# CHARLES UNIVERSITY

FACULTY OF SOCIAL SCIENCES

Institute of Political Studies

Department of Security Studies


## Master's thesis


**2019** **Jan Jančík**

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# Nord Stream 2:

# In accordance with the EU's Energy security strategy?

*Master's thesis*


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Study programme: **Security Studies**

Supervisor: **PhDr. Irah Kučerová, Ph.D.**



Year of the defence: **2019**

## Declaration

1. I hereby declare that I have compiled this thesis using the listed literature and resources only.

2. I hereby declare that my thesis has not been used to gain any other academic title.

3. I fully agree with my work being used for study and scientific purposes.

In Prague on Jan Jančík

# References

JANČÍK, Jan. *Nord Stream 2: In accordance with the EU's Energy security strategy?* Prague, 2019. 53 pages. Master's thesis (Mgr.). Charles University, Faculty of Social Sciences, Institute of Political Studies. Department of Security Studies. Supervisor: PhDr. Irah Kučerová, Ph.D.

**Length of the thesis:** 112 749

# Abstract

The diploma thesis is focused on the energy security of the European union, specifically on the import of natural gas. The dependence on the import of natural gas is one of the key questions for the energy security of the EU. One of the tools for dealing with this issue is diversification of the suppliers a searching for a new sources of energy to sustain the economical development of the EU. One of the goals of the EU' Energy security strategy is to lower its dependence on gas imports from Russia. In the lights of recent events, when the gas supply was disrupted a few times, because of the events on Ukraine, Russian aggression in the eastern part of Ukraine and annexation of the Crimea, EU is looking for a better alternative. The research is trying to find out what is the role of the Nord Stream 2 gas pipeline, which will bypass Ukraine and go straight from Russia to Germany and will have impact on other Central and Eastern European countries. The question is whether the project is viable vis-a-vis energy security framework metrics and whether there are better alternatives such as the Southern Gas Corridor or the possibility to import liquified natural gas LNG from elsewhere. Apart from the energy security framework the geopolitics is taken into an account and will try to explain the power aspirations of Russia, the EU and also the United States of America.



# Abstrakt

Diplomová práce se zaměřuje na energetickou bezpečnost Evropské unie z pohledu dodávek zemního plynu do EU. Závislost na dovozu zemního plynu je jednou z klíčových otázek pro energetickou bezpečnost EU. Jedním z nástrojů EU pro vyřešení této otázky je diverzifikace dodavatelů a hledání nových energetických zdrojů pro zajištění chodu evropské ekonomiky. Cílem energetické strategie Evropské unie je také snížit závislost na jednom dodavateli, kterým je v tomto případě Rusko. Ve světle událostí z posledních let, kdy byly dodávky zemního plynu z Ruska několikrát přerušeny, zejména kvůli dění na Ukrajině, následné ruské agresi na východě Ukrajiny a anexi ukrajinského Krymu, hledá EU vhodnější alternativu. Výzkum se snaží odpovědět na otázky, jak se v tomto světle jeví projekt plynovodu Nord Stream 2, který rozšíří přímý dovoz zemního plynu z Ruska do Německa. Ten tak obejde Ukrajinu a bude mít dopad na další země střední a východní Evropy. Práce zkoumá projekt z pohledu konceptu energetické bezpečnosti a srovnává alternativy v jižním

plynovém koridoru, nebo možnosti dovozu zkapalněného zemního plynu LNG. Kromě pohledu skrz rámec energetické bezpečnosti, se práce snaží nahlédnout na celý fenomén z pohledu geopolitiky a bere tak v potaz širší mocenské zájmy Ruska, Evropské unie, ale také Spojených států amerických.

## Keywords

Energy Security, EU Energy Strategy, Nord Stream 2, Southern Gas Corridor, European Union, natural gas, gas pipelines, Russia

## Klíčová slova

Energetická bezpečnost, Energetická politika EU, Nord Stream 2, Jižní plynový koridor Evropská unie, zemní plyn, plynovody, Rusko

## Title

Nord Stream 2: In accordance with the EU's Energy security strategy?

## Název práce

*Nord Stream 2:* Je v souladu s evropskou energetickou strategií?

**Acknowledgment**

I would like to express my gratitude to PhDr. Irah Kučerová, Ph.D. for allowing me to work on this topic and for supervision. Furthermore, I would like to thank my family for unconditional support during my studies and to my girlfriend and friends for moral support during the process of writing this thesis

# Contents

# Introduction

Competitive, sustainable and secure – these are labels European Commission used, in its 2020 Energy Strategy (European Commission 2010) to describe what should be the essence of energy used in the European Union. The same document also sets targets on energy savings and it is proposing to increase the share of renewable energy to at least 20%. In 2017 the average share of renewable energy in the total energy consumption of the EU' member states was 17,5% (Eurostat 2019a). Even if the EU is set on the right path the member states will still be dependent on the import of energy sources. As of 2016 the EU imported sources represented more than half of the energy consumption of the EU. With the extreme weather showing us what might be the consequences of irreversible climate change, the pressure to limit (or completely stop) the burning of fossil fuels in order to curb greenhouse gas (GHG) emits will change the energy sector dramatically in years to come. In the meantime, however, as the nuclear sector is stagnating and renewables are not an easy option in some countries (for various reasons), the natural gas seems as an acceptable solution to bridge the gap between burning coal and oil products towards renewables. Here is where the importance of energy security and diversification comes into play.

Natural gas production within the EU is declining as well as does the domestic production of the second most important importer of natural gas to the EU – Norway. As a result, member states are more and more dependent on the import of natural gas from Russia. The number varies across the EU, but according to the data available (Eurostat 2019b) in 2017 Russia imported 39,8% of all natural gas needed in the EU. This number alone without knowing any other factors implies that EU is perhaps too dependent on one source. With more information added on the mutual relationship of the supplier and consumer one might consider this number alarming and call for immediate diversification. But is it actually the case? Should the EU or the respective member countries be worried about this relationship or is the dependence rather mutual and thus secure?

Goal of this thesis is to provide unbiased analysis of current projects that are underway in order to bring more natural gas to Europe. The main part of the thesis will be focused on Russia and the mutual relationship with European countries and the European Union, and especially the project of Nord Stream 2 which should be finished by the end of 2019. The Nord Stream 2 project will double the capacity of already existing gas pipeline Nord Stream which directly

connects Germany with Russia through the Baltic Sea. The question at hand is if this project is actually necessary and how does it comply with the strategy of diversification of resources. This reality will be confronted with various approaches that exist in the field of energy security and examine whether current research and energy policies might be under the influence of cognitive shortcuts seeing Russia as a priori bad and dangerous actor in international relations. Part of the work will also examine the legal restrictions in the form of 2009 EU Gas Directive known as the Third Energy Package and the antitrust case against Gazprom.

In opposition to the Nord Stream 2 project other part of the thesis will focus on examining alternatives to the Russian gas which in this case will be the Southern Gas Corridor proposed by the 2014 Energy security strategy of the EU (European Commission 2014, p. 15). Projects in Southern Gas Corridor should actually diversify the gas imports into the EU as source countries suggested in these projects are Azerbaijan in the first stage, then Turkmenistan and in the long-run potentially even Iran or Iraq. The projects in focus here will be the South Caucasus Pipeline Extension (SCPX), Trans Anatolian Pipeline (TANAP) and Trans Adriatic Pipeline (TAP). Small part of the thesis will also consider the possibility of liquified natural gas (LNG) that offers an alternative to the traditional way of transporting gas in pipelines free of geographical restrictions. Nevertheless, it poses other limitations as the capacity of LNG carrier is smaller than pipelines and it brings the question of security at sea into the equation.

To help answer these questions and compare the above-mentioned projects this work will use the energy security framework proposed by Christian Winzer. Using his framework, I will analyse primarily the human risks meaning threats stemming from human action done on purpose. The threats connected with the environment and technical aspects will play only a minor role. The human risks will also involve the geopolitical dimension. In other words, if the disruption of energy supply can be used as a weapon and if there is any will to do so and secondly, whether there are any other risks of disrupting the energy flow such as sabotage or terrorism. To broaden Winzer's take on geopolitical risks, in the further comparison the thesis will analyse whether actors are treating the energy supply chain as a process of getting the commodity, gas in this case, to customers (market-oriented approach) or whether is it a strategic resource that can be used as a leverage or a way to reach different political goals (geopolitical approach).

# 1. Theoretical framework

This chapter should establish the basic paradigms and theoretical assumptions that will be used throughout this work. First and foremost, the understanding of *energy security* in this thesis will be inherently connected with the academic discipline of international relations. The theoretical basis for this work will be the classic approach of rationalism as suggested for example in Černoch & Ocelík (2014) as opposed to constructivism. The rationalistic approach to the energy security is based on the dichotomy of strategic (geopolitical) approach and market oriented (liberal) approach.

The geopolitical approach sees the vital role in political authority of the state, which is an active player in physical securing of the energy supplies and makes the decisions based on the calculated relative profit, while the market oriented approach relies on the market and its mechanisms where for the actors the absolute profit is the most important and physical security of the supply is a by-product helping to maximize the profits (Černoch & Ocelík 2014, p. 10)

The rationalistic approach will allow us to narrow down (but not necessarily) the referential object of the energy security to the state, but thanks to the inclusion of the market oriented approach we will be also able to cover the position of the European Union which is an unprecedented transnational actor with some state-like features. As the analysis will strive to be objective and broad enough for the sake of widening (Černoch & Ocelík 2014, p. 14) of our framework we will also include non-military threats in the research.

This should result in not strictly geopolitical approach. In the first phase of the work the analysis will be focused on the physical threats the researched projects might be facing on the ground, which will be limited to not only state-centred military threats but also on the threats posed by non-state actors, which might result in threats such as sabotage or terrorism, and shortly also environmental threats.

Second phase of the thesis will examine the geopolitical threats, meaning that the gas pipelines itself might be used as a geopolitical tool of power.

Thirdly, the use of market-oriented approach will extend this work for a part where we will examine the differences and possible hindrances in the cooperation between the Russian Federation and the European Union. We will have a look at the traditional view which sees the EU as a liberal actor whereas Russia is predominantly seen as geopolitical player (Siddi 2018,

p. 1553).

## 1.1 The concept of energy security and literature review

Next step, after setting-up the basic paradigms, is to define how the term *energy security* will be treated within this work. As it is with many terms used in the field of social sciences, and the international relations and security studies are not an exception, there is no single broadly accepted definition of energy security. That being said the authors of academic texts or policy papers are always facing the challenge to choose how to treat the concept of energy security and which framework to choose for an unbiased analysis. The methods and procedures will be always dependent on the actual global energy landscape and other circumstances and will dynamically change over time as well as most of the energy security works will be focused on certain region and therefore be adjusted accordingly. Lynne Chester calls this polysemic qualities of energy security (Chester 2009, p. 893). Sometimes it might also happen that authors will tend to choose approaches that best suit their desired outcome and thus, even if unconsciously, the research might be biased.

The commonly accepted and perhaps the simplest definition is "the availability of sufficient supplies at affordable prices" (Yergin 2006), however, it does not really explain much of the complexity. For the European Union, based on its 2000 Green Paper that deals with the security of energy supply, the strategy must "be geared to ensuring, for the well-being of its citizens and the proper functioning of the economy, the uninterrupted physical availability of energy products on the market, at a price which is affordable for all consumers (private and industrial), while respecting environmental concerns and looking towards sustainable development" (European Commission 2000, p. 2). This on the other hand is quite broad concept, and despite the fact that the energy security of the EU is the key issue of this thesis, it will not be used for the analysis as some of the factors, such as well-being of the citizens would be hard to operationalize and measure and other indicators like the sustainable development and environmental concerns would stretch outside of the theoretical framework of this thesis.

In Ang, Choong and Ng (2015) did a survey of 104 studies on energy security and identified 83 different definitions of energy security. They identified seven key issues/topics emphasized in these studies which shed light on what can be considered as a broad agreement on what should the part of energy security research (Ang, Choong & Ng 2015, pp. 1081-1082). First is the ***energy availability*** – the diversification of supply sources, transport route diversity,

enhancing the diversification of the energy mix and geopolitical issues such as wars or regional tensions that can lead to the disruption of supplies. Second is the ***infrastructure*** – the adequate facilities to generate, transfer and store energy able to withstand or prevent blackouts and other disruptions that could otherwise have an impact on the economic welfare. On the third place they put the ***energy prices*** – competition in energy markets, price volatility and consequent affordability of energy supplies. Fourth goes into the realm of human security and adds ***societal effects*** which treats energy as a basic necessity of life and is concerned about the energy poverty, but also examines the impacts of some energy projects on the living environment thus adding the social welfare level. Fifth adds the ***environment*** to the equation which is concerned not only by immediate short-term risks such as pollution, oil leaks but adds also the long-term effects contributing to the global change of climate. Sixth covers the ***governance***, or how the governments are ready in case of disruptions, how well they are in energy diplomacy and if they are gathering data for effective policies. And last is the ***energy efficiency*** dealing with how new technologies can help to reduce the energy needs.

