

GAS WARS
DETERMINING DEPENDENCY ON RUSSIAN NATURAL GAS AMONG EU MEMBER
STATES

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ABSTRACT

Stephanie Page Pleasants: Gas Wars—Determining Dependency on Russian Natural Gas among
EU Member States
(Under the direction of Holger Moroff)

From the construction of pipelines to a lack of an EU energy policy to the development of alternative energy sources, EU member states have had a difficult time judging where they stand on Russian natural gas, which has raised many issues over energy security and interdependency. Therefore, the main question of this thesis is to determine to what extent EU member states are dependent on Russia for their natural gas resources. Using the countries of the Weimar Triangle (France, Germany, and Poland) as a case study, I look at the varying relationships between these three actors and Russia as well as their distinct energy make-up. And by analyzing additional energy sources, I conclude that while member states altogether are not heavily dependent on Russian natural gas, it is necessary to consider the gas dependency of individual member states as well as that of Russia.

For my family who said I could do anything.

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LIST OF ABBREVIATIONS

Bcm	Billion cubic meters
CCS	Carbon Capture and Storage
CIS	Commonwealth of Independent States
CO ₂	Carbon dioxide
EIA	Energy Information Administration
EU	European Union
IEA	International Energy Agency
Insee	Institut national de la statistique et des études économiques
IR	International Relations
LNG	Liquefied natural gas
PV	Photovoltaics
REN	Renewable Energy Policy Network
Tcf	Trillion cubic feet
WT	Weimar Triangle

Chapter 1: Introduction

Europe and Russia have shared an energy relationship for decades, spanning from the Cold War¹ era to today. The two protagonists are geographically linked by pipelines that run across the land, carrying oil and gas to various destinations throughout the European continent. However, since the 1990s, the links concerning natural gas have shown signs of cracks. The long-standing connection between the two powers demonstrates how closely they have worked in their energy dealings, but due to issues such as Ukraine gas crises, debates over gas prices, and a lack of cooperation in their energy relationship, tensions between European Union (EU) member states and the former Soviet Union have arisen over the past several years. Given specific features of the gas market, such as those listed above and Russia's prime gas company Gazprom's monopoly on the resource, I will focus attention on Russian natural gas in contrast to oil, which does not share the same issues.

Often at the center of this gas conflict are energy *dependency* and energy *security*. We can see many ways in which states or regions can be dependent on one other, from energy technologies to pipelines and transporting sources, but in this study, we are analyzing the dependence on natural resources, more specifically on natural gas. For many European states, particularly in the East, they see themselves as relying too much on Russia's natural gas supplies. As a result, they, as well as many Western states, have sought ways to *diversify* their energy sources, including the exploitation of unconventional gases and the development of renewable

¹While Russia was already experimenting with pipelines and exporting gas and oil before the Cold War, it was not until the 1960s and 70s that it engaged more heavily in East-West gas relations (Högselius, 2013: 3).

energy, while still importing gas from Russia. Additionally, though this investigation's primary focus is on energy dependency, we will see how some experts argue that it is energy *divisiveness* among EU member states rather than energy dependency that is the real concern (Noël, 2008: 1). All of these energy issues lead us to our main question: to what extent are EU member states dependent on Russia for natural gas? Some research suggests that they are heavily dependent on Russia, while other research often shows that Europe and Russia are co-dependent considering that in the past Russia has been the EU's largest natural gas supplier, and the EU is Russia's largest consumer. Nevertheless, in this study I hypothesize that EU member states as a whole are in fact not as heavily dependent on Russia for natural gas as previously believed, as dependency varies from member state to member state. Rather, they demonstrate a level of interdependence when it comes to this energy resource.

As part of my theoretical framework, I will incorporate the constructivist and realist perspectives into this investigation. I will demonstrate how both theories can complement each other in order to explain European-Russian energy relations through concepts such as state interests, identity, and energy security. Furthermore, I will also discuss the notion of interdependence as seen in Keohane and Nye's work. Their arguments on the concepts of vulnerability and sensitivity give additional support on the subject of energy security.

The case study that I will employ is that of the Weimar Triangle, a collective consisting of three EU member states—Poland, France, and Germany. I am examining individual European countries as my case study instead of the European Union inclusively since each country, or member state, is unique in terms of energy use and has its own specific relationship with Russia. Moreover, the countries of the Weimar Triangle make an ideal example of the various levels of energy mixes, consumption, and production in Europe, especially when it comes to dependence

on Russia. For example, Poland, once being a satellite nation of the former Soviet Union, tends to be more cautious of Russian power and seeks ways to become less dependent on its natural gas supplies. It is also widely dependent on coal but has ambitions to explore its shale gas potential. France, on the other hand, does not have as potent a relationship with Russia when it comes to energy relations and relies on much of its own nuclear energy power plants. Finally, Germany has probably the closest energy relationship with Russia and receives more of its natural gas than any other member state. This member state has also begun to do away with its nuclear energy by shutting down its power plants and has made efforts to improve renewable energy resources. As is evident, the Weimar Triangle is a *mélange* of energy personalities, and these countries each possess a strong voice in the EU. Therefore, part of this study is to determine if the Triangle could play a role in Europe's natural gas relationship with Russia and if it could help to establish a unified energy policy in Europe.

I will follow up my case study with a chapter on alternative resources to natural gas, including both renewable and non-renewable sources of energy. I will especially highlight the role of shale gas and its potentially significant impact in Europe in the coming decades. I expect that the analysis of other energy sources in Europe and not natural gas alone will aid in determining the extent of dependency on Russian gas. Finally, in the final chapters of this work, I will offer my findings. I stress that although I will not attempt to decipher if Europe is or is not in fact dependent on Russia for its pipelines and natural gas supplies, I do, however, assume that I will find that the relationship between the EU and Russia is complicated.

My methodology throughout this study consists of a range of primary and secondary sources. My primary sources include EU institutions such as the Commission and Eurostat as well as statistics from individual national governments. I have also conducted an interview with

a High EU Civil Servant from Brussels whose expert knowledge on European energy I include. My secondary sources span from press articles and scholarly articles to European think tanks and organizations such as Notre Europe, the U.S. Energy Information Administration (EIA), and the Genshagen Foundation.

Debates over natural gas in Europe have certainly caused quite the stir between the EU and Russia, but there is not only tension between these two regions. Conflict exists among European member states as well, and France, Germany, and Poland are no exceptions. Throughout this study, we will see how the presence of natural gas plays more than just a role in the interaction between the EU and Russia but within EU as well.

Chapter 2: Theoretical Framework

General Theory & Main Concepts

Before delving deeper into the theoretical relationship between Europe, Russia, and natural gas, it is necessary and useful to offer a brief explanation of the general theories and main concepts that we will find. At first, the constructivist and realist perspectives may seem an odd theoretical pairing. For example as Copeland states, “For more than a decade realism, by most accounts the dominant paradigm in international relations theory, has been under assault by the emerging paradigm of constructivism” (2006: 1). In other words, realism was the main theory in IR (International Relations) for years until constructivism appeared in the late 80s and early 90s² and added another dimension to the study. In this portion of the investigation, the purpose is to bridge the two theories in order to find the link between interests and identity. After all, these theories often have contradictory arguments.

If we begin with the realist view, we find that a common characteristic of this doctrine is that the state is the most important actor. We also find that the security of the state and therefore the pursuit of state interests are some of its main concepts. Barry Buzan, a prominent scholar in the English School of IR theory³, makes a smooth connection between realism and security: “Realists construct the state as a necessary unit for the well-being and survival of any human group within the anarchic international environment. They thus have the makings of a transcendent state purpose in the imperative of the struggle for power and security” (1991: 41).

²The term ‘constructivism’ was coined by International Relations scholar Nicholas Onuf in 1989 (Wendt, 1999: 1).

³The English School is a theory of International Relations that was conceived in the 1950s and 60s. Buzan is a contemporary scholar in this school of thought (Wilson, 2013: 1).

Constructivism, on the other hand, focuses on identity, ideas, and social norms, which can be influenced by history. The EU is often linked with constructivism while realism (interests of the state) is typically used to explain Russian behavior, but as we will see in the next section, the sector of energy can bridge the two theories.

Linking Theory with Energy

National interests play a leading role in this study of Russian imports of natural gas. In this case, energy security represents the utmost important interest among EU members. Considering that the realist theory values state interests, and this study concentrates much on security, the connection that we can make here is that energy security is a prime national interest, and not just for Russia. Each member state equally wants to increase its own security. Buzan notes that “human beings are the prime source of each other’s insecurity” (35). Therefore, if we apply this logic to states, could that suggest that states are the source of each other’s insecurity and could we include Russia in this assessment? Buzan’s work might imply that we could. For example, he claims that “When the maximal state rules, it is neither unusual nor paradoxical to find individuals dependent on the state for maintenance of their general security environment, while at the same time seeing the state as a significant source of threats to their personal security” (43). Though this statement refers to “the state”, we could possibly change the roles so that member states (the individuals) were dependent on Russia (the state) for certain energy supplies such as natural gas and that these states view their Russian source as a threat to their energy security. Furthermore, in Alexander Wendt’s work, he highlights the ‘security dilemma’, to which “Competitive systems of interaction are prone” and “in which the efforts of actors to enhance their security unilaterally threatens the security of the others, perpetuating distrust and alienation” (1992: 407). This concept explains that actors can become aggressive with one

another when they feel they are being threatened. For example, if EU member states attempted to seek alternative or additional sources of natural gas, Russia could and has viewed this move as a threat, which in turn causes it to respond with aggressive behavior by thwarting these plans (as I will later show in the case of pipelines).

