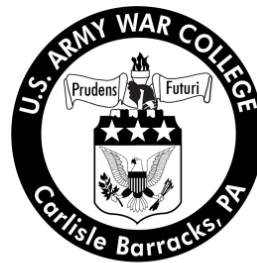


# Under the Yoke: Europe's Natural Gas Dependency on Russia

by

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Class of 2012

DISTRIBUTION STATEMENT: A

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**REPORT DOCUMENTATION PAGE**Form Approved  
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing this collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports (0704-0188), 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. **PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ADDRESS.**

<b>1. REPORT DATE (DD-MM-YYYY)</b> 01-03-2012		<b>2. REPORT TYPE</b> Strategy Research Project		<b>3. DATES COVERED (From - To)</b>	
<b>4. TITLE AND SUBTITLE</b>  Under the Yoke: Europe's Natural Gas Dependency on Russia				<b>5a. CONTRACT NUMBER</b>	
				<b>5b. GRANT NUMBER</b>	
				<b>5c. PROGRAM ELEMENT NUMBER</b>	
<b>6. AUTHOR(S)</b>  Colonel Alexander L. Koven				<b>5d. PROJECT NUMBER</b>	
				<b>5e. TASK NUMBER</b>	
				<b>5f. WORK UNIT NUMBER</b>	
<b>7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)</b>  Colonel Charles Van Bebber Department of National Security Strategy				<b>8. PERFORMING ORGANIZATION REPORT NUMBER</b>	
<b>9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)</b> U.S. Army War College 122 Forbes Avenue Carlisle, PA 17013				<b>10. SPONSOR/MONITOR'S ACRONYM(S)</b>	
				<b>11. SPONSOR/MONITOR'S REPORT NUMBER(S)</b>	
<b>12. DISTRIBUTION / AVAILABILITY STATEMENT</b>  Distribution: A					
<b>13. SUPPLEMENTARY NOTES</b>					
<b>14. ABSTRACT</b> Russia provides Europe with less than a quarter of its natural gas requirements. Yet, it has used this resource to both coerce and punish European nations. Gas has become Russia's foreign policy tool of choice. Although Europe has attempted to minimize Russia's leverage by diversifying their suppliers, Russia has actively resisted this strategy with a combination of divide-and-conquer tactics and the acquisition or creation of gas pipelines that supply Europe. Due to a number of reasons, including environmental restrictions against CO <sub>2</sub> emissions and a declining acceptance of nuclear power, the EU's need for gas is increasing while its limited organic gas sources, such as the North Sea, are depleting. Hydraulic fracturing is having an impact on the world natural gas markets, but it is unlikely to reduce Europe's reliance upon Russia's gas due to the procedure's possible environmental impact.					
<b>15. SUBJECT TERMS</b> Gazprom, Nord Stream, South Stream, Nabucco, fracking, Ukraine, Belarus, Poland, Qatar, Nigeria, Turkmenistan, Azerbaijan, Germany, European Union, NATO, 20-20-20 Initiative, Trans-Caspian Pipeline, Trans-Saharan Gas Pipeline					
<b>16. SECURITY CLASSIFICATION OF:</b>			<b>17. LIMITATION OF ABSTRACT</b>	<b>18. NUMBER OF PAGES</b>	<b>19a. NAME OF RESPONSIBLE PERSON</b>
<b>a. REPORT</b> UNCLASSIFIED	<b>b. ABSTRACT</b> UNCLASSIFIED	<b>c. THIS PAGE</b> UNCLASSIFIED			<b>19b. TELEPHONE NUMBER (include area code)</b>
			UNLIMITED	38	



USAWC STRATEGY RESEARCH PROJECT

**UNDER THE YOKE: EUROPE'S NATURAL GAS DEPENDENCY ON RUSSIA**

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## ABSTRACT

AUTHOR: Colonel Alexander L. Koven

TITLE: Under the Yoke: Europe's Natural Gas Dependency on Russia

FORMAT: Strategy Research Project

DATE: 1 March 2012      WORD COUNT: 7,185      PAGES: 38

KEY TERMS: Gazprom, Nord Stream, South Stream, Nabucco, fracking, Ukraine, Belarus, Poland, Qatar, Nigeria, Turkmenistan, Azerbaijan, Germany, European Union, NATO, 20-20-20 Initiative, Trans-Caspian Pipeline, Trans-Saharan Gas Pipeline.

