	8	1	0	1	1	3	0
2011	4	7	2	0	0	0	1	4	0	0	1	1	0	0
2012	5	13	2	0	1	1	2	4	1	3	1	0	0	0
2013	37	33	13	0	4	3	1	12	10	20	4	0	1	3
2014	16	24	3	0	8	1	7	9	3	5	0	0	0	0
2015	21	21	5	0	9	2	10	6	1	14	1	0	0	0
2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sum	114	131	29	8	28	8	31	47	17	44	8	2	4	3

5.2.3.1 Energy security over market benefits

When focusing on market integration, it is meaningful to focus on the process since 2011, when the goal of achieving a regional gas market was introduced. The subsequent analysis will for this reason look at the period 2011-2016.

In 83 relevant bits of text since 2011, 25 instances contained rather general pledges to cooperate and continue in the process, or pledges reaffirming the importance of market integration by dignitaries of the V4 countries.

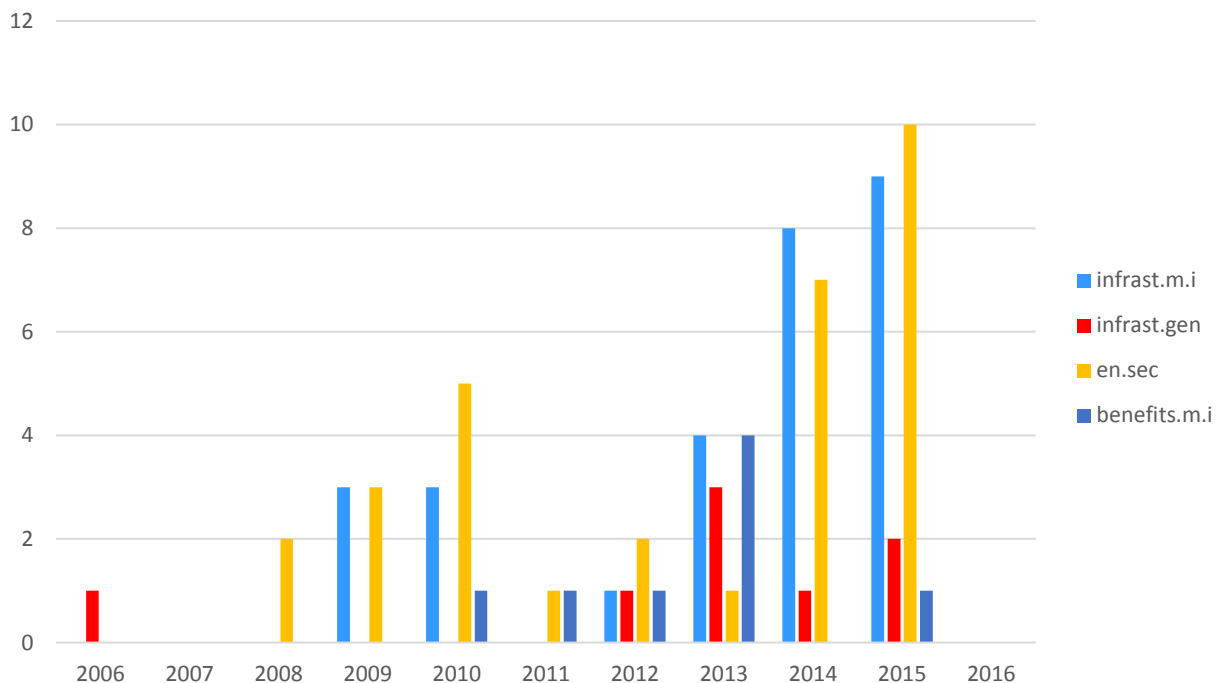
Interesting is the role of infrastructure in the shaping of the context. Two distinct codes were used in order to have a more fine-grained understanding. One code was assigned to all references to infrastructure in general, the other only to references which were explicitly connecting

infrastructure with market integration. The second code hence records references where infrastructural projects are purported either as a necessary precondition or a measure to achieve market integration. This code is included in the table. While in 2013, there are only 4 connections made between the infrastructure and market, in 2014 and 2015, there are 8 or 9 respectively, with half the overall frequency. A similar increase in the link between market integration and energy security is visible between 2013 and 2015. While energy security (security of supply, availability of gas) was invoked only once out of 37 text sections in 2013, it was invoked 10 times out of 21 text portions in 2015. Both these tendencies point to the overall securitization of the market integration and its framing as a means of achieving supply security through better infrastructural connection.

Such a focus on security is in stark contrast to the frequency with which commercial benefits of market integration are mentioned in the body of texts. This code consists predominantly of concepts related to increase in liquidity of the market, higher competition on the market, spot trading, and potential effects of these phenomena on gas prices. Commercial benefits of market integration are mentioned 4 times in texts of 2013, never in 2014 and once in 2015.

The above-mentioned conclusions are presented visually in figure 6. Data suggest that market integration is not primarily framed as a mechanism to achieve benefits of higher gas trading in the region, but instead is perceived as one of the tools for achieving better security of supply in the Visegrad area.

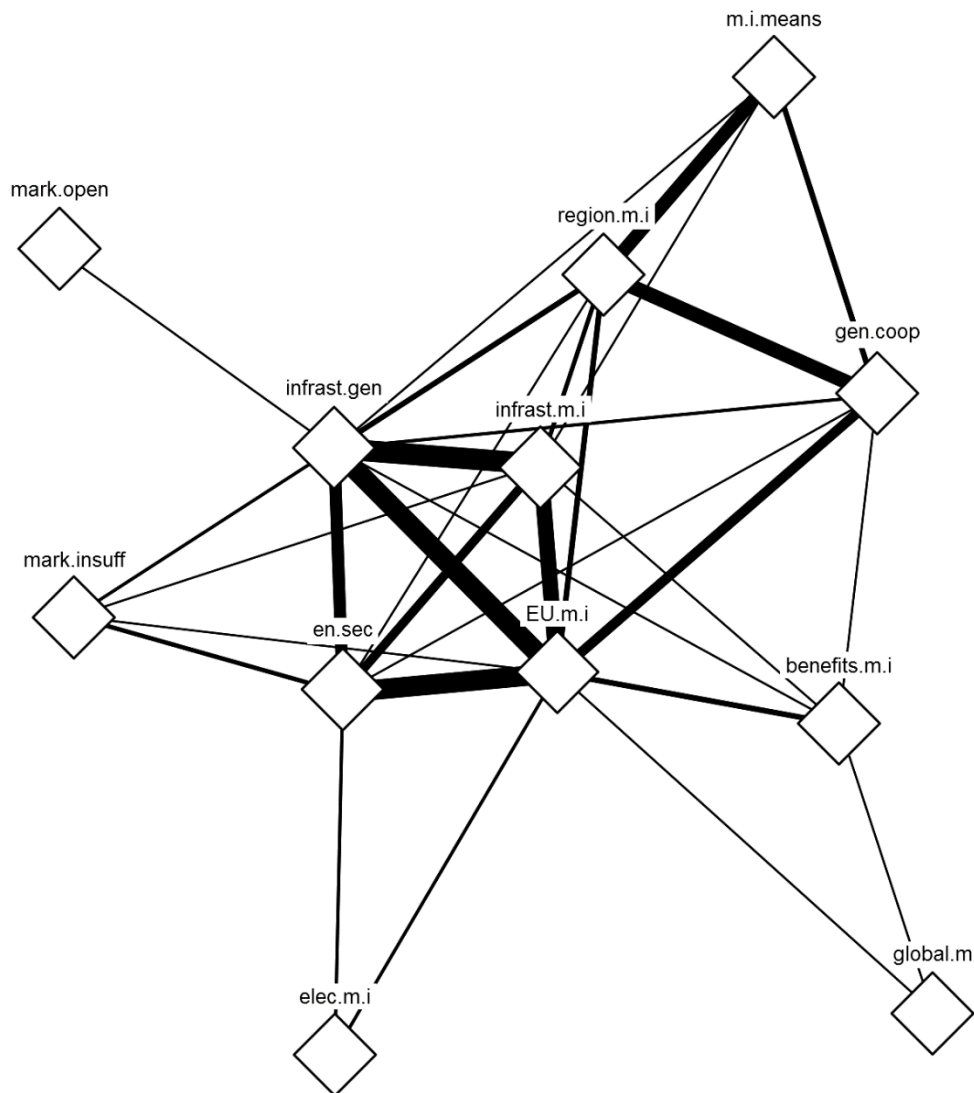
Fig. 6: Occurrence of codes in text sections by year



5.2.3.2 Analysis of relations between codes

Further analysis of the relations between codes was performed by uncovering the frequencies of code co-occurrences. The result is visually represented in the network chart in figure 7. The meaning of codes is listed in the table at the beginning of the qualitative analysis, as well as in the Methodology annex (chapter 10).

Fig. 7: Codes network



The relations between codes reveal an interesting picture. The topic of market integration is clearly separated into two distinct clusters. The first one is related to market integration into the internal energy market of the EU. This code is clearly connected to codes capturing both focus on infrastructure in general, as well as the code which frames infrastructure as a means or precondition for the emergence of the market. Completion of the internal energy market is also well connected to the achievement of higher energy security. Interestingly, the particular means

of achieving an internal energy market, are not in any way specified. This is visible from the missing interconnection between the market integration and in particular market integration means.

Regional market integration, to the contrary, is not much connected to infrastructure, or European market integration. In cases where regional market integration appears, it is equally well connected with general pledges to cooperation, or on the other hand, to particular measures (such as implementation of network codes, harmonization of regulation, etc.). Yet, regional market integration is to a large extent disconnected from other concepts.

The network connection further corroborates the claim that market benefits play a secondary role. There is no single co-occurrence between particular benefits and notions over the regional market integration. Similarly, there are very few links between market integration benefits and completion of the internal European market.

6 State level

For analysis of the stakeholders' positions towards the issue in question, we use the Discourse Network Analysis (DNA). The epistemological core of network analytical approaches is that complex systems should not be understood as aggregates of isolated individual components, but that it is necessary to analyze the interaction between the elements in order to understand complex systems. This relational perspective is well suited for the analysis of discourses, because discourses are never just aggregated statements, but always consist of complex connections between actors, their statements, other actors and their claims. Discourse network analysis allows for the analysis of discursive interactions of large numbers of actors over time, taking into account the complexity of discursive events. (Haunss, Dietz, & Nullmeier, 2013)

DNA outcomes are usually presented as network graphs. Network graphs consist of nodes and edges and the graph topology, i.e. the quantity and quality of connections (edges) between the particular nodes, is what bears the information stemming from the analysis. In DNA network graphs, there are two types of nodes: actors and codes. The actor nodes represent the individual stakeholders of a selected problem arena (in this case it is the V4 gas market integration process), while the codes serve as labels for concepts (units of meaning) that repeatedly occur either in the arena-relevant literature or in the stakeholder interviews. An example of such repeatedly occurring meaning can in this case be the need for completion of cross-border infrastructure that is currently missing in the V4 region (hence the code "missing infrastructure"). Edges that connect the individual nodes then bear the meaning of the graph – they show which concepts are emphasized by individual stakeholders, which concepts are shared among particular stakeholders, and which are being neglected or directly rejected by the stakeholders.

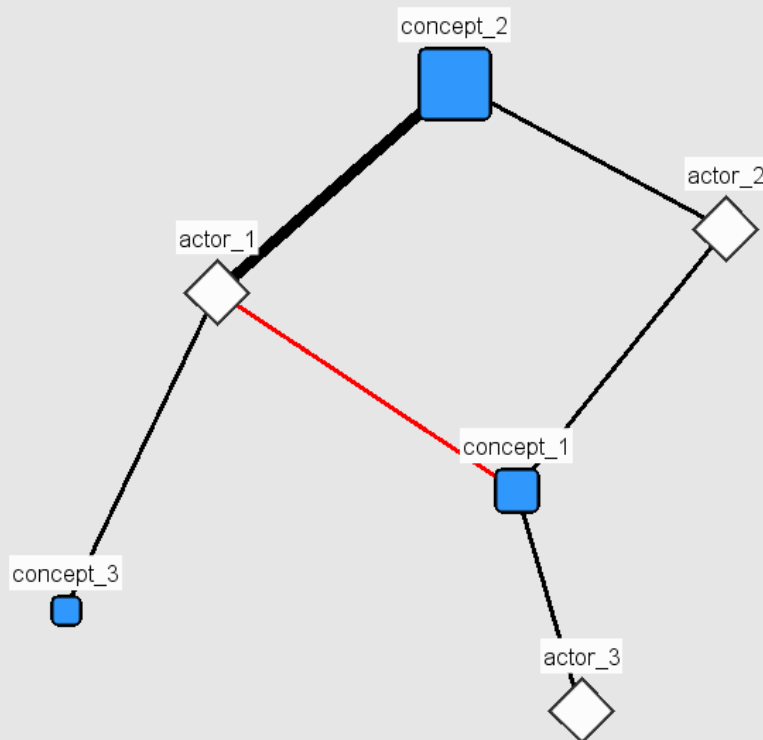
When reading and interpreting the graphs that are featured in this analysis, three notions are important: first, the size of a code node represents its relative frequency in relation to other codes – the bigger the code node, the more it is mentioned in the whole corpus; second, the thickness of an edge represents its relative weight in relation to other edges – the thicker the edge, the more frequent is this particular stakeholder-code connection, the more times this particular stakeholder formulates thoughts that correspond with the meaning represented by this particular code; and third, within the graphs, the relative positioning of nodes (proximity) and edges (length) bear no meaning. In each graph, the nodes are positioned by the authors in the way that maximizes the clarity and readability of the graph. For a practical example of reading a bipartite network graph please see box 1.

At the stakeholder level, we present two groups of findings: firstly, we introduce network graphs that reflect five main domains (categories) of the natural gas market integration process as they were derived either deductively, from relevant secondary literature, or identified as repeatedly occurring meanings in the interviews. Secondly, we supplement the meaning-centered analysis with an actor-centered one. In this second part, we focus primarily on the positions the individual actors hold vis-à-vis the market integration project. We divide this part of the research along two main lines: national and functional. Within the national line, we introduce four network graphs that feature the stakeholders-codes nexus for each Visegrad country, while the functional division line means plotting a network graph for each functional group: NRAs, TSOs, MoEs, and MFAs.

Box 1: Reading bipartite network graphs: an example

In figure 8 we see a simple example of a bipartite network graph. In the arena, there are three actors (Actors) as well as three repeatedly occurring or otherwise relevant meanings (Concepts) represented by assigned codes.

Fig. 8: Example of a bipartite network graph



In the figure, we observe that code “concept_2” is expressed by the largest square, which means that the overall length of the text segments coded with “concept_2” is the largest. In other words, the stakeholders chose to elaborate the longest on issues related to “concept_2”. Code “concept_2” is central to the overall discourse as it is reflected by all actors. “actor_3” has expressed only meanings related to “concept_2” (“actor_3” is not connected with other concepts) and given the relative width of the edge, these meanings were touched on repeatedly. Actor “actor_2” has expressed meanings related to codes “concept_1” and “concept_2”, and, given the relative widths of the respective edges, both were mentioned in approximately the same number of instances. Actor named “actor_1” has reflected all concepts, being the only one to recognize the meanings coded as “concept_3”. Actor “actor_1” also shares the same view on “concept_1” with “actor_2” but disagrees on “concept_2” with the other actors as expressed by the red color of the “actor_1” – “concept_2” edge. If, for example, “concept_2” bears the meaning that “gas market integration will reduce the whole sale prices in the region”, then “actor_1” claims that it will not.

6.1 Discourse networks by category

In this meaning-centered part of the research we focus the attention on categories of codes (meanings) that have emerged from secondary literature and the interviews. Overall, we have identified five distinct categories:

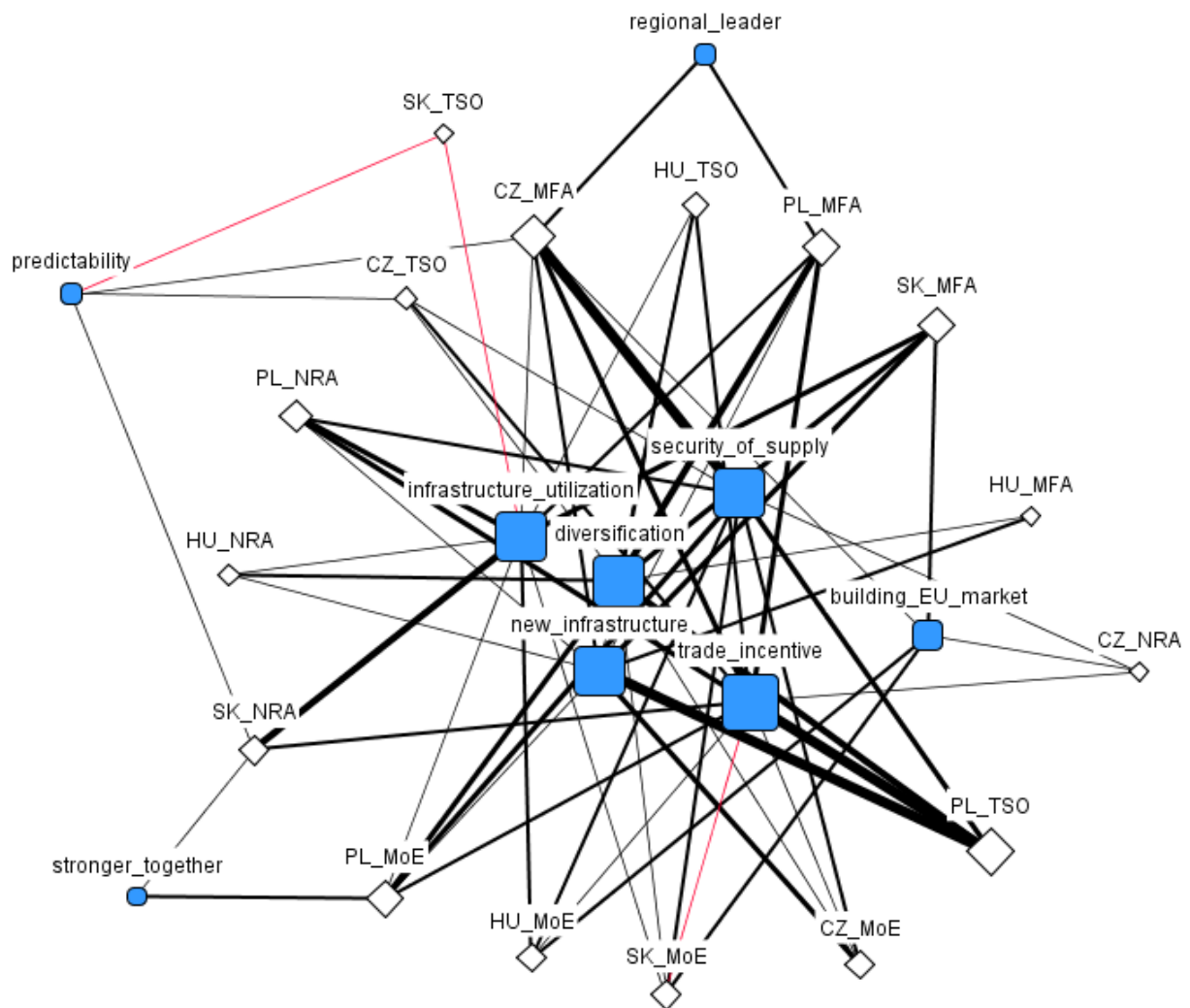
- The goals that the stakeholders pursue in the integration process or the benefits they see in it (“Goals and expected benefits”).
- The obstacles that according to the stakeholders hinder the integration process (“Obstacles”).
- Questions and doubts regarding the very purpose of the integration project (“Questions and doubts”).
- The major sources of uncertainty related to the future of the project according to the stakeholders (“Uncertainty”).
- The solutions to the current lack of progress mentioned by the stakeholders (“Solutions”).