There are also works trying to offer systematic approaches, Hughes (2011) offers a definition of a structured energy system as a "group of interacting, interrelated, or independent elements forming, or regarded as forming, a collective entity" (Hughes 2011, p. 222) shown on **Fig. 1.**

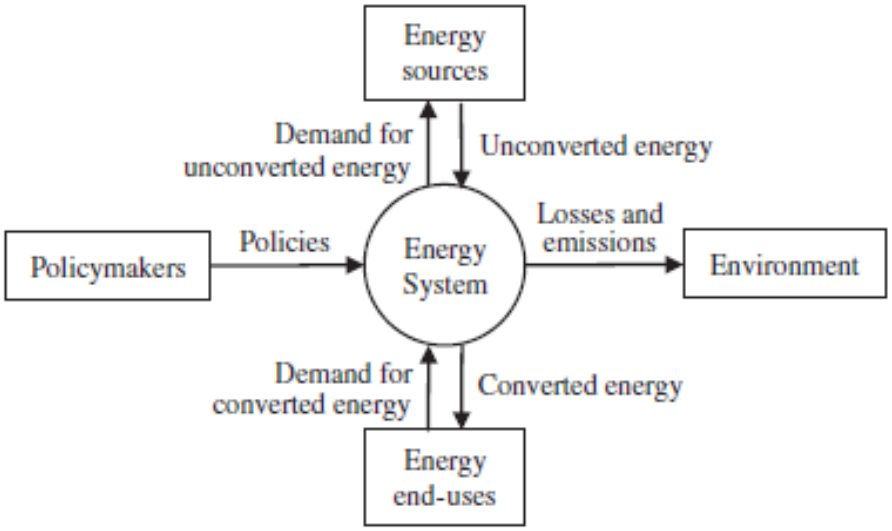


**Fig. 1.** A generic energy system, its terminators, and flows.

*Figure 1 – A generic energy systém. **Source:** Hughes (2011, p. 222)*

Kucharski and Unesaki (2014, pp. 28-29), to explain the multi-dimensional nature of energy security, defines the energy system as system of systems with **micro** level where human and

technological agents interact with each other and shape the environment, the **meso** level then considers human made systems/infrastructure for converting natural sources into energy services (flows of energy, demand/supply). The **macro** level finally view system as an interdependent complex socio-technical energy environment (e.g. global energy markets or international institutions etc.). The diagram is shown on **Fig. 2**.

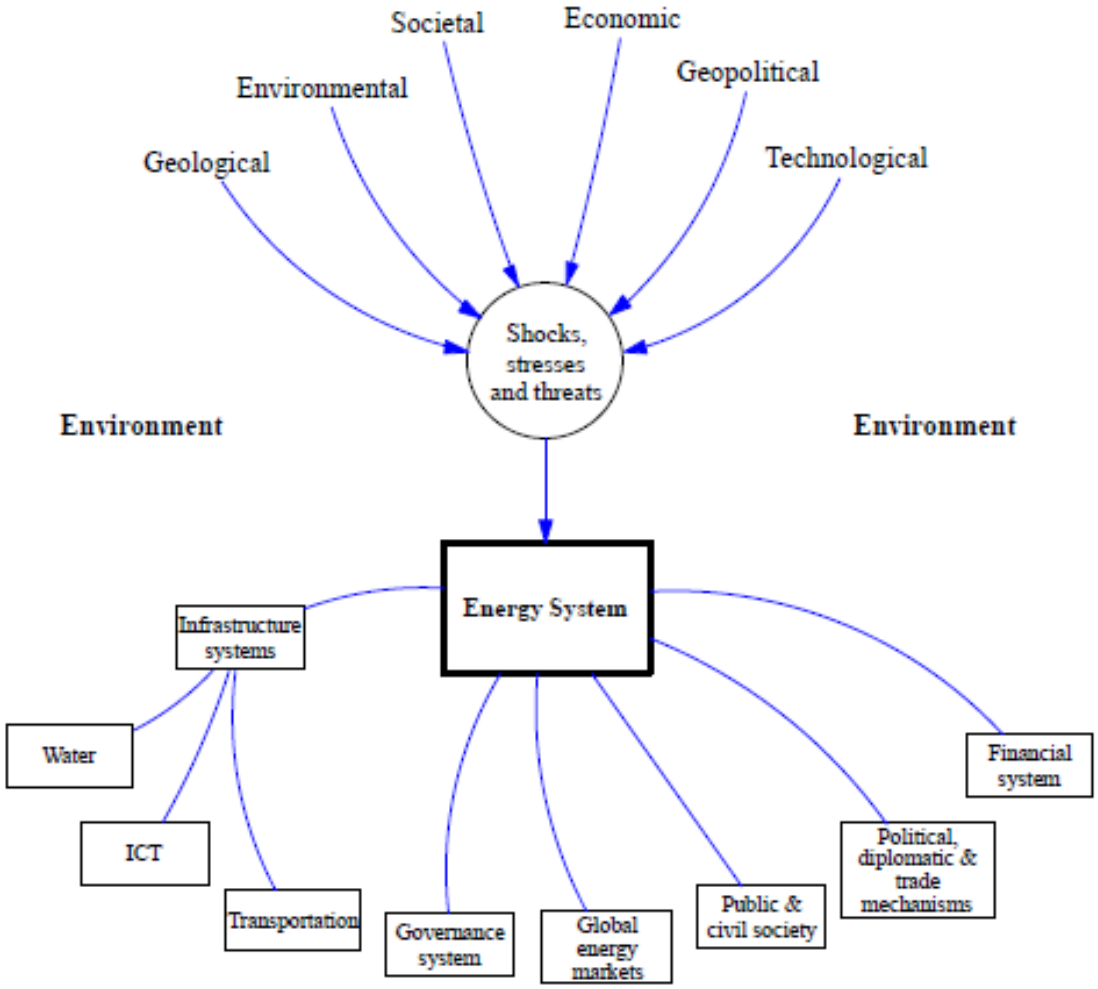


*Figure 2 – The energy system as system of systems. Source: Kucharski & Unesaki (2014, p. 29)*

If we look more specifically into the literature written on energy security, one of the first works mapping the newly emerged problem of having sufficient amount of energy supplies was written by Daniel Yergin in 1991, in his work called "The Prize: The Epic Quest for Oil, Money & Power" Yergin maps the history of the petrochemical industry since the early 20$^{th}$ century and connects energy security with the supplying oil for armies. In his latter work Yergin (2006) uses the example of Great Britain shifting from coal to oil as a power source for the British Navy during World War I in order to make their ships faster than the German ones. To make

this happen Britain could not meet the requirements of energy demand by the domestic supply of coal but had to secure oil supplies from the distant Middle East. Thus, the energy security became the focus of national security and diversification of supply the cornerstone of it as then the First Lord of the Admiralty Winston Churchill said, *"Safety and certainty in oil, lie in variety and variety alone"* (Yergin 2006).

A lot of time passed already since the 1990s and as the discipline of international relations and security studies evolved, the focus of academics researching the energy security has also broadened. For example, the reflection of climate change is seen more and more in the academic works as the use of fossil fuels is related to (not only) the greenhouse gas (GHG) emissions. Climate change policies related to energy security can be found in Giddens (2009), Helm and Hepburn (2009) or Toke and Vezirgiannidou (2013). Other works dealing with more concrete environmental threats related with energy security can include Hatlen *et al.* (2009) or Hjort and Nielsen (2011) where these authors examine potential impacts of oil leaks on the environment.

This of course opens the debate on what is the referent object of energy security. Using the classic lens of 4As, (availability, affordability, accessibility, acceptability) does not suggest the referent object per se, therefore scholars use different approaches sometimes without explicitly mentioning the referent object (Cherp & Jewell 2014, p. 417). Månsson *et al.* (2014, p. 11) suggests that while energy security being multidisciplinary and using several methodologies might not be a problem per se, it may bring up conflicting solutions. For example, generally, to increase the level of security, diversification is usually the proposed solution number one, however when we use the economic lens and do the cost analysis for such diversification (that would include for example building of a new infrastructure) it might suddenly seem too expensive and not an ideal solution.

For the purpose of this thesis will use the conceptualization of Christian Winzer (Winzer 2011 & Winzer 2012). In his framework, the 4As has been replaced with risks and impacts. The first two, *availability* and *accessibility* are replaced with **human** and **natural** sources of **risks** and *affordability* and *accessibility* are identified with **economic** and **environmental impacts** of energy (Cherp & Jewell 2014, p. 417).

## 1.2 Conceptualization of energy security by Christian Winzer

Christian Winzer is a key author in the sense of conceptualizing the energy security. He is not an exception and also comes with a definition of what is energy security and it is well in line with other similar definitions occurring in much of the academic texts. Winzer's version of the commonly accepted definition of energy security is: *The absence of, protection from or adaptability to threats that are caused by or have an impact on the energy supply chain."* (Winzer 2011, p. 9)

This definition will be used as a base for the analysis in this thesis and for the comparison of the Nord Stream 2 project, the Southern Gas Corridor and small part will also be dedicated to the alternative of liquified natural gas. For the purpose of this thesis the definition could also be altered as following: *The energy security of the European Union means the absence of, protection from, or adaptability to human caused threats that are caused by or have an impact on the Nord Stream 2/Southern Gas Corridor project.*

To analyse the energy security Winzer use two main dimensions, plus six others. The primary dimension is called **(1) sources of risk**, or in other words who/what is responsible for the threat. Second dimension is **scope of the impact measure** and this means what or who is affected by the threat. The other dimensions (three to eight) are called **severity filters**, these determine which threats are relevant for the analysis (Winzer 2011, p. 9).

To further describe the first dimension Winzer distinguish the **risks** into three categories, technical risks – the risk of infrastructure failure, human risks – which include broad variety ranging from sabotage, terrorism, political instability, geopolitical risks to demand fluctuation and third category of risks are the natural risks – natural disasters or depletion of fossil fuels.

These risks then have an **(2) impact**, which is part of the second dimension. Here Winzer describes 4 categories. The main one is the impact on the *continuity of commodity supply*, either by changing (or halting completely) the amount energy available or by price volatility. The supply chain resilience then determines the impact on *continuity of service supply*, meaning the availability of services (heating, transport etc.). If these services are disrupted the third affected category is *continuity of the economy* itself. The fourth category then covers the affordability and acceptability, it means the impact on *human safety and environmental sustainability*. This category is a separate one as it can be influenced not by all previous categories, but also directly by the first dimension – **sources of risk**.

The remaining dimensions **(3 – 8)** are the **severity filters** which include **speed of impact, size, sustention, spread, singularity** and **sureness** (Winzer 2011, pp. 11-12). The full scheme is seen on **Fig.3**

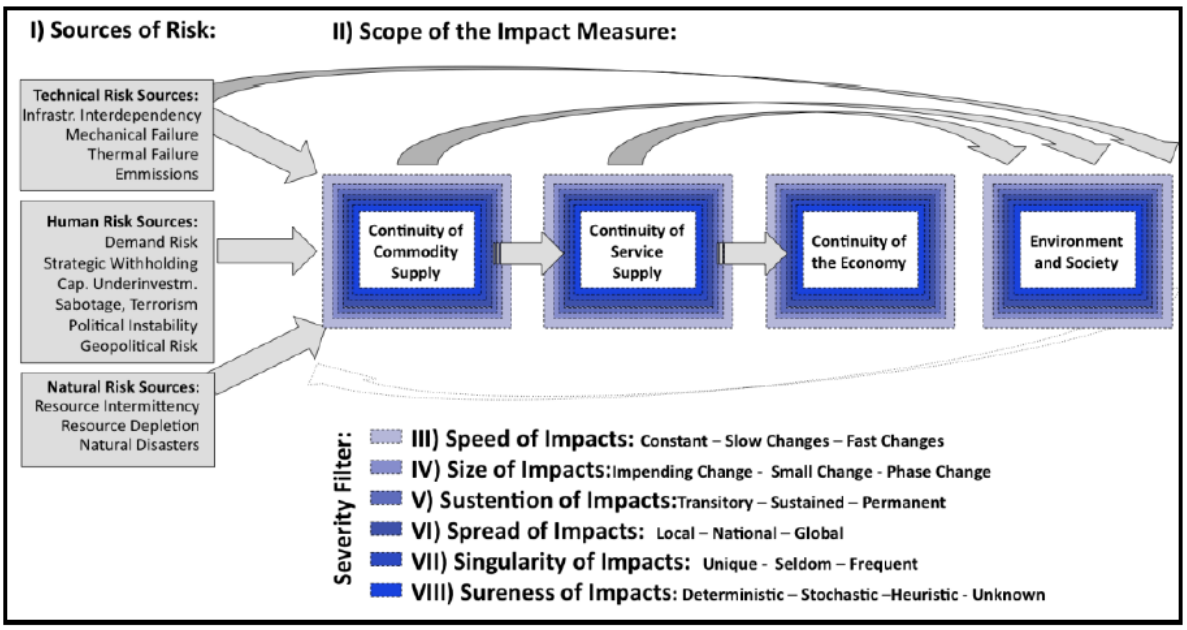


*Figure 3 – Dimensions of Energy Security. Source: Winzer (2011, p. 10)*

The analysis in this thesis will try to evaluate benefits or risks of different gas transit projects for the energy security of European Union. To maintain a reasonable scope of this thesis the categories used primarily for the evaluation will be the **human risks** – strategic withholding, sabotage/terrorism, political instability and great focus will be put on the geopolitical risks. Primarily, the analysis will focus on direct threats **for** the pipelines, in this case, the referential object will be the gas supply lines itself. However, as the literature on the research of energy security suggests holistic approach, we will also evaluate threats implied **from** the existence of the gas supply lines and thus the referential object will be states and international organisations (the European Union).

Some natural risks will be also taken into an account, but only in a limited amount and will not be much significant for the final evaluation of the gas transit projects. The technical risks are usually vital in the evaluation of gas pipeline safety, however as the examined projects are near finished or under construction at the time of writing this thesis, the risks of technical failure will not be taken into account at all.

By using the Winzer's framework, the provided analysis can be complex enough and gives the

researcher the option to choose which determinants are useful in evaluating particular energy commodity supply chains – in this case the gas transit projects.

To complement the Winzer's framework, which will help us to evaluate the risks to continuity of supply, the thesis will provide basic overview of the projects intended capacities and basic economic summary in terms of costs of the projects. By that we will be able to evaluate if some of the projects are safe in terms of energy supply security but are not the best example of the diversification of supply source or are economically questionable.

## 1.3 Methodology, research question and limitations of the study

### 1.3.1 Research question

As suggested earlier, because of the multidimensional nature of the energy security studies, the thesis will have to deal with the several partial conclusions that might end up in opposition against each other. However, the main research questions will be following: **Is the Nord Stream 2 project necessary for strengthening of the EU's energy security?** and **Are the projects in the Southern Gas Corridor a better alternative for the EU's energy security?** Both suggested research questions mark the energy security of the European Union as the reference object, but only further analysis will allow us to extend the narrative to ask such questions. First of all, by using the Winzer's framework, we will evaluate the gas transit projects from the perspective of security of supply, where the reference objects are the gas supply lines - therefore we will get a following partial research question: **Which of the gas transit projects is safer in terms of security of supply?**

Based on these research questions we will get following hypothesis:

1. Nord Stream 2 project is redundant and will diminish EU's overall energy security.
2. There are better alternatives for EU's energy security than Nord Stream 2, such as Southern Gas Corridor or LNG supplies.