CLASSIFICATION: Unclassified

Russia provides Europe with less than a quarter of its natural gas requirements. Yet, it has used this resource to both coerce and punish European nations. Gas has become Russia's foreign policy tool of choice. Although Europe has attempted to minimize Russia's leverage by diversifying their suppliers, Russia has actively resisted this strategy with a combination of divide-and-conquer tactics and the acquisition or creation of gas pipelines that supply Europe. Due to a number of reasons, including environmental restrictions against CO<sub>2</sub> emissions and a declining acceptance of nuclear power, the EU's need for gas is increasing while its limited organic gas sources, such as the North Sea, are depleting. Hydraulic fracturing is having an impact on the world natural gas markets, but it is unlikely to reduce Europe's reliance upon Russia's gas due to the procedure's possible environmental impact.





## UNDER THE YOKE: EUROPE'S NATURAL GAS DEPENDENCY ON RUSSIA

One of the European Union's (EU) greatest challenges is energy security. Due to a lack of organic resources, the EU depends on a number of external suppliers to meet its energy needs. Russia has been a major supplier of energy to Europe since before the fall of the Soviet Union. Of its energy exports, natural gas provides Russia with the most leverage since gas is not an easily traded natural resource. Unlike with oil, nations are bound to gas suppliers by long-term contracts. Over the last twenty years, Russia has used this restrictive market environment to both coerce and punish its customers in Europe. Due to a number of reasons, including environmental restrictions against CO<sub>2</sub> emissions and a declining acceptance of nuclear power, the EU's need for gas is increasing while its limited organic gas sources, such as the North Sea, are depleting.

There are ways the EU can reduce its dependence on Russian gas. First, the EU can diversify its energy supplies by using more coal, nuclear and renewable energy. Second, Europe can increase its organic gas supplies by using the extraction technique known as hydraulic fracturing or "fracking". North America's use of this technique is already increasing availability and reducing the cost for gas world-wide. Finally, Europe can secure the importation of gas from non-Russian sources. The current political environment make the first two options unlikely due to environmental fears and the desire to reduce emissions. That leaves the EU with the need to secure new non-Russian supplies of gas. The Russians, fighting to maintain their leverage, are countering the EU's attempts to diversify its supplies and are using a divide-and-conquer strategy by creating bilateral gas importation agreements with EU nations. As it

stands at the beginning of 2012, it is unlikely that the EU will remove the yoke of Russian gas from their shoulders.

### Europe's Natural Gas Needs

The EU consumes one-fifth of the world's energy and is the world's largest energy importer.<sup>1</sup> Of all of its energy sources, natural gas is one of the most important and it will become even more important in the future. Eurogas, the European Union's natural gas industry, predicts European consumption of gas will increase by fourteen percent to twenty-three percent over the next 20 years.<sup>2</sup> The International Energy Agency (IEA) projects the EU's annual gas demand will rise from 570 billion cubic meters (bcm) in 2005 to 712 bcm in 2015.<sup>3</sup>

Not only is gas used for heating, but increasingly Europe is using gas to generate electricity. Today, roughly twenty percent of Europe's electricity comes from gas compared to only nine percent in 1990.<sup>4</sup> Dieter Helm, an economist specializing in utilities, infrastructure, regulation and the environment, believes "gas is the fuel of choice for electricity generation in Europe, and demand is projected to rise steadily over the next decade."<sup>5</sup> There are several macro factors which are driving the increased use of gas in Europe.

The EU's attempt to reduce CO<sub>2</sub> emissions is one of the prime reasons for the increased dependence upon gas. The EU has established a goal to reduce its greenhouse gas emissions twenty percent by 2020, and gas is a cleaner source of energy than coal or oil.<sup>6</sup> Natural gas produces fifty percent less CO<sub>2</sub> than coal plants at as much as a fifty percent greater energy efficiency.<sup>7</sup> Coal has been further penalized by regulations that restrict sulphur emissions.<sup>8</sup> Not surprisingly, coal-generated

electricity comprises only two percent of Europe's total, an amount that is unlikely to increase in Europe's carbon-sensitive environment.<sup>9</sup>