Both identities of the EU and Russia are important in this study because both the EU and Russia are still in search of their identities in the international arena. Russia, on the one hand, is still reforming itself in a post-Soviet phase, and the EU, on the other hand, struggles to establish a solid identity as it supports multiple national identities (Debardeleben, 2012: 4). In this context, we can apply the EU's still-shaping international identity to its energy identity. As I will later discuss, EU member states have yet to speak with one voice regarding various issues, but it is especially true of energy. Since the EU still tries to define itself and its interests on one collective level (e.g. developing a European energy policy), it could still possibly show signs of weakness and insecurity in the way of energy. However, the EU is known for being a normative power, and though one could argue that it does not display much power or influence on Russia, except in the way of market power through competition and energy dealings with many outside sources (Forsberg, 2013: 27), the fact is that the EU could hold more power and influence than it, and Russia, thinks. If member states were to stand together as a union, the EU could be more effective in terms of energy relations, for Russia views "the construction of a common European defense identity" (my translation) as a threat to its own perspective of the state being the highest power (Läidi, 2008: 187).

From an alternate perspective, energy is one area in which Russia has established a strong identity, specifically that of oil and natural gas. The country has become an energy superpower

over the past few decades, in large part due to its monopolistic gas company, Gazprom⁴. Here we can link identity with interests. Not only is part of Russia's identity built around the energy empire it has created, but it is also part of its national interests to continue exporting large amounts of supplies to European countries, thereby maximizing its energy security, and in this case, security of consumption.

However, there is another argument that we can analyze—that of interdependence between Russia and EU member states. Locatelli underlines interdependence rather than dependence between the EU and Russia because not only do EU member states import an enormous amount of Russian gas, but Russia also exports most of its gas to EU member states, and its gas supplies are essential to its economy (40). In Keohane and Nye's work on the subject, they introduce the concepts of vulnerability and sensitivity. As framed in their book *Power and Interdependence*, "Sensitivity involves degrees of responsiveness within a policy framework—how quickly do changes in one country bring costly changes in another, and how great are the costly effects?" (12). The European Union has not developed a central policy among its member states concerning energy, and it does not have strong policies toward Russia nor has it been successful in renewing those that it already has. Even the 2003 EU Security Strategy touched on energy dependency but failed to fully address it and develop policies for it (European Union, 2003: 2-3).

Furthermore, Keohane and Nye add that "what matters is not only the proportion of one's needs that is imported but the alternatives to imported energy and the costs of pursuing those alternatives" (13). This refers not only to how much natural gas member states import from Russia but also the alternatives to Russian gas (vulnerability). For example, with the shift to

⁴Gazprom is the dominant gas company in Russia, with 78% of the country's gas production. Furthermore, it is a vital instrument of the state, as the Russian government owns 51% of it (Locatelli: 57).

shale gas in the U.S., the states may not import as much foreign gas as it used to. Not only have LNG exports been re-routed from the U.S. to Europe, but some EU member states themselves have begun to develop their own shale gas potential. However, now that U.S. gas sources have become more domestic and many EU states are reluctant to explore their shale gas options, gas could become more costly to Europe.

According to Keohane and Nye's work, "The vulnerability dimension of interdependence rests on the availability and costliness of the alternatives that various actors face" (13). Phrased in simpler terms, are EU member states able to diversify their sources? The authors continue that "Vulnerability is particularly important for understanding the political structure of interdependence relationships. In a sense, it focuses on which actors...can set the rules of the game...[and the] key question for determining vulnerability is how effectively altered policies could bring into being sufficient quantities of this, or a comparable, raw material, and at what cost" (15). Locatelli highlights the vulnerability of states in relation to natural gas, connecting it with energy security and diversifying sources. She postulates that "the main underlying idea is that diversification constitutes for a country (or an actor) a factor of risk reduction linked to imports and therefore to dependence relative to the exterior" (my translation) (38). Therefore, by varying gas imports, European states are less dependent on Russian supplies, thereby increasing their energy security. But it is not always that simple. The vulnerability of some states depends on its variability (40). Some states are more vulnerable than others when it comes to gas dependency. Poland, for example, is much more vulnerable than Germany or France, as most of its gas comes from Russia, whereas the other two states import gas from several origins. Therefore, by relying on different suppliers, Germany and France decrease their dependence and therefore their vulnerability.

Our argument presents many concepts to consider, but we find that they can be connected when applied to energy dependency between EU member states and Russia. Constructivism tells us about norms and identities while realism focuses more on interests, and particularly the interests of the state. By using Russia as an example, we can link the two theories since its energy interests have become a vital part of its identity. It is also pertinent to use Keohane and Nye's argument as we may discover that interdependency, which may be more relevant than dependency, plays a key role in the relationship between Russia and member states.

Chapter 3: Case Study

The Sides of the Weimar Triangle

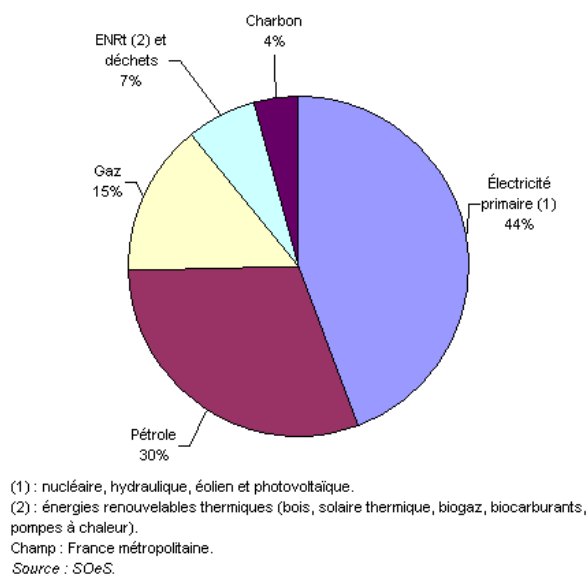
Background on the Triangle

As previously stated in the introduction, the countries of the Weimar Triangle (Germany, France, and Poland) form an ideal example of the energy diversity of EU Member States. Not only do they possess unique relationships with Russia who provides some of their natural gas imports, but they also display a broad range of energy mixes as well as different perspectives on the future of EU energy. Furthermore, as Andoura explains, Germany, France, and Poland are “often representative of the main lines of division” in the EU as a result of their energy differences (10). Yet despite their initial purpose, they are often met with conflict and indecision.

The Weimar Triangle was established in 1991 among France, Germany (already two powerful voices in the EU), and Poland, who would eventually become an EU member and was growing to become a substantial player in Eastern Europe. According to Lang and Schwarzer, the purpose of the Weimar Triangle was to “emphasise the shared values between the three countries” (2011: 2). Andoura additionally offers three objectives of the Triangle: to promote dialogue between the leaders of the three countries about the challenges that the EU faced, to develop a mutual understanding of each nations’ individual positions on EU issues, and to strengthen the relations between “civil societies” of the Weimar Triangle (2). However, shared values and cooperation have not been so easy to accomplish. In fact, cooperation among the countries appears more “frozen” (Andoura: 5) than anything else, which is most likely due to each country’s individual preferences and concerns as we will see below.