The third hypothesis will offer slightly opposing outcome by weighting the geopolitical impacts.

3. The Nord Stream 2 project is actually safer in terms of security of gas supply but have severe geopolitical impacts that will outweigh this possible advantage.

### 1.3.2 Comparative research method

As mentioned before, and with the taking the sensitive nature of the topic of EU-Russia relations into account, in order to make this research unbiased, the thesis will use **empirical-analytical** methodology. This approach will allow us the minimise the *self-bias* (Berg-Schlosser & Stammen 2000, p. 87), get rid of a priori judgements and avoid normative statements which are "scientifically difficult to grasp" (Říchová 2000, p. 16). This might prove to be difficult to achieve as both EU energy strategy and Russia's energy strategy is inherently normative, but the empirical-analytical approach should only avoid value judgments as an end-goal and not completely exclude the values and norms from the analysis.

Further, the research will be qualitative. There will be some numbers used in the thesis, such as capacity of the proposed gas transit projects and overview of basic costs, however the focal point of the thesis will be centred on indicators hard to quantify such as the geopolitical implications.

Finally, the method used in this thesis will be **comparative research method**. As the social sciences have it difficult with simulation and experiment, comparative method is one of the most frequent used methods in social sciences as it can help to explain causal inference of political phenomena.

Based on Říchová (2008, p. 9), the thesis will adhere to the four principles of comparative method: (1) to define what is the object of comparison, (2) defining goals of the comparison, (3) establishing criteria for the analysis of chosen objects and finally (4) delimit the comparison by a certain time-frame.

1. The objects of comparison are the gas transit projects: Nord Stream 2, Southern Gas Corridor and in lesser extent the LNG alternatives. Furthermore, the approach to the energy security by the EU and Russia will also be compared.
2. Goal of the comparison is to evaluate which of the projects will strengthen the energy security of the European Union. Considering not only the security of the gas transit infrastructure, but also the implied geopolitical impacts.
3. The criteria will be derived from the analytical framework of Cristian Winzer and adjusted in order to help us answer the research question. (More in chapter 1.2 of this thesis).
4. The time framework in this case will be delimited by the recent development in EU-

Russia relations which in case of energy security deteriorated after the Russia-Ukraine gas supply dispute in 2006 and in case of geopolitics and security of Europe as such in 2014 after the armed conflict erupted in eastern Ukraine and Russian annexation of Crimea. Mid-point of the comparison will be the current state of the projects in focus, which in this case means the time of writing this thesis (June – July 2019). The comparison will also include prospects of gas demands and supplies to the EU by the year 2030.

### 1.3.3 Research limitations

One of the limitations of the chosen methodology and projects chosen to examine are their clear distinctions and differences. While Anckar (2008, pp. 394-395) suggests that for the *most different* approach the dependent variable should be constant, our dependent variable – the security of the respective gas transit projects – is hardly constant. However, other traits of the *most different* concept are fulfilled. The Nord Stream 2 project is based on the bilateral relations of Germany and Russian Federation, while the Southern Gas Corridor is an initiative based on the energy security strategy of the European Union and includes multiple countries (Turkey, Azerbaijan), thus being a multilateral project. The Nord Stream 2 project connects directly two countries and is running offshore on the bottom of Baltic Sea while Southern Gas Corridor is mostly an onshore project running through several countries and comprising of 3 separate pipelines projects. Nord Stream 2 is a project financed by 5 European private gas companies, covering 50% of the costs, with the remaining 50% being covered by Russian Gazprom (where the Russian government holds 50,23%[1] shares), the total estimated cost is 9,5 billion Euros (Nord Stream 2 2019a). On the other hand there are over 15 companies involved in Southern Gas Corridor project and the estimated costs are over 35 billion Euros (Shaban 2017) and over 7 billion Euros are loans from public banks (CEE Bankwatch 2019a). The projects also vary in length and capacity, but all of this will be examined in detail further in this thesis.

The thesis will also have to deal with a change of reference objects as at the beginning, the security of the pipelines will be in focus, but later, with taking into an account other risks and

[1] 38,87% is owned by the Federal Agency for State Property Management, plus 10,97% and 0,89% respectively is held by the state controlled companies Rosneftgaz and Rosgazifikatsiya (Gazprom 2019a).

threats, the referential object will be the energy security of the EU as a whole.

# 2. Energy mix of the EU, gas production and gas imports

This chapter should provide basic overview of the energy mix of the European Union and its member states. Furthermore, some basic numbers on EU's domestic gas production and gas imports to the EU will be provided. This should help us to understand the analysed gas transit projects in the context of the actual energy needs of the European Union member states and its prospects for the future.

## 2.1 Energy mix of the EU and gas consumption

The European Union is the second world's biggest economy. According to the World Bank Group (2019) in 2018 the GDP of the European Union was US$18,749 trillion. With United States of America on the first place with US$20.494 trillion and China being third with US$13,608 trillion. Such economic performance must be met with sufficient energy availability. In 2016 the gross inland consumption of the EU was 1639 million tonnes of oil equivalent (Mtoe). The raw fuels represented in the primary mix of energy were still led by oil and petroleum products with the share of 34,6%. On the second place was the gases with 23,4% share. Solid fuels (coal) represented 14,7% share and was closely followed by renewable sources of energy equalling, for the first time, the nuclear energy – both were represented with the share of 13,2% (European Commission 2018a, p. 22).

As seen above, gas as a primary energy fuel sits on the second place. The 23,4% of share of the natural gases in the primary energy mix stands for 383,5 Mtoe which after a conversion to the billion cubic meters (bcm) equals roughly to 426 bcm needed in 2016 in the EU. In 2017 the gross inland consumption in the EU rose to 442,6 bcm. It is very complicated to make predictions for the future gas supply demand as a whole lot of factors, including technological development, efficiency improvements and environmental policies must be considered. The estimates range from 430 bcm (IEA 2015a) to 550 bcm (Eurogas 2011).

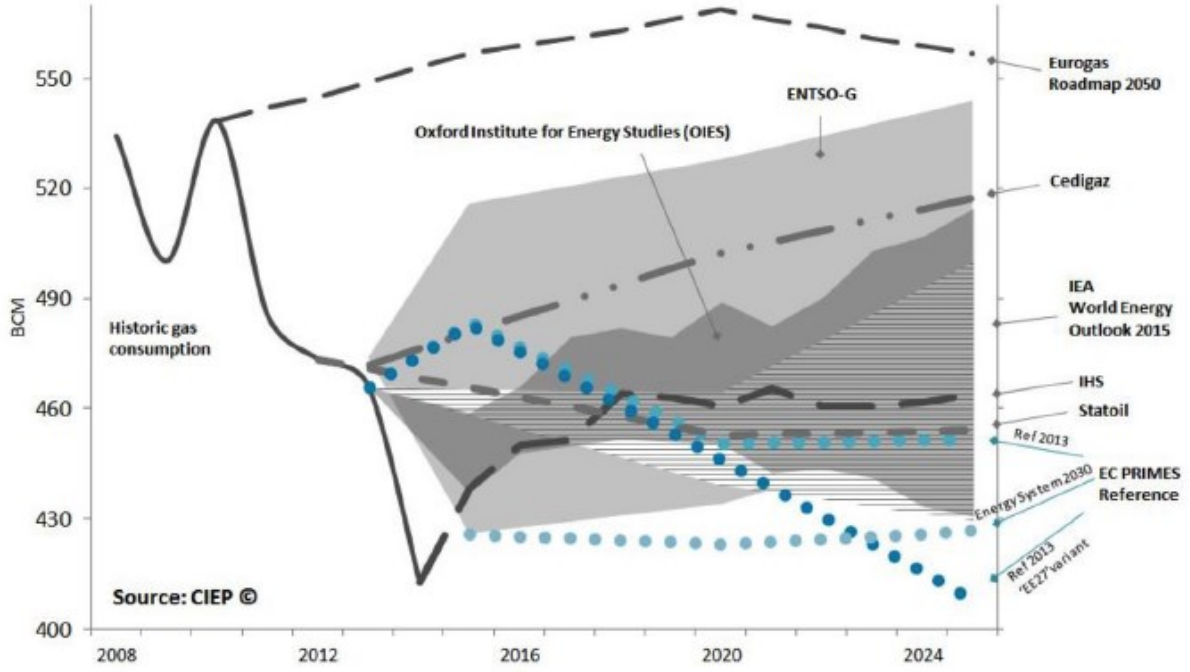


*Figure 4 – Competing projections for EU-28 Natural Gas Demand. Source: Pisca (2016, p. 18)*

The **Fig. 4** shows all the predictions as aggregated by Pisca (2016, pp. 17-18). The highest estimate of 550 bcm is mainly influenced (apart from being made by Eurogas – the association representing the European gas wholesale, retail and distribution companies) by featuring "economic growth and technological innovation, a substantial increase in the $CO_2$ price, and political decisions such as significant nuclear and coal capacity decommissions" (Pisca 2016, p. 19). Especially the two latter can be seen already in the political decisions of the EU countries. At the moment, only 3 EU countries (Finland, France, Slovakia) have nuclear power reactors under construction (World Nuclear Association 2019). Another example is the *Energiewende* in Germany, a governmental policy set to cut the GHG by 55% by 2030 (compared to the 1990 level) and 95% by 2050. By the 2050 the renewables should account for 80% of the domestic gross power consumption (Appun & Wettengel 2019). Germany's decision to reach these goals without nuclear power-plants and obviously the GHG intense coal power-plants will require increased demand for gas, at least in the transition period, as it is also suggested in the EU's Energy Roadmap 2050. The long-term role of gas is seen to balance occasional cuts from renewables or, in case the carbon capture and storage (CCS) technology will develop for a large-scale use, gas can also become a low-carbon technology (European Commission 2012, p. 12).

With the current technological development, there is, however, a small catch. Natural gas

carbon dioxide ($CO_2$) emissions, when burned in a new efficient gas power plant, are lower by more than 50% when compared to the $CO_2$ emissions of coal power plants. (EIA 2019) When used as a fuel in cars, natural gas emits 15 to 20% less greenhouse gasses than burning of gasoline (ibid). The catch lies the leaking of methane to the atmosphere in the process of extracting, transportation and storage of the natural gas. For example, in 2009 almost 40% of all the methane emissions (resulting from human-controlled activities, therefore including agriculture as well) were attributed to the natural gas industry (Howarth *et al.* 2012, p. 2). Needless to say that one of the reasons for this is the fact that in the USA much of the natural gas extracted is a shale gas, where leaks of methane during the whole life-cycle of the shale-gas well are estimated to be 3,6-7,9%, while with the conventional gas, the amount is between 1,7-6,0% (Howarth *et al*, p. 685). Methane is much more potent GHG than $CO_2$ thus, in order to make natural gas truly the fuel of choice in the transition period to the renewable sources of energy, much of the attention should be also paid to the modernisation of infrastructure in order to minimise the leaks of methane during drilling, extraction, transportation and storage of the natural gas (Alvarez *et al*. 2012, p. 6438).

## 2.2 Gas production and gas imports

The EU's domestic gas production is on a steady decline; thus, the topic of secure gas imports is still more and more relevant. In ten years, from 2008 to 2018, the production of the member states of the EU has fallen from 200,2 bcm to 109,2 bcm (BP 2019a, p. 32). The two biggest EU gas producers – The Netherlands and United Kingdom accounted for 72% (70,9 + 72,8 bcm) of all domestic EU gas production in 2008 and 68% (32,3 + 40,6 bcm) in 2018. As the gas production of the two biggest domestic producers in the EU declined, the member states had to look beyond the EU borders to secure much needed gas supplies. In the following overview we will use data from the BP (2019a, pp. 34) Statistical Review of World Energy. In 2018 the European Union consumed 458,5 bcm of natural gas, and as mentioned earlier, the domestic production accounted for 109,2 bcm. This means that over 76% of all natural gas consumed in the EU had to be imported. The following table offers quick overview of the largest importers of the natural gas to the EU.

| | Exporter | Total to EU | pipelines | LNG | destination | pipelines | LNG |
|---|---|---|---|---|---|---|---|
| **1** | **Russia** | **175,2** | 168,4 | 6,9 | Germany | 55,3 | - |
| | | | | | Italy | 25,4 | - |
| | | | | | France | 8,9 | 1,5 |
| | | | | | Netherlands | 7,4 | - |
| | | | | | United Kingdom | 4,4 | 1,7 |
| | | | | | Other EU | 67,1 | 3,7 |
| **2** | **Norway** | **118,8** | 114,3 | 4,5 | United Kingdom | 32,6 | 0,2 |
| | | | | | Germany | 24,7 | - |
| | | | | | Netherlands | 20,7 | - |
| | | | | | France | 19,6 | 1,5 |
| | | | | | Other EU | 16,7 | 2,8 |
| **3** | **Algeria** | **42,0** | 34,3 | 7,7 | Spain | 16,6 | 1,5 |
| | | | | | Italy | 16,3 | 0,7 |
| | | | | | France | - | 4,0 |
| | | | | | Other EU | 1,4 | 1,5 |
| **4** | **Qatar** | **19,5** | - | 19,5 | Italy | - | 6,3 |
| | | | | | Spain | - | 3,4 |
| | | | | | United Kingdom | - | 2,9 |
| | | | | | Belgium | - | 2,7 |
| | | | | | Other EU | - | 4,2 |
| **5** | **Nigeria** | **10,3** | - | 10,3 | Spain | - | 4,1 |
| | | | | | France | - | 3,6 |
| | | | | | Other EU | - | 2,6 |

Figure 5 – 2018 Natural Gas Exports to the EU, Source: made by author, data used from BP (2019a) Statistical Review of World Energy, **all figures in bcm**

The table above shows the top three importers of the natural gas to the EU account for over 70% of all gas imported, mostly through pipelines. Fourth Qatar and fifth Nigeria are using LNG carriers for understandable geographical reasons. On the sixth place, in 2018, was Libya delivering 4,3 bcm to Italy via the offshore Green Stream pipeline and on seventh – Trinidad & Tobago supplying 3,3 bcm via LNG carriers (2,2 bcm to Spain).