Each category then comprises of several codes, that represent the individual meanings derived from the literature or identified in the interviews. The list of codes can be found in table 13, their full specification is presented in the Methodology annex (chapter 10)

Tab. 13: Categories and codes used in the stakeholder analysis

Categories	Codes
Goals and expected benefits	security_of_supply
	trade_incentive
	new_infrastructure
	infrastructure_utilization
	regional_leader
	stronger_together
	building_EU_market
	predictability
	diversification
Obstacles	missing_infrastructure
	costs_allocation
	insufficient_liberalization
	LTCs
	price_regulation
	state_involvement
	harmonization
Questions and doubts	target_unclear
	political_assignment
	lack_of_will
	buzzword
	opposition_isolation
	non-V4_integration
Uncertainties	future_transit_flows
	EU_regulations
Proposed solutions	EU_first
	look_elsewhere
	redefinition
	security_focus

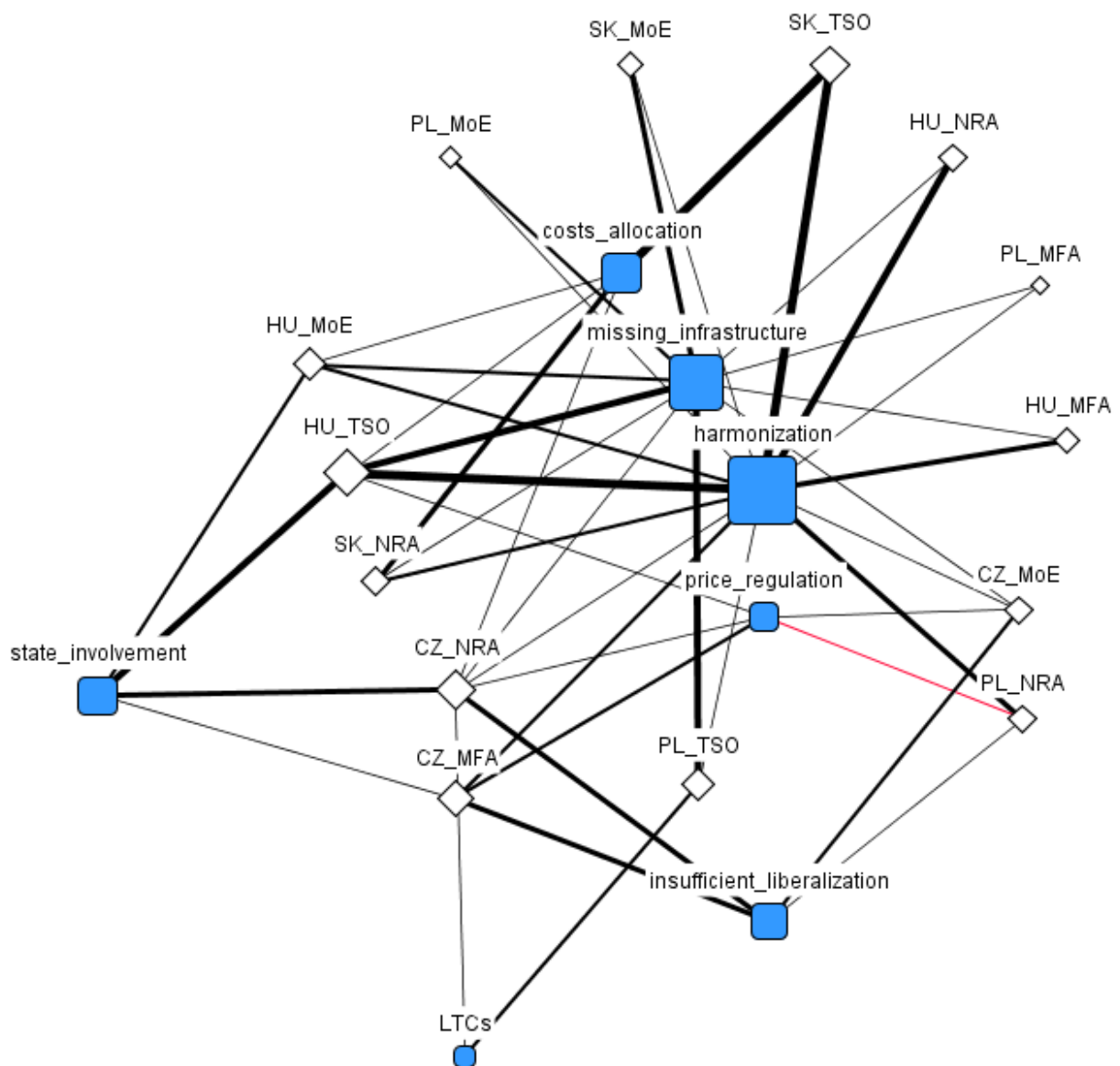
Fig. 9: Goals and expected benefits



In the “Goals and expected benefits” category network we find several central codes that are shared by a large number of stakeholders. Namely “trade_incentive” expressed by 11 stakeholders out of 16, “new_infrastructure” (10 stakeholders) “infrastructure_utilization” (10 stakeholders), “security_of_supply” and “diversification” (nine stakeholders each). We therefore observe rather significant agreement on what the integration process should bring: more trade leading to greater utilization of the existing infrastructure and the possibility of building some new infrastructure, which together will contribute to greater security of supply. On the other hand, neither of these goals or expected benefits has been openly expressed by all the stakeholders, which could as well mean that they understand the process differently. An example of that may be the Polish MFA who did not mention security of supply as a concept related to the integration process. Also, two Slovak stakeholders openly disagree with the integration bringing some of the benefits expected by the others: the Slovak MoE does not see the integration as a tool to bring the wholesale and hence also the retail prices down; and the Slovak TSO, although voicing a strong determination to reduce trade barriers within the region, argues that the integration as it is currently understood would actually compromise the abilities of the TSOs to utilize their infrastructure and also reduce the transmission system’s predictability for the shippers.

The system's predictability seems to be an issue of rather limited relevance in this context. Only two Czech and two Slovak stakeholders view it as important enough to be mentioned without the interviewers asking directly. Other less relevant goals and benefits include "stronger_together", meaning that the overall size and resulting regional status of the integrated V4 market does not seem to add benefits for all but two stakeholders, and, interestingly, also "regional_leader". Only two stakeholders expressed determination or desire to become a leader of the integration process and/or the resulting integrated gas industry community. Notably, these stakeholders are two MFAs (the Czech and Polish ones) – actors who might be well connected with all the others and who might have enough intelligence personnel and capacity to keep track of the whole process, but at the same time also actors who have the least capacities to contribute to the technical implementation of the integration, which seems to be crucial for its success.

Fig. 10: Perceived obstacles

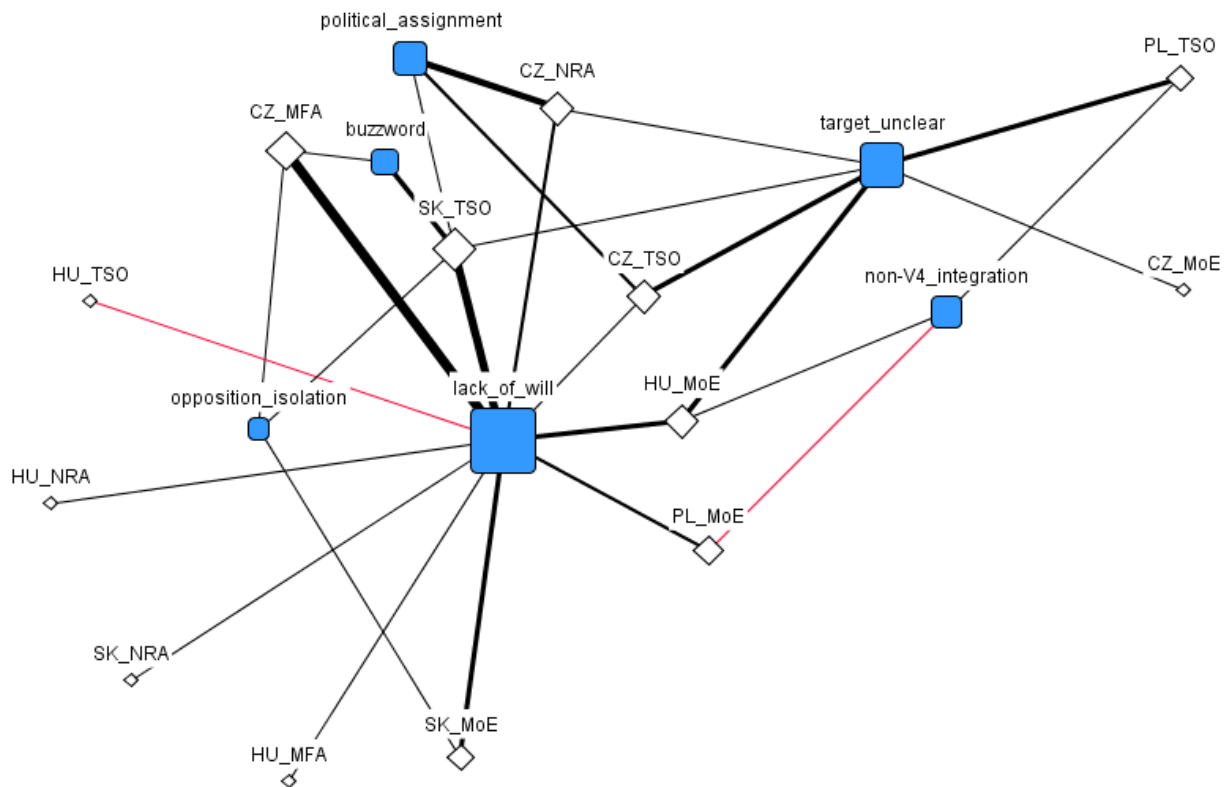


The central position of the “harmonization” code in the “Obstacles” graph confirms the importance of the implementation procedures for the whole project. 14 out of 16 stakeholders share this code, making it the most central code in the whole interview corpus. With 11 stakeholders referring to it, “missing_infrastructure” is seen as an issue of a nearly comparable importance.

The less relevant problems include allocating the costs of the integration process and (in)compatibility of the individual V4 markets. The cost allocation is understood mostly as transferring the costs of, for example, necessary infrastructure onto the end customers (CZ_NRA, HU_MoE, HU_TSO, SK_NRA), but also as a problem of transit revenue allocation. Within the integrated market the transit tariffs would be collected only on the region’s borders and the TSOs would need to develop a compensation mechanism for the lost revenues that used to come from the abolished intra-regional entry/exit points. This concern is raised by the Slovak TSO, but is not shared among other stakeholders. The Czech TSO, despite being in a very similar structural position (the vast majority of revenues come from transit from a the V4-neighboring country to another V4-neighboring country) seems positive regarding the ability of the stakeholders to develop a fair and sustainable compensation mechanism – something that the Slovak TSO remains very skeptical about, expressing its strong preference of sovereignty over transit tariffs, products and other arrangements that would need to be harmonized.

Another less relevant concern seems to be the compatibility of the V4 markets. The codes “insufficient_liberalization”, “price_regulation” and “state_involvement” all relate to different positioning of the individual markets with regards to the dilemmas of state control vs. liberalization and energy as commodity vs. energy as service. The market compatibility issue seems to primarily preoccupy the Czech stakeholders: the codes “insufficient_liberalization” and “price_regulation” are shared by CZ_MFA, CZ_MoE and CZ_NRA. A similar position is held by the Hungarian TSO and MoE as both express their concerns about state involvement in the gas industry. The Polish NRA, on the other hand, takes a seemingly ambivalent position in this context. It disagrees with the assumption that regulated prices complicate the integration process, but acknowledges the difficulties related to the uneven state of liberalization in the region.

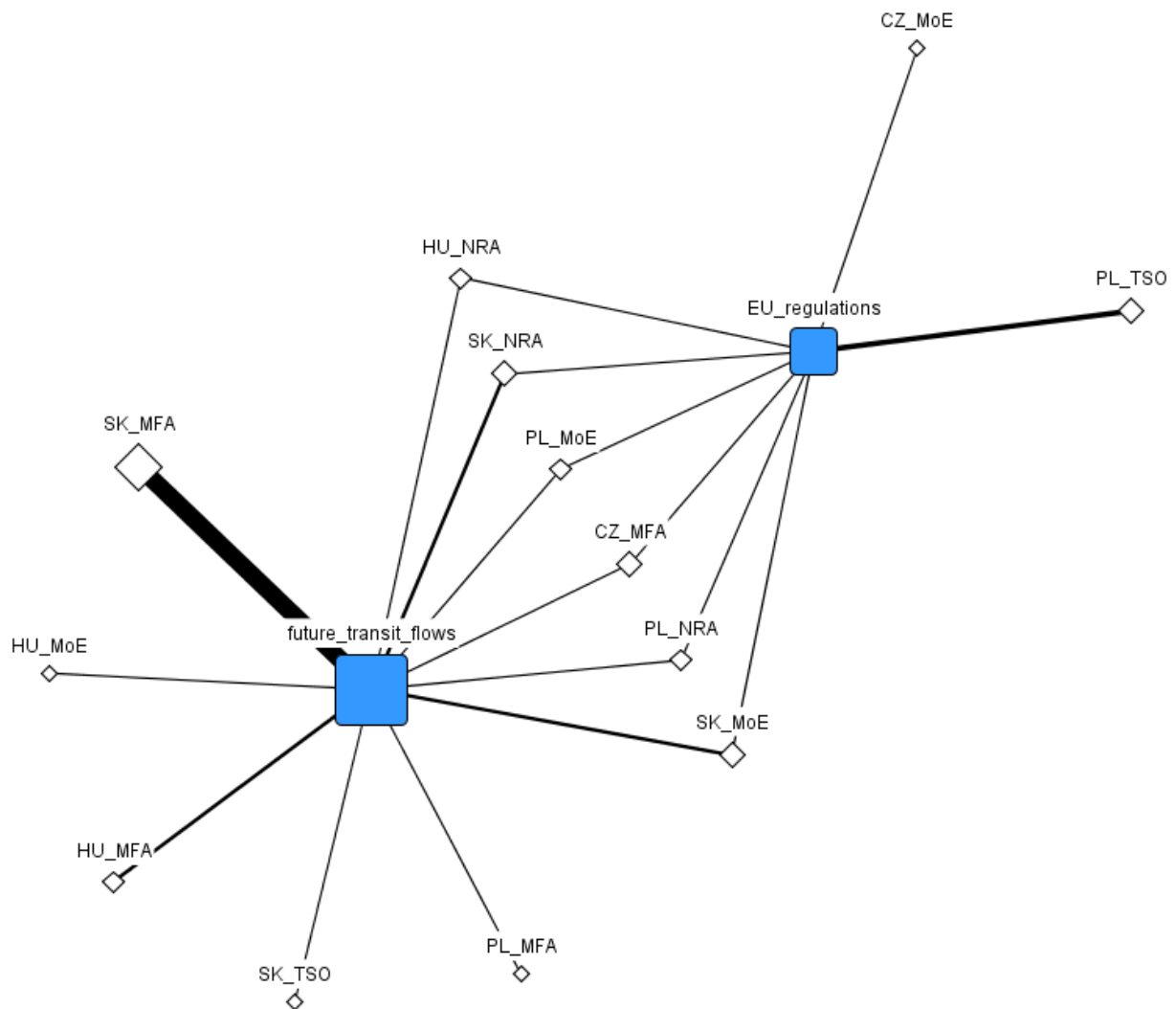
Fig. 11: Questions and doubts



Apart from particular obstacles in the integration process, there are also more severe questions and doubts to be identified in the interviews. Among them, the central position is occupied by the “lack_of_will” code, which refers to perceived lack of political will to proceed with the integration and/or lack of leadership in doing so. This line of reasoning is further emphasized by the presence of the “political_assignment” code, which refers to a certain detachment of the policy-making process from the technical level, at which the actual implementation of the integration process should take place. Notably, this and other rather critical codes (“buzzword” and “oppression_isolation”) are used by the Czech and Slovak stakeholders only (CZ_MFA, CZ_NRA, CZ_TSO, SK_MoE, SK_TSO).