Structure of France's Primary Energy Consumption 2012

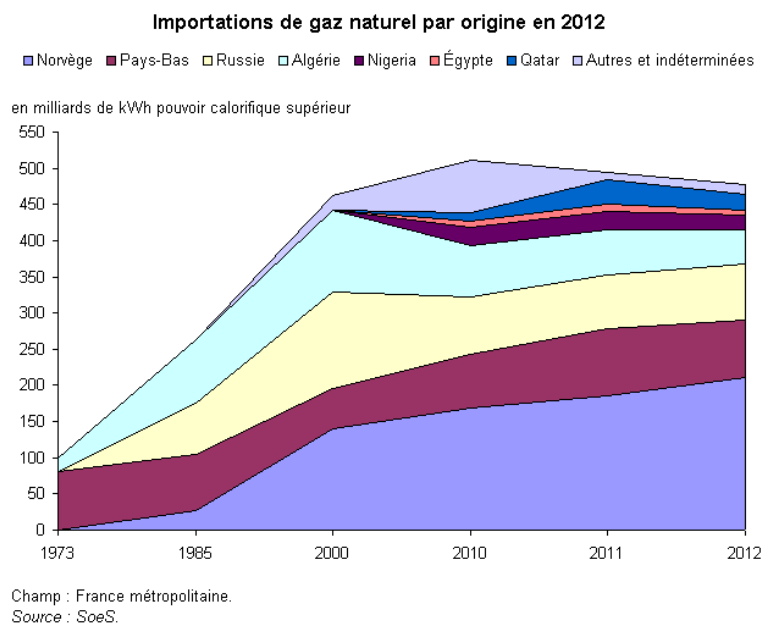
Structure de la consommation d'énergie primaire 2012



Source: Graph taken from the National Institute of Statistics and Economic Studies

Table 1

France's Natural Gas Imports by Origin in 2012



Source: Graph taken from the National Institute of Statistics and Economic Studies

Table 2

France

France is an interesting case concerning natural gas. According to the U.S. Energy Information Administration, the country does not produce much of its own gas compared to other EU countries; therefore, it must import in order to satisfy demand. However, French authorities have estimated that the demand for natural gas could fall in the coming years. What does power the country, however, is its nuclear capacity. While some countries have been steadily decreasing their reliance on nuclear energy, France dominates in this category. In fact, France is second only to the United States when it comes to nuclear capacity, and in 2012 the country generated 407 terawatt hours, which is equivalent to about 83% of its total generation (EIA). As Table 1 illustrates, in 2012 44% of primary energy consumed in France came from nuclear, hydraulic, wind, and photovoltaic energy, 30% from oil, 4% from coal, and 7% from thermal and renewable energy (Insee, 2014). Of these sources, however, only 15% comes from gas. Additionally, as we see in Table 2, Russia comprises a large portion of that gas, but it does not dominate. Norway is by far the largest supplier of gas in France, followed by Russia and the Netherlands (Insee). France boasts a wide variety of natural gas supplies, including those countries listed above, and it also imports LNG from countries such as Algeria, Nigeria, Egypt, and Qatar (EIA). Therefore, compared to other countries, France does not display a heavy dependence on Russian natural gas in that it relies much on producing its own sources of energy, and what gas that it does import it has diversified among various sources.

Although France does not boast the highest level of renewable energy, it is increasing. For example, this member state is counted among a handful of countries that produce the most wind-powered energy in the world and holds nearly 7.5 GW (gigawatts) (Gsänger and Pitteloud, 2013: 7). It also tops the charts in solar energy. As part of the 2012 top 10 countries for PV

(photovoltaics) capacity, France produced 4.0% (REN 21, 2013: 41) of the total. Furthermore, France is the second-largest producer of biofuels in Europe and even produces biodiesel for the transportation sector (EIA). Nevertheless, while France has made strides in renewable energy, we will see that it is Germany that has made the most progress in this field.

Germany

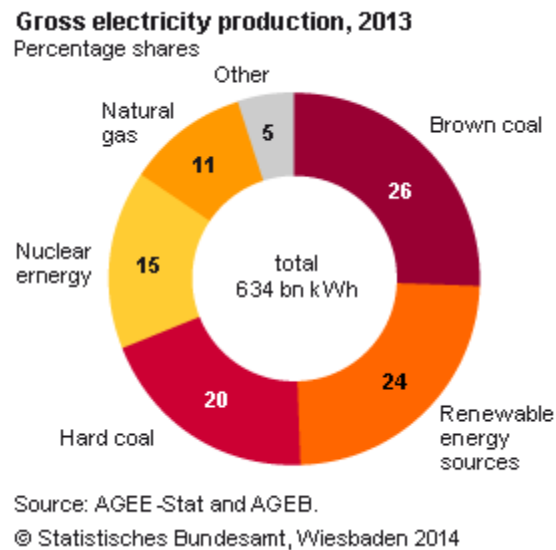
Energy in Germany is generally well diversified. Among its energy mix, it is still a coal-producing country, but the EU is making strong attempts to decrease carbon-burning fuels⁵.

Although Germany still burns and imports coal, it appears that its imports from other EU countries have decreased from nearly 6 million tons in 2008 to roughly 3.7 million tons in 2012 (Statistisches Bundesamt, 2014). When it comes to nuclear energy, however, Germany has done more than curtail its reliance on it. It has rapidly decreased its usage by shutting down its nuclear power plants in the past several years, especially after the disaster at the Fukushima power plant in Japan in 2011.

Germany has also spent much time, money, and resources into renewable energy. In fact, since 1990, Germany has increased its renewable energy source by 141%, making it a leader in areas such as wind power, photovoltaic power, solar power, and biofuels” (Andoura: 10). Wind power particularly blows breath into renewable energy. As of 2012, Germany was the biggest wind market in Europe with a total capacity of 31 GW and has become a successful example for others to follow (Gsänger and Pitteloud: 13). It is even in the top five wind markets in the world. Furthermore, in the 2012 solar sector, Germany contributed more to solar PV than any other country at 32% of the global total (REN 21, 2013: 40-41). To illustrate how much renewable resources have altered Germany’s energy sources, Germany’s gross electricity consumption from

⁵The EU aims to reduce its greenhouse gas emissions by 20% by 2020 compared to 1990 levels and 80-95% by 2050 (European Union, 2014).

Germany's Gross Electricity Production, 2013

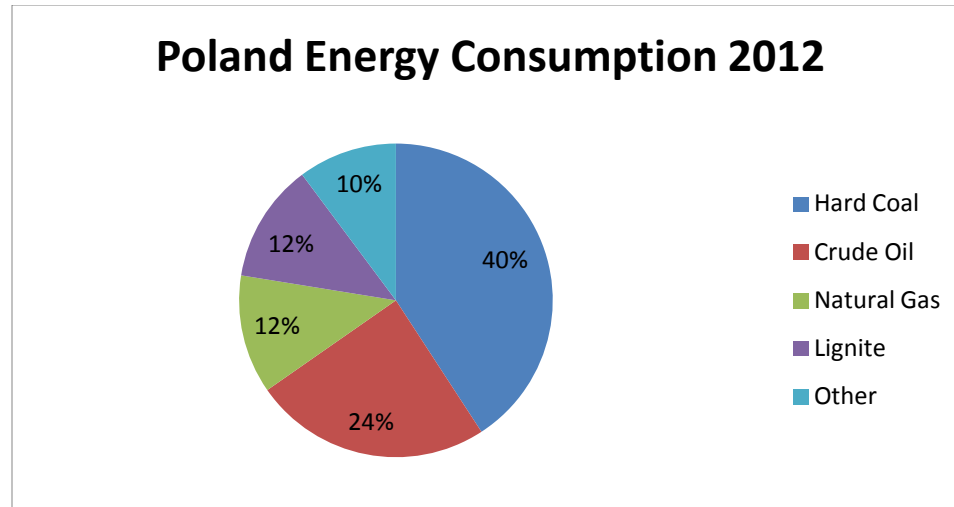


Source: Graph taken from the Statistisches Bundesamt

Table 3

renewable resources has grown from 3.2% in 1991 to 24.7% in 2013 (Statistisches Bundesamt, 2014). And as seen in Table 3, renewable energy took up nearly a quarter of Germany's total electricity production in 2013. Although Germany covers the spectrum of energy resources, when it comes to natural gas, it has typically carried on a tight relationship with Russia.

Along with Italy, Germany imports more natural gas from Russia than any other EU member state. Table 3 proves that Germany does not produce a great deal of natural gas itself, at 11% in 2013; therefore, like France, it must import it to keep up with demand. According to Noël, about 40% of the Russian company Gazprom's entire profits to the EU are sent to Germany and Italy (9). However, while Germany does import an exorbitant amount of gas from Russia, the figure could be decreasing. Since 2006 and again in 2009, the number of terawatt hours used in CIS/Russian Federation natural gas supplies has been steadily decreasing. For example, since 2008 when they hit a peak of 419.9, they have declined to 353.4 by 2012



Source: Graph based on data taken from Poland's Central Statistical Office

Table 4

(Statistisches Bundesamt). Therefore, perhaps since 2006 and 2009, Ukraine's gas crises have had a strong impact on Germany's gas imports from a slightly unpredictable Russia, encouraging it to curtail its imports or search for alternatives.

Despite being a player in what was supposed to be a group whose primary purpose was to foster cooperation in the EU, Germany has had its fair share of conflict with those countries it borders, particularly that of Poland. When Germany made agreements to begin the Nord Stream pipeline with Russia, it did not inform Poland of these plans, a decision that came with consequences. For instance, after the incident, Poland decided against commencing negotiations on a new Partnership and Cooperation Agreement between Russia and the EU (Andoura, p. 21). But Poland, though Germany's neighbor, is often caught between a rock and a hard place, namely desire for more energy security and Russian natural gas.