The United Kingdom is set to leave the European Union by the end of 2019,[2] while this is just a side-note that the UK will also become a non-EU actor, most importantly the forecasts suggest further drops in the UK's domestic production. From the current 40,6 bcm in 2018 the production could drop to 32 bcm by 2024 (Oil & Gas Authority 2019, p. 9), and maybe even below 30 bcm by 2035 (Oil & Gas UK 2018, p. 38). Even more significant drop is expected with the second largest gas producer in the EU – Netherlands, between the 2017 and 2018 Netherlands became a net importer of natural gas and the domestic production of natural gas could drop even below 10 bcm per year in 2030 (Blakey *et al.* 2018, p. 11). The forecast for the second largest importer to the EU – Norway will also see a decline, to 112 bcm in 2025 and then the production should stabilise to circa 90 bcm per year between 2030-35. (Hall 2018, p. 6). By the year 2030 the decline of production in these 3 countries will mean the need for substitutional gas supply of roughly 50 – 60 bcm. This number of additional gas needed on the European markets could be much higher if the high demand scenarios exceeding the need of 500 bcm of natural gas per year will become a reality. In the following chapters we will analyse and compare two very different projects which are set to bring the natural gas to Europe.

[2] Latest date for UK to leave the EU is October 31st 2019

# 3. Projects in focus: SGC & NS2

The purpose of this chapter is to introduce the two gas transit systems and offer the basic information about the projects such as the route of the pipelines, their technical specifications and also outline the financial aspect of both projects.

## 3.1 Southern Gas Corridor - SGC

Southern Gas Corridor (SGC) is a project set to bring the Azerbaijani gas from the offshore Shah Deniz gas field in the Caspian Sea. Potentially, in the future, even other gas-rich countries in the region such as Turkmenistan, Iran or Iraq.

The SGC project is one of the main diversification projects to bring gas to the European markets supported by the European Union in several official documents.[3] The project consists of three pipelines and development of the Azeri Shah Deniz gas field. With the overall cost of the project of more than US$40 billion it is often called an energy mega-project and include loans from several public banks.[4] The combined length of the three pipelines is over 3500 km. The first pipeline, the South Caucasus Pipeline Expansion (SCPX) follows the route of the Baku-Tbilisi-Ceyhan (TBC) oil pipeline and is expanding the existing Southern Caucasus Pipeline *Baku-Tbilisi-Erzurum* (SCP) gas pipeline, both were finished in 2006. The BTC oil pipeline connects the oil fields in the Caspian Sea with the Ceyhan port on the Turkish coast of the Mediterranean Sea and its distributed further to the European and world markets. The SCP gas pipeline ends in Erzurum, eastern Turkey, and feeds the domestic gas infrastructure. The SPCX oil pipeline traverse Azerbaijan and Georgia and then it connects to the Trans-Anatolian Natural Gas Pipeline (TANAP) at the Georgian-Turkish border. The TANAP pipeline crosses Turkey with the overall length of 1850 km with 19 km off-shore when crossing the Sea of Marmara and connects with the Trans Adriatic Pipeline (TAP) at the Greek-Turkish border. The TAP pipeline then crosses the territory of Greece and Albania and the final offshore part

[3] For example: REGULATION (EU) No 347/2013 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL, REGULATION (EU) No 994/2010 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL or most notably the European Energy Security Strategy 2014 (COM(2014) 330 final) and the latest Joint Declaration (5780/19) of the The Fifth Ministerial Meeting of the Southern Gas Corridor Advisory Council in Baku

[4] The CEE Bankwatch (2019) estimates around US$8,1 billion.

will connect the TAP pipeline with the Italian port of San Foca.


*Figure 6 – The route and three pipelines of the SGC. Source: CEE Bankwatch (2019)*

In the following chapter the three pipelines will be briefly introduced separately, however later, when the risks and threats related to these 3 pipelines will be analysed, the project will be treated as a one single entity and referred to as Southern Gas Corridor (SGC). This decision has two main reasons. First, the number of companies involved in the project is high, however, BP and SOCAR[5] are involved in all three projects and Turkish state-companies TPAO and BOTAS are involved in SCPX and TAP projects. The second reason is more essential as all three projects will not work without each other, and therefore, for the purpose of evaluating of the impact on the energy security of EU must be treated as one.

### 3.1.1 South Caucasus Pipeline Expansion – SCPX

The South Caucasus Pipeline Expansion (SCPX) is the first of the three pipelines bringing gas from the region of the Caspian Sea to Europe. It is necessary to mention, that the SCPX project also includes the development of the Shah Deniz gas field – the Shah Deniz Stage II project.

[5] In some reports reffered to as Southern Gas Corridor Closed Joint Stock Company (SGC CJSC) where state owned SOCAR holds 49% and the Ministry of Economy of Azerbaijan holds 51% of shares. For the purpose of this work the reduction is made and only SOCAR will be reffered to.

The current output of the Shah Deniz gas field is around 10 bcm per year from which most of it is delivered to the Turkish market. The second stage should raise the output by 16 bcma out of which 6 bcm will be destined to reach Turkey and the remaining 10 bcm to European markets via the rest of the SGC corridor (BP 2019b). The cost of the project operated by the BP is around US$28 billion (BP 2018). Substantial part of this sum is allocated to the Shah Deniz gas field development project – US$23,9 billion, while the remaining US$4,7 billion is cost of the SCPX pipeline (Shaban 2017). The biggest shareholders in the project 2 project are BP with 28,8%, followed by Turkish Petroleum Corporation (TPAO) 19%, than the State Oil Company of Azerbaijan Republic (SOCAR) with 16,7%, Malaysian Petronas with (15,5%), Russian Lukoil (10%) and Iranian Naftitran Intertrade (NICO) also 10% and (BP 2018).

The current capacity of the existing SCP pipeline is 7,4 bcma while the SCPX will add around 16 bcma, thus, in total the SCP and SCPX will allow to transfer approximately 23,4 bcma of natural gas from Caspian Sea to the Georgian-Turkish border (SGC 2019). The first gas was transported from the Shah Deniz 2 gas field on June 30, 2018 and as of July 2019, it transported 1,8 bcm of natural gas to Turkey (Mammadova 2019).

### 3.1.2 Trans-Anatolian Natural Gas Pipeline – TANAP

The Trans-Anatolian Pipeline (TANAP) is a natural gas pipeline stretching over the whole length of Turkey intended to deliver the Azeri gas to Turkey and further to the European markets. Over 1850 kms of the pipeline will run on-shore underground with a small off-shore section of 19 kms traversing the Sea of Marmara and reaching the European continent. In the first stage, which is now (July 2019) completed, the TANAP will be ready to carry up to 16 bcma, 6 bcm to Turkey and 10 bcm to European markets. Further developments of TANAP are planned to allow the flow of 23 bcma by 2023 and 31 bcm by 2026 (Socor 2012).

The major shareholder in this project are Azerbaijani SOCAR with 58%[6], Turkish state owned BOTAS with 30% and BP with 12% (TANAP 2019a).

The initial costs were estimated to be around US$11,7 billion (AzerNews 2018) however

[6] 51% via the SGC CJSC and 7% through the SOCAR Turkey Energy A.S

president of SOCAR, Rovnag Abdullayev said, that thanks to major savings the final cost of the project went under US$7 billion (Nuttal 2019).

The TANAP's launching ceremony was held on June 12, 2018 in the city of Eskisehir and first gas from the Azerbaijan was delivered on June 30, 2018 (TANAP 2019). The remaining part of the pipeline was constructed by the end of 2018 when TANAP was connected to TAP on the Greek-Turkish border (Kerimkhanov 2019). First pumping test all the way to the Greek border were run in April 2019 and by the end of June 2019 the whole project was completed and ready to deliver gas to European markets (TANAP 2019).

### 3.1.3 Trans-Adriatic Pipeline – TAP

The Trans-Adriatic pipeline is the final piece of the SGC corridor. The 550 kilometres of the pipeline will run through the Greek territory. Joining the TANAP pipeline near the Turkish border at Kipoi and continues to the border will Albania. The Albanian part will include 215 kilometres of pipelines onshore and 37 kms offshore in the Albanian sector of the Adriatic Sea. The remaining offshore part is 25 kms in the Italian section of Adriatic Sea and finishing with the remaining 8 kms onshore built 1,5 meters below the ground. The total length of the TAP is therefore around 835 kilometres (TAP 2019a). By May 2019 over 87% of the TAP construction was done (TAP 2019b). The initial maximum capacity of TAP is set to be 10 bcma with the potential to be doubled to 20 bcma if the additional supplies from the Caspian region are available (TAP 2019c).

The shareholders of the TAP project are comprised of BP with 20%, SOCAR 20%, the Italian Snam S.p.A. also with 20%, followed by Belgian Fluxys holding 19%, Spanish Enagás 16% and the remaining 5% are held by the Swiss company Axpo (TAP 2019d).

## 3.2 Nord Stream 2 – NS2

The Nord Stream 2 (NS2) project extends the already existing pair of pipelines - the Nord Stream 1, which connects the Russian port of Vyborg with Lubmin near Greifswald in Germany.

The new pipeline is constructed and will be operated by Nord Stream 2 AG, a company based

in Switzerland, however owned by Gazprom. The overall cost of the project is estimated to be US$ 10,7 billion and half of the expenses will be covered by Gazprom. The additional 50% will be covered by 5 European companies each investing over US$1 billion – French ENGIE S.A, Austrian OMV AG, Royal Dutch Shell plc, and Germany's Uniper SE and Wintershall Holding GmbH. The maximum capacity of the two lines[7] of NS2 will be 55 bcm per year (Nord Stream 2 2019b). Combined with the first NS both pipelines will be able to supply 110 bcma of natural gas directly from Russia to Germany. The source for the NS and NS2 is the Bovanenkovskoye onshore gas field on the Yamal Peninsula. The gas production capacity of the field is 115 bcma with the expectation to reach 140 bcma (Gazprom 2019b).


*Figure 7 – The Nord Stream 1 & 2 Route. Source: Nord Stream 2 (2019c)*

The new pipeline – Nord Stream 2 has a different starting point as it starts in Narva Bay from the Slavyanskaya compressor station which should ensure, that the gas will reach the German port of Lubmin without any additional compressor stations on the way. The onshore section is only 3,7 kilometres long and then the pipeline will be laid on the bottom of the Baltic Sea. The offshore segment in the Russian exclusive economic zone (EEZ) is 114 kilometres long. Then

[7] Each line of the Nord Stream 2 pipeline will have a capacity of 27,5 bcma. The first project of Nord Stream, finished in 2012, also have two lines and in some literature is referred to as Nord Stream 1-2 while the second project is called Nord Stream 3-4. This work will use the more common terms Nord Stream (NS) and Nord Stream 2 (NS2).

the pipeline enters the Finnish EEZ with the length of 374 kilometres, the section in the Swedish EEZ is 510 long and then entering the Danish EEZ with the length between 147 and 175 kilometres. The pipeline will then finally get into the German waters where after 85 kilometres the pipeline will reach the pipeline inspection gauge (PIG) near the port of Lubmin (Nord Stream 2 2019d). The overall length of the pipeline is expected to be around 1230 kilometres and over 90% of the pipeline has already been laid (April 30, 2019) (Nord Stream 2 2019e). The only remaining concern is the part penetrating the Danish EEZ near the Bornholm island. Nord Stream 2 AG, the company behind the construction and operation of the NS2 pipeline, successfully gained the approvals by Finland and Sweden, but the Environmental Impact Assessment (EIA) by the Danish Energy Authority (DEA) side has been pending since the application was submitted in 2017. On June 28, 2019, the Nord Stream AG has withdrawn these two applications pending since 2017 (Nord Stream 2 2019f) and is waiting for the assessment of the third application which has been submitted in April 2018 on the request of the DEA (Astrasheuskaya 2019). Furthermore, in January 2018, Denmark passed a Continental Shelf Act, a law which allows the Danish Minister of Foreign Affairs to veto any infrastructure projects running through territorial waters (not the EEZ) for national security reasons (Offshore Energy Today 2019). The possible reasons for this, impacts of delaying the construction and other implications will be more described further when discussing the geopolitical side of the project.

# 4. Risks of Sabotage and Terrorism

Purpose of this chapter is to determine the risks of sabotage and/or terrorism towards the analysed pipeline projects. This means a physical disruption of the transit infrastructure in order to interrupt the flow of the natural gas and to cause further damages – either in terms of economic loss or in sabotaging the reputation of the respective entity responsible for the security of the infrastructure. Further motives might also include political ones when a non-state actor is trying to coerce government/elites to change certain policy. This will especially be in focus when analysing the TANAP pipeline which runs across Turkey where terrorist attacks, often with the energy transit infrastructure as a target, are not rare and are often connected with the Kurdish minority vocalizing their attitude towards the Turkish government policies.

The apolitical motives might include grievances of local population caused by changes in the environment where they live or inadequate compensations of the negative effects from the construction. The locals might also get feeling that because of the existence and proximity of the pipeline to their homes, they are exposed to a danger of attack that could harm them. For example, in 2006, when the BTC oil pipeline started operating, Georgian guards trained by the SAS and US Army started roaming the area around the pipeline route in order to prevent a terrorist attack. The locals were not happy about being identified and showing passports every-time they crossed the pipeline route to collect firewood in the forest or crossing the corridor with their stock (Parfitt 2006).

## 4.1 Risk of Sabotage and Terrorism – Southern Gas Corridor

With the exception of crossing the Sea of Marmara and Adriatic Sea, the overwhelming majority of the Southern Gas Corridor is onshore. The pipelines are buried one to ten meters meter below the ground which decrease the vulnerability significantly. However, some parts of the gas transit infrastructure must be put on the ground level which makes it a perfect target for an attack as not all parts of the infrastructure can be effectively guarded all the time. For example, the TANAP pipeline only has 7 compressor stations and 49 block valve stations (TANAP 2019b, p. 22). These above ground installations are most likely to be targets of the attack. When the valve itself is attacked, the operator will of course notice the loss of the pressure in the pipeline and will close off the nearest valves, therefore the loss of the gas itself

is not the main concern, however stopping the flow of gas and subsequent works on fixing the valve can stop the flow of gas for several days and can cause significant economic losses.