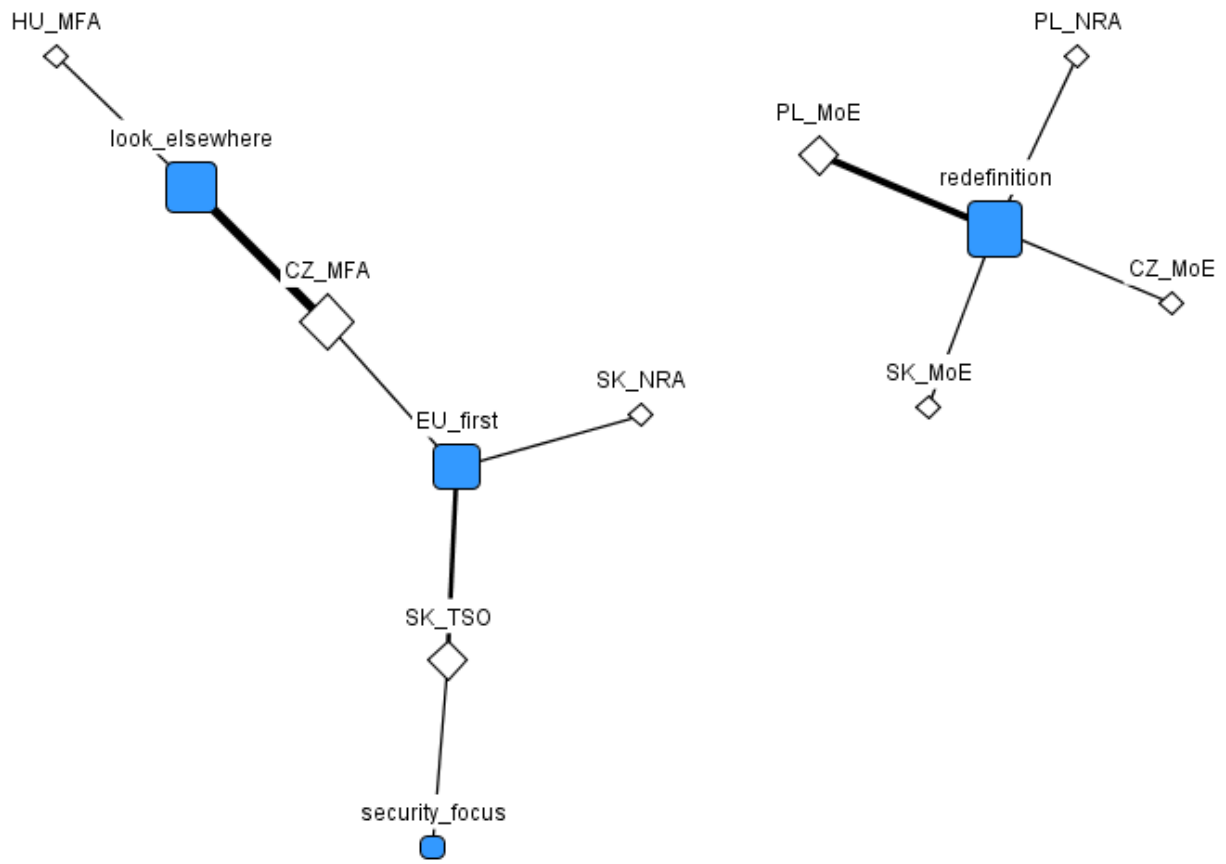
Also, possible integration efforts that the individual countries would pursue outside the V4 scope are, with exception of the Polish TSO and Hungarian MoE, not seen as a direct threat for the V4 integration process. Interestingly, both mentioned stakeholders at the same time joining the Czech and Slovak TSOs and Czech NRA in their view of the final target of the process as insufficiently defined.

Fig. 12: *Uncertainties and external factors*



As the “Uncertainty” network graph suggests, two main sources of uncertainty were identified by the stakeholders: the concrete shape of the upcoming EU gas-related legislation, namely the network codes (expressed by eight stakeholders); and future transit flows through the region (11 stakeholders). The presence of the transit issue in the stakeholder’s narrative is twofold: firstly, it is closely related to the issue of sources of gas for the region. Changes in transit are by definition connected to changes in supply patterns and these are in turn related to diversity of sources and potential for competition at the wholesale level. Secondly, the transit revenues collected by the Slovak TSO and through its ownership also by the Slovak state currently represent one of the major obstacles for the Slovak side to move forward with the integration, as understood in early 2016. Should the transit through the Ukraine be discontinued after 2019, as repeatedly stated by the Russian representatives, this issue is very likely to erode.

Fig. 13: Solutions

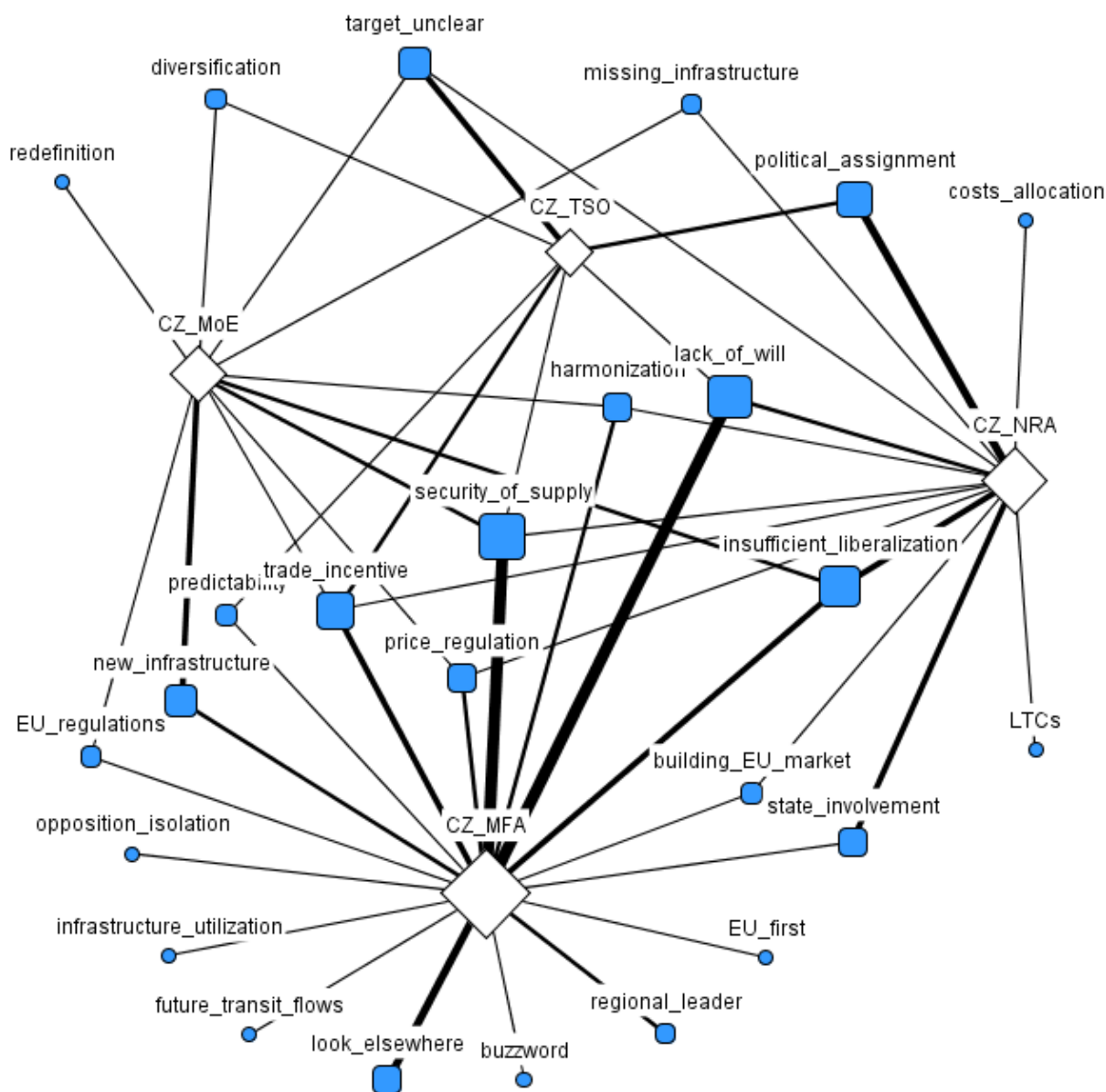


Despite the fact that we did not explicitly ask this question, several stakeholders who acknowledged the lack of progress in the integration process, also suggested or at least mentioned, possible solutions for it. Four stakeholders opted for the redefinition of goals of the project so that it better reflects the contemporary situation the regional gas market(s) and industries find themselves in. Three stakeholders would wait until all related European legislation is in place and then analyze what more can be done in order to bring the markets closer together; two would consider participation in other than V4-based integration schemes; and one mentioned stripping the integration goals down to what is effectively contributing to security of supply, a goal that is seen as common interest and as worth some investment.

6.2 Discourse networks by country

In this section, we present the country-focused view of the bipartite network graphs. Each of the four graphs therefore only displays stakeholders that belong to the same V4 country.

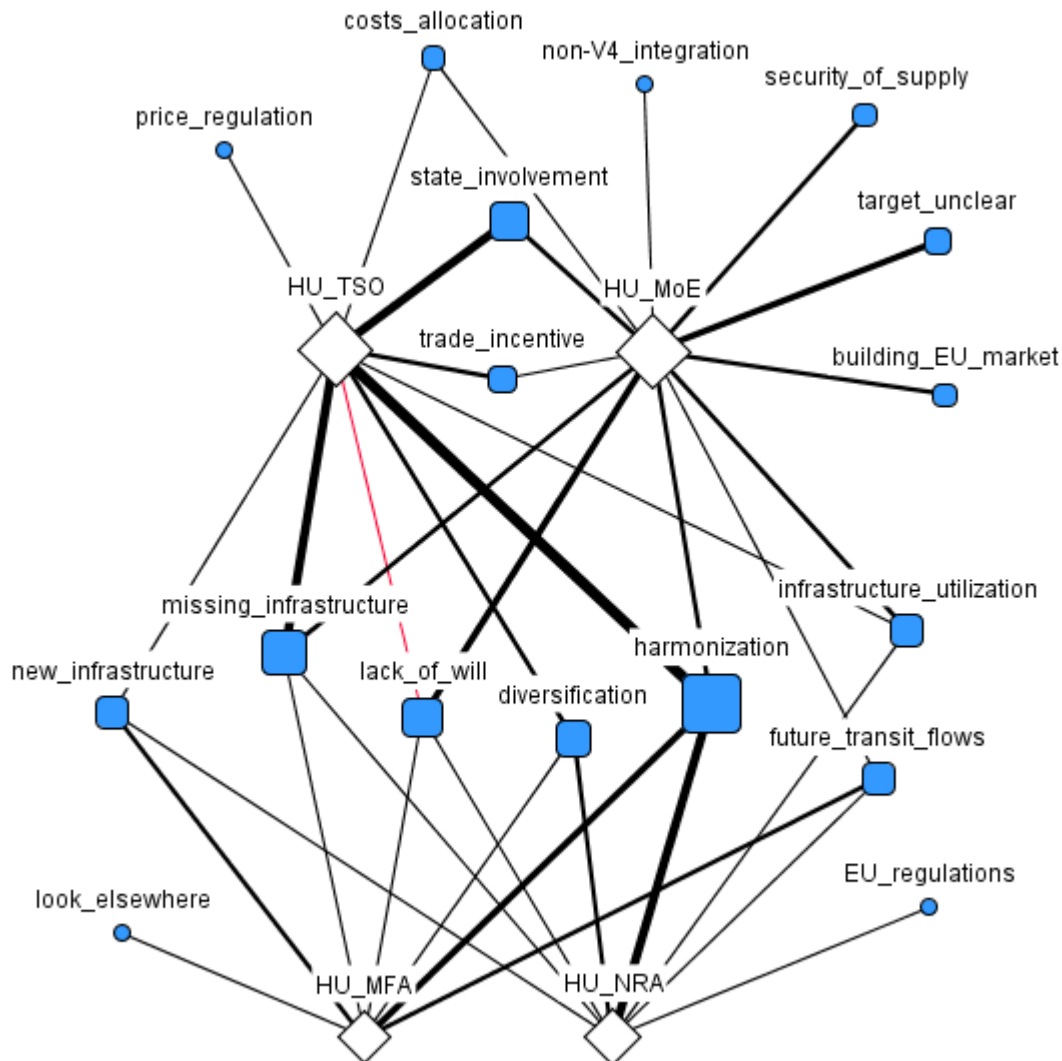
Fig. 14: Stakeholder analysis by country: the Czech Republic



In the case of the Czech Republic, we observe two codes (“security_of_supply” and “trade_incentive”) that are shared among all stakeholders and thus occupy the central position in the country-specific discourse. Other relatively important codes include “lack_of_will”, “insufficient_liberalization”, “harmonization”, and “price_regulation”. The Czech discourse therefore mostly acknowledges the most general benefits that secondary literature usually connects to the integration, while pointing a finger at the absence of determination and leadership in overcoming the market incompatibility and harmonization induced obstacles.

The Czech discourse shows little preoccupation with the issue of missing infrastructure and does not expect increased utilization of the existing one. This, together with the marginal position of the “future_transit_flows” uncertainty, can be attributed to the relatively stable transit outlook the Czech Republic is enjoying due to the Gazelle pipeline and its importance for the German transmission system.

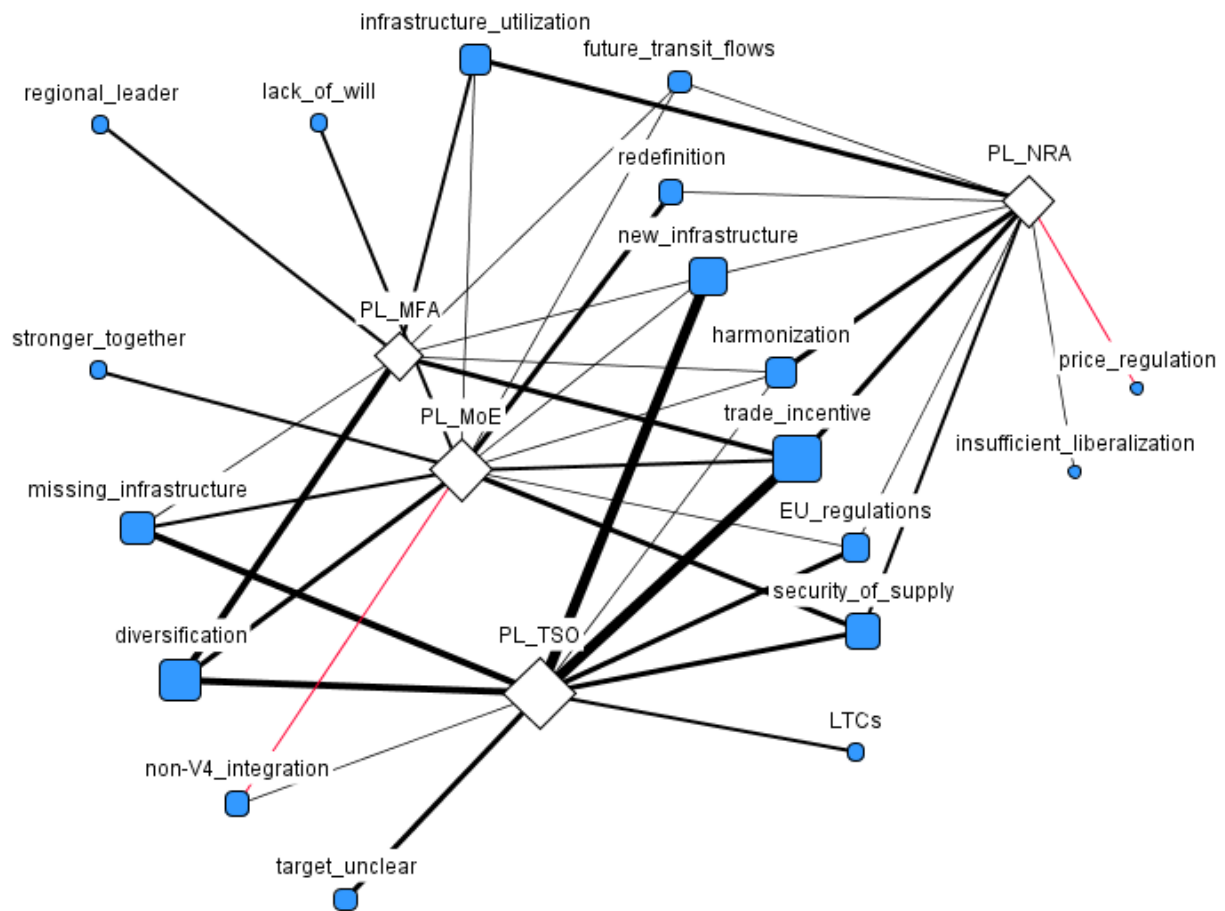
Fig. 15: Stakeholder analysis by country: Hungary



The most central and at the same time frequent code in the Hungarian discourse is “harmonization” with the licensing issue being widely referred to in the interviews. The second code that receives attention of all four Hungarian stakeholders is “missing_infrastructure”. Infrastructure is also what the other relatively important codes relate to: “new_infrastructure”, “infrastructure_utilization”, “future_transit_flows”, and to a certain extent also “diversification”.

The Hungarian discourse therefore seems to be centered around infrastructure, paying less attention to the general goals of security of supply or increased competition and related price effects. The discourse also heavily stresses the issues connected with the project’s technical implementation and to a large extent acknowledges the lack of leadership in the process.

Fig. 16: Stakeholder analysis by country: Poland

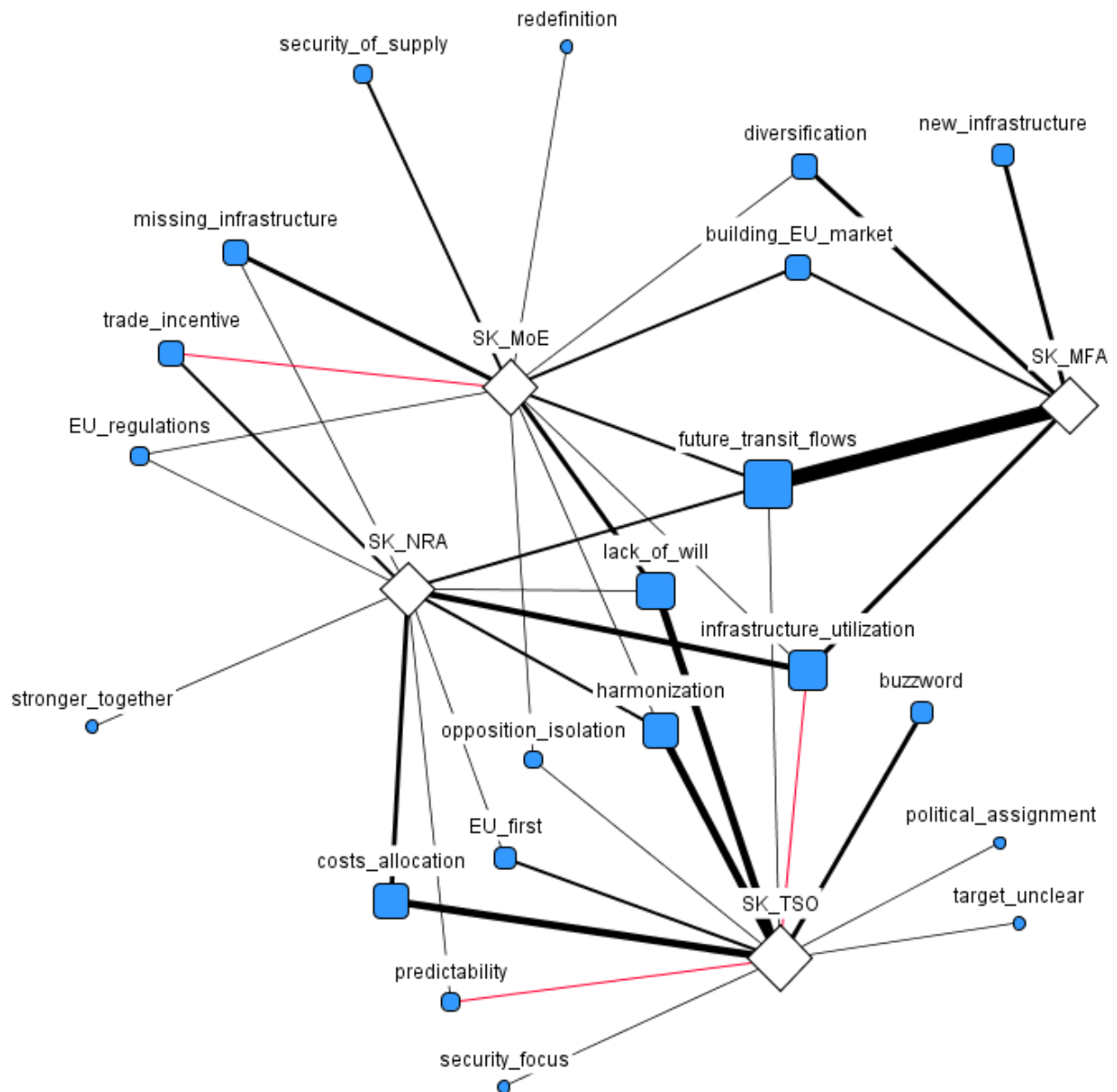


The Polish discourse appears very compact. Three codes are shared among all stakeholders (“trade_incentive”, “new_infrastructure”, “harmonization”), and another seven are shared by three out of the four stakeholders: “security_of_supply”, “diversification”, “missing_infrastructure”, “infrastructure_utilization”, “future_transit_flows”, “EU_regulations”, and “security_of_supply”.