Poland

Poland, like France and Germany, is one of the largest primary energy producers in the European Union, comprising 8.5% of that total in 2011 (Central Statistical Office, 2013: 49), but

it is still a unique case from its neighbors. While the two Western countries do not rely as much on Russia for natural gas, Poland still does, but gas is not its main energy resource. Similar to Germany, Poland is also a big coal producer and consumer. In fact, 83% of electricity is produced from hard coal (44). In 2012, hard coal was the most important energy carrier produced in Poland at 62%, though the country consumed nearly 50% more than it produced in total (42). As for natural gas, production of this resource covers less than 30% of annual consumption while the rest is imported, and consumption is increasing (44). Also in 2012, as Table 4 illustrates, Poland consumed 40% of hard coal and 12% of lignite (another type of coal), 24% of crude oil, and 12% of natural gas, while the remaining 10% made up other resources. Like France, natural gas does not comprise a huge portion of its energy consumption; however, unlike France, an enormous portion of Poland's gas comes from Russia.

Also unlike France, the Polish government has not been shy about its plans to explore and develop its shale gas resources as we will see in the next chapter. Even though Poland relies mostly on its own coal production for energy, the gas that it does consume primarily originates in Russia. Yet if the government decides to further develop its shale gas reserves, it could mean greater independence from Russian gas. Poland has also begun to develop its LNG capacities. According to Polskie LNG, Poland has been constructing an LNG terminal in the city of Swinoujscie, which is slated to be completed in late 2014 or 2015. With this project Poland has the opportunity to better diversify its sources and improve its energy security by importing LNG from North Africa and the Scandinavian Peninsula. Although construction plans have been delayed, the terminal is expected to receive 5 bcm (billion cubic meters) of gas a year with the possibility of increasing supply to 7.5 bcm a year. One terminal does not tip the scales of Russian natural gas dependency; yet if Poland were to continue its LNG importation and shale gas

development, then it is possible that the country could see a reduction in Russian gas imports. Poland does rely mostly on gas and coal supplies, but it has still grown in renewable resources. For instance, though the share of renewables in electricity consumption in 2012 was still small, it has experienced “rapid development” in the way of biomass, wind, and biogas (Central Statistical Office: 48). In addition, Eastern Europe has proven to host the world’s highest growth rates in wind energy, and by 2012 Poland had grown by 54% (Gsänger and Pitteloud: 6).

Concerning its relationship with its two neighbors, Poland seems to want solidarity⁶. Nevertheless, it has a difficult history and relationship with Russia. As a former Soviet republic, Poland has become the voice of other previously Russian territories in Eastern Europe. Poland also often feels left out of important negotiations with the other two member states which tend to overlook the potential political power that the Weimar Triangle could possess (Lang and Schwarzer: 4). But the reason for the Triangle’s lack of coherence and cooperation partly lies in the murky waters of a poorly developed and defined energy policy.

A European Energy Policy and Pipeline Politics

Thousands of miles of pipelines link some member states with others, yet there is not a single European energy policy that connects them. If there were, we would not have the same pipeline politics as we do today, which we will discuss later. The lack of an energy policy is surprising given that years ago it was energy that helped to unite European nations. As Pol-Henry Dasseleer reminds us, the European Union was originally founded in 1951, at least in some part, on energy as the Coal and Steel Community (2010: 3). While energy is still a detrimental aspect of the modern-day community, the member states lack a single voice and a common European policy that deals with energy and with Russia. According to Läidi, speaking

⁶“...when negotiating the Lisbon Treaty in 2007, after the failure to ratify the Constitutional Treaty, Poland insisted on the inclusion of a solidarity clause in the new Treaty Article dealing with energy. Article 194 TFEU now states that European energy policy should be developed “in a spirit of solidarity” (Andoura: 21).

with one voice does not necessarily mean creating one single policy, rather it means cooperating and “coordinating national policies” through common principles (198). Therefore, for Laïdi it is not imperative that member states have one policy to cover all their interests, but they do need to make their national policies coincide.

But why has it been so difficult for them to accomplish this step? First of all, as with the countries of the Weimar Triangle, each member state has its own set of interests, energy mixes, and distinct geology, which makes it challenging to create a policy on which everyone can agree. Also, member states have developed a sort of “energy patriotism” (Andoura, Delors, and Derdevet, 2013: 1), meaning that since historical ties and individual energy preferences are so diverse, EU countries tend to put their own energy needs above those of the community. Here is where Noël mentions the “divisiveness” of member states, which is the real concern, rather than the question of dependency. For him, member states are not at odds over Russian gas because they are too dependent on it but rather because they each import different amounts of natural gas, have varying access to alternate natural gas sources, and possess unique energy mixes (1). Second, member states are accustomed to making bilateral agreements with Russia instead of putting the weight of the EU behind these agreements (Andoura and d’Oultremont, 2013: 4). In fact, Russia vastly prefers communicating on the state level as opposed to the EU level since it still poses a threat. However, with member states, they speak a sort of “state language” that Russia understands (Laïdi: 189). Therefore, thanks to energy patriotism and bilateral discussion, member states lack a real push for a single energy policy. Member states are aware of the advantages of an energy policy, but if there is nothing that binds them to their agreements, then there is no incentive.

The lack of an energy policy could produce unfavorable consequences for the EU. Without it, the relationships between member states could become more conflicting, which is where pipeline politics come into play. Competition and rivalry are two words often mentioned regarding natural gas pipelines and relations between member states and Russia, especially when it comes to securing their energy futures. For example, even before the gas crises in Ukraine in the 2000s, the EU was preparing for the Nabucco project. Initiated in 2002, this pipeline would transfer supplies from the Caspian Sea, bypass Turkey, and deliver natural gas to several EU countries, including Austria, Hungary, Romania, and Bulgaria. The goal of this community project was to lessen gas reliance on Russia by bringing in 31 bcm every year and to supply the growing demand for gas in Europe (Laïdi, Crișan-Revol and Parmentier, 2010: 13-15).

However, Russia intervened by buying gas from Azerbaijan, which was originally planning to support Nabucco. Since Russia secured much of the gas for itself, it put an obvious dent in the project⁷. After seeing plans of the EU to build Nabucco, Gazprom along with independent European gas companies, notably Italy's ENI, quickly launched plans for the South Stream pipeline in 2007 (17). This Gazprom project has been deemed Nabucco's rival as it travels a similar path. Though it originates in Russia, it also runs below the Black Sea and into Europe (south-stream.info). As Locatelli suggests, Nabucco was supposed to open up a new corridor of supply. Yet, as a handful of EU member states were attempting to diversify their natural gas imports, Russia was concerned with securing its own exports to Europe, and Nabucco would have spoiled those plans by making way for additional suppliers (p. 52). Laïdi explains that "[Russia] wants to avoid that [the European market] diversifies its sources of supply. Its strategic interest is therefore less about cutting the flow of gas to Europe than about preventing it

⁷Construction on Nabucco became difficult after losing Iran as a source of supply due to the country's own political crisis. Member states then had to search for other sources to replace it (Laïdi, Crișan-Revol and Parmentier:15-16).

Map of South Stream Pipeline Route in the Black Sea



Source: Graph taken from RT network via gazprom.com

Table 5

from opening up others elsewhere” (my translation) (2008: 191). As a result of Russia’s South Stream plans, the Nabucco project was never realized⁸.

Similar to the South Stream project, the Nord Stream pipeline equally caused quite the stir in Europe. Construction of the first line of the twin pipelines began in 2010 with the second line transporting natural gas by October 2012, and together, the lines have the capacity to transport over 50 bcm of gas per year (nord-stream.com). Gas companies such as Wintershall/BASF, E.ON, Gasunie and GDF SUEZ⁹ collaborated with Gazprom on Nord Stream, which spread from Russia, through the Baltic Sea, and into northern Germany. The goal

⁸The European Commission and Russia are currently in talks over South Stream to discuss “legal and technical issues related to the planned pipeline” which could possibly postpone its operation (Croft, 2014).

⁹It is worth noting that many European gas companies have carried out long-term contracts with Russia for decades, and as a result of these agreements, these companies view their long-lasting relationships as energy security (Läidi: 202).

was to bypass transit countries¹⁰ such as Ukraine and Poland, thereby securing more reliable routes (Locatelli: 53). However, these countries were originally unaware of the project, and this turn of events strained the relationship between Germany and Poland which, as this study has shown, have dissimilar relations with Russia. While this project helped to make Russian gas exports more secure, it questioned energy solidarity and trust between member states (Andoura, 2013: 64) by once again showing how difficult it is for them to cooperate on security and diversification issues.