Attention must be paid also to the concentration of the transit infrastructure in the region. The crucial BTC oil pipeline and both SCP and SCPX are laid in the same corridor, thus, creating an interesting energy security dichotomy. At one hand, concentration of the projects into one corridor will lower the costs of planning and building of the infrastructure, however, at the same time it creates tempting situation where one, or more coordinated attacks at the same time, can cause huge damage.

In order to be prepared for such attacks a trilateral military exercise *Eternity* is held each year since 2006 with the presence of Azerbaijani, Georgian and Turkish military personnel. (Kogan 2014, p. 9).

### 4.1.1 Risk of Sabotage and Terrorism - Azerbaijan and Georgia

Azerbaijan and Georgia will be grouped in one chapter for two main reasons. First, they both have special military units to protect the pipelines and second, there has not been a single case of a successful direct attack on the transit infrastructure by a non-state actor.

In Azerbaijan, a unit Special State Protection Service (SSPS), which is directly subordinate to the President of Azerbaijan Ilham Aliyev, is responsible for protection of the onshore oil and gas transit infrastructure (Kogan 2014, p. 3), the SPSS uses its fleet of vehicles for pipeline protection, plus, in difficult terrain and remote areas, they use horse-mounted patrols (ibid., p. 7). The offshore structures are then guarded by the Azerbaijani Navy and Coast Guard (ibid., p. 6).

In Georgia, the members of the Strategic Pipelines Protection Department (SPPD) are primarily responsible for the protection of gas pipelines and other related infrastructure. The Georgian government has realised the importance of Georgia being seen as a safe transit country for oil and gas supplies and the SPPD is a subunit of the Ministry of Internal Affairs (Ministry of Internal Affairs of Georgia 2013). Georgia also made one step further signing a bilateral agreement with BP to allow BP security team additional checks of above-ground facilities. Furthermore, BP is involved with local population living alongside the pipelines and employs locals to patrol the pipeline routes on horseback (Kogan 2014, p. 5).

The only case of a terrorist attack on pipelines in Georgia (unsuccessful) recorded by the Global

Terrorism Database (2018a) happened on March 2005 when ten bombs were found and defused 100 meters from the Baku-Tbilisi-Ceyhan pipeline.

### 4.1.2 Risk of Sabotage and Terrorism – Turkey

In Turkey the local gendarmerie is responsible for the protection of the oil and gas pipelines. The gendarmerie, opposed to Azerbaijan and Georgia, is not a specially trained or equipped unit designated to protect the energy infrastructure, its main goal is general policing of the rural areas and protection of the pipelines is only a subset of their responsibilities, furthermore, the involvement of the local community is also limited (Kogan 2014, p. 8).

The absence of a special unit designed to protect the energy infrastructure in Turkey seems even more odd in the light of the fact that in the southeast regions of Turkey lives the Kurdish minority who, through the Kurdistan Workers' Party (Partiya Karkeren Kurdistane – PKK), announced a Kurdish uprising in 1984 which triggered a counterinsurgency campaign by the Turkish government that led to over 40 000 deaths of mostly Kurdish civilians and the displacement of more than three million (Lust 2016, p. 44). Between 1987 and 2010 there has been 59 acts of sabotage carried out on pipelines with substantial amount credited to the PKK (USAK 2012, p. 14).

During the construction of the BTC oil pipeline, the Turkish government representatives and BP repeatedly assured investors that measures were adopted to prevent the infrastructure from attacks. For example, the route of the pipeline should avoid the southeast Turkey's regions where the Kurdish population is strongest. The whole pipeline was also buried underground, and state-of-the-art security was supposed to protect the above-ground facilities (Weiss *et. al.* 2012, p. 30). However, in August 2008 an explosion hit the BTC oil pipeline block-valve station in Refahiye, while the Turkish government claimed that the explosion was due to a technical failure, the Western governments and experts viewed the Kurdish PKK's claim for responsibility as credible (ibid., p. 29). This was a demonstration that the PKK can also strike outside its usual territory. The pipeline exploded just few days before the Russo-Georgian War and in 2014 new information occurred suggesting Russian cyberattack caused the explosion by raising the pressure in the pipeline and shutting down alarm systems (Riley & Robertson 2014).

According to the Global Terrorism Database (2018b), the PKK has struck the South Caucasus Pipeline three times. First attack occurred in March 2012 in Kars province halting the flow of natural gas from Azerbaijan. The attack was followed by another two blasts completely

stopping the flow of natural gas from Iran. This resulted in temporary increase of supplies through the Blue Stream pipeline supplying Russian gas to Turkey on the request of the Turkish operator of the domestic pipelines – the BOTAS company (EurActiv 2012). The other two attacks happened in August 2015 also in Kars province, first blast on August 4, the other one on August 25. The losses, however, were not that high as the production facilities at the Shah Deniz gas fields in Azerbaijan were under maintenance and there was almost no gas in the pipeline (Karimova 2015). After these attacks Turkey in cooperation with BP started *fortifying* the above ground facilities of the BTC oil pipeline. The TANAP is said to have these measures by default (Simm 2016).

## 4.2 Risk of Sabotage and Terrorism – Nord Stream 2

The evaluation part on physical damage that could be caused by sabotage or terrorism to the Nord Stream 2 pipeline will be rather short. First of all, the Global Terrorism Database (2018c) shows 23 incidents related to the pipeline infrastructure between 1999 and 2011, however, all of them are geographically concentrated in the North Caucasus region, mostly in the Republic of Dagestan and Chechen Republic. Second, the NS2 is fed by gas from the Bovanenkovskoye field on the Yamal Peninsula and the gas is transferred via the Bovanenkovo – Ukhta 1 and 2 pipelines through the hostile environment of Siberia and both onshore sides of the NS2 is very stable. Rest of the pipeline is laid offshore on the seabed of the Baltic Sea.

There have been terrorist attacks on the offshore oil and gas facilities, but these were limited on the platforms that are above the sea levels. Friedrich and Neumüller (2007, p. 8) claims that there are no known (successful) attacks on underwater pipelines. That was in 2007, and until today probably the only successful attack on an offshore pipeline occurred on June 22, 2019 thirty kilometres of the coast of Syria where 5 pipelines were damaged, most likely by explosions. Syrian Oil Minister Ali Ghanem called the incident a terrorist attack, although no one has claimed responsibility and it is unclear, who was behind the attack (MEMO 2019). The Russian and Syrian media suggested USA or Turkey was behind the attack as Turkey has the intelligence and special units with very good divers in the region (AMN 2019).

The nature of the offshore pipelines makes them almost impossible to guard and as the Baltic Sea depth generally ranges from 100 to 200 metres, it would not be impossible for a single diver place an explosive device on the offshore pipeline (Larsson 2007, p. 37).

In general, the risk of a sabotage or a terrorist attack against the Nord Stream 2 is very low.

# 5. Geopolitical risks

Purpose of this chapter is to analyse the geopolitical risks threatening the security of gas supplies via the Southern Gas Corridor and the Nord Stream 2 pipeline. The risks evaluated will also include risks of wars and other conflicts, that could potentially disrupt the supplies of natural gas and also deliberate strategic withholding of supplies that can be used as a *tool/weapon* with the purpose of gaining political or economic benefits. Objects of the analyses will be again the producing and the transit counties – Azerbaijan, Georgia, Russia and Turkey.

Theoretically, the use of an energy weapon is an act of *coercion,* or in general the classical understating of *power*, which in this context means "economic tool of coercion, through which one state exerts its influence over another state with the goal of changing its will" (Černoch 2007, p. 6).

The concept of using an energy source as a tool or weapon, to reach political goals or economic benefits by the exporting countries, originates in the oil business. Perhaps the most known example of use of the *oil weapon* was the 1973 oil crises when the members of OPEC, the Organization of Arab Petroleum Exporting Countries proclaimed an oil embargo targeted at nations supporting Israel in the Yom Kippur War. Ministers of six Gulf member countries (United Arab Emirates, Iran, Iraq, Kuwait and Saudi Arabia & later joined by Algeria, Bahrain, Egypt, Libya and Syria) made a unilateral agreement to increase the crude oil price from US$3.011 per barrel to US$5.119 – an increase of 70%. The countries have also decided to keep continuously decreasing the oil production until their demands were met. "The production cuts would continue until Israel evacuated the occupied territories and the legitimate rights of the Palestinian people were restored (Mabro 2007, p. 57). The cut in the oil production caused an oil price shock which, consequently, hit not only the countries, that should have been the targets. "The economies of both friends and foes among oil-importing countries were affected. Indeed, the paradox was that friendly oil-importing developing countries were likely to suffer more adverse economic impacts than did the rich industrialized states targeted as foes. In this respect, the oil weapon was—and remains—a very blunt instrument" (ibid.). The effective use of *oil weapon* in this case is debatable. The Arab countries did cause huge economic losses to the targeted *Western* countries, which punched way above their weight in terms of their military potential or potential of their economy, but the main goal – to coerce targeted states to alter their policies towards Israel - was not successful (Černoch 2007, p. 15).

The use of energy as a weapon in the gas industry is different than the oil weapon for several reasons. Main reason is that the transit supply lines are more tied with the physical infrastructure and therefore the character of the gas business is more regional. The need for the physical infrastructure also often means the need for a transit country or several transit countries, which has implications not only for security of the transport, as the transit countries can deliberately limit the amount of gas transported, but also economic implications in the form of paying transit fees. Unlike the oil industry, where the interdependence of supplier and consumer is more direct as most of the oil is transported in tankers, in the gas industry, we must add the transit countries to the equation. The transit countries often take some of the transported gas as a transit fee or the transit fees can contribute quite significantly to the state's budget.

The following chapter should evaluate how or whether European Union, as a consumer, can be a target for the use of *gas weapon*, or whether targets are limited only to smaller countries where dependency on one supplier is high or absolute. We also have to keep in mind that the use of *gas weapon* can have serious repercussions also for the *attacker*. Consequences include not only financial losses from the transited gas that has been suspended instead of being sold, but it can also seriously damage the reputation and lower the perception of the country as a reliable supplier by all partners of the *attacker*, not only the target countries.

## 5.1 Geopolitical risks – Southern Gas Corridor

For the analysis of geopolitical threats that could endanger the security of gas supply we will use similar structure as with the risks of sabotage and terrorism. The obvious difference here will be the key role of states as actors as opposed to non-state actors in the case of the risks of sabotage and terrorism. The question will be whether any of the transit countries could have any motivation to deliberately withhold the gas supply and therefore use their gas production or gas transit potential as a tool of coercion. In case of the Southern Gas Corridor we will focus on the motivations of Azerbaijan, Georgia and Turkey and also examine the potential of political instability and armed conflict on their territories.

The whole region of the Southern Caucasus and the Black Sea is region with number of political and security threats. Azerbaijan, the key producer in the Southern Gas Corridor, is still one of the belligerents in the ongoing Nagorno-Karabakh conflict against Armenia, which in turn has strong ties to Russia. This conflict is problematic especially because the BTC oil pipeline and the SCP & SCPX runs near the territory of this unstable region. In case of worsening situation

in the region and spill-over of the conflict to the territory of Azerbaijan, the pipelines could become, either deliberately or accidentally, a target.

Similar case has already happened in Georgia. In August 2008, during the Russo-Georgian War. The Russian Federation never targeted the pipelines as such; however, several targets of Russian airstrikes were close to the infrastructure corridor with two oil pipelines (BTC and Baku-Supsa) and two gas pipelines SCP & SCPX (Shiriyev 2015). As a result, the pipeline operator, BP, has decided to close down the Baku-Supsa pipeline (Watkins 2008) while the SCP and SCPX gas pipelines were already out of operation because of the explosions on the Turkish territory, which were originally attributed to the Kurdish PKK, but later, as new information emerged, it is possible that the explosion was caused by a Russian cyber-attack (as described in chapter 4.1.2). As the transit of oil and gas through the Georgian territory was effectively shut down, temporarily, the volume of oil transported via the Baku-Novorossiysk pipeline, which runs from Azerbaijani territory to Russia and ends on the shore of Black Sea, has been increased.

Concerning the mutual relationship of Azerbaijan, Georgia and Turkey, especially Azerbaijan and Georgia have important geopolitical similarities. Both countries are trying their best in terms of limiting the power of Russia in the region and they both have, or work on, strong Euro-Atlantic ties. Turkey and Azerbaijan have strong ties as both are Turkic countries and the Azerbaijani ex-president Heydar Aliyev described the relationship as “one nation, two states” (Aliyev & Erdogan 2010). It is of vital importance for Georgia to be a reliable partner in connecting these two countries and in by-passing pro-Russian Armenia, which has adverse relationship with both Azerbaijan and Turkey for various reasons.

In conclusion, none of these three countries have any motivation to be aggressive towards each other and disrupt the gas supplies on purpose with motivation of economic or political gain.

### 5.1.1 Azerbaijan

Closer look on the position of Azerbaijan, as a producing country, will show us how important the Southern Gas Corridor is for the country. The state-owned company SOCAR is a shareholder in all three projects of the SGC and any deliberate withholding of the supplies would result in immense financial losses for the company, and therefore, consequently for the state as well. On the contrary, Azerbaijan needs relationship with the EU (and the West in general) to be as good as possible. Azerbaijan needs an external support in the ongoing

Nagorno-Karabakh conflict where Russia supports Armenia on one hand, but also sells arms to Azerbaijan (Nemtsova 2017).

Geographically, Azerbaijan doesn't have many other options. The potential way to the east and Chinese market is blocked not only by the disputes concerning the legal status of the Caspian Sea (Pirani 2018a, p. 13), but also by the fact that on the other side of the Caspian Sea are countries rich in both oil (Kazakhstan) and gas (Turkmenistan) and to the south, there is also another gas giant – Iran. Thus, Azerbaijan needs good relationship not only with Turkey, but with the European Union as well.