The emphasis on trading and its effects (“trade_incentive”) may seem rather surprising, given the state of liberalization and the character of the wholesale market in Poland. A closer look at the coded notes, however, reveals that the main focus of the trade references is on diversification and competition at the level of gas suppliers into Poland. The traders operating within either national or integrated V4 markets are mentioned only rarely. This is in line with the rather peripheral position of the market differences related codes: “insufficient_liberalization” and “price_regulation”. The latter is even reflected negatively, which means that the respective stakeholder (PL_NRA) does not see price regulation as an obstacle to the integration.

Also, unlike their V4 counterparts, the Polish stakeholders seem less preoccupied by the lack of political will or missing leadership in the integration process.

Fig. 17: Stakeholder analysis by country: Slovakia

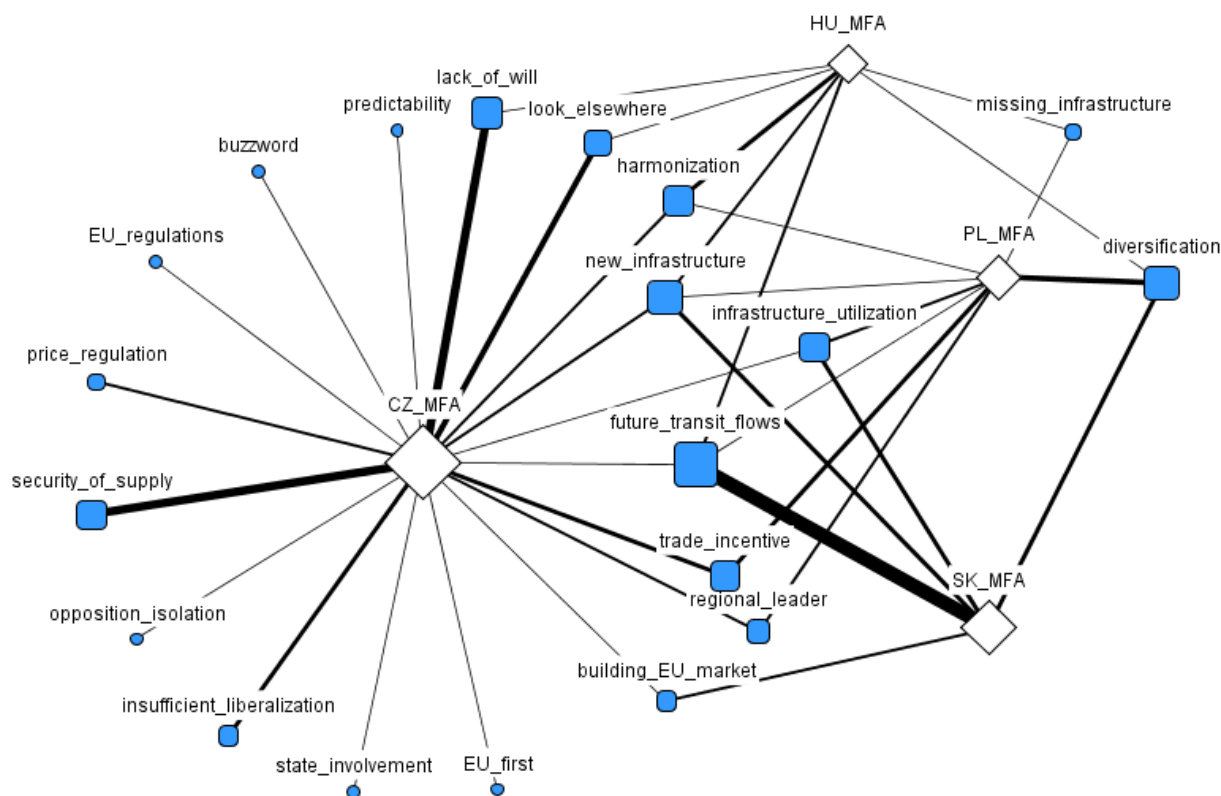


In comparison with the Polish discourse, the Slovak one appears to be quite scattered. There is only one code shared by all the stakeholders (“future_transit_flows”), which relates to the transit issue. This issue seems to be central for the Slovak discourse, as the “infrastructure_utilization” code is also referred to by all the Slovak stakeholders, but the TSO takes a negative stand on the issue: the market integration as it is pursued now will not increase utilization of the Slovak transmission system in its view. Only two other codes are shared by three stakeholders: the harmonization obstacle and perceived lack of political will to move on with the process.

6.3 Discourse networks by functional position

In this section, we present the position-focused view of the bipartite network graphs. Each of the four graphs therefore displays only stakeholders that occupy the same functional position within the V4 natural gas markets.

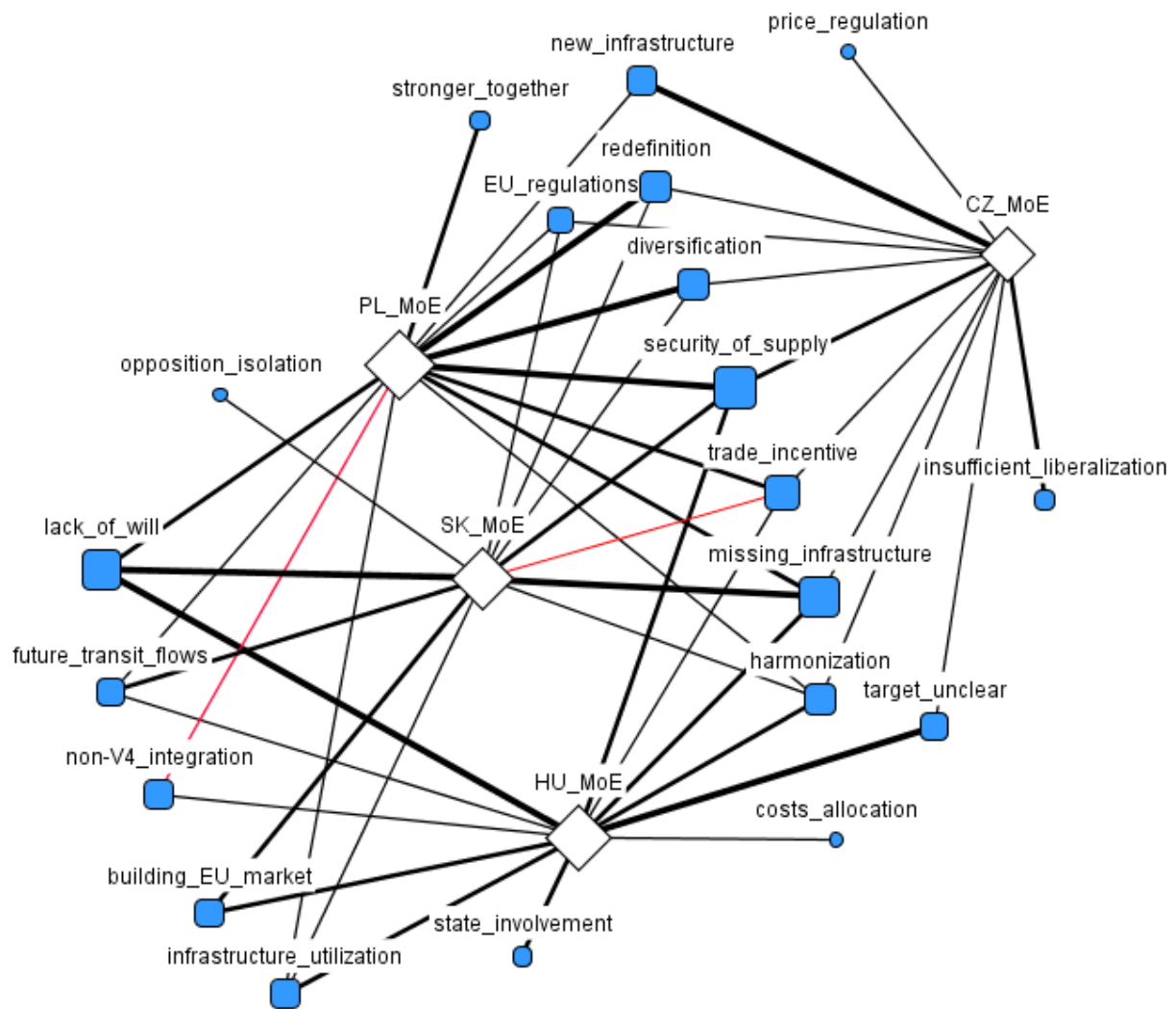
Fig. 18: Stakeholder analysis by position: MFAs



The V4 MFA discourse seem to be centered around quite a few meanings. The central position is occupied by the “future_transit_flows” and “new_infrastructure” code, and other relevant codes include “infrastructure_utilization”, “diversification” and “harmonization”. Within the scope of the market integration issue, the MFAs seem to be mostly concerned with the physical (infrastructural) aspects of gas flows through the region. Interestingly, only the Czech MFA does connect these issues with “security of supply”, a concept not openly connected with market integration by the other three MFAs during the interviews.

Generally, the Czech MFA seems to use a significant number of codes that are not shared by the other MFAs. Apart from “objective” factors of the Czech MFA presenting the most complex view on the issue among the MFA stakeholders, we attribute this to the fact that CZ_MFA has been the driving force behind this very research project and as such its representatives were open above-average during the interviews.

Fig. 19: Stakeholder analysis by position: MoEs



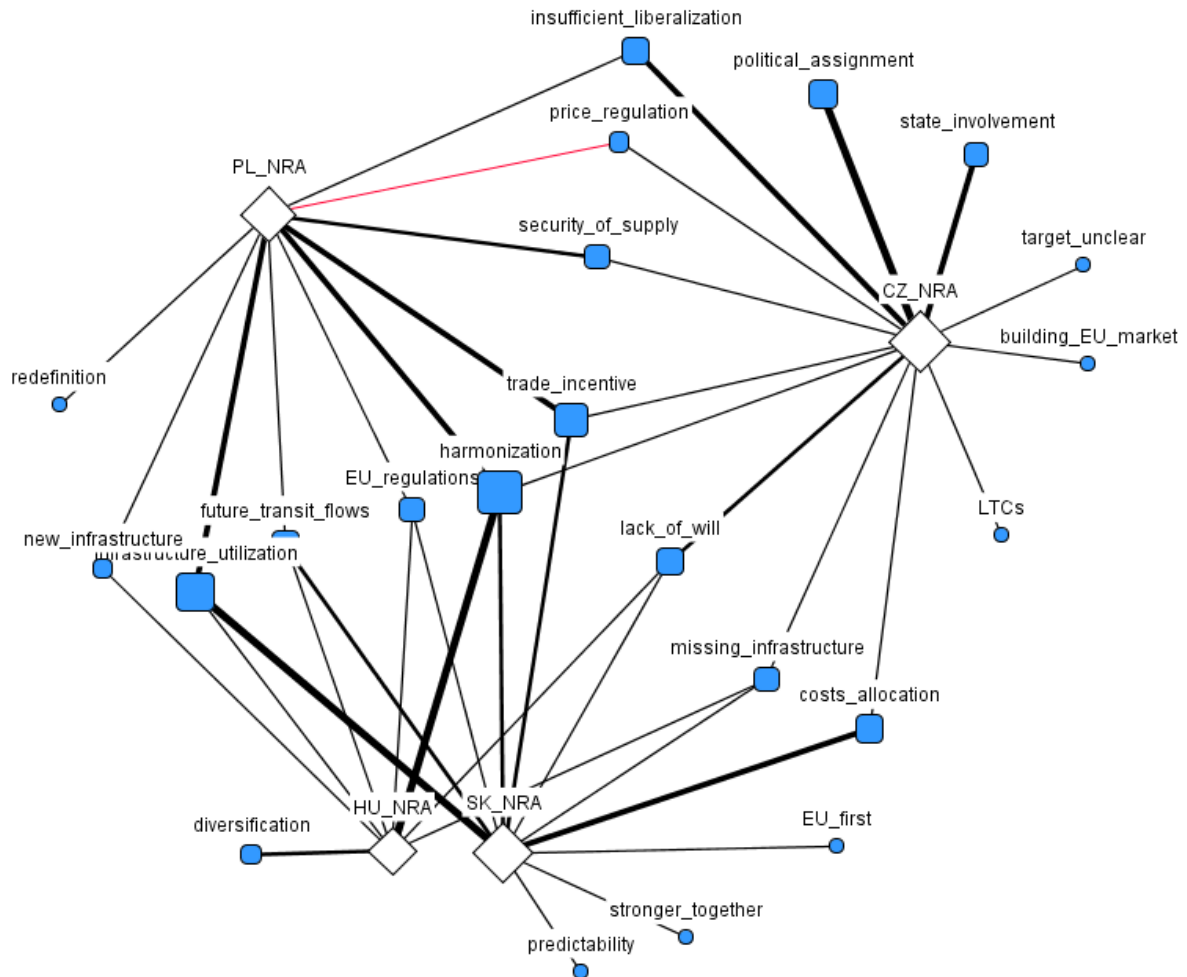
“Security of supply”, together with “missing_infrastructure” and “harmonization”, are central codes in the discourse of energy-responsible Ministries. Trade effects are also shared by all four stakeholders, but SK_MoE sees it negatively, which means that it does not expect the market integration process to push the prices down. Other relevant codes are: “lack_of_will”, “redefinition”, “diversification”, “infrastructure_utilization”, “future_transit_flows”, and “EU_regulations”.

The MoE discourse can be again characterized as infrastructure oriented, but this time with a clear focus on the security issues. It also stresses the imperfections of the process, namely the difficulties related to the harmonization process and the lack of will to overcome them. This is usually targeted at stakeholders who come from the other V4 countries. The MoEs are also the stakeholders who call for the redefinition of the integration targets the most.

Interestingly, the question of leadership is of rather low intensity within the MoE discourse. The “lack_of_will” code seem to capture quite a lot of attention by three MoEs, while no MoE expresses aspirations for becoming the driving force behind the project. That, however, goes against the assumption stated in the “Road Map towards the regional gas market among Visegrad 4

Countries” issued during the Polish V4 presidency in 2013, which holds that “*The Parties stress the need for the efficient institutional organization of the process of the regionalization of the V4 gas market. The top-down approach is envisaged where the leading role is attributed to the V4 Ministers of Energy who shall provide for the necessary political impetus and shall be responsible for the decision-making on the final regional V4 market design in the future.*” (V4, 2013, p. 5)

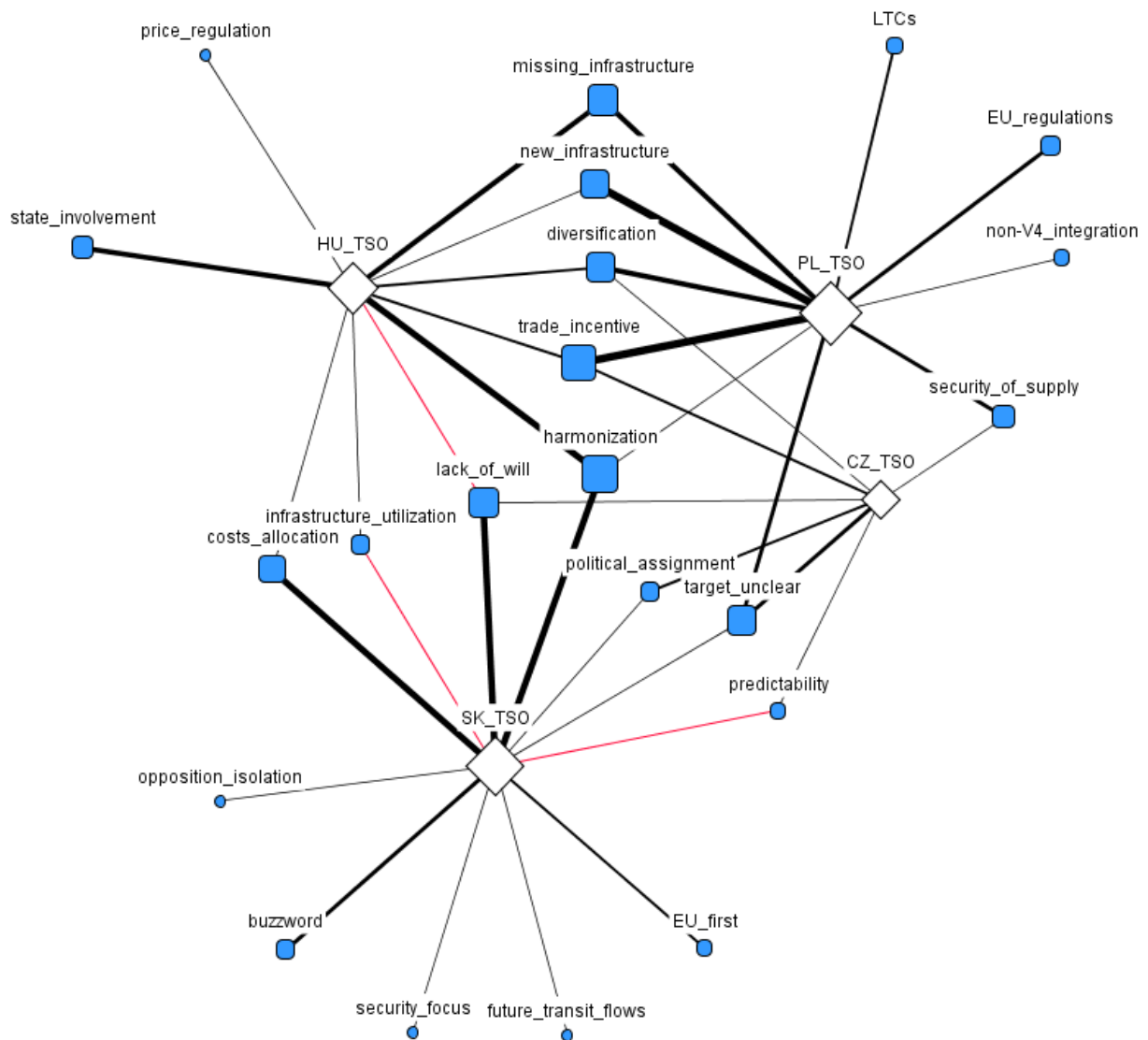
Fig. 20: Stakeholder analysis by position: NRAs



The NRAs seem to fully share only concerns about the technical implementation of the process (“harmonization”). There are, however, several codes that are relevant for three out of four stakeholders: “infrastructure_utilization”, “trade_incentive”, “lack_of_will”, “missing_infrastructure”, “future_transit_flows”, and “EU_regulations”.