Controversy over pipelines does not only exist within the EU's domain. Member states are currently at an impasse with Russia due to political events in Ukraine in early 2014. After Russia's invasion of Ukraine and annexation of Crimea, Moscow reported that it plans to begin work on a pipeline project that will deliver gas to the peninsula. Thus far, the logistics of the proposal are not certain, but government representatives have stated that this Gazprom-backed construction could cost up to \$171 million (€123 million) to build, span a cool 400 km (250 miles), and have a capacity of up to 2 bcm of gas a year (Soldatkin, 2014). It is not yet clear which path the pipeline will take, though two routes are possible: either originating in Krasnodar in the south of Russia or Anapa, another southern Russian city. As Table 5 illustrates, this infant pipeline would most likely be an extension of the already planned South Stream pipeline, breaking away in one of the southern Russian cities (RT, 2014). Moscow would additionally build three power stations on the Crimean peninsula which would cost almost \$3 billion (€2.16 billion) to build. Crimea primarily receives its gas from Ukraine which in turn imports most of its gas from Russia. However, due to political upheavals in the country, gas prices in Ukraine have skyrocketed by 40% from \$268.50 to \$385.50 (€191 to €277.5) per 1,000 cubic meters

¹⁰Energy transit, through Ukraine for example, is often called the Achilles heel of Russia, since before Nord Stream, 80% of Russian gas exports went through Ukraine first (César, Cornu, Lamure, et al., 2010: 17).

(Soldatkin). These dramatic increases could possibly force Ukraine to seek gas elsewhere, which would most likely include its Western neighbors, though they would not be able to supply all of the country's demand. However, should member states choose to further aid Ukraine, it could place them in an even more delicate situation with Russia. They have cautiously disapproved of Russia's actions, as they still import most of their gas from the energy giant. Furthermore, the invasion could have an impact on U.S. gas. The U.S. Congress has been pushing to pass bills that allow for less strict regulations on exporting American gas in which Europe would be one of the destinations. Therefore, this move could not only potentially come to the aid of Ukraine in the long-term, but it could also be a source of diversification for EU member states (Goldenberg, 2014).

The New Role of the Weimar Triangle?

For decades now EU member states have struggled and failed to produce a European energy policy, and they still do not have a clear and current policy toward Russia. One of the biggest concerns seems to be that they simply cannot agree and cooperate on these issues. That is where the Weimar Triangle could once again serve a purpose. Research shows that up until now, the Triangle has done very little in the way of bringing France, Germany, and Poland together to be the backbone of the EU. In fact, Lang and Schwarzer explain that apart from “glitzy summits”, the three countries have not had much influence at all in the way of European politics (1). However, is it possible that we have not yet seen the full potential of the Weimar Triangle and that it could still exert influence over the remainder of the EU? Lang and Schwarzer continue to demonstrate that the EU needs to form small groups of member states in order to assist in the absence of cooperation and that the Weimar Triangle could be one of these groups to help influence other member states (1). For them, these countries would become “an alliance of

‘heavyweights’” (4). This influence could be of particular use in the debate over energy and even more specifically over Russian natural gas. France, Germany, and Poland, diverse as they are, could be the glue that holds the EU together in creating a policy toward Russia and weaning states off of the country’s gas. Yet Noël suggests that the “solution to the Russian gas challenge lies not in foreign energy policy but in reform of the European gas market itself” (3). Therefore, if the Weimar Triangle countries made a more substantial effort to use the influence of their ‘heavyweight’ status, then other member states may possibly put greater effort into making those appropriate changes in the gas market.

The bottom line is that France, Germany, and Poland could lead other EU member states to less overall gas dependency and a stronger gas market. To further develop this, Andoura offers conditions that the Weimar Triangle countries should meet if they want to achieve more cooperation and cohesiveness. First, he suggests that they should start acting like the ‘Triangle’ that they are instead of working solely as bilateral partners. Additionally, he emphasizes that these countries should have the freedom to disagree with each other without causing major tension. This condition is particularly crucial in that they should be able to disagree in healthy ways rather than only dispute, which could lead to misunderstandings and conflict. In this case, the Weimar Triangle should act as a “mediation forum” between the three powers in order to prevent conflict and settle disputes before they rise into crises (24).

In light of the 2014 protests in Ukraine and the overthrowing of President Viktor Yanukovych, the question of how much weight the Weimar Triangle holds once again came to the forefront. In late February 2014, European foreign ministers Radoslaw Sikorski, Frank-Walter Steinmeier, and Laurent Fabius of Poland, Germany, and France, respectively, traveled to Kiev to broker a deal with Ukraine’s interim leaders. It seems that these three EU members,

particularly Poland, played a vital role in trying to establish peace in Ukraine. According to the BBC, the country has been striving to achieve closer European ties with Ukraine for years, possibly to strengthen its own security. These events are noteworthy because they could be crucial to the Weimar Triangle. Although the organization is never specifically mentioned, the fact that the three countries were working together demonstrates that they can in fact act like a Triangle in the way Andoura suggested. If they can be even somewhat successful in this role, then perhaps it is an indication that they can merge in other ways, such as energy. They have already proven a desire to make Ukraine more pro-Western and democratic (i.e., leaning less on Russia). Therefore, could they use this ambition and cooperation to make themselves, and indeed other member states, less dependent on Russian gas?

Chapter 4: What Else is in the Mix?

Alternative Energy Resources

The bulk of this study focuses on European Union member states' dependence on Russian natural gas, but in order to determine the measure of this dependency, it is necessary to include the scope of alternative energy sources. Zachmann stresses that one of the ways in which EU member states can replace Russian gas in order to become less dependent on it is by exploring these alternative fuels and resources, such as coal and LNG (2014). Not all research stresses European dependence on Russia. Some state that European dependence and Russian dominance is simply incorrect and that over the past several decades, Europe has significantly diversified its gas imports as well as its alternate sources. Noël claims that the EU as a *whole* is not in danger when it comes to gas supply diversity; however, he also adds that there is an apparent difference between countries in Western Europe and those in Eastern Europe (1), including their energy mixes.

Renewable Energy

Renewable energy sources are among the most newly developed and quickly growing sources of energy in Europe and consist of wind, solar, hydro, geothermal, or biomass power. What makes renewables so desirable is that not only can they be used again and again, but they also represent energy security (International Energy Agency, 2014). In 2011, renewable energy met 20.6% of the EU's electricity consumption and 13.4% of its gross final energy consumption (REN 21: 13). In Germany, renewables reached 22.9% of electricity consumption and 12.6% of the total final energy demand (21). Among these sources, wind and solar power have grown to be

the most dominant forms of renewable energy. Concerning wind power, in 2012 the European continent had more wind farms than any other at 38%, though growth rates have somewhat decreased (Gsänger and Pitteloud: 10). Similarly, solar power also stands in the spotlight as in 2012 the EU had invested in more PV than any other electricity-generating technology, which accounted for 37% of all new capacity (REN 21: 40). As previously stated, Germany led Europe as one of the world's top five countries¹¹ for renewable power capacity in 2012, but France and Poland have also become players in renewable energy. While Germany reached 31 GW of wind power in 2012, France achieved 7.4 GW and Poland nearly 2.5 GW (18). And with solar PV, Germany and France made it on the list of the top ten countries with solar capacity at 32% and 4.0%, respectively (41).

With the sharp increase of renewable energy, especially in countries like Germany, European member states are on their way to achieving some of their goals for the 20-20-20 targets¹². Also with renewable energy comes less dependence on fossil fuels and energy imports. Europe has certainly increased its production of renewable energy over the past few decades. Therefore, with the continuation of renewable energy, the EU could become more energy secure as it would not need to rely as much on fossil fuels such as coal or gas, nor would it need to import as much.

Coal

Coal has been one of the longest-running energy sources among the fossil fuels, and in some member states, is still being used to a high degree. Among the Weimar Triangle countries, Germany and Poland have been large consumers of coal. This resource is one of the most

¹¹Along with China, the U.S., Brazil, and Canada (REN 21: 13)

¹²20-20-20 targets are specific objectives that the EU has determined to meet by 2020. These objectives include “20% reduction in EU greenhouse gas emissions compared to 1990 levels”, “20% of energy consumed in the EU from renewable sources” and “20% improvement in the EU’s energy efficiency” (European Union, “Energy”).

polluting fossil fuels and has come under severe scrutiny for its CO₂ emissions, but with new technologies, even coal has the potential to be better for the environment. Carbon Capture and Storage (CCS), for example, is one of the ways in which the EU could continue burning coal while reducing its CO₂ emissions. It allows for less carbon to pollute the atmosphere by storing it underground. However, CCS is still in its infancy and has yet to gain public acceptance. It is also currently a costly form of cleaner energy (Andoura and Hinc, 2013: 267). While many Europeans would like to see their reliance on coal, and other carbon-emitting fuels shrink, it has been in use for so long and some countries are still reliant on it, especially if they already have an abundance of coal resources. However, by making coal “cleaner”, it raises the question if some countries would prefer using their own coal rather than importing foreign gas, even though it is the cleaner fuel, as it could be the cheaper option. Andoura and Hinc demonstrate that there are only two solutions to reducing the burning of coal: either increase gas imports (along with other energy imports) or develop cleaner ways to use coal, hence CCS (267). If EU countries decide to increase gas imports, then they could be looking at an increase in Russian natural gas dependence, but if they invest in CCS and other “greener” technologies, they could possibly slightly lower dependence on Russian natural gas. As the two authors suggest, in order to continue developing cleaner coal technology, the EU may have to amplify gas supplies in the short to medium term, but it would benefit them in the long-term, as they would become more independent over time.