### 5.1.2 Georgia

Thanks to Georgia's geopolitical position their motivation to disrupt the energy supplies on purpose is virtually non-existent with no possible economic or political benefits. Because of the relationship with Russia, when the pro-Russian separatists occupy Georgian territory of South Ossetia and Abkhazia, Georgia imports natural gas from Azerbaijan only and natural gas has 43% share in the primary energy mix (IEA 2015b). Any disruption caused by the Georgian side and subsequent deterioration of relations with Azerbaijan would have destructive consequences for the Georgian economy. Similarly withholding of the supplies for Turkey and the EU would mean leaving Georgia alone vis-à-vis the Russian threat.

### 5.1.3 Turkey

Turkey serves as a bridge between Europe and Asia on many occasions. The importance of Turkey as a reliable partner for energy supplies transfer goes well in line with the Turkey's goal to be a regional leader. The relationship of Turkey and the EU are often quite turbulent. Turkey has been applicant to become a member of the EU since 1987 but by the 2016 this application is seen mostly as de iure only as the accession negotiations have stalled (Euronews 2017). However, Turkey has already used its position as a leverage to gain political and economic benefits vis-à-vis the EU before. In 2016, in order to partially solve the migrant crisis, Turkey and the EU has sealed a deal that would allow the EU to return any illegal migrant back to Turkey. The benefits of the deal for Turkey should be visa liberalization and speeding-up accession talks, but only in case Turkey would meet several requirements (Rönsberg 2016).

The latest quarrel between Turkey and the EU was in the beginning of July 2019 when Turkey started with an offshore exploration in the territorial waters of the Turkish Republic of Northern

Cyprus, a de facto state recognized only by Turkey. The EU threatened Turkey with economic sanctions (Smith 2019). There is only a small possibility that Turkey would choose stopping the flow of natural gas to Europe as a leverage or tool of coercion against the EU. First, it would probably deteriorate relations with their friends in Baku and consequently, they would have to pay Azerbaijan for the lost earnings, and they would lose their share of income in form of transit fees collected by the state-owned pipeline operator BOTAS.

Second, the amount of gas intended to be transferred via the TANAP pipeline to the European markets is 10 bcma in the first stage, which is around 2% of the overall EU's natural gas consumption. Thus, the bargaining value is fairly insignificant.

### 5.1.4 Other concerns and implications of the SGC

Other security concerns regarding the Southern Gas Corridor include the implications caused by the existence of the pipelines in the region. These threats might not have a direct impact on the physical security of supply and goes beyond the framework of energy security.

**Human rights** - The European Union, normatively, presents itself as a community of politic-societal values such as democracy, respect for human rights and the rule of law (Boas 2012, p. 2). In the process of securing enough energy resources, the EU must balance between the *normative consciousn*ess (values) and *energy security* (interests) (Abbasov 2014, p. 34). Here is where the choices of the EU are fairly limited as the energy resources rich countries tend to have *different* perception of *good governance* and *different values*.

EU has set its strategy to diversify away from the dependence on Russian Federation, for reasons, which will be put forward in the next chapter. In the case of the SGC it means cooperation (or potential future cooperation) with countries with authoritarian regimes such as Azerbaijan, Turkmenistan, Iran or even Turkey.

In case of Azerbaijan, EU is doing business with a repressive authoritarian regime where president Ilham Aliyev is in office since 2003 while between the years 1993 and 2003 the president of Azerbaijan was his father Heydar Aliyev. The freedom of speech and civil rights has been under threat in the country for a long time. The crackdowns against the civil society ultimately resulted in suspended membership and consequent leaving of the Extractive Industries Transparency Initiative (EITI) (Bacheva-McGrath & Roggenbuck 2017, p. 1). The

EITI was launched by then British Prime Minister Tony Blair in 2002 at the World Summit for Sustainable Development and its aim was to provide a link between energy security and good governance policies (Youngs 2007, p. 5). The Office of the High Commissioner for Human Rights (UN Human Rights) has also several concerns about the rule of law and violation of human rights in the country including arbitrary imprisonment and torture. (UN Human Rights 2016).

**Economic dimension** - Another dimension which is criticised in the case of Southern Gas Corridor is the financial aspect. As stated earlier, the cost of the whole project exceeds US$40 billion and over US$8 billion are being loan form public banks[8]. If we subtract the cost of the development of the Shah Deniz gas field (US$23,9 billion) the estimated overall cost for the three pipelines with the combined length of 3500 kilometres is US$17,2 billion. The average price for one kilometre of the pipeline is roughly US$4,9 million. For comparison, the price of Nord Stream 2 is estimated to be US$10,7 billion, with overall length of around 1230 kilometres, the average price is roughly US$8,7 million per kilometre. While the NS 2 project is clearly more expensive, we must take into account that offshore pipelines are generally more expensive. Brito and Sheshinski (1996, p. 6) work with the assumption of US$40 000 per mile inch onshore versus US$100 000 offshore. It is fair to say that this estimate is outdated, and price of the offshore pipelines went down significantly thanks to the technological development, Chandra (2019?) estimates that the price went down to about US$25 000 – 40 000 per inch kilometre.

While at the first glance, the price per km of the NS2 might suggest that the project is almost twice as expensive, we have to take into account the fact, that immediately after the pipeline will be operational, Russian Federation is able to use the full capacity of 55 bcma, while the SGC will deliver less than fifth of this amount in the first phase.

Hasanov (2017, p. 1001) calculates that the additional gas from SGC could cause fall of the natural gas prices in the range of US$2,82 - 5,64 per thousand cubic meters (tcm) in the first phase, when 10 bcma will be delivered to Europe. When reaching the full capacity of 25 bcma

[8] CEE Bankwatch (2019): US$2,8 bn European Investment Bank; US$2,8 bn World Bank Group; US$1,7 bn European Bank for Reconstruction and Development, US$1,3 bn Asian Development Bank and US$0,6 bn Asian Infrastructure Investment Bank

the cost reduction could be up to US$14,09 per tcm of natural gas.

**Russian footprint** – Putting Southern Gas Corridor into an operation might not decrease the Russian influence as originally intended. Lukoil, privately own Russian company has a 10% share in the Shah Deniz gas field project and received two loans for the purpose of Shah Deniz development from the European Bank for Reconstruction and Development (EBRD 2013 & 2014) with the total amount up to US$1,2 billion. Third loan of US$100 (EBRD 2017) million was cancelled in 2017. Ironically, Lukoil company – targeted by the US sanctions (CRS 2019, p. 11), will benefit from the Azeri gas delivered to Europe via the SGC. Furthermore, after the Russian Turk Stream pipeline will be completed, it will be able to bring 31 bmca of natural gas to Turkey. Terminating just 1 km of the TANAP – TAP junction, Gazprom could purchase the remaining capacity of the TAP (20 bcma of which 10 bcma is booked by SOCAR) and use the pipeline, which was heavily supported by the EU in order to diversify from Russia, to deliver Russian gas on the European markets (Morrison 2018, p. 265). Some analysis are also pessimistic about the competitiveness of the Azerbaijani gas vis-à-vis the low-priced environment, where Russia gas competes with falling prices of the LNG supplies (Pirani 2018a, p. 21).

## 5.2 Geopolitical risks – Nord Stream 2

The Nord Stream 1 & 2 projects have sparked lot of controversies and provoked wave of resistance against the Russian dominance on the European gas market. In the following chapter we will have a look on the implications not only for the physical security of the pipeline and the potential to use the project as an energy weapon, but we will also analyse different approaches to the project and outline the possible threats reaching beyond the energy security framework.

In 2016 Polish competition protection authority raised concerns over the Nord Stream 2 Joint Venture as it would undermine competition in Central and Eastern Europe. Polish Secretary of State for European Affairs at the Ministry of Foreign Affairs Konrad Syzmanski labelled the project as Trojan horse with the capability of "capable of destabilising the economy and poisoning political relations inside the EU" (MFA Poland 2016). In reaction to the concerns, the 5 European countries (Engie, OMV, Shell, Uniper, Wintershall) withdrew from the Joint Venture, however, they would still provide 50% of the cost of the project in form of loans. In effect, the sole shareholder of the project remained Gazprom via the project company Nord

Stream 2 AG. Nord Stream 2 might be a commercial project between Russian Gazprom and Western Europe energy companies, nevertheless, Poland isn't the only one complaining about economic and political implications of the project.

In March 2016 letter signed by the leaders of nine European countries (Czech Republic, Estonia, Hungary, Latvia, Poland, Slovakia, Romania and Lithuania), addressed to the European Commission President Jean-Claude Juncker, warned that Nord Stream 2 would have "potentially destabilising geopolitical consequences" (Baczynska & de Carbonnel 2016). In the response, Juncker stressed that "if built, Nord Stream 2 would have to fully comply, as any other infrastructure project, with applicable EU law, including on energy and environment. This is also the case for the off-shore infrastructure" (ibid.) More on the accordance of Nord Stream 2 pipeline with the EU law is examined in chapter 5.2.2.

### 5.2.1 Russian *gas weapon*

In this section we will have a short historical excursion to see *if* the Russian Federation is using its dominant position on the European gas market (in some countries near absolute)[9].

The primary goal of the Russian projects in Europe – TurkStream and Nord Stream is not to deliver more gas to the European markets, but to get rid of the dependence on Ukraine as a transit country. Bypassing the territory of Ukraine means that Gazprom (Russia) will not have to make deals with Naftogaz (Ukraine) about the transit fees. Since 2016, Ukraine imports zero natural gas from Russia (Naftogaz 2019a), therefore, the question of energy security and sufficient availability of natural gas in Ukraine is out of equation.

Even during the 1990s Ukrainian-Russian gas relationship was characterised by high level of debts and unpaid bills on the Ukrainian side, Russia had to limit the gas supplies to Ukraine several times in order to restore the payment discipline (Stern 2006, p. 2). In 2004 new agreement has been made including settlement of the past debts. Naftogaz also received loan from Gazprom to pay the past debts and Gazprom also partially pre-paid US$1,25 billion as a fee for transit of the gas to Europe until 2009 (Abdelal 2013, p. 431). In 2005, the new Ukrainian president Viktor Yushchenko suggested the transit fees for natural gas through

[9] Countries with 80-100% share of gas imports from Russia: Estonia, Latvia, Slovakia, Czech Republic, Hungary, Bulgaria, Finland

Ukraine should be paid in cash and level the transmission tariff rates in Europe. This was surprisingly welcomed by Gazprom as the interpretation from their side was that Ukraine also wants to switch for market prices paid for natural gas in Europe – which at that time was approximately six times more than Ukraine was paying. After Ukraine refused this, Russia offered to keep the prices low in exchange for stake in the Ukrainian gas transport system – which was refused as well (ibid.). By late 2005 the negotiations fell apart and on January 1. 2006, the current contract expired. Gazprom has however prepaid for the transit of the gas further to Europe and expected business as usual in transportation of the gas to Europe, nevertheless customers in Europe received 25-40% less natural gas for which they have already paid (Abdelal 2013, p. 432). The normal flow of gas was restored in several days with a new contract; however, the relationship of Russia and Ukraine was damaged. The rift in the Ukrainian-Russian relations was further multiplied by the fact that Ukraine managed to sell its narrative of Russia punishing Ukraine for the Orange Revolution seeing the defeat of pro-Russian presidential candidate Viktor Yanukovych and election of Yushchenko reorienting the country towards the West.

The inability to pay for the gas by Naftogaz however continued for the next several years. In March 2008, it was the Prime Minister Yulia Tymoshenko who negotiated directly with Vladimir Putin the gas prices. The new deal saw the price increase for Ukraine up to US$250 per mcm (in 2008 the price was US$179,5), while the increase was significant, the price at that time for the Russian gas at German border was US$577 (Abdelal 2013, p. 433).

Neither this was a solution and after Naftogaz missed several payments, by the end of 2009 the debt towards Gazprom was calculated to be US$2,4 billion. On January 1, 2009, Gazprom cut the volume of gas flowing to Ukraine by the amount of Ukrainian consumption and warned the EU leaders that disruption in gas transit might occur. In following days, Gazprom accused Naftogaz of stealing gas and on January 7, the flow of natural gas has been completely stopped for the first time in history. Later they were resumed in January 19.

In 2010, the pro-Russian Viktor Yanukovich became the next Ukrainian president and together with an extension of the lease for a Black Sea naval base, Yanukovich also struck a new deal on gas saving “tens of billion dollars” (Abdelal 2013, p. 434).

While the initial problem in both the 2006 and 2009 gas crisis was the inability of Ukraine to pay for the gas, Russia showed more will to make concessions in negotiations if there was a political benefit. The EU and its member states were more interested in the fact, that they were

left without an important energy and heat source in midst of a cold winter. Natural gas imports from Russia thus became politicised and measures were to be put in place to lower the dependency on the Russian gas.

If we look more into the history of Russia using the natural gas as a leverage to achieve various goals, we will see that Russia has used such moves against smaller countries in their neighbourhood. It has never done so with the major pipelines supplying Europe.

For example in 1998, Russia threatened to stop the natural gas supplies to Moldova over non-payment and contract disputes, at that time, the breakaway pro-Russian region of Transnistria had debts more than twice as higher as Moldova yet Gazprom didn't limit or threat to stop the gas supplies to Transnistria (Jamestown 1998). Moldova subsequently made threats to stop further supplies to Bulgaria, Greece and Turkey which would result in economic losses for Gazprom.

Hedenskog and Larsson (2007, pp. 49-53) counts 55 cases of Russia using coercive energy policy against the Former Soviet Union (FSU) countries, 38 of them were actual supply cuts and 16 of the 55 cases were attributed to Gazprom. Countries which were targeted the most were Lithuania (17 cases) and Georgia (12). For example, in 2006, after Yukos went bankrupt, Lithuanian government approved the sale of an oil refinery to Polish company PKN Orlen, instead of Russian Lukoil. As a consequence, Lithuania experienced interruptions of oil supplies immediately after the deal was done. Russian side claimed an accident occurred on the pipeline (Grigas 2012, p. 4). Furthermore, in December 2010, Gazprom announced that it would lower the prices for Estonia and Latvia by 15% as both countries has sought an exemption from the EU's Gas Directive meaning they wouldn't have to undergo the process of unbundling until 2014. Lithuania did unbundle its gas sector and didn't get the discount (ibid., p. 7).