The codes related to market compatibility (“insufficient_liberalization”, “state_involvement”, and “price_regulation”) seem to be of rather limited importance in the discourse, which can be surprising given the central position of the code that points at difficulties in bringing the market rules closer together. The explanation is that the stakeholders mostly refer to the rules that are not directly connected to pricing: licenses, gas quality, and trading hours.

Fig. 21: Stakeholder analysis by position: TSOs



The TSO discourse appears rather scattered. Interestingly, it lacks codes shared by all four stakeholders and codes shared by three stakeholders are also rare: “harmonization”, “trade_incentive”, and “diversification”.

The most interesting outcomes therefore lie in the codes that are not actually much utilized, namely “infrastructure_utilization”, “new_infrastructure”, “missing_infrastructure”, and “costs_allocation”. In the market integration project, therefore, only the Hungarian TSO sees the benefit of increased utilization of existing infrastructure – the Czech and Polish TSOs did not mention that directly (although both stressed increased competition that would stem from a successful integration project) and the Slovak TSO directly opposes the idea that integration as it is currently understood would anyway contribute to greater utilization of existing pipelines. Missing infrastructure is recognized as an obstacle by the PL_TSO and HU_TSO. The same actors then see the integration process as an opportunity to build new infrastructure. This view, however, does not seem to be widely shared among the TSOs as a group.

7 Interpretations

The EU integration model, represented by the Gas Target Model (GTM), is constructed as a one-model-fits-all system which measures the functionality of a spot market through a set of pre-determined indicators derived from analyses of the examples of liquid markets. Despite providing useful guidance, the model fails to reflect the prevailing differences between the West-European and East-European gas markets.

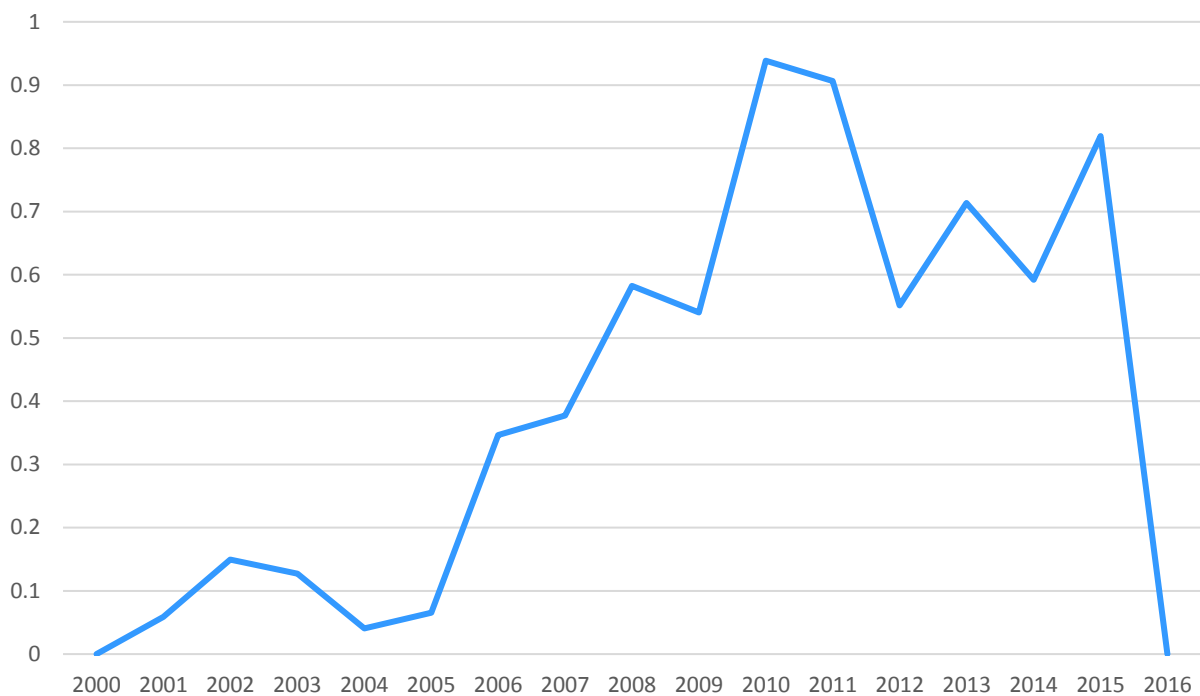
In addition, the European model is, at the practical level, missing driving forces able to push the desired liberalization forward effectively. The EU uses, contrary to the U.S. model, the top-down approach to liberalization which means that the main initiator of the market changes is the European Commission with indirect competencies in its implementation. The national governments responsible for the implementation and companies, as receivers of the related legislation, see the liberalization and integration processes very diversely. In such an environment, it is difficult to achieve any common vision of the integrated market and the whole project is constantly being delayed.

Remarkably, the model, which has not been implemented before, lacks comprehensive definition of the state at which the completion of the integrated market is achieved. In fact, the EC is continuously working on defining proper measurement criteria, with the last major changes to the metrics occurring in 2015 (e.g. cancelling the churn rate and overall size indicators and developing a new conceptual framework focused on the market participants and “market health”).

Finally, this unfinished market development means that the actual impact of the model on the markets and the timing of those effects remain unknown. Moreover, the concerns about trade barriers remaining in place even after application of the GTM are still being discussed. Another ongoing discussion focuses on the question of whether a deeper reform than the 2017 technical revision of the model would be needed. For regional integration projects this means increased uncertainty over compatibility of the regional and the European integration projects.

At the intergovernmental level, the content analysis of the Visegrad Group official documents shows that the term “energy” is rather important. It appears 1175 times in the documents, being the 14th most frequent word. A large increase of the usage of the term is visible in the period after EU accession. The term “energy” rose to prominence from 2006, with a peak in 2010. A steep rise in usage is also visible in 2013 and again in 2015. In the period from 2009 to 2016, the term appears 1036 times out of an overall 1175 appearances, with 280 occurrences in 2015 only. The term appears in annual reports and presidency programs 811 times out of 1175 overall appearances, suggesting these documents are more important in framing energy issues. These observations are visible even when the absolute usage of the term is adjusted for differences in document length. The development of usage of the word is visually represented in figure 22.

Fig. 22: Usage of term "energy" in time-series



Usage of the term “energy” correlates most with usage of terms which are used in the context of environmental, security and business issues. This correlational analysis is further tested through the qualitative approach.

Qualitative analysis of sentences containing the term “energy” brought five observations: first, the phrase “energy security” appears in documents for the first time in 2006. Particular references to the energy security context started to increase after 2008 and increased steeply in 2010 and 2013, an observation already suggested in the correlational analysis. The appearance of the energy security topic arose both as only a general reference (when the term “energy security” is mentioned), as well as in the frequency of more detailed phrases (e.g. necessity to increase supply security, necessity to diversify gas routes and producers). The energy security context is the most frequent context in which the term “energy” appears. The second proven suggestion of the correlational analysis is linked to the environmental context. It is present in the text pieces as the second most frequent context, referring to energy efficiency, environmental protection, renewable sources and the like. Third, notions related to the market start to appear more frequently from 2013. Interestingly, when connected with the term “energy”, the frequency of market framing of energy is never higher than the frequency of the security framing. Moreover, when the market context is actually linked with other contexts, it is most commonly used in connection with energy security or infrastructure. Fourth, the infrastructural context starts to appear frequently from 2009. Like the energy security context, it subsequently appears each year more frequently than the market context. Notions of infrastructure development, corridors, or interconnectors are used quite often, with approximately comparable absolute frequencies for 2010, 2011, and 2013 to 2015. Lastly, references to Russia are underrepresented in documents, either because the Russian Federation as an actor is not occupying a central role in the Visegrad Group discussions, or because the Visegrad Group is not the primary vehicle to deal with issues

concerning the Russian Federation, despite the often-portrayed link between energy and Russia in the media and by politicians.

Assessment of the representations of the market integration brings several key conclusions. Firstly, in the correlational analysis of the term “market”, the term is mostly correlated with the term “internal”, followed by “gas”, “single” and “energy”. The term “integration” is correlated with the term “market” in a degree comparable to “internal” or “single” only in 2013 and 2014. This suggests that the internal EU market might have more relevance. This hypothesis does not hold in the qualitative assessment of the documents, yet construction of the internal EU market is represented in the corpus in a comparable frequency to the concept of regional market integration. Regional market integration is strongly represented in 2013. Twenty references to the concept are made in that year out of 44 in total, yet, in 2014, there are only 5. In 2015, the concept is referred to 14 times.

Qualitative analysis also suggests that the framing of market integration is separated into two distinct clusters in cases where market integration is connected to other contexts. The first cluster is related to market integration into the internal energy market of the EU. Here, focus is put on infrastructure in general, as well as on infrastructure as a means or precondition for the emergence of the market. Completion of the internal energy market is also well connected to the achievement of higher energy security. Interestingly, particular means of achieving the internal energy market, are not in any way specified. Regional market integration, to the contrary, is not much connected to the references over infrastructure, or European market integration. In cases where regional market integration appears, it is either connected with general pledges to cooperation, or is, on the other hand, connected to particular measures (such as implementation of network codes, harmonization of regulation, etc.). Lastly, qualitative analysis points to the fact that market benefits play a secondary role, such as increase in market liquidity, increase in trading in the region, or better access to supplies, because of the incentive for traders to ship gas. There is no single co-occurrence between particular market related benefits and regional market integration. Similarly, there are very few links between market integration benefits and completion of the internal European market as well.

At the sub-state level, a brief look at the category defined network graphs suggests that there is rather significant agreement on what the integration process should bring: more trade leading to greater utilization of the existing infrastructure and possibly building of some new infrastructure, which together will contribute to greater security of supply. On the path to achieving these benefits is the main obstacle of the difficult implementation process, which presupposes harmonization of market rules among the V4 countries, and also insufficient interconnection between Poland and the rest of the V4. With regards to the overall architecture of the process, there seems to be one particular doubt about its future: lack of leadership and political will to proceed further along the integration Road Map. (V4, 2013) Despite the sheer complexity of the issue there seem to be quite a few uncertainties related to the future of the project. Notable are the future gas transit flows through the region, which will undoubtedly affect the perceived benefits and costs of the integration (and more specifically the harmonization of transportation tariffs and products) and the gas-related EU legislation, namely the final shape of the remaining Network Codes and rules for their implementation. Some also mention the composition of the Gas Regional Initiatives. Many stakeholders recognize the slow pace of progress in the integration

process, while some also mention possible solutions. The most frequent is adjustment of the integration goals and means so they better reflect the changes the industries have undergone since publication of the Road Map.

Although this line of reasoning may seem rather compact, a closer look at individual national and functional discourses reveals divergence in the stakeholders' perceptions of the integration process.

The Czech discourse seem to be dominated by the perceived integration benefits, namely increased amount of trading and related price and security effects, while the majority of the Czech stakeholders seem to be preoccupied with the difficulty of the harmonization process, incompatibility of the V4 markets, and lack of political will to overcome these issues. The Hungarian as well as Slovak stakeholders share the Czech notion of the harmonization process, but their national discourses seem to be centered around infrastructure. The Hungarian discourse seems to view the integration as an opportunity for increased utilization of the existing infrastructure or building new infrastructure, which could increase the V4 connectivity and bring some new suppliers into the market. Meanwhile; the Slovak stakeholders focus mostly on the external uncertainty of future natural gas transit flows and related utilization of the Slovak infrastructure. Importantly, the Slovak TSO sees market integration, as it is currently understood and pursued, as a threat for infrastructure utilization and clearly prefers sovereignty over transportation tariffs, and products over the benefits that other stakeholders or secondary literature connects with market integration. The Polish discourse is quite different from the three other ones as it is mostly concerned with supply diversity of the Polish wholesale market. Polish stakeholders see the market integration as an opportunity to attract new gas suppliers and, through the increased competition, push down the prices and increase security of supply. To achieve that, new infrastructure needs to be built and some regulatory steps need to be taken in order to build the larger market and enjoy the diversification benefits that will follow. (For more information about the particular codes used in the individual national discourses please see table 14.)

Tab. 14: Central and relevant codes in country discourses

Country	Central codes	Relevant codes
CZ	security_of_supply trade_incentive	harmonization insufficient_liberalization lack_of_will price_regulation
HU	harmonization missing_infrastructure lack_of_will	diversification future_transit_flows infrastructure_utilization new_infrastructure
PL	harmonization new_infrastructure trade_incentive	security_of_supply diversification missing_infrastructure infrastructure_utilization future_transit_flows EU_regulations
SK	future_transit_flows infrastructure_utilization	harmonization lack_of_will

Note: Central codes are those connected with all stakeholders within the particular country. Relevant codes are those connected with three out of four stakeholders. Codes showing at least one disagreement are written in red.

The differences are even more noticeable if we analyze the discourse along the functional position line. The MFA discourse seems to be primarily concerned with infrastructure – all the MFAs recognize the importance of the future transit flows and the opportunity to increase interconnectivity, which is expected to increase diversification of supply as well as utilization of the existing assets. The MoE discourse shares the MFAs’ view on the harmonization problem, but puts more emphasis on the lack of interconnectivity within the region and further stresses the expected security added value. The discourse seems quite united on the lack of leadership and political will to proceed further with the project, which is largely a criticism directed at the fellow energy Ministries, as the Road Map places the project’s leadership into the hands of the V4 Ministers of Energy: “[MoEs] shall provide for the necessary political impetus and shall be responsible for the decision-making on the final regional V4 market design in the future.” (V4, 2013, p. 5) The MoEs also seem to share the perceived need to redefine the project. The NRA discourse is centered around the notion of a difficult harmonization procedure. It further recognizes both uncertainties – the EU gas related legislation and future transit flows, and the benefits of increased competition and infrastructure utilization which seem to be balanced by insufficient interconnectivity and lack of political will to push the project forward. The TSO discourse is quite unique as it lacks codes that would be shared among all participating TSOs. The codes shared by three out of four participating TSOs are again pointing at the difficult harmonization process and reveal the benefits that the majority of the TSOs see in the integration: diversification of sources

and (consequently) more competition on the market. (For more information about the particular codes used in the individual stakeholder group discourses please see table 15.)

Tab. 15: Central and relevant codes in stakeholder group discourses

Stakeholder group	Central codes	Relevant codes
MFAs	future_transit_flows new_infrastructure	infrastructure_utilization diversification harmonization
MoEs	harmonization missing_infrastructure security_of_supply trade_incentive	diversification EU_regulations future_transit_flows infrastructure_utilization lack_of_will redefinition
NRAs	harmonization	EU_regulations future_transit_flows infrastructure_utilization lack_of_will missing_infrastructure trade_incentive
TSOs		diversification harmonization lack_of_will trade_incentive

Note: Central codes are those connected with all stakeholders within the particular group. Relevant codes are those connected with three out of four stakeholders. Codes showing at least one disagreement are written in red.

8 Conclusions

There are two main reasons why natural gas market integration is such a challenge for the V4 countries: the overall uncertainty regarding the means and ends of the process; and the very nature of the V4 cooperation.

8.1 Uncertainty

The defining feature of the V4 natural gas market integration is the lack of shared understanding of what the term actually means, how to implement it at the regional level, how to recognize that the integration has been achieved, and how to relate the regional integration to the one that takes place at the European level (see the positions of the “lack_of_will” and “target_unclear” codes in figure 11). Consequently, each V4 country may tend to see market integration as implementation of its own market rules at the regional level (see chapter 6.2).

Moreover, the role of the integration at the EU level also remain unclear since within the EU we observe a redefinition of the metrics related to the common gas market (see chapter 4.2.2). In environment, in which many regional stakeholders consider the future European common gas regulatory framework as an important source of uncertainty (see figure 12), it is generally difficult to design and adopt a regional market model that would be in line with the common European market. As a result, some stakeholders suggest waiting until the European common market legislation is in place and then continue bringing the regional markets closer together (see the position of the “EU_first” code in figure 13).

Another consequence of these uncertainties seems to be the increasing focus on security and infrastructure. The security focus is more emphasized at the V4 level (see chapter 5.2.3), while infrastructure clearly dominates the stakeholder discourse. For many stakeholders, infrastructure automatically represents security of supply and, as it is more tangible and arguably less complicated than for example market rules harmonization, it is also relatively easy to plan and implement. As a result, we see a discourse situation, in which the terms “market integration” and “market interconnection” are interchangeable.

8.2 V4 cooperation

The Visegrad 4 energy cooperation can be best described as a largely non-institutionalized, customary coordination of the national energy policies. The focal points of this cooperation regime are the endeavors targeting the policy making process within the EU. The V4 countries seek to align their positions vis-à-vis new policies and regulations as well as keep the perspective of their V4 partners in mind when implementing the adopted EU legislation. Consequently, provided that their interests do not diverge, the V4 countries help one another in achieving their energy policy targets. Such cooperation, however, is mostly of a reactive nature. It is based on finding intersections of interests of the individual countries within the vast agenda of the EU energy policy making process, and issues, over which interests clash, are simply excluded from the cooperation framework as there are always more promising issues to focus on.