Nuclear Energy

Nuclear energy is one of the most highly-debated energy sources in Europe. Though much cleaner than coal, power plant accidents tend to cause disastrous and massive consequences. Many countries rely on nuclear power plants to produce their electricity, but after

the Fukushima power plant incident in Japan in 2011, some EU member states have questioned the security of nuclear energy. For example, while some countries such as France continue to use nuclear power, Germany is among those that have steadily phased them out. Pushing for more nuclear power could possibly decrease Russian dependence, but as many EU member states are shutting down their power plants, it is not a likely solution. Furthermore, some researchers do not see it as credible in the medium term and claim it would not prevent member states from being less divided over the issue (Noël: 2).

LNG

Liquefied natural gas (LNG) has certainly played and will play a role in future gas supply diversification, especially in the way of transportation. Rather than carrying gas via pipelines, LNG is transported across the ocean on ships. Aside from renewable energy, LNG is one of the cleanest and least harmful sources of energy. As stated on Polskie LNG Company's website, in the case of a leak, LNG cannot pollute the water or ground as it would evaporate and be rarefied in the atmosphere (polskieng.pl). Gas, when it is liquefied, can also be shrunk by 600 times, allowing for huge amounts to be transported to their final destination at one time (Shell Global). Additionally, there is potential for LNG imports coming from North Africa and Scandinavia (Andoura and Hinc: 269). According to Andoura and d'Oultremont, 15% of EU gas imports already come through LNG from North Africa, Qatar, and Nigeria (3). As a result of these factors, Europe could become even less dependent on Russian gas and more diversified in the way of gas imports. Furthermore, it is possible that LNG import capacities were underused in 2013. For example, Zachmann claims that about 180 bcm of re-gasification capacity still exists in the EU, while only 46 bcm was used in 2013. Also, 35 bcm is still under construction, which could be a source of additional gas. However, with the global LNG market becoming more

integrated, this energy source may not be as useful to Europe as previously thought since it does not have a single wholesale gas market (Noël: 6). LNG has certainly changed the gas market by making it easier to transport the resource; however, it is unconventional gas that has taken the energy world by storm.

The Shale Gas Revolution

The exploitation of shale gas is one of the most significant events to happen not just in the realm of gas but in that of energy. Since the shale gas boom in the U.S., other countries and regions around the world have been thinking of developing their potential shale gas reserves as well, including Europe. Shale gas is detrimental in this investigation because it has had and could have a huge impact on Europe's future gas imports. The International Energy Agency (IEA) has called this era the Golden Age of Gas (Andoura and d'Oultremont: 5), and has otherwise been described as the Third Industrial Revolution (Dasseleer: 3). Such titles demonstrate how much of an impact shale gas has already had in certain parts of the world and what effect it could have on the EU's natural gas imports.

The United States have already undergone shale exploration for decades and therefore could be the best representative of shale gas employers for a Europe that is still wary of its consequences. To begin with, the overwhelming supply of gas in the U.S. has caused LNG cargoes destined for North America to be diverted to other destinations, which includes certain areas of Europe (Ernst and Young, 2011: 5). Therefore, with the influx of LNG imports in Europe, Russian gas imports could be on a temporary decline. Additionally, shale gas is still so much in its beginning stages, globally, that only the U.S., Canada, and Australia are currently exploring. And, in optimistic terms, these three countries, respectively, could meet 5%, 4%, and 19% of EU gas demand by 2035 (Andoura and d'Oultremont: 5), thereby aiding in its goal to be

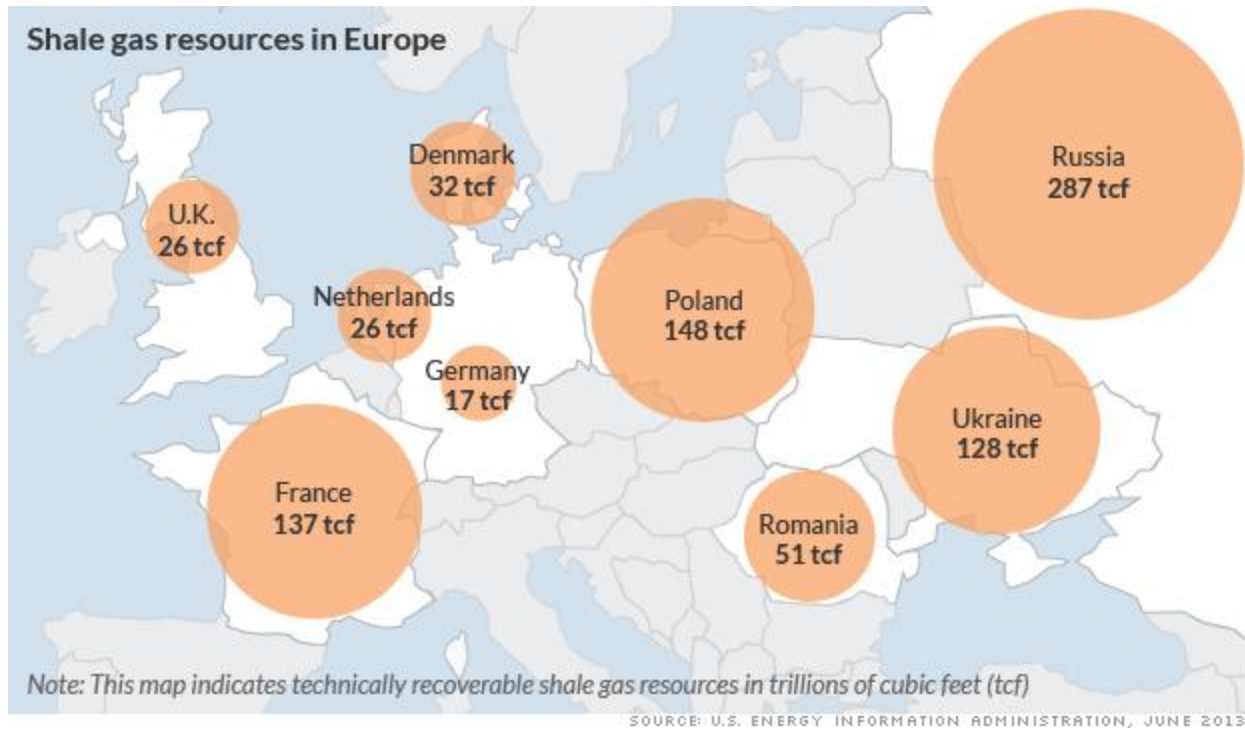
less overall dependent on Russian gas. Furthermore, to show the various stages that the two sides of the Atlantic are in, Ernst and Young, an American accounting firm, describe the events in the U.S. as a shale gas revolution while in Europe, the discovery of shale gas is more an evolutionary process (22).

As with many energy issues, European countries are divided over shale gas. While some are defiantly against the exploration of hydraulic fracturing, or fracking, others promote it. Concern is mostly centered on the environmental impact, and as with nearly all forms of energy sources, extracting shale gas can have serious consequences. Not only can neglect and improperly disposed of wastes lead to water and land contamination¹³, biodiversity degradation, and methane emissions, but fracking specifically can also result in possible earthquakes and water resource depletion since it requires several million gallons of water. In addition to environmental concerns, Europe is simply a more densely populated area compared to the U.S., which could increase the risk of health problems (Ernst and Young: 16).

Despite the apprehension over extracting shale gas, the fact is that demand for more gas will most likely increase in the coming years. Since nuclear energy is being phased out in certain locations and renewable energy is still also taking time to develop, some question if Europeans will reach a point where they have little choice but to join the shale gas revolution, that is if they want to avoid importing more Russian gas. According to Ernst and Young, demand for gas in Europe is estimated to increase 20% by 2035 compared to 2008 levels. If these estimates are accurate, it will cause many European countries to import more gas, possibly increasing their import dependency and once again questioning security of supply (5). Again, Europe is faced

¹³The fluid that is used for shale gas extraction is comprised 98% of water and sand, and the rest is of fracking chemicals (Ernst and Young: 14). However, very little water is recycled after it is used, leaving much of it still underground.

Shale Gas Resources in Europe



Source: Graph taken from the U.S. Energy Information Administration

Table 6

with uncertainty, whether it is with alternative energy resources or with the origin of these resources, but it is very possible that gas could become the primary energy source in Europe (5).