For Russia, to be labelled as unreliable source is unacceptable as the profits from natural gas sales were important part of the governmental budget and country's GDP. In 2018 Gazprom sales accounted for over 5% of Russia's gross domestic product with almost 70% of revenues accounted to the gas sales to Europe (Soldatkin 2019). "For Russia, Gazprom's profit-making is state-building. And Russia's desperate need to rebuild state authority derived in large part from an elite consensus on Russia's role, as well as status, as a great power in world politics" (Abdelal 2013, p. 434). While Europe accounts for most profits for Gazprom, it is not the only market. In 2014, Gazprom signed a US$400 billion worth deal to deliver 38 bcma to China

over the next 30 years via the Power of Siberia pipeline finished in early 2019 with gas supplies to start in December 2019 (Aris 2019). Gazprom is also trying to not to be left behind in the LNG business with the volume of 5,18 bcm sold in 2018 mostly at Asian markets (Gazprom 2019c, p. 79) This is important for Russia's diversification, however it has almost zero impact for Europe as gas for these consumers comes from different gas fields in the east and with lacking infrastructure this gas cannot be sold on the European markets and vice versa.

For Gazprom in Europe, the diversification is mainly about diversification of supply routes and at last - bypassing Ukraine. The two projects that should enable Gazprom to do so were the Nord Stream 2 and TurkStream. The combined capacity of these three pipelines (including Nord Stream 1) is 141,5 bcma which is roughly equal to the capacity of the whole Ukrainian pipeline system transiting gas from Russia to Europe (National Energy Security Fund 2016, p. 2). Since 2004, the amount of Russian gas being transmitted via the Ukrainian gas pipelines is declining. In 2004 the amount was 137,1 bcma, ten years later, in 2014, it was less than half – 62,2 bcma. Last year, in 2018, the transported volume was 86,8 bcma (Naftogaz 2019b).

The current contract for transportation of the gas via Ukraine will expire by the end of 2019. By that time neither of the two Russian projects – Nord Stream 2 and TurkStream – will be operational. "If Nord Stream 2 becomes operational, Ukraine will be cut out from gas transit, losing roughly the equivalent of its defence budget each year in fees," said Agnia Grigas, an energy and political risk expert at the Atlantic Council (Brzozowski 2019). With TurkStream construction still not finished and Danish authorities delaying the approval for Nord Stream 2 in Danish waters, Gazprom will be forced to continue majority of its gas transit via Ukraine in 2020 and it is obvious, that the negotiators on the Ukrainian side will try to broker a deal for as longest term as possible. Pirani (2018b, p. 7) estimates that Naftogaz will offer a transit tariff of US$5,60/mcm if Gazprom books as much as 110 bcma, but the price could go as high as US$15,90/mcm if Gazprom intention is to deliver less than 30 bcma. The estimated future prices are still low in comparison with the current prices Gazprom pays for the transit – US$24,42/mcm, which is a price set under the 2009 Gazprom-Naftogaz contract. (ibid.) The low prices suggest Ukraine would like to maintain its role as a transit country as the transit fees are an important income for the government's budget.

However, apart from the post-2014 development in Ukrainian-Russian relations, both Gazprom and Naftogaz mutually claims breaking of contracts and are entangled in mutual arbitrations. All proceedings are administrated by the Arbitration Institute of the Stockholm Chamber of

Commerce, which, so far, has ordered Naftogaz to pay US$2,02 billion for volumes not taken between 2010 and 2017 and on the other hand, it ordered Gazprom to pay US$2,56 billion to Naftogaz for not supplying enough gas for transit to Europe (Arbitration Journal 2019; Gazprom 2019d, p. 64).

The trilateral negotiations between Gazprom, Naftogaz and representatives of European Commission will be important for the winter of 2020. Gazprom has already started to pump additional gas to its underground storage facilities in Europe in case of no deal (Khrennikova & Tanas 2019) as European countries could see a similar crisis to 2006 and 2009. The new important factors in these negotiations are: the development of the relationship of the newly elected Ukrainian president Volodymyr Zelensky vis-à-vis Vladimir Putin and Russia. Zelensky's party *Servant of the People* has also won the July 2019 parliamentary election and will most likely have a majority in the Ukrainian parliament (Miller 2019). The new European Commission will also play important role as the new head of the Commission Ursula Von der Leyen will continue in the Commission's hard stance against Nord Stream 2 stressing the need for unbundling rules to be applied on this project (Der Tagesspiel 2019).

### 5.2.2 Gazprom and the institutionalism of the EU

In this chapter we will have a look at the usual portraying of EU as liberal actor in energy policy, where transnational market and regulatory frameworks (Dannreuther 2016, p. 915) are used to ensure security of supplies, and Russian Federation as Realpolitik-driven player with mercantilist approach where energy companies (Gazprom in this case) pursue national grand strategy (Boersma & Goldthau 2014, p. 15). Romanova (2016, p. 860) explains the top-down approach in the decision-making of the Russian external energy policy. Russian constitution gives the president power to define foreign policy, The Ministry of Foreign Affairs (MFA) then implements the president's decisions and is directly accountable to him, next is The Ministry of Energy (ME) which defines energy policy, however not explicitly the external aspects , these are still under the power of MFA while ME deals with its counterparts in other countries regarding technicalities, furthermore The Ministry of Economic Development (MED) is in charge of external economic relations. Gazprom, although 50,002% state-owned, acts as a separate entity. This fact is often overlooked and appears to be a victim of reductionism in the understanding of Russia's external energy policies. Judge *et al.* (2016, p. 755) argues, that the view of Gazprom as a political tool only is problematic "because in all areas of the energy

sector there is a wide range of actors with their own political and economic interests, motivations and cognitive frames which may deviate from or indeed challenge the interests of incumbent government actors."

While the Nord Stream 2 project is labelled as project of national importance in the Russia's Energy Strategy (ME Russia 2010, p. 81), it has commercial counterparts in Europe in form of the big Western European energy companies which are crucial for the viability of the Nord Stream 2 pipeline and as Rawi Abdelal (2013, p. 422) stresses "this handful of west European firms[10] have continued to cultivate their longstanding bilateral relationships with Gazprom" and effectively these corporations "have somehow taken responsibility for formulating the energy strategy – and thus the Russia policy – for essentially all of Europe" (ibid.). Skalamera (2015a, p. 28) explains that this is partially due to the "hidden governance" or *quiet politics* which are "a set of technical arrangements, which are too complex for average citizens to understand and thus not an easy topic to engage the public." In a way, the attitude towards the EU-Russia energy security relations can be determined by the a priori perception of Russia as an international actor. Casier (2016) uses the lens of Construal Level Theory (CLT) and attributional bias using the *self* and *other* categories, in other words, "to make sense of an extremely complex energy world, one is bound to resort to simple abstract, ideological frames to make sense of energy policies" (Casier 2016, p. 773). The EU's dependence on the Russian gas is seen as the main determinant of power relations which gives the negative perception of Russia having in power the EU's lifeline.

To exert the liberal *power* EU has with the single internal market vis-à-vis the external energy suppliers, regulatory frameworks and energy strategies were brought to life. These measures, by contrast, can be seen tools of the "geopolitical approach" (Romanova 2016, p. 861).

The European Commission's Directive 2009/73/EC sets the common rules for the internal natural gas market in the European Union. The key focus of the directive is the ownership unbundling, which in other words mean, that the companies that own and supply the gas cannot be owners of the transmission network system. The liberalisation of the internal gas market should open the "lucrative EU market for competition challenging the monopolistic practices of actors such as Gazprom" (Siddi 2018, p. 1564). These policies should ultimately lead to

[10] the French ´Electricit´e de France (EDF) and GDF SUEZ, the German E.ON and BASF & the Italian Eni.

reduction of prices for the end customers. That the regulatory of the EU is real was proven when Russia decided to cancel the South Stream pipeline project in 2014 after the escalation of the Ukraine crisis and the European Commission's pressure against the bilateral agreements the EU member states made with Russia.

In 2012, EC also launched an antitrust investigation against commercial practices of Gazprom in some EU countries. The case suspected Gazprom of the restriction or distortion of competition and of the abuse of dominant market position. First, it was accused of hindering cross-border gas sales within the EU by imposing destination clauses in its contracts with some energy companies. Destination clauses require the purchased gas to be used in a specific territory, thereby preventing the re-export of imported gas. The second anti-competitive practice concerned unfair pricing. Thanks to the fragmentation of the EU's gas market, Gazprom charged higher prices for some countries—in particular Poland, Bulgaria and the Baltic states. (European Commission 2015) The EC eventually didn't punish Gazprom by any fine (Toplensky 2018) but Gazprom obliged to end these practices as Commission imposed "binding obligations on Gazprom to enable free flow of gas at competitive prices in Central and Eastern European gas markets" (European Commission 2018b).

The question with the Nord Stream 2 project is whether it is fully under the EU jurisdiction and the 2009 Gas Directive. In 2017 the EC has proposed to update the Gas Directive in a way that all future and past gas pipelines entering EU territory comply with EU rules. It was seen as an ad hoc proposal aimed at NS2. The Directive amendment was approved in April 2019 (European Council 2019). The amendment will effectively widen the legal force of the Gas Directive also to the offshore pipelines entering territory of the EU's member state. In case of Germany it means the part where NS2 enters the territorial waters of Germany and reaches the shore at Lubmin where it connects to the German transmission network.

Regarding the third-party access (TPA) there is technically no access to the pipeline when it enters the German territorial waters, however, Gazprom could offer part of the pipeline capacity to deliver gas bought at an auction by any third-party (Yafimava 2019, p. 3). Yafimava (ibid.) further outlines the possible scenarios of ownership unbundling (UO) under the Directive amendment. The scenarios include transferring of the operatorship of the whole pipeline under Gazprom-owned regional transportation subsidiaries – in this case Gazprom Transgaz St Petersburg. Alternatively, a new transmission system operator (TSO) – half Gazprom subsidiary, half European TSO - could jointly operate the NS2. The most feasible

solution however is, that the German section would be fully operated by a German TSO – existing or new (Barker, Foy & Toplensky 2019).

Gazprom could also ask for an exemption from the 2009 Gas Directive, this request would have to be examined by a German regulation authority and later approved by the European Commission. Such exemption was for example granted to the Trans Adriatic Pipeline in 2013.[11] One of the requirements for the exemption to be successful is that the project must enhance competition in gas supply and security of supply. Given the hostility of some member states towards the project and earlier statements by the EC' officials[12] it is unlikely that the project would obtain an exemption, at the same time Gazprom won't probably even try to do so.

In the light of the negotiations between Russia, Ukraine and the EU on the new contract for transportation of the natural gas via Ukraine, it would be dangerous to use the permission for the NS2 to be finished as a tool in negotiations as this could disrupt the trust between Russia and the EU and be dangerous to the security of gas supplies especially for the European countries fully dependent on the Russian gas.

### 5.2.3 Physical Security - Baltic Sea

The Baltic Sea is generally a safe area although NATO and Russia sometimes hold military maneuvers and contra-maneuvers in the Baltic Sea - the last NATO's naval exercise BALTOPS took place in June 2019 (Goncharenko & Prokopenko 2019). Interceptions of the jets and fighters participating in the NATO's Baltic Air Policing mission with Russian counterparts are also quite common (NATO 2018).

Overall the threat of physical disruption of the pipeline by state actor is very low and in case of a full-scale conflict in the region between Russia and NATO, the pipelines would be of least concern.

[11] C(2013) 2949 final COMMISSION DECISION of 16.5.2013 on the exemption of the Trans Adriatic Pipeline from the requirements on third party access, tariff regulation and ownership unbundling laid down in Articles 9, 32, 41(6), 41(8) and 41(10) of Directive 2009/73/EC.

[12] „As regards security of supply, Nord Stream 2 could lead to decreasing gas transportation corridors from three to at least two – abandoning the route through Ukraine. Also the Yamal route via Poland could be endangered. Such a reduction of routes would not improve security of supply." (Šefčovič 2016) speech.

## 5. 3 The role of the United States of America and the LNG

The United States of America opposed the idea of Europe diversifying its energy supplies with Russian gas since Reagan era who saw the emerging partnership more as a hostage situation. "Adding muscle to his rhetoric, Reagan banned the export of General Electric compressors and pumps, the preferred technology used in most of the world's gas pipelines. When the pipeline contractors sought out non-U.S. manufacturers, Reagan followed suit by ordering that similar bans would also apply to any non-U.S. manufacturers that utilized U.S. technology or parts in their products" (Goldman 2008, p. 137).

It is understandable that in regard with the Russia's assertive policies (recently for example Venezuela, Syria or bonding with Turkey) are directly clashing with the US interests, the USA sees any Europe-Russia partnership, even on commercial basis, as a threat to its security and to the trans-Atlantic partnership of Europe and the USA. US President Donald Trump has repeatedly stated that the NS2 project and overall dependency on energies from Russia means Germany being "totally controlled" by Russia (Meredith & Turak 2018). In June 2019 the US Congress (2019) introduced "Protecting Europe's Energy Security Act of 2019". In this act, the Congress sense that "the Government of the Russian Federation, working through Russian state-owned enterprises, uses energy as a tool of coercion and political leverage" and "a central aspect to this Russian strategy is the development of export energy pipelines that are driven not by commercial viability but by the foreign policy goals of Russia" citing Nord Stream 2 and Turk Stream as examples of such behaviour. The Act also includes sanctions against person that "sells, leases, or provides pipe-laying vessels for the construction of any Russian-origin energy export pipeline that makes landfall in Germany or Turkey."

Furthermore, Gerhard Schroeder, former German Chancellor and current chairman of the Nord Stream 2 project said, that it is the US' pressure responsible for the delay of NS2 approval by the Danish authorities (Balmforth et al. 2019).

By some, this is seen as a meddling with internal EU affairs or a "weapon of US imperialism" (Pieraccini 2019) protecting the US interest of selling its abundance of natural gas, in form of LNG, thanks to the shale gas revolution. This thesis argues that it shouldn't be sanctions but the market and customers deciding. The LNG is undisputedly a great addition for the energy security of the EU. For example, Lithuania, who used to be wholly dependent on the Russian gas built an LNG Klapeida terminal in 2015 relieving its dependency on Russia (Stulberg 2017,

p. 79). In reaction, Gazprom offered a 20% discount on the natural gas deliveries (Adomaitis & Sytas 2014).