Natural gas market integration, understood as bringing the individual markets together not only through the means of infrastructure but also via rules harmonization, is undoubtedly a different case. Market integration, with complicated negotiations regarding allocation of costs between TSOs and end-consumers represented by NRAs and allocation of transit revenues among individual TSOs, requires pro-active cooperation – one that displays leadership, consensus on goals and means to achieve them, and an institutional framework that would enable the proponents to abandon their otherwise strictly risk-averse behavior (see the positions of the “cost_allocation”, “harmonization”, and “lack_of_will” codes in figures 10 and 11; and the differences in the functional group discourses portrayed in chapter 6.3). In other words, the “no-regret option” envisaged by the Road Map (V4, 2013, p. 3) does not seem to stimulate progress in the project any more.

Should the V4 countries wish to have the integration process completed (or, according to some, at least initiated), it needs to develop something other than a strictly consensual decision-making framework and more pro-active cooperation channels to build on (there is very little experience with truly V4 projects apart from the North-South Corridor). Until then, the overwhelming experience with the reactive cooperation and its successes will be of a disservice to the whole process as it creates the impression that the natural gas market integration will be yet another success of the V4 energy framework.

9 References

- ACER. (2015). *European Gas Target Model - review and update*. Retrieved June 22, 2016, from <http://www.acer.europa.eu/events/presentation-of-acer-gas-target-model-/documents/european%20gas%20target%20model%20review%20and%20update.pdf>
- Adelle, C., Russel, D., & Pallemmaerts, M. (2012). A 'Coordinated' European Energy Policy? The Integration of EU Energy and Climate Change Policies. In F. Morata, & I. S. Sandoval, *European Energy Policy; An Environmental Approach* (pp. 25-48). Cheltenham: Edward Elgar Pub.
- Ascari, S. (2011). *An American Model for the EU Gas Market?* Retrieved June 22, 2016, from <http://cadmus.eui.eu/>: <http://cadmus.eui.eu/handle/1814/18056>
- Ascari, S. (2013). *The Gas Target Model for the Visegrad Four Region*. Retrieved from http://www.osw.waw.pl/sites/default/files/raport_04_the-gas-target-model_net.pdf
- Beckman, K. (2015). *The Energy Union: it's now or never for a European energy policy*. Retrieved June 22, 2016, from <http://www.energypost.eu>: <http://www.energypost.eu/energy-union-now-never-european-energy-policy/>
- Berelson, B. (1952). *Content analysis in communication research*. Glenc, o, e: Free Press.
- BIPR. (2008). *Natural Gas in North America: Markets and Security*. Retrieved June 22, 2016, from <http://bakerinstitute.org/>: <http://bakerinstitute.org/files/421/>
- Boersma, T. (2015). *Energy Security and Natural Gas Markets in Europe: Lessons from the EU and the United States*. New York: Routledge.
- Brandes, U., & Wagner, D. (2016). *Visone*. Retrieved from <https://visone.info/>
- Buchan, D., & Keay, M. (2016). *Europe's Long Energy Journey – Towards an Energy Union*. Oxford: Oxford Institute for Energy Studies.
- Budd, R. W., Thorp, R. K., & Donohew, L. (1967). *Content analysis of communications*. Macmillan.
- Cameron, P. D. (2007). *Competition in Energy Markets; Law and Regulation in the European Union*. Oxford: Oxford University Press.
- CIEP. (2010). <http://www.clingendael.nl/>. Retrieved June 22, 2016, from Energy company strategies in the dynamic EU energy market (1995-2007): http://www.clingendael.nl/sites/default/files/20100608_CIEP_Energy_Paper_Energy_Company_Strategies.pdf
- De Meulemeester, B. (2015). *Buying energy in the land of the free*. Retrieved June 22, 2016, from <http://www.energypost.eu/>: <http://www.energypost.eu/buying-energy-land-free/>
- European Commission. (2006). *Green Paper - A European Strategy for Sustainable, Competitive and Secure Energy*. Retrieved June 22, 2016, from <http://europa.eu>: http://europa.eu/documents/comm/green_papers/pdf/com2006_105_en.pdf
- European Commission. (2014a). *EU Energy Markets in 2014*. Retrieved June 22, 2016, from http://ec.europa.eu/energy/sites/ener/files/documents/2014_energy_market_en.pdf
- European Commission. (2014b, October 13). Progress towards completing the Internal Energy Market. *European Commission Communication to the European Parliament [COM(2014) 634 final]*. Retrieved June 22, 2016, from https://ec.europa.eu/energy/sites/ener/files/documents/2014_iem_communication_0.pdf
- European Commission. (2015). *Report on Single Market Integration and Competitiveness in the EU and its Member States*. Retrieved June 22, 2016, from <https://ec.europa.eu>:

- https://ec.europa.eu/growth/industry/competitiveness/reports/single-market-integration-competitiveness/index_en.htm
- Frontier Economics. (2014). *Wholesale market functioning: GTM1 criteria*. Retrieved June 22, 2016, from acer.europa.eu: <http://www.acer.europa.eu/Media/Events/2nd-ACER-Gas-Target-Model-Stakeholder-Workshop/Documents/02%20Frontier%20Lochner%20Wholesale%20market%20functioning%20GTM%201%20criteria.pdf>
- Glachant, J.-M., Hallack, M., & Vazquez, M. (2013). *Building competitive gas markets in the EU*. Cheltenham: Edward Elgar.
- Guibal, J. C. (1989, October). The 1992 European internal energy market. *Energy Policy*, 17(5), pp. 518-521. doi:[https://doi.org/10.1016/0301-4215\(89\)90073-6](https://doi.org/10.1016/0301-4215(89)90073-6)
- Haase, N. (2008). *European gas market liberalisation: Are regulatory regimes moving towards convergence?* Retrieved June 22, 2016, from <https://www.oxfordenergy.org/https://www.oxfordenergy.org/wpcms/wp-content/uploads/2010/11/NG24-EuropeanGasMarketLiberalisationArerRegulatoryRegimesMovingTowardsConvergence-NadineHaase-2008.pdf>
- Hadfield, A. (2011). *Perceptions of energy security threats to the EU and Wider Europe*. Retrieved June 22, 2016, from http://www.exeter.ac.uk/http://www.exeter.ac.uk/energysecurity/documents/presentations_Sept2011/Amelia_Hadfield.pdf
- Hájek, M. (2014). *Čtenář a stroj: vybrané metody sociálněvědní analýzy textů*. Praha, h, a: Sociologické nakladatelství (SLON).
- Haunss, S., Dietz, M., & Nullmeier, F. (2013). *The Exit from Nuclear Energy in Germany: Explaining a Radical Policy Shift*. Retrieved from <http://ecpr.eu/filestore/paperproposal/f4a30c75-a439-4f87-a4ad-5f2a50aa22a4.pdf>
- Heather, P. (2015). *The evolution of European traded gas hubs*. Retrieved June 22, 2016, from www.oxfordenergy.org/https://www.oxfordenergy.org/wpcms/wp-content/uploads/2016/02/NG-104.pdf
- Helm, D. (2005). The Assessment: the New Energy Paradigm. *Oxford Review of Economic Policy*, 21(1), pp. 1-18. doi:<https://doi.org/10.1093/oxrep/gri001>
- Hooghe, L. (2002). *The European Commission and the Integration of Europe; Images of Governance*. Cambridge: Cambridge University Press.
- Jabko, N. (2012). *Playing the Market: A Political Strategy for Uniting Europe, 1985-2005*. Ithaca and London: Cornell University Press.
- Jepma, C., & Katz, S. (2012). *The European Gas Target Model: how it could be improved*. Retrieved June 22, 2016, from [europeanenergyreview.com/http://europeanenergyreview.com/site/pagina.php?id=3838&print=1](http://europeanenergyreview.com/site/pagina.php?id=3838&print=1)
- Karova, R. (2012). *Liberalisation of Electricity Markets and Public Service Obligations in the Energy Community*. Alphen aan Rijn: Kluwer Law International.
- Krippendorff, K. (2013). *Content analysis* (3rd ed. ed.). Los Angeles, Angele, s: SAGE.
- Krippendorff, K., & Bock, M. A. (2009). *The content analysis reader*. Thousand Oaks, Calif.: Sage Publications.
- Lasswell, H., & Leites, N. (1965). *Language of politics, studies in quantitative semantics*. Cambridge, e: M.I.T. Press.

- Leifeld, P. (2009). Die Untersuchung von Diskursnetzwerken mit dem Discourse Network Analyzer (DNA). In V. Schneider, *Politiknetzwerke. Modelle, Anwendungen und Visualisierungen* (pp. 391-404). Opladen: VS Verlag für Sozialwissenschaften.
- Leifeld, P. (2016). *Discourse Network Analyzer (DNA)*. Retrieved from <https://github.com/leifeld/dna>
- Liu, B. (2011). *Web data mining* (2nd ed. ed.). Berlin, i, n: Springer.
- Majone, G. (1996). *Regulating Europea*. London and New York: Routledge.
- Maltby, T. (2013). European Union energy policy integration: A case of European Commission policy entrepreneurship and increasing supranationalism. *Energy Policy*, 55, pp. 435–444. doi:<https://doi.org/10.1016/j.enpol.2012.12.031>
- Matlár, J. H. (1997). *Energy Policy in the European Union*. New York: St. Martin's Press.
- Naturalgaseurope.com. (2015, February 10). Reaching a fully liberalized and single EU Gas Market - interview with Patrick Heather. www.naturalgaseurope.com. Retrieved from <http://www.naturalgaseurope.com/liberalised-single-gas-market-interview-patrick-heather-oies>
- Newberry, D. M. (1997). Privatisation and Liberalisation of Network Utilities. *European Economic Review*, 47, pp. 1-27.
- North, R. C., Holsti, O. R., Zaninovich, M. G., & Zinnes, D. A. (1963). *Content analysis: a handbook with applications for the study of international crisis*. Evanst, o, n: Northwestern university press.
- Proedrou, F. (2016). *EU Energy Security in the Gas Sector*. New York: Routledge.
- R Core Team. (2016). *R: A Language and Environment for Statistical Computing*. Retrieved from <https://www.R-project.org/>
- Ruszel, M. (2015). *Types of Barriers to the Integration of the EU Gas Market*. Retrieved June 22, 2016, from [www.eis.ktu.lt: www.eis.ktu.lt/index.php/EIS/article/download/12803/7196](http://www.eis.ktu.lt/index.php/EIS/article/download/12803/7196)
- Stern, J., & Rogers, H. W. (2014). *The Dynamics of a Liberalised European Gas Market: Key determinants of hub prices, and roles and risks of major players*. Retrieved June 22, 2016, from <https://www.oxfordenergy.org>: <https://www.oxfordenergy.org/wpcms/wp-content/uploads/2014/12/NG-94.pdf>
- Stern, P. J. (1998). *Competition and Liberalization in European Gas Markets; A Diversitz of Models*. London: The Royal Institute of International Affairs.
- Straka, M., & Straková, J. (2014). *\MorphoDiTa*: Morphological Dictionary and Tagger. *\MorphoDiTa*: *Morphological Dictionary and Tagger*. Retrieved from <http://hdl.handle.net/11858/00-097C-0000-0023-43CD-0>
- Strauss, A., & Corbin, J. (1998). *Basics of Qualitative Research : Techniques and Procedures for Developing Grounded Theory*. Thousand Oaks: Sage Publications.
- Talus, K. (2013). *EU Energy Law and Policy; A Critical Account*. Oxford: Oxford University Press.
- V4. (2013). *Polish Presidency of the Visegrad Group*. Retrieved from <http://www.visegradgroup.eu/pl-v4-pres-2012-2013-130620>
- V4. (2013). *Road Map towards the regional gas market among Visegrad 4*. Retrieved from <http://www.visegradgroup.eu/calendar/2013/v4-road-map-eng>
- Waloszyk, M. (2014). *Law and Policy of the European Market*. Cheltenham: Edward Elgar Publishing Limited.
- Webber, C. (2010). The Evolution of Gas Industry in the UK. *International Gas*. Retrieved June 22, 2016

- Weber, R. P. (1990). *Basic content analysis*. New, Yor, k: Sage Publications.
- Wollmann, H., & Marcou, G. (2010). *The Provision of Public Services in Europe: Between State, Local Government and Market*. Cheltenham: Edward Elgar Publishing.
- Yafimava, K. (2013). *The EU Third Package for Gas and the Gas Target Model: major contentious issues inside and outside the EU*. Retrieved June 22, 2016, from [https://www.oxfordenergy.org: https://www.oxfordenergy.org/wpcms/wp-content/uploads/2013/04/NG-75.pdf](https://www.oxfordenergy.org/content/uploads/2013/04/NG-75.pdf)

10 Methodology annex

10.1 Content analysis

Content analysis may be seen as a strand of various methods used in both quantitative and qualitative research dealing with analysis of expressions and communications (text, speech, etc.) in order to uncover meanings and ideas. The goal is reached through systematic processing, categorization and interpretation of the communications.

Quantitative content analysis covers several techniques, which try to make inferences over communications based on statistical approaches. (Berelson, 1952; Krippendorff & Bock, *The content analysis reader*, 2009; Krippendorff, *Content analysis*, 2013; Lasswell & Leites, 1965; North, Holsti, Zaninovich, & Zinnes, 1963) Qualitative approaches to content analysis focus on uncovering the context of texts with interpretative methods. Processes of reading and coding the content are inherent to such approaches. (Budd, Thorp, & Donohew, 1967; Krippendorff & Bock, *The content analysis reader*, 2009; Krippendorff, *Content analysis*, 2013)

Of course, this simple overview does not exhaust all the types of content analysis. A more detailed introduction may be found for instance in Krippendorff. (2013)

10.1.1 *Research process*

The approach of this paper aims to do an exploration (Berelson, 1952) of the energy-relevant communication and trace it in the documents. Firstly, exploratory quantitative techniques are utilized. Frequencies of individual words are counted, providing a chance to uncover changes in communication over time, assuming the relevance of the topic is proportional to the space it occupies in communication. (Krippendorff, *Content analysis*, 2013, pp. 62-63) Based on frequencies of words, the most common ones are explored through finding co-occurrences – words which appear frequently with the most frequent words of interest. These words form a basic dictionary and potential categories appear. This leads to qualitative analysis of pieces of text containing the most frequent words from the dictionary. Pieces of text – sentences – are assigned codes. This adds more explanatory power to the analysis, showing also context and relations between concepts in the body of texts. (Krippendorff, *Content analysis*, 2013, pp. 100-101, 126-132)

10.1.2 *Sample*

The research is limited by the availability of textual sources. As official communication, three different available types of textual data will be taken into account:

- Programs of Visegrad Group presidencies,
- Annual reports of Visegrad Group presidencies,
- Official communications of the Visegrad Group, namely joint statements, communiques, press releases and their like.

The paper analyzes English texts only. Annual reports of presidencies are available from 1999 up to 2015 with the exception of the year 2001-2002 (Hungarian presidency) and 2006-2007 (Slovak presidency), which are not published or available in English. Programs of individual

presidencies are available from 2000 up to 2015. Programs of presidencies represent goals, which are to be achieved by individual states, while annual reports represent outcomes of these presidencies.

In addition, different public communications (joint statements, press releases, etc.) are analyzed. These form an information channel that communicates achievements of the Visegrad group in the time continuum. These reports are available since 1999 up to 2016. It is important to point out there are very few official communications available from both years 2000 and 2002, and only several from year 2001 and 2003.

In order to unify the text corpus, the analysis is bounded by a timeframe from year 2000 (where there are programs as well as annual reports available), to 2016, ending with the newest document from 5th April 2016.

10.1.2.1 List of communications

Document	Date
http://www.visegradgroup.eu/calendar/2016/joint-statement-on-the	5/4/2016
http://www.visegradgroup.eu/calendar/2016/ostrava-hosted-v4	4/8/2016
http://www.visegradgroup.eu/calendar/2016/joint-statement-of-the	2/15/2016
http://www.visegradgroup.eu/calendar/2016/joint-statement-on	2/15/2016
http://www.visegradgroup.eu/calendar/2016/joint-declaration-of	1/19/2016
http://www.visegradgroup.eu/calendar/2015/joint-statement-of-the-151221-1	12/17/2015
http://www.visegradgroup.eu/calendar/2015/v4-countries-progress-in	12/17/2015
http://www.visegradgroup.eu/calendar/2015/senior-group-of-v4	12/11/2015
http://www.visegradgroup.eu/calendar/2015/joint-statement-of-the-151204	12/3/2015
http://www.visegradgroup.eu/documents/official-statements/joint-statement-on-the	12/3/2015
http://www.visegradgroup.eu/calendar/2015/v4-ministers-in-joint	11/11/2015
http://www.visegradgroup.eu/calendar/2015/memorandum-of	10/12/2015
http://www.visegradgroup.eu/calendar/2015/joint-declaration-of	10/6/2015
http://www.visegradgroup.eu/calendar/2015/meeting-of-the-defence	9/20/2015
http://www.visegradgroup.eu/calendar/2015/joint-communique-of-the-150911	9/11/2015
http://www.visegradgroup.eu/calendar/2015/joint-statement-of-the-150904	9/4/2015
http://www.visegradgroup.eu/calendar/2015/bratislava-declaration	6/19/2015
http://www.visegradgroup.eu/calendar/2015/joint-statement-of-the	6/19/2015
http://www.visegradgroup.eu/calendar/2015/press-statement-on-the	6/19/2015
http://www.visegradgroup.eu/calendar/2015/joint-statement-v4-us	6/18/2015
http://www.visegradgroup.eu/calendar/2015/the-visegrad-group-joint	5/15/2015
http://www.visegradgroup.eu/calendar/2015/v4-and-turkey-shared	5/12/2015