It is interesting to see Russia's stance on the issue. With the rise of shale gas in Europe and the decrease of Russian LNG to North America, Russia is naturally concerned that any shale gas exploration in Europe would also cause a decline in gas importation. Therefore, Russia has appeared doubtful about the "viability of shale gas" (Ernst and Young: 10). Nevertheless, Russia could decide to develop its own shale potential. It has taken measures to invest in shale oil with the help of French oil company Total (Chazan and Crooks, 2014), and as seen in Table 6, Russia holds approximately 287 tcf (trillion cubic feet), or approximately 8 trillion cubic meters, of shale gas resources (EIA). But shale development is not Russia's biggest concern at the present time. The country faces its own challenges with exporting its natural gas supplies. First, pipelines

transporting the gas often travel great distances to bring it to its final destinations and may even pass through transit countries, which can be complicated as seen in the gas crises with Ukraine in 2006 and 2009. Second, harsh conditions in certain regions make it difficult to work. Third, Russia is looking to expand eastward to Asia, so it will need to invest in more infrastructures that are required to transport gas to China and its neighbors (Ernst and Young: 10).

In Europe, however, shale gas is met with mixed feelings. According to Ernst and Young, most European countries have adopted a “wait and see” approach (17). In some countries, though, their positions on shale gas extraction span the spectrum, which is clearest to see in the countries of the Weimar Triangle. For example, France, or at least the current French government, on the one hand is decidedly against fracking for the time being, even though it sits on one of Europe’s biggest shale reserves, offering strong potential for shale gas development. However, in 2011, France passed a moratorium to postpone hydraulic fracturing due to environmental concerns, and in 2012 President Hollande put into place a law banning the activity (Patel and Viscusi, 2013). Though the French government has been clear on its fracking intolerance and it relies much on its own nuclear energy, the question remains if it still wants more gas independence. Even French media has suggested that since the country imports such a high rate of gas and petroleum, shale gas extraction could bring hope of more energy independence (France24, 2013). Another question that could arise is if France jumps on the nuclear phase-out bandwagon, what resources would it need to replace it? If hydraulic fracking is still banned, then France would have to look to renewable energy, LNG, or importing more natural gas. But according to an energy expert from Brussels, what the energy question in France boils down to is which type of energy is cheaper and more competitive (EU High Civil Servant, 2014).

Poland's Shale Gas Reserves



Source: Shale Gas Europe

Table 7

On the other hand, Poland, which also has extensive shale gas reserves, has been the most forward when it comes to shale gas development. Table 7 shows how extensive shale gas reserves are estimated to be in the country, ranging from the southeast to the northern coastline. According to an article in the Economist, Poland sees shale gas extraction as a solution to two particular problems: it would reduce not only its dependence on Russian natural gas but also greenhouse gas emissions as a result of coal-fired power plants (A.E., 2013). However, does shale gas truly live up to the hype? First of all, it is unclear just how much shale is locked away under Poland's surface as some studies estimate that it holds between 346-768 bcm while others suggest that there is at least 376 bcm in just a few different areas of the countries (Shale Gas Europe). For further proof of this, Table 6 suggests that Poland holds about 148 tcf (4.19 tcm) of

shale gas reserves. Furthermore, Poland faces several other challenges. Not only is the country's land denser compared to successful states in the U.S. such as Pennsylvania, but some Polish citizens do not trust that the administration will enforce regulations to cause the least damaging environmental impact (EU High Civil Servant). Nevertheless, it is not too difficult to understand Poland's original stance. Poland, being a part of Eastern Europe, is more dependent on Russia for its natural gas supplies, so if it successfully explored shale gas in its own country, then it could become more self-sufficient (Ernst and Young: 17).

Unlike France and Poland, Germany seems neither to oppose hydraulic fracturing for shale gas nor to appear overly enthusiastic about it. Germany is still a huge promoter of renewable energy, but after the Fukushima accident in 2011, it has significantly reduced its nuclear use. Therefore, could it look to shale gas as a viable option (Shale Gas Europe)? According to the EIA, it is estimated to have as much as 482 bcm of reserves, so while it does not boast as much as Poland or France, it can still hold its own in the way of shale gas. And according to studies published in Shale Gas Europe, Germany has allowed for exploratory drillings and would continue these drillings not for economic benefits but for more energy security. Until drilling results prove sufficient, however, Germany will most likely continue importing natural gas from Russia and Norway (Ernst and Young: 17).

The situation with shale gas in EU member states is another example of the measure of how it is difficult for them to make a collective decision on important energy issues. Many countries are highly opposed to such explorations, while others wish to probe further. As Ernst and Young put it, "gaining unanimity among member states of the EU on shale gas regulation is likely to be an almost insurmountable feat. ...To get agreement on common standards, they may have to be watered down to such an extent that makes them less stringent than those already in

place in some individual member states” (18). But could certain events change the policies of member states? In the wake of the Russian take-over in Crimea, many member states have received a wake-up call to be less dependent on Russian gas. The UK and Poland are two states that have long desired shale gas extraction. Could others that were originally more “hostile” to hydraulic fracturing become more lenient in order to lean less on Russian imports (Petroff, 2014)? Ernst and Young, however, warn of relying too heavily on shale gas reserves should Europe choose to advance that option. Shale gas could make European countries more self-sufficient, but a “shale gas boom in Europe could, in practice, weaken energy security in Europe through over-reliance on a single energy source” (23). Therefore, is it worth exploring shale gas? Perhaps that depends, and not necessarily entirely, on how desperately member states want to digress from importing gas from Russia.

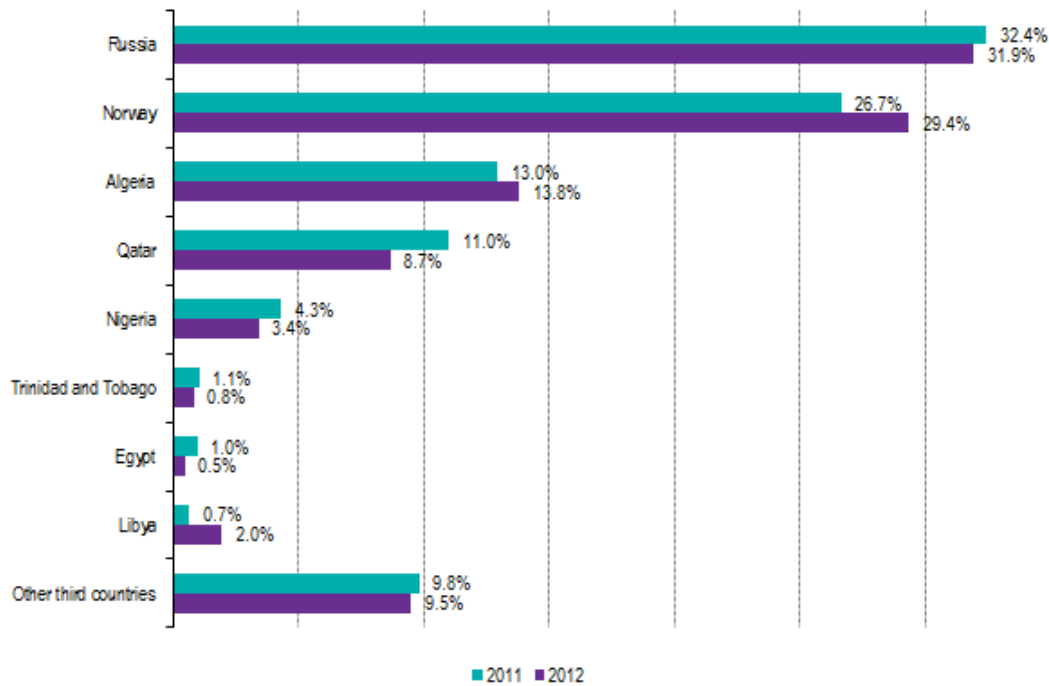
Chapter 5: Findings

The Future of Russian Natural Gas in Europe

This study did not set out to prove that member states are or are not dependent on Russia for natural gas. Instead, the goal was to determine to what extent they are dependent on this resource by using Germany, France, and Poland as case studies. Based on research, gas is and will be a primary resource within Europe for decades to come. In fact, foreign natural gas use could increase in the short- to medium-term if the EU continues to develop alternative energy sources such as renewable energy, shale gas, or CCS. While we could hypothesize that member states could become more dependent on natural gas in the next few years, this assumption does not signify that they will become more dependent on Russian natural gas or that they will continue to rely on natural gas in general for decades to come. If member states can collectively decide to pursue shale gas development as the U.S. did, then they may decrease natural gas in the long-run. However, they will not dramatically decrease imports, as certain member states (notably Germany and Italy) have invested far too much time, money, and energy on infrastructure, pipelines, and long-term agreements.