This is exactly the benefit of LNG and Russian gas competition that could bring lower prices for the consumers in Europe. However, the availability of LNG will be determined firstly by the level of demand for it in Asia, where prices are higher (Pirani 2018b, p. 11). In 2017 only 207% of the overall EU's LNG capacity was utilized, while the overall LNG capacity could provide for 43% of gas EU's gas consumption (Naumenko 2018, p. 9).

# 6. Summary - Comparison of the SGC & NS2

## 6.1 Physical threats for the pipelines

To summarize the physical threats, that could disrupt the flow of natural gas, both Azerbaijan and Georgia are maximizing their efforts to maintain its reputation as a reliable partner in energy business. Azerbaijan is very well aware of the dependency of its economy on the production of oil and natural gas[13] and the country is doing its best to keep the investors and their assets safe. This effort was paid of by the BP's investment in the Shah Deniz gas field development or Azeri-Chirag-Guneshli (ACG) offshore oil field development. Georgia, aware of its importance as a transit country, is maintaining high security standards of the pipelines on its territory thanks to its special trained unit and cooperation with BP, private security companies and military cooperation with both Turkey and Azerbaijan. Georgia is a Caucasus transit hub, as in one corridor there are not only the BTC oil pipeline, the BTE (SCP) and SCPX gas pipelines going to Turkey, but also the Baku-Supsa oil pipeline (Western Route Export Pipeline – WREP) bringing oil form the Caspian Sea AGC oilfield to the Supsa terminal on the shores of Black Sea.

The weakest link of the chain here is Turkey. The fact that Turkey doesn't have a designated unit for protection of the energy infrastructure is one thing, however the unresolved conflict with Kurds in south-eastern regions of the country is much bigger issue and could undermine the position of Turkey as a reliable transit country in the future should the EU look to the Middle East and Central Asia to further diversify the natural gas sources.

Should the Nagorno-Karabakh conflict escalate into a conflict between Azerbaijan and Armenia it would most probably cause complete stop of the deliveries of Azeri natural gas to Europe and Armenia, on top of that, even simulated an attack on Azerbaijan's energy facilities during a military exercise (Kucera 2012). The same goes for the separatist regions in Georgia - Abkhazia and South Ossetia, if a larger conflict should erupt the flow of the natural gas (and

[13] After the BTC oil pipeline was completed the GDP growth reached staggering 26,4% in 2005 and 34,6% in 2006. The share of oil and gas sector on the overall GDP reached 56% in 2007 and was 33% in 2016 (Deloitte 2017).

oil) could be halted either by a direct attack on the infrastructure or by preventive switching off of the flow to prevent losses in case of attack.

On the other hand, the Nord Stream 2 pipeline is virtually free of these threats with only a **very low** possibility of physical attack disrupting the flow of natural gas to the EU.

## 6.2 Strategic withholding

None of the countries en route of the Southern Gas Corridor have any interest in using the natural gas as a tool to coerce other countries on the way, or the EU. All three countries, Azerbaijan, Georgia and Turkey have above-standard relations. Azerbaijan and Turkey especially because of the cultural closeness and Georgia for playing an important role as a link between those countries. Furthermore, Georgia needs good relationship with the two partners as otherwise it would have been exposed to the unwanted Russian influence. In case of Turkey, the control over gas deliveries to Europe could pose a potential leverage when negotiating with the EU (as we have seen during the migrant crisis of 2015-2016). However, the volumes of natural gas transferred to Europe will be very low to have any significant coercive potential.

The Russian history of using the supply cuts and other coercive methods is very rich. However, the well-known cases of Ukraine 2006 and 2009, that politicised the energy security between EU and Russia, are rather attributed to Ukraine being an unreliable transit country. Russia's quest to bypass Ukraine is therefore quite rational.

Furthermore, when treating the Nord Stream 2 as an isolated case and evaluating the security of transit through this pipeline, the possibility that Gazprom would cut the supplies to Germany is close to zero. Russia and Germany have always had a good relationship and the same goes for Gazprom and German energy companies.

## 6.3 Geopolitical and other implications

One of the negative implications the Southern Gas Corridor brings is strengthening of the close-to dictatorship of President Aliyev in Azerbaijan which goes against the values and respect for democracy and human rights promoted within the EU. The intended future sources for the SGC (Iran, Turkmenistan) will bring up the same dilemma.

The same, however, could be said about Russia and its respect for these values within Russia and furthermore, as the revenues from gas sales are an important part of the governmental

budget, it can indirectly be connected to the rising assertive Russian policies in opposition to the Western world. Here, for example, we can mention the current role of Russia in keeping the Venezuela's Nicolas Maduro in power, the campaign in Syria that helped the Assad's regime to survive the civil war or current bonding of Russia with Turkey over the possible deal on the S-400 air defence system, instead of US' Patriot, and the offer to get the Russian multirole fighters Su-35 instead of US' F-35 (Bodner 2019).

Together with the support for contested regions of Nagorno-Karabakh, Abkhazia and South Ossetia in Southern Caucasus this could bring further threats for the security environment of the region and possible threaten the security of supply via the SGC corridor.

The implications of Nord Stream 2 are especially severe for Ukraine. It will lose an important part of its budget and lose a bargaining tool vis-à-vis Russia. The same Russia which is actively supporting the two separatist regions of Donetsk and Luhansk People's Republic. While this is of course a serious threat to the security of Ukraine, it would be hypocritical to account this to the NS2 project. Even without the NS2 Gazprom's exports to the EU are rising and it is clear, that despite number of declarations to lower the dependence on Russian gas, the willingness to pay extra money "to buy" the security is not there among the consumers. This supports the argument, that economic reasons are above the political ones as the current available LNG capacity is under-utilized.

The threat for the NS2, as precepted by Russia and other stakeholders in the project, is the pressure and institutional regulatory power of the European Commission and the potential power of the single gas market. As argued earlier, this should help to curb any negative effects NS2 could bring on individual EU member states. The important role here will be the regulatory and monitor role of the German authorities that should guarantee fair conditions and compliance with the EU regulatory framework.

# Conclusion

With the indigenous EU natural gas production falling, the EU has to seek alternative gas supplies as the role of natural gas in transition to the renewable energies is crucial and the demand for natural gas in the EU will most likely oscillate or slightly grow above the current gas demands by 2030 and will be stable until 2050.

The analysis provided in this thesis showed that while the Southern Gas Corridor is favoured by the EU for its diversification of sources potential, the actual immediate impact on energy security of the EU is very low because the volume of gas from Azerbaijan stands for less than 2% of the EU annual natural gas consumption. Concerns were also expressed about the future potential of raising the volumes transferred by the SGC corridor. In comparison to the Nord Stream 2 project, the SGC is also under a significant threat of physical disruption of the gas supplies to the EU due to the unstable environment of Southern Caucasus and terrorist threat in Turkey.

One of the main arguments of the proponents of the Nord Stream 2 project is that it will establish reliable and cost-effective transit of natural gas to Europe and that thanks to the competition with the LNG the overall prices of natural gas would inevitably go down. (Barnes 2017). This commercial approach is understandably promoted by the stakeholders in the project. Russia and Germany. German Chancellor Angela Merkel supports the projects in spite of the issues such as opposition in its own party or clashes with the partners within the EU (Gregory 2019).

European Union should head towards harmonisation and single energy market and further even to establish a common European gas purchasing vehicle. (Boersma & Goldthau 2014, p. 14). The combination of all these measures, to the great relief of several U.S. senators and other observers, will help defuse Russia's energy weapon and restore the balance of power. (Stegen 2011, p. 6512). Ukraine should, nevertheless, start preparing itself for the possibility of limited, or non-existing, transport of Russian. With the result of 2019 presidential and parliamentary election, Ukraine could intensify the effort to move closer to the EU energy law standards and "thereby to put in place a sound and transparent market structure. However, alignment with the EU legal framework is only possible through an improved investment climate and higher financial stability" (Skalamera 2015b, p. 408). Furthermore, if everything goes the right way, Ukraine might finally be attractive for foreign investors and untap its vast natural gas reserves

of 1,1 trillion cubic meters (only Norway has higher proven reserves in Europe – 1,6).

Going back to the research question of whether the Nord Stream 2 is necessary for the energy security of the EU, we can answer that **it is not necessary** as the demand for additional gas in the EU can be met by LNG capacities. This, on the other hand, **is not confirmation of the first hypothesis**, that the project is redundant and will diminish EU's overall security. The project has its implications for the security of the EU and some other European countries, however, the EU institutional power should ensure that the project shall not be used as a tool of political coercion and that the compliance with the market practices within the EU (trading the gas at hubs instead of long-term contracts with Gazprom) will determine the aspect of redundancy of the project in sense that if the customers will opt for other gas supplies, it will be only the stakeholders of this project that will be harmed.

The second question regarding the alternative, the Southern Gas Corridor, can be answered as following: **The SGC is a better alternative for the EU's energy security simply for the sole fact that it brings diversification of suppliers.** However, the scope of this advantage is very limited and will have positive impact in the security of only handful southern European countries. The question of LNG supplies is crucial as a component to challenge the Russian gas and together creates competitive environment where winners will be the end-consumers in the EU thanks to lower prices of natural gas.

Answering the third question: **Nord Stream 2 is actually safer in terms of physical security of supplies**, as the thesis argues, the threats of sabotage or terrorism are virtually non-existent and the possibility that Russia would intentionally stop the flow of gas to Germany is almost ruled out. The biggest fear the opponents of the project have is the geopolitical impact. The argument presented in this thesis sees the regulatory and market power of the EU as safeguards that none of this will happen (Goldthau 2016, p. 34). Furthermore, the Eastern partnership should ensure Ukraine continues the reforms and harmonisation with the EU standards even without being a major transit country for the Russian gas to Europe.

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# Master's Thesis Proposal

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**Defence planned:** September 2019

**Proposed Topic:** Nord Stream 2: In accordance with the EU's Energy security strategy?

Stable supply of energy is crucial EU's economic prosperity and for well-being of its citizens. The EU in its "2020" Energy Strategy aims to achieve energy savings of at least 20% and at the same time increase the share of renewable energy to at least 20%. Even with these noble goals the EU is still and will be dependent on the import of energy as more than half of all energy consumed has to be imported from the outside of the EU territory. The key commodity in focus for this thesis will be natural gas. Over two-thirds of the natural gas needed in the EU is imported and the EU's domestic natural gas production is declining. The dependence on the import of the natural gas and varies across the EU however in average natural gas stands for 22% of the EU's energy consumption.

Therefore a secure gas supply is of utmost importance. The EU in its 2014 Energy security strategy stressed the importance to secure this supply. Namely by further diversification and strengthening relations with current natural gas suppliers. The strategy names specifically the Southern Gas Corridor and mentions the long-term future possibilities to get access to the gas reserves in Turkmenistan, Iraq or Iran. Another mentioned possibility for diversification is to use the growing potential of liquefied natural gas (LNG) that can be transported, similar to oil, by tankers and therefore are not constrained by territorial proximity and geographic obstacles as the traditional natural gas in pipeline is.

The aim of this thesis is to provide an overview of current state of the gas imports to the EU

and its security with comparison of current projects that are underway. The main focus will be on the comparison of Southern Gas Corridor with addition of the emerging LNG capacities (Świnoujście LNG terminal) versus the Nord Stream 2 project which would connect Russia, as a supplier, directly to Germany, a member state of the EU. The work will take into consideration recent political events and current geopolitical status – namely the occupation of Crimea followed by sanctions against Russia, the fact that the Nord Stream 2 project will bypass Ukraine and Poland and thus lowering their income from transition fees and that both U.S. House of Representatives and European Parliament issued non-binding statements and resolutions advising to stop this project.

Part of the work will also focus on the Third Energy Package that entered into force in the member countries of the EU in 2009 and should further open the electricity and gas market in the EU. This has strong implications for the Nord Stream 2 project and Gazprom as it requires ownership unbundling targeting separation of the companies' generation and sale operations from their transmission networks.

**Theoretical Framework & Methodology**

Framework used in this thesis will be primarily outsourced from Christian Winzer and his works. Risks primarily evaluated will be the human risks (geopolitical risks and political instability) and economic aspects. Furthermore, by the review of literature we will get different views on how the energy security is approached not only by scholars in their works but also how different actors tend to view gas as an object in focus. Is it more of a commodity with a price tag and with pipelines as mere means for the commodity to reach the consumers or is it a strategic resource that can be used as a leverage for reaching different (geo)political goals?

The methodology will be focused on comparison of aforementioned gas import projects. Thorough analysis and comparison of academia texts will be put together with up-to-date data from governments, relevant institutions and also the political discourse and geopolitical reality will be taken into account.

**Hypothesis**

The research question is suggested in the title and asks if **Is the Nord Stream 2 project necessary for strengthening of the EU's energy security?** Another research question will ask **whether the North Stream project by directly connecting two countries (even though underwater and passing through several countries' economic zones) could actually be safer for gas transport than other alternatives (land gas-pipelines or LNG carriers).** Lastly the analysis will try to evaluate **if the geopolitical aspects (effort to not to be dependent on Russian gas) will outweigh the risks and costs of building new infrastructure often from unstable regions.**

H1: The Nord Stream 2 project is redundant and goes against the energy security of the EU.

H2: There are *better* alternatives for diversification of the gas imports into the EU.

**Outline**

Introduction

Theory

1. Theoretical framework
    a. Energy security – review of literature
    b. Ch. Winzer and his framework
    c. Methodology

Analysis

2. Overview
    a. Energy mix of the EU
    b. Gas production in the EU
    c. Current gas imports to the EU
    d. Third Energy Package
3. Projects in focus
    a. Nord Stream 2
    b. Southern Gas Corridor (TANAP, TAP, SCPX)
    c. LNG alternatives
4. Geopolitical risks and political instability
    a. Nord Stream 2 – Russia, Germany, EU & USA
    b. Southern Gas Corridor – Turkey, Black Sea & Caucasus
5. Comparison of Nord Stream 2 and Southern Gas Corridor

Conclusion

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