http://www.visegradgroup.eu/calendar/2015/joint-communique-of-the	4/23/2015
http://www.visegradgroup.eu/calendar/2015/final-declaration-of	3/20/2015
http://www.visegradgroup.eu/calendar/2015/co-chairs-statement	3/13/2015
http://www.visegradgroup.eu/calendar/2015/the-visegrad-group-v4	2/26/2015
http://www.visegradgroup.eu/calendar/2015/conclusion-from-the	2/25/2015
http://www.visegradgroup.eu/calendar/2014/joint-statement-of-the-141217	12/16/2014
http://www.visegradgroup.eu/calendar/2014/joint-press-statement-of	12/12/2014
http://www.visegradgroup.eu/calendar/2014/bratislava-declaration	12/9/2014
http://www.visegradgroup.eu/calendar/2014/joint-statement-of-the-141211	12/9/2014
http://www.visegradgroup.eu/calendar/2014/visegrad-group-joint	10/31/2014
http://www.visegradgroup.eu/calendar/2014/joint-statement-of-the	10/30/2014
http://www.visegradgroup.eu/calendar/2014/the-joint-statement-of	10/30/2014
http://www.visegradgroup.eu/calendar/2014/joint-statement	9/30/2014
http://www.visegradgroup.eu/calendar/2014/joint-press-statement	7/17/2014
http://www.visegradgroup.eu/calendar/2014/budapest-declaration-of	6/24/2014
http://www.visegradgroup.eu/calendar/2014/memorandum-of	6/24/2014
http://www.visegradgroup.eu/calendar/2014/statement-of-the	4/29/2014
http://www.visegradgroup.eu/calendar/2014-03-14-ltv	3/14/2014
http://www.visegradgroup.eu/documents/official-statements/joint-v4-ministers	3/5/2014
http://www.visegradgroup.eu/calendar/2014/statement-of-the-prime	3/4/2014
http://www.visegradgroup.eu/calendar/2014/11th-meeting-of-the	2/28/2014
http://www.visegradgroup.eu/documents/official-statements/v4-interior-ministers	2/25/2014
http://www.visegradgroup.eu/joint-statement-of-v4	2/24/2014
http://www.visegradgroup.eu/calendar/joint-statement-of-the	1/29/2014
http://www.visegradgroup.eu/calendar/2013/joint-statement-of-the-131107	10/31/2013
http://www.visegradgroup.eu/calendar/2013/budapest-joint-statement	10/15/2013
http://www.visegradgroup.eu/calendar/2013/joint-statement-on	10/15/2013
http://www.visegradgroup.eu/calendar/2013/v4-customs-director	10/4/2013
http://www.visegradgroup.eu/calendar/2013/joint-declaration-of-the	6/26/2013
http://www.visegradgroup.eu/calendar/2013/visegrad-group-plus	6/16/2013
http://www.visegradgroup.eu/calendar/2013/v4-cult-min-14062013	6/14/2013
http://www.visegradgroup.eu/calendar/2013/joint-statement-of-the	5/17/2013
http://www.visegradgroup.eu/calendar/2013/joint-statement-on-the	5/17/2013
http://www.visegradgroup.eu/calendar/2013/2013-03-06-mio-v4-fra	3/6/2013

http://www.visegradgroup.eu/calendar/2013/press-statement-of-the	3/6/2013
http://www.visegradgroup.eu/documents/official-statements/meeting-of-foreign	2/20/2013
http://www.visegradgroup.eu/calendar/2013/joint-statement-v4-si-hr	1/29/2013
http://www.visegradgroup.eu/calendar/2012/joint-statement-of-the	10/25/2012
http://www.visegradgroup.eu/calendar/2012/joint-statement-by-the	9/25/2012
http://www.visegradgroup.eu/calendar/2012/summit-of-the-heads-of	6/22/2012
http://www.visegradgroup.eu/calendar/2012/v4-letter-ec-june-2012	6/22/2012
http://www.visegradgroup.eu/calendar/2012/cult-min-prague-01062012	6/1/2012
http://www.visegradgroup.eu/calendar/2012/joint-communique-of-the	5/4/2012
http://www.visegradgroup.eu/calendar/2012/v4-statement-on	4/19/2012
http://www.visegradgroup.eu/documents/official-statements/declaration-of-the	4/18/2012
http://www.visegradgroup.eu/joint-statement-v4-ee-lv-lt	3/5/2012
http://www.visegradgroup.eu/on-v4-ivf-activities-twrds-eap	3/5/2012
http://www.visegradgroup.eu/v4-and-eastern	3/5/2012
http://www.visegradgroup.eu/czech-representation	2/2/2012
http://www.visegradgroup.eu/calendar/2011/meeting-of-v4-ministers	11/15/2011
http://www.visegradgroup.eu/calendar/2011/joint-statement-of-the	11/4/2011
http://www.visegradgroup.eu/calendar/2011/visegrad-group	10/14/2011
http://www.visegradgroup.eu/calendar/2011/joint-statement-cultmin	10/7/2011
http://www.visegradgroup.eu/calendar/2011/conference-of-presidents	9/16/2011
http://www.visegradgroup.eu/about/the-delegations-of	8/24/2011
http://www.visegradgroup.eu/about/the-delegations-of-110912	8/24/2011
http://www.visegradgroup.eu/declaration-agriculture	8/24/2011
http://www.visegradgroup.eu/2011/joint-statement-on-the	6/16/2011
http://www.visegradgroup.eu/2011/joint-press-statement	6/6/2011
http://www.visegradgroup.eu/official-statements/documents/resolution-of-the-senate	3/17/2011
http://www.visegradgroup.eu/official-statements/documents/joint-statement-of-the	3/8/2011
http://www.visegradgroup.eu/2011/common-declaration-of	3/3/2011
http://www.visegradgroup.eu/2011/the-visegrad-group-and	3/3/2011
http://www.visegradgroup.eu/2011/declaration-of-v4-energy	1/25/2011
http://www.visegradgroup.eu/2010/visegrad-group	10/22/2010
http://www.visegradgroup.eu/2010/joint-statement-summit	7/20/2010
http://www.visegradgroup.eu/2010/joint-statement-of-the	3/2/2010

http://www.visegradgroup.eu/2010/declaration-of-the	2/24/2010
http://www.visegradgroup.eu/2010/press-statement-of-prime	2/24/2010
http://www.visegradgroup.eu/2010/communique-from-the-20th	2/5/2010
http://www.visegradgroup.eu/2010/experts-report-on-the	2/5/2010
http://www.visegradgroup.eu/2010/consultation-of-the-v4	2/2/2010
http://www.visegradgroup.eu/2009/the-visegrad-group	10/6/2009
http://www.visegradgroup.eu/2009/meeting-of-presidents-of	9/2/2009
http://www.visegradgroup.eu/2009/joint-statement-of-the-110412	7/10/2009
http://www.visegradgroup.eu/2009/press-release-the-16th	7/10/2009
http://www.visegradgroup.eu/2009/the-meeting-of-the	6/25/2009
http://www.visegradgroup.eu/2009/joint-declaration-of	6/3/2009
http://www.visegradgroup.eu/2009/press-release-of-the	6/3/2009
http://www.visegradgroup.eu/2009/culture-ministers	5/29/2009
http://www.visegradgroup.eu/2009/culture-ministers-110412	5/29/2009
http://www.visegradgroup.eu/2009/joint-statement-of-the	5/23/2009
http://www.visegradgroup.eu/2009/meeting-of-ministers-of-110412	5/21/2009
http://www.visegradgroup.eu/2009/meeting-of-ministers-of	4/29/2009
http://www.visegradgroup.eu/2008/joint-statement-of-the-110412-4	11/24/2008
http://www.visegradgroup.eu/2008/joint-statement-of-the-110412-3	11/5/2008
http://www.visegradgroup.eu/2008/press-release-of-the	11/5/2008
http://www.visegradgroup.eu/2008/joint-statement-of-the-110412-2	9/19/2008
http://www.visegradgroup.eu/2008/the-presidents-of-the-v4	9/13/2008
http://www.visegradgroup.eu/2008/communique-from-the-18th	6/20/2008
http://www.visegradgroup.eu/2008/press-release-the-18th	6/20/2008
http://www.visegradgroup.eu/2008/press-release-official	6/16/2008
http://www.visegradgroup.eu/2008/conclusions-from-the	6/4/2008
http://www.visegradgroup.eu/about/conference-of-six	6/4/2008
http://www.visegradgroup.eu/2008/press-statement-from-the	5/14/2008
http://www.visegradgroup.eu/2008/joint-statement-of-the-110412-1	4/25/2008
http://www.visegradgroup.eu/2008/joint-statement-of-the	4/23/2008
http://www.visegradgroup.eu/2008/joint-statement-of-the-110412	4/23/2008
http://www.visegradgroup.eu/2007/joint-statement-v4	12/10/2007
http://www.visegradgroup.eu/2007/joint-statement-by-the	10/25/2007
http://www.visegradgroup.eu/2007/joint-statement-of-the	10/25/2007

http://www.visegradgroup.eu/2007/communique-of-the-17th	9/28/2007
http://www.visegradgroup.eu/2007/conclusions-of-the	6/26/2007
http://www.visegradgroup.eu/2007/press-statement-v4	6/18/2007
http://www.visegradgroup.eu/2007/press-statement-v4-prime	6/18/2007
http://www.visegradgroup.eu/2007/press-statement-v4-japan	5/29/2007
http://www.visegradgroup.eu/jointstatement	5/25/2007
http://www.visegradgroup.eu/2007/international-workshop	4/19/2007
http://www.visegradgroup.eu/about/presidents-of	4/18/2007
http://www.visegradgroup.eu/about/visegrad-group-becomes	4/18/2007
http://www.visegradgroup.eu/2007/joint-communique-of-the	4/12/2007
http://www.visegradgroup.eu/2007/statement-of-the-5th	1/16/2007
http://www.visegradgroup.eu/2007/communique-of-the-16th	1/12/2007
http://www.visegradgroup.eu/official-statements/documents/declaration-of-the-110412	11/13/2006
http://www.visegradgroup.eu/official-statements/documents/statement-of-the	11/13/2006
http://www.visegradgroup.eu/official-statements/documents/declaration-of-the	10/10/2006
http://www.visegradgroup.eu/cultminikrakow	9/4/2006
http://www.visegradgroup.eu/2006/joint-statement-of-the	5/5/2006
http://www.visegradgroup.eu/2006/declaration-of-the	2/3/2006
http://www.visegradgroup.eu/2006/press-conference	2/3/2006
http://www.visegradgroup.eu/2005/declaration-of-the-v4	12/2/2005
http://www.visegradgroup.eu/2005/joint-declaration-of-the	6/10/2005
http://www.visegradgroup.eu/2005/joint-declaration-of-the-110412	6/10/2005
http://www.visegradgroup.eu/2005/communique-on-the-13th	4/29/2005
http://www.visegradgroup.eu/official-statements/documents/soubor	3/18/2005
http://www.visegradgroup.eu/2005/fields-of-cooperation	2/12/2005
http://www.visegradgroup.eu/2004/meeting-of-prime	12/8/2004
http://www.visegradgroup.eu/2004/statement-of-the	12/7/2004
http://www.visegradgroup.eu/2004/the-rules-of-preparation	12/7/2004
http://www.visegradgroup.eu/2004/communique-on-the-12th	11/11/2004
http://www.visegradgroup.eu/2004/memorandum-quadripartite	9/20/2004
http://www.visegradgroup.eu/2004/declaration-of-visegrad	7/19/2004
http://www.visegradgroup.eu/2004/joint-statement-adopted	6/22/2004
http://www.visegradgroup.eu/2004/joint-statement-of-the	5/21/2004

http://www.visegradgroup.eu/2004/declaration-of-prime	5/12/2004
http://www.visegradgroup.eu/2004/guidelines-on-the-future	5/12/2004
http://www.visegradgroup.eu/2004/declaration-on	3/5/2004
http://www.visegradgroup.eu/2004/joint-declaration-of-the	2/6/2004
http://www.visegradgroup.eu/2003/meeting-of-the-deputy	12/5/2003
http://www.visegradgroup.eu/2003/communique-on-the-10th	11/14/2003
http://www.visegradgroup.eu/2003/joint-statement-of-the	10/3/2003
http://www.visegradgroup.eu/2003/statement-of-the	9/11/2003
http://www.visegradgroup.eu/2003/summit-of-prime	6/25/2003
http://www.visegradgroup.eu/2003/minister-of-transport-of	4/3/2003
http://www.visegradgroup.eu/2003/ministers-of-culture	2/7/2003
http://www.visegradgroup.eu/2003/chairmen-of-the	1/13/2003
http://www.visegradgroup.eu/2002/joint-statement-adopted	2/1/2002
http://www.visegradgroup.eu/2001/summit-meeting-between	12/5/2001
http://www.visegradgroup.eu/2001/joint-statement-on	10/19/2001
http://www.visegradgroup.eu/2001/joint-statement-sixth	8/31/2001
http://www.visegradgroup.eu/2001/report-on-youth-meeting	7/15/2001
http://www.visegradgroup.eu/2001/regional-legal-meeting	7/9/2001
http://www.visegradgroup.eu/2001/joint-statement-of-the	6/25/2001
http://www.visegradgroup.eu/2001/communique-of-the	6/23/2001
http://www.visegradgroup.eu/2001/prime-ministers-meeting	6/1/2001
http://www.visegradgroup.eu/2001/ministers-of-culture-10	5/11/2001
http://www.visegradgroup.eu/2001/visegrad-youth	4/29/2001
http://www.visegradgroup.eu/2001/presidents-of-the-v4	1/19/2001
http://www.visegradgroup.eu/2000/geological-surveys-10-12	2/12/2000
<i>Left out – not fit due to timeframe http://www.visegradgroup.eu/cooperation/contents-of-visegrad-110412</i>	5/14/1999

10.1.2.2 List of annual reports of Visegrad Group

Document	Date
<i>Left out – not fit due to timeframe - Czech presidency</i>	1999-2000
Polish presidency	2000-2001
<i>Document missing – Hungarian presidency</i>	2001-2002
Slovak presidency	2002-2003
Czech presidency	2003-2004

Polish presidency	2004-2005
Hungarian presidency	2005-2006
<i>Document missing – Slovak presidency</i>	<i>2006-2007</i>
Czech presidency	2007-2008
Polish presidency	2008-2009
Hungarian presidency	2009-2010
Slovak presidency	2010-2011
Czech presidency	2011-2012
Polish presidency	2012-2013
Hungarian presidency	2013-2014
Slovak presidency	2014-2015

10.1.2.3 List of Visegrad Group presidency programs

Document	Date
Polish presidency	2000-2001
Hungarian presidency	2001-2002
Slovak presidency	2002-2003
Czech presidency	2003-2004
Polish presidency	2004-2005
Hungarian presidency	2005-2006
Slovak presidency	2006-2007
Czech presidency	2007-2008
Polish presidency	2008-2009
Hungarian presidency	2009-2010
Slovak presidency	2010-2011
Czech presidency	2011-2012
Polish presidency	2012-2013
Hungarian presidency	2013-2014
Slovak presidency	2014-2015
Czech presidency	2015-2016

10.1.3 Data cleaning and preparation

Data downloaded from the internet resources are always noisy. This means different formats, different and inconsistent formatting, etc. which needs to be cleaned. In addition, clean textual files need to be further pre-processed before any relevant information can be extracted.

In the first step, format inconsistencies were resolved through various techniques (e. g. HTML tag stripping, text extraction, optical character recognition of scans etc.). (Liu, 2011, pp. 229-230)

Punctuation and hyphenation was removed, as it was used inconsistently across the individual documents. In addition, sentence borders needed to be set throughout all documents. Thus, all pieces of text occupying separate lines in the documents (e.g. bullet-points or headings) were treated as separate sentences, regardless of the punctuation that delimited them.

In the next step, a list of regular words (stop-words such as prepositions, articles or conjunctions), which occur frequently and help in constructing sentences, yet contain no content in themselves, was removed. (Liu, 2011, p. 227).

In the last step, lemmatization (transformation of words to their original canonical forms of words – lemmas) using a vocabulary-based lemmatizer (Straka & Straková, 2014) has been used in order to obtain a standardized corpus of texts which allows any further quantitative content analysis. A decision to use lemmatization instead of stemming was taken, as stemming was producing less optimal results on the corpora. (Liu, 2011, p. 228)

10.1.4 Forming corpora

The chosen data will be broken into several different units and then form several corpora. Here, we refer to corpus as a single bulk of relevant units, over which the methods of analysis are applied.

Firstly, there are three types of documents, as mentioned earlier. Documents of each type will form a separate corpus, which will be described by basic statistical measures, uncovering the structure of the corpus and thus knowing the structure of the available data. This measure aims to take into account variation in length and size of individual texts.

Apart from the description of the different data sources, all the documents will be merged into one single large corpus. This corpus will provide a list of most frequent words used in the body of all texts produced by the Visegrad Group. The list of most frequent words may be analyzed, and energy-relevant themes may be found. Frequencies will be measured from whole documents, without particular unitizing of individual texts, as this is not necessary in this early stage.

In later stages of the research, a corpus will be formed for every year, allowing the recording of a yearly change over frequencies in words. Apart from that, corpora will also split documents into individual sentences, forming a corpus of these units, instead of corpus of whole documents. Splitting texts into sentences will be discussed later in this annex.

10.1.5 Frequencies and word list formation

A simple count of the frequencies of single words over the whole corpus allows us to find what terms are present in the corpus and what is their relative position.

The explanatory value of frequencies is, however, relatively limited, as it does not take into account any meaning of the word in its context. Yet, the formulation of a specific dictionary is very useful for future analysis.

The frequency-ordered dictionary of individual words will be read and words potentially relevant for energy topics will be identified. This process codes the frequency list into a list of words of interest and extracts terms of potential relevance to the explored topic. (Hájek, 2014)

The formation of a list is warranted by the previous knowledge of the research team and expertise in the topic, as well as by the review of the available literature on the issue. The list is a link between theoretical foundations and the unstructured texts and provides a way in which to uncover concepts in the corpus. (North, Holsti, Zaninovich, & Zinnes, 1963, pp. 131-135)

10.1.6 Unitizing

The decision to select sentences as basic units of meaning for any further analysis is given by the relatively compact size of a sentence. A sentence as a text unit provides a sufficient amount of information to understand context. At the same time, a sentence is not long enough to contain too much information, blurring the analysis of co-occurrences. If the basic unit of analysis was larger than a sentence (e.g. paragraph), there is a much higher risk that analysis of co-occurrences shows no meaningful results (if an energy-relevant issue is covered by one or two paragraphs in a document, than there would be a co-occurrence of all energy-relevant terms to each other).

10.1.7 Co-occurrences

Having defined the list, the corpus will be processed again and split into individual sentences. The sentence will form a basic unit of analysis, assuming that an individual sentence is containing one single message, forming one unit of meaning. (Krippendorff, Content analysis, 2013, pp. 98-109)

Within the sentences, an analysis of word connections is undertaken. The co-occurrences of words within sentences are uncovered, measuring how frequently the term of interest appears in connection with other terms within the unit of meaning.

This type of analysis will be performed using two different techniques: correlations and co-occurrences.

10.1.8 Correlations

Firstly, analysis of term correlations will be performed. This is a quantitative technique, showing correlation between a word of interest and the rest of the corpus. The approach searches through the selected units (units containing terms of interest, such as “energy”), and compares the usage of the word of interest with other words. A coefficient is calculated as an intersection of two sets

– one is the set of units where the term of interest occurs, and the other is a set of the co-occurring word. The number captures the Pearson correlation coefficient between two words across the sentences in the whole corpus. A significant limitation of the correlational analysis is that it does not capture the absolute occurrence of words in the corpus. Bias may therefore be introduced, if there is a limited sample (e.g. there are only few relevant sentences containing terms of interest). Thus, the correlational analysis will be used more as a technique to uncover potential themes and will help to form the codebook.