According to Noël, Europe as a whole should not worry about an over-dependence of Russian gas based on two figures. First, as he illustrates in his 2008 study, 6.5% of the EU's total primary energy supply originates from Russian gas, while Russia's market share of EU gas imports is just over 40%, nearly half as much as it was in 1980 (p.1). What is more, other

EU-27 2012 Imports of Natural Gas by Country of Origin



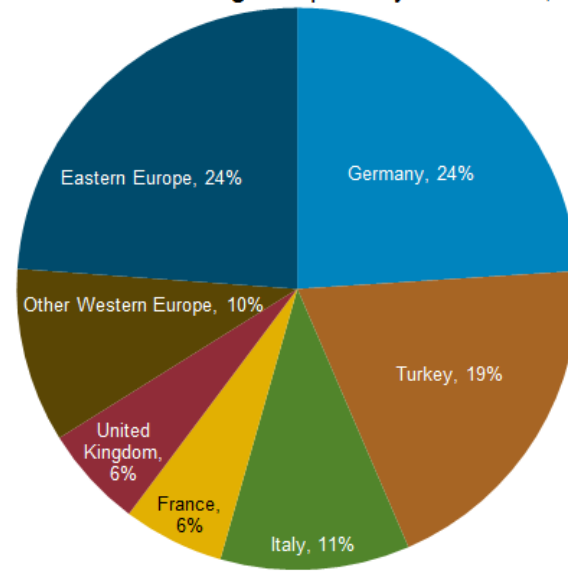
Provisional data for 2012

Source: Eurostat

Table 8

countries and regions have entered the bid to export gas to Europe. For instance, since 1990, 80% of the growth in European gas imports has come from Norway, Algeria, Nigeria, and countries in the Middle East. Furthermore, after nearly two decades, Russia's share of EU gas imports has significantly decreased from 75% in 1990 to just over 40% in 2008 (Noël: 5). As Table 8 shows, though Russia was still the dominant supplier of natural gas to the EU, it fell by a small percent from 2011 to 2012 while Norway's share grew by almost 3%, making it nearly neck and neck with Russia. Although other sources were further behind the gas giants Russia and Norway, together they comprise more than either country. It is vital to remember, however, that these figures and Noël are referring to the EU altogether. A vast number of EU countries

Share of Russia's natural gas exports by destination, 2012



Source: Eastern Block Energy, U.S. Energy Information Administration

Source: U.S. Energy Information Administration

Table 9

(particularly those in the West) import very little to no gas from Russia, while Germany and those closer to Eastern Europe import a significant amount, a fact we must take into account.

We must also reflect on the fact that while EU member states may not be as dependent on importing gas from Russia as they were twenty years ago, Russia is still reliant on exporting to the EU. As laid out in Table 9, 24% of Russia's natural gas exports in 2012 were destined for Germany alone. Eastern Europe altogether was also 24%, followed by Italy (11%), France and the UK (6% each) and other Western European countries at 10% (Energy Information Administration). Only Turkey was outside the EU with 19%. As is evident, perhaps one of the conclusions we can reach is that not only do member states still import a large percentage of natural gas from Russia, but Russia might be more dependent on them for security of consumption. Some may still argue that the two are co-dependent, or interdependent. For example, Romanova suggests that since the EU imports an impressive amount of its resources

from Russia and Russia exports so much to the EU they are dependent on each other “rather than one being asymmetrically vulnerable before the other” (2013). For example, the EU imports 36% of natural gas, 31% of oil, and 30% of coal from Russia. Conversely, Russia exports 70% of natural gas, 80% of oil, and 50% of coal to the EU. But we must question if this co-dependency is balanced. Though 36% of gas is an impressive sum, Russia’s exporting 70% is still greater. We could also question what kind of power situation this puts Russia and member states in. We can argue that Russia exerts power over some EU member states due to the amount of Russian gas they import and consume. Nevertheless, since Russia is equally or more dependent on member states’ importing of its gas, we could say that they also have power over Russia. However, Russia has plans to diversify its own sources, with an eye on its eastern and southern neighbors (Romanova). If Russia can secure Asian business, then it will not be as reliant on its European clients. Therefore, for the time being, Russia seems more dependent on European business than some member states are on Russia; yet that could change with Russia’s opening up its markets to Asia.

To further analyze this interdependence, we must consider what the consequences are for becoming less dependent on Russian gas. In an article from the European think tank Bruegel, Georg Zachmann attempts to persuade that Europe could abandon Russian natural gas within a year by importing gas from other sources such as Norway or Qatar, producing more gas domestically through the Netherlands, and switching to alternate energy fuels such as oil and LNG. While this attempt would be a vastly ambitious feat, the side effects of such a decision would be enormous. First of all, while Zachmann argues that the economic impact would not be too severe on the EU, it would be a major blow to Russia’s economy since it is so reliant on its energy sector. Second, Europe would have to be prepared for its neighbor’s reaction to such a

decision. Russia could very well see this move as a threat and could therefore respond in an aggressive manner, as Wendt's security dilemma would suggest. So although the EU may not be as vulnerable as it seems, it would place itself in a sensitive situation because the costs of becoming completely independent of Russian gas would be too great. In any case, it is not necessarily a bad decision for member states to import natural gas from Russia in moderation, as it is still a way of diversifying its sources. However, considering Russia's militant presence in Ukraine starting in February 2014 and its severe increasing of gas prices in the country, EU member states may decide that it is the time to lessen its gas intake from Russia or that shale gas development appears more feasible.

It is not sufficient to factor in solely Russian natural gas imports in this study. In order to determine the extent of European dependence on Russia's resource, it was necessary to include alternate energy sources, from renewables to shale gas. It is also essential to remember that the European Union is home to nearly thirty member states, none of which share the exact same energy make-up. Countries in Eastern Europe, such as Poland, will face more challenges in becoming less reliant on Russian gas based on development and historical ties, while those in Western Europe, such as France, are already more independent in comparison. Perhaps another conclusion we can make is that we *cannot* say that the EU, or even wider Europe, is or is not dependent on Russian natural gas because each nation is so unique from the other. What we could assume, nevertheless, is that certain states do not rely on Russian gas imports at all, while others continue to import at a relatively high rate to keep up with demand. Therefore, the level of dependency is variable according to each member state (Locatelli: 39-40).

If we take into consideration natural gas decline from Russia and the more diverse options that Europe has through LNG, renewable energy development, cleaner technology and

domestic unconventional gas potential, then we could assume that member states are not *heavily* dependent on Russia for its natural gas. It is important to recognize, however, that in order to achieve more independence and energy security in the long-term, EU member states may have to import gas in the short- to medium-term while they develop and explore alternative options. However, if member states decide not to embark on shale gas extraction, and cleaner technology becomes too expensive to realize, then the EU could be looking at an increase in gas imports, and possibly from Russia. But perhaps the only way to avoid the latter and encourage the former would be for the EU, especially under the guidance of prominent member states such as France, Germany, and Poland, to collectively establish a firm common energy policy to last not only a few years but several decades. In this way, EU member states would finally be able to decide as a union their best interests and where to take their energy future.

Chapter 6: Conclusion

European member states and Russia have a long, complicated history in which energy plays a vital role. Although the two regions have had long-term contracts and far-reaching pipelines and have worked together in energy for decades, tensions between governments over political crises and gas shortages have created a rift in these relations, causing some member states to question the reliability, and indeed, the security of importing large quantities of Russian natural gas. Therefore, it became the focal point of this thesis to determine to what extent these European countries were currently dependent on Russia for natural gas.

To help explain the relationship between Europe and Russia, I analyzed both the constructivist and realist theories. As illustrated in the study, the constructivist approach helps to explain the role of identity, while the realist perspective focuses on the individual and state interests. Furthermore, I applied Keohane and Nye's assertion on interdependence, vulnerability and sensitivity in order to support my arguments on energy security. Together, these theories and concepts complemented each other in explicating how state interests and identity are important in understanding the energy dynamic between EU member states and Russia.

Next, I used the Weimar Triangle as my case study because it allowed for an ideal example of a group of EU member states with vastly diverse energy mixes and interests. With this group, I demonstrated that EU countries have unique relationships and a vital role in energy relations with Russia and therefore cannot all form similar gas relationships. In this section, I not only explained the energy production and consumption of these three countries, but I also questioned the EU's ability to create a common energy policy that would allow it to establish

common goals and rules in the energy market. In addition, I addressed the current role of the Weimar Triangle and its place in the international community.

I then mapped out the various energy sources and resources that member states employ, aside from natural gas, which include renewable energy, coal, nuclear power, and other gas options such as LNG and especially shale. By examining alternatives to natural gas, I was able to demonstrate how there are many other options to natural gas, even though some may take years to develop and others are still controversial and being weighed by individual member states.

Finally, I showed how the EU is not heavily dependent on Russia for natural gas, though some member states are more reliant than others. Poland, for example, is far more concerned about natural gas dependency on Russia compared to France and Germany. Although Germany also imports much gas from Russia, this country has made strides in diversifying its own resources. Natural gas has become at times an easy and reliable source to manipulate and transport, but the debates surrounding it have caused cracks in the figurative infrastructure, and it may not prove to be so easy to repair. If anything is certain, it is that European-Russian gas relations are still complicated and have an uncertain future, but Europe's energy future is not set in stone. Member states, especially Germany, France, and Poland, have the opportunity to unite over Russian natural gas issues and, in optimistic terms, will be conscious of the path they should take as a collective force in order to secure their energy diversity.

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