10.1.9 Co-occurrence analysis and coding

Secondly, the analysis of co-occurrences – regularities of words occurring together – will be performed. This is a two-step technique. Firstly, there is an extraction of sentences relevant for the analysis. Here, sentences containing various combinations of keywords from the word list are captured. Words are searched for by their common occurrence within one sentence, regardless of their position within the sentence. This technique provides the advantage of capturing looser use of language, ensuring all relevant units are recorded. Thus, if words “natural”, “gas” and “market” appear in one sentence, the sentence is recorded regardless of the relative position of words (e.g. “market with natural gas” or “natural gas market” are both recorded). The downside of this technique is that, irrelevant content is captured as well (e.g. compound sentences, where two phrases “market” and “natural gas” might occur in unrelated contexts). In order to capture and analyze only the relevant units, sentences of these co-occurring terms will be read and coded in order to ensure valid inferences are made.

This is achieved by the use of coding. (North, Holsti, Zaninovich, & Zinnes, 1963, pp. 45-53; Krippendorff, Content analysis, 2013, pp. 126-149) The concepts used as codes are created on the basis of the correlation analysis, which itself points to some concepts used in the text. These concepts are then enriched with other concepts based on the first reading of the sampled text. The latter procedure of the inductive generation of the concepts is known as “open coding”. (Strauss & Corbin, 1998, pp. 101-121) These codes are then analyzed for their frequencies overall, frequency changes over time, comparative relations to each other, as well as for co-occurrences. Moreover, co-occurrences of concepts are made visual/presented visually.

10.1.10 Manual coding

This part of the annex is providing more information on manual coding of the V4 official communication. We coded all utterances which contained term “energy”. We then again coded all utterances containing market integration. We then looked at co-occurrences of these codes, where they overlapped.

10.1.10.1 Energy

This chapter provides more information on the codes used in the content analysis of the term “energy”. There were 13 codes used in the coding process:

en.sec

Code representing all concepts tied to energy security.

- diversification of gas supplies
 - diversification of source of gas
 - diversification of transport routes
- resource dependence
 - reference to the dependence on supplies
 - call for the decrease of the dependence on external resources
- supply security
 - uninterrupted flow of gas
 - risk of a gas flow disruption
- reverse flows
 - introduction of reverse flow capacity in V4
 - introduction of reverse flow to other countries
- increasing energy prices and their effect on competitiveness
 - increasing prices as risk to competitiveness
 - call for action to manage price levels
- utilization of indigenous resources in order to achieve energy security
 - call for development of indigenous resources
 - call for increased gas extraction within the Visegrad countries
 - call for development of unconventional sources of gas
- introduction of security-related rules
 - implementation of EU regulations regarding security of supply

market

Code capturing references to energy markets.

- establishment of energy market
 - establishment of regional gas and/or electricity market
 - establishment and implementation of EU internal market
- implementation of market-related rules
 - liberalization of the existing market
 - privatization of energy incumbents
- energy trading
 - reference to competition
 - reference to increased trading
- increase in liquidity of trading of energy resources
- introduction and existence of competition over energy supplies
 - EU Third Energy Package

gen.c

Code capturing general statements over energy and energy security.

- cooperation in energy policy
- cooperation in energy security
- necessity to focus on energy security
- energy and energy security as one of the challenges
- energy and energy security as one of the topics of interest

nuclear

Code capturing any references to nuclear energy.

- cooperation over nuclear energy
- support to development of new nuclear resources
- sovereignty of countries to choose nuclear option
- support to maintaining of the existing nuclear resources
- reference to nuclear safety

exter

Code capturing ties with third countries.

- energy cooperation with non-EU countries such as:
 - USA
 - Israel
 - Switzerland
 - Japan
 - South Korea
- external energy policy towards non-EU countries
- reference to Energy Community or Energy Community countries, especially:
 - Ukraine
 - Belarus
 - Balkan countries

climate

Code capturing references to environmental issues.

- introduction and implementation of energy efficiency measures
- introduction and implementation of renewable sources of energy
- issues concerning renewable sources of energy
- decrease in energy consumption
- environmental and climate targets and goals
- energy utilization of waste
- climate meetings
- decarbonization of economy

intra.v4

Code capturing cooperation of national authorities inside V4 and generation of common structures.

- activity of V4 workgroups
- establishment of bodies inside the V4
- reference to cooperation of intra-V4 actors

infrast

Code capturing references to infrastructure.

- reference to pipelines and corridors
- necessity to build new infrastructure
 - development of cross-border links and missing interconnections
 - development of North-South corridor
- development of LNG terminals

ener.mix

Code capturing references to energy mix.

- reference to preservation of energy mix
- sovereignty to choose energy sources
- preservation of resource neutrality
- defense of technological neutrality

russia

Code capturing any reference to Russia.

- explicit reference to Russian Federation

ukraine

Code capturing any reference to Ukraine.

- explicit reference to Ukraine

en.union

Code capturing any reference to the concept of Energy Union.

- explicit reference to EU Energy Union

10.1.10.2 Market integration”

This chapter is providing more information on the codes used in the content analysis of the market integration. There were 12 codes used in the coding process:

gen.coop

Code capturing general statements over gas market integration

- Simple reference to the market integration without any other content
- Market integration listed among other issues

mark.open

Code capturing the opening of the market

- Opening of the gas market
- Liberalization of market
- Introduction of the competition on the market
- Privatization of energy companies
- Implementation of the EU regulation

infrast.m.i

Code capturing the connection between the energy market and infrastructural projects

- Infrastructure as a means to achieve the opening of the market
- regional market
- Internal energy market
- Market integration as a means to achieve better infrastructural interconnection
- Better interconnection in the region
- Better connection to other markets
- Market integration as a means to achieve better flows of gas through existing infrastructure
- Market integration as a measure to achieve better interconnection for better energy security

infrast.gen

Code representing references to infrastructure

- References to infrastructural projects without linkage to market integration
- General references to the infrastructure as a means to achieving energy security
- General pledges to develop infrastructure in the V4 region

en.sec

Code representing energy security measures and energy security benefits of the market integration.

- Achievement of the security of supply
- Increased accessibility of gas sources
- More diversified supplies of gas
- Less dependence on existing supply arrangements

EU.m.i

Code referring to the market integration at the EU level

- Calls for the completion of the Internal Energy Market
- Implementation of rules leading to the establishment of the Internal Energy Market

m.i.means

Code representing particular means of market integration

- Harmonization of regulations
- Implementation of network codes
- References to the particular means of cooperation of TSOs
- References to the particular means of cooperation of national regulators
- Investigation of utility and implementation of particular models
- Market coupling
- Trading region
- Cross-border market zone

region.m.i

Code referring to the regional market integration

- Reference to the development of the regional gas market
- Call for market integration at the V4 level

benefits.m.i

Code referring to the business-related benefits of the gas market integration

- Increased liquidity of the market
- Market-induced price changes
- Increased gas trading
- Changes in gas-trading model
- Decommissioning of the market incumbents

elec.m.i

Code representing integration of electricity markets

- Reference to integration of electricity markets
- Reference to electricity market coupling

mark.insuff

Code referring to the insufficiency of market as a solution to energy issues

- Explicit notion that market alone is not a solution to energy issues

global.m

Code referencing to the global market

- Changes in the global gas market
- USA as game-changer in global gas supply
- Developments in global gas demand

10.2 Stakeholder analysis

For analysis of the stakeholders' positions towards the issue in question we use the Discourse Network Analysis (DNA). The epistemological core of network analytical approaches is that complex systems should not be understood as aggregates of isolated individual components, but that it is necessary to analyze the interaction between the elements in order to understand complex systems. This relational perspective is well suited to the analysis of discourses, because discourses are never just aggregated statements, but always consist of complex connections between actors, their statements, other actors and their claims. DNA allows for the analysis of discursive interactions of large numbers of actors over time, taking into account the complexity of discursive events (Leifeld 2009; Leifeld and Haunss 2012)

10.2.1 *Research process*

Since we were mostly concerned with discursive positions of integration stakeholders, we performed the stakeholder analysis in accordance with established practices of the DNA method. We began with preparation of an outline for the semi-structured interview that served as a main tool for data collection (see box 2)

Box 2: Interview questions

- What is your position in the institution and what is the agenda you are mainly responsible for?
- How significant is the regional market integration in the agenda of your institution?
- If we take a closer look at the market integration, what are the main objectives of your institution?
- What means does your institution employ to achieve the objectives? Which actions does it undertake or plan to undertake?
- Which factors, that are important for the future of the integration process, are beyond the control of your institution? In what way will they influence the process?
- What other actors are influencing the process? What are their objectives and actions?

After that we conducted, recorded and transcribed the interviews, the interview transcripts were inserted into the DNA (Leifeld, Die Untersuchung von Diskursnetzwerken mit dem Discourse Network Analyzer (DNA), 2009) interface and coded. During the coding procedure, the text corpus was carefully read and text segments that carried the meanings specified in the codebook were assigned to the respective codes. Relevant meta-data, such as stakeholder ID (i.e. HU_MFA) and country of origin (HU) were assigned as well. This allowed us to limit the analysis to one national or functional group and achieve higher granularity of the research.

There were instances in which we were not allowed to record the interviews (see tab. 16). In such cases, we performed a two-level coding procedure, under which all research team members learned the precise meanings of the codes and conditions of using each and every code in the codebook. The interviews were then conducted by at least two researchers – one conducting the interview itself and the other(s) transcribing sentences that carried the meanings defined in the

codebook. Since the research did not have the goal of performing a detailed frame analysis with code overlaps and proximities, we consider the “reconstruction” of some interviews a decision that does not significantly compromise the reliability of the research.

Tab. 16: Sources of interview data

Country/stakeholder	CZ	HU	PL	SK
MFA	Recorded	Recorded	Reconstructed	Recorded
MoE	Recorded	Recorded	Reconstructed	Recorded
NRA	Recorded	Recorded	Reconstructed	Recorded
TSO	Recorded	Reconstructed	Reconstructed	Reconstructed

Note: In Hungary two TSOs coexist: state-owned MGT, which operates the Hungary-Slovakia interconnection, and privately-owned FGSZ, which is responsible for the rest of the transmission system. For two reasons, we have reflected only the position of FGSZ in our analysis: (1) it is the key infrastructure institution in the process; (2) we have reflected the position of the Ministry of National Development (MND), Hungary’s Ministry responsible for energy (MoE), and since the ownership rights over MGT are executed by MND we expect their views to be in-line.

The reconstructed interviews were inserted and coded in the same way as those recorded. Finally, the coded corpus was exported as several affiliation bipartite networks and processed in the graphs software “Visone”.

10.2.2 Codebook

Tab. 17: Categories and codes used in the stakeholder analysis

Category	Code
Goals and expected benefits	security_of_supply
	trade_incentive
	new_infrastructure
	infrastructure_utilization
	regional_leader
	stronger_together
	building_EU_market
	predictability
	diversification
Obstacles	missing_infrastructure
	costs_allocation
	insufficient_liberalization
	LTCs
	price_regulation
	state_involvement
	harmonization
Questions and doubts	target_unclear
	political_assignment
	lack_of_will
	buzzword
	opposition_isolation
	non-V4_integration
Uncertainties	future_transit_flows
	EU_regulations
Proposed solutions	EU_first
	look_elsewhere
	redefinition
	security_focus

10.2.2.1 Goals and expected benefits

The category lists codes related to the goals that the stakeholders pursue in the integration process or the benefits they see in it:

security_of_supply

- Security of supply benefits

trade_incentive

- Intensified trade in the region
- Increased competition
- Wholesale price decrease

new_infrastructure

- Benefit of having more infrastructure in place due to the needs of integration

infrastructure_utilization

- Utilization of existing infrastructure (pipelines and storage)
- Maintaining the transit flows

regional_leader

- To become a leading force behind the regional integration initiative

stronger_together

- To gain better negotiation position towards suppliers and competing consumers
- To build a counterweight to the large markets of Germany and the Ukraine

building_EU_market

- Contribution to the common European market
- V4 integration as a pilot project for the European integration

predictability

- To follow policies and strategies that are predictable for the market actors
- To be able to adjust the network development to the regulation and vice versa

diversification

- Diversification of supply sources for the region

10.2.2.2 Obstacles

The category lists codes that capture the obstacles that according to the stakeholders hinder the integration process:

market_liberalization

- Different level of market liberalization in the V4

price_regulation

- Regulation of retail prices at some markets

state_involvement

- The notion of energy (gas) as a service provided to a society by its government
- State influence over TSOs and NRAs

harmonization

- Difficult process of harmonization of rules (regarding for example licenses, trading platforms, business days)

missing_infrastructure

- Missing interconnections between the V4 countries

insufficient_liberalization

- Different level of market liberalization in the V4

LTCs

- Long-term contracts preventing major market changes

costs_allocation

- It is unclear whether the costs would be exceeded by the benefits
- It is unclear how to allocate the costs between the countries and within the countries

10.2.2.3 Questioning

The category lists codes related to the questions and doubts regarding the very purpose and justification of the project:

target_unclear

- A clear definition of target is missing

political_assignment

- Integration as a purely political goal and has very little commercial justification
- The proponents of the project are too disconnected from the details of such an initiative to fully understand its drawbacks

lack_of_will

- Lack of political will to actually proceed with the integration
- Lack of leadership in the whole process

buzzword

- Integration is only a catch phrase that the high-level proponents like
- Integration is only a label that covers particular interests

opposition_isolation

- Opposing integration leads to isolation/stigmatization

non-V4_integration

- Preferring arrangements other than those which are V4-based

10.2.2.4 Uncertainties

The category lists codes that represent the major sources of uncertainty according to the stakeholders:

future_transit_flows

- Future transit flows through the region

EU_regulations

- EU regulations such as network codes or the structure of the gas regions within the EU

10.2.2.5 Solutions

The category lists codes representing the solutions to the current lack of progress suggested by the stakeholders:

EU_first

- Wait until the EU common market regulations such as NCs are in place

look_elsewhere

- Push forward a non-V4 cooperation

redefinition

- Abandon the idea of market integration as it is currently discussed and come up with another set of targets

security_focus

- Focus the whole process on the less divisive issue of security of supply



**Asociace
pro mezinárodní
otázk**
Association
for International
Affairs

Žitná 27
CZ 110 00 Praha 1
Tel/Fax +420 224 813 460

—
info@amo.cz
www.amo.cz

Recenzentský posudek knihy *Natural gas market integration in the V4 countries*

Jan Osička, Lukáš Lehotský, Veronika Zapletalová, Filip Černo

Spolupráce v energetice je často považována za jednu z hlavních a úspěšných oblastí Visegrádské spolupráce. Do popředí mediální pozornosti se dostávala zejména v období přerušení dodávek plynu, kdy země Visegrádské skupiny deklarovaly vzájemnou solidaritu i vůli se tématem zabývat společně. Daří se však tyto cíle naplňovat?

Publikace *Natural gas market integration in the V4 countries* zpracovaná autorským kolektivem Centra pro energetická studia Masarykovy univerzity se věnuje právě této otázce ve specifické oblasti vytváření regionálního visegrádského trhu s plynem. Již v úvodu autoři a autorka konstatují, že proces integrace trhů s plynem po úvodních dílčích úspěších stagnuje. Výzkum je koncipován jako hledání příčin tohoto neúspěchu. Skutečnost, že byl zadán přímo jedním z důležitých aktérů celého procesu – Ministerstvem zahraničních věcí ČR – ukazuje, že se jedná o otázku podstatnou pro úspěch tohoto visegrádského projektu.

Výzkum je rozdělen do tří hlavních částí. V první řadě se autoři a autorka věnují integraci trhu na úrovni EU a jejímu vztahu k regionálním projektům, jako je ten visegrádský. Z druhé se zaměřují na to, jakou roli má spolupráce v energetice v rámci aktivit Visegrádské skupiny a specificky na to, jak relevantní je téma integrace trhu s plynem. Třetí fáze výzkumu se věnovala pozicím národních aktérů v celém procesu.

Pečlivá analýza dokumentů Visegrádské skupiny ukázala, že téma energetiky je ve spolupráci trvale přítomné s viditelně růstovou intenzitou od roku 2006. Zároveň je ale patrné, že povaha energetické spolupráce se dle jazyku společných dokumentů výrazně změnila. Nejčastěji se hovořilo o energetické bezpečnosti. Pozoruhodným poznatkem dále je, že od roku 2013 se v dokumentech V4 častěji hovoří o „trhu“. V neposlední řadě stojí za zmínku skutečnost, že Rusko v textech zmiňováno příliš často není.

Zvláštní výzkumnou hodnotu má studium aktérů prostřednictvím diskurzivní síťové analýzy, která ukázala odlišnosti ve vnímání integrace trhu s plynem ze strany zemí i aktérů a skupin aktérů. Z výzkumu je zřejmé, že svými pozicemi jsou nejvzdálenější polští aktéři.

Ve výsledku autoři a autorka docházejí ke dvěma hlavním důvodům, které činí integraci trhu se zemním plynem ve visegrádském regionu prozatím neproveditelnou. Prvním důvodem je nejistota pramenící z odlišného vnímání prostředí různými aktéry. Tato nejistota pak vede k zdůrazňování energetické bezpečnosti a energetické infrastruktury jako témat, ve kterých lze identifikovat minimální společný konsenzus. Další překážku vidí autoři a autorka v charakteru Visegrádské spolupráce. V momentě, kdy někteří klíčoví aktéři integraci s trhem prakticky blokují, se stává charakter visegrádské spolupráce postavený na



**Asociace
pro mezinárodní
otázky**
Association
for International
Affairs

Žitná 27
CZ 110 00 Praha 1
Tel/Fax +420 224 813 460

—
info@amo.cz
www.amo.cz

nutnosti souhlasu všech aktérů jako skutečně nepřekročitelnou překážkou, neboť k vnucování určitého směru v pravděpodobně nedojde.

Tento výzkum měl jasné zadání, využívá nápadité metodologické přístupy a přichází s pozoruhodnými výsledky. Lze navíc předpokládat, že samotný charakter visegrádské spolupráce, který neumožňuje dokončení integrace trhu s plynem, je původem podobné stagnace i v jiných tématech. Podobný výzkum by proto bylo možné realizovat například i pro vojenskou či zbrojní spolupráci.

Publikace tak má vysokou vědeckou hodnotu a posouvá naše poznání.

V Praze, 15. ledna 2018

Mgr. Vít Dostál, Ph.D.

Ředitel Výzkumného centra

Asociace pro mezinárodní otázky (AMO)