The second factor leading to increased gas reliance is the decline of European nuclear power. According to Bendik Solum Whist of the Fridtjof Nansen Institute, "In 2000 the German government and energy utilities made an agreement to shut down all nuclear power stations as they age, reaching a complete shut-down of all plants by 2022."<sup>10</sup> Nuclear power's desirability as a source of electricity has been tarnished by the nuclear meltdowns in Japan after the tsunami of 2011, further souring the European public opinion against nuclear power. In polls created by the global research agency, GlobeScan, German resistance to the construction of new reactors increased from seventy-three percent in 2005 to ninety percent today. Not only are the Germans against the construction of new reactors, fifty-five percent want to immediately shut down all existing plants. Even in formerly pro-nuclear France, eighty-three percent are against the building of new reactors.<sup>11</sup>

Europe's increasingly negative view of nuclear energy is having immediate effects on the industry, reducing its contribution to Europe's electrical grid. In response to the catastrophe in Japan, "the Swiss cabinet called for the decommissioning of the country's five nuclear power reactors and new energy sources to replace them."<sup>12</sup> A clear indication of nuclear power's waning popularity in Europe is that of the eighty-six nuclear reactors that will be put into operation world-wide by 2017, only eight will be in Europe.<sup>13</sup> Germany, which generates twenty-eight percent of its electricity from nuclear power, plans to close eight of its seventeen plants immediately and as per the 2000 agreement will shutter the rest by 2022.<sup>14</sup> According to the IEA, "the loss of nuclear

power will lead to reduced supply diversity, negatively impacting energy security" and the IEA "strongly encourage[s] the [German] government to reconsider the decision to phase out nuclear power."<sup>15</sup>

With coal and nuclear power marginalized, the EU is pursuing renewable energy sources, with a goal to have twenty percent of its power from renewables by 2020. However, renewable energy provided only nine percent of Europe's energy in 2009.<sup>16</sup> Of that nine percent, the majority is generated by hydroelectric power, a source that has already been fully exploited. With coal and nuclear energy politically unpopular and renewables unable to fill the void, gas is the primary choice to meet Europe's needs in the near future.

As Europe's reliance on gas increases, its indigenous, conventionally-recovered natural gas resources are diminishing. "UK and Danish North Sea gas reserves, the bulk of EU gas reserves, will be almost completely depleted by 2015."<sup>17</sup> Eurogas reported that in 2010 European gas production declined by four percent, "mainly because of ongoing decline in the mature production basins."<sup>18</sup> Although these forecasts do not take into account the additional gas fracking could generate, getting the controversial fracking method approved by the EU will not be easy. For example, "In July [2011], France became the first country to ban tapping gas from shale rock...which has led to concerns about spills, leaks and the contamination of groundwater."<sup>19</sup>

Europe's gas supplies come from a number of sources. According to Eurogas, "The largest source of gas supplied to the EU-27 comes from indigenous production, making up thirty-four percent of the total net supplies in 2010. [The] main external sources of supply were Russia at twenty-three percent, Norway at nineteen percent,

Algeria at ten percent and Qatar at six percent."<sup>20</sup> Although Russia's share of the European gas market is slightly less than one quarter of Europe's energy needs, it has been the least reliable supplier and caused the most disruptions.

### Russia's Energy Impact

Russia is an energy titan. Not only does Russia have the world's largest conventional reserve of natural gas, but it is also has the second-largest coal reserve and the eighth-largest proven oil reserve.<sup>21</sup> These percentages include only what has already been discovered; there are still large areas of Siberia and the Arctic that have not been studied for their hydrocarbon resources.<sup>22</sup> One estimate calculates that there may be as much undiscovered gas in the Arctic as all the current known reserves in Russia.<sup>23</sup> Russia is the world's largest exporter of both natural gas and oil, surpassing Saudi Arabia as the largest producer of crude oil in 2009.<sup>24</sup>

Although Russia exports both oil and natural gas, gas provides Russia with a greater ability to manipulate its customers.

Russia's geopolitical power is derived much more from exporting gas than oil. The gas trade...is tied to long-term contracts and expensive pipeline infrastructure of the availability of liquefied natural gas terminals. Once a consumer enters a long-term contract with a supplier and billions of dollars are invested in infrastructure, the relations become almost unbreakable. And while oil prices are determined in the global market, gas prices are decided in direct negotiations between producers and consumers, allowing exporters to strong-arm their clients.<sup>25</sup>

The lack of flexibility in natural gas trade allows Russia to use its resources to coerce and punish its customers. "In fact, the combination of scarcity of resources and high and rigid market penetration is the optimal way of obtaining pricing power (and ultimately political power) on consumer countries."<sup>26</sup> This makes natural gas the most powerful tool in Russia's foreign policy.

The organization that controls the majority of Russia's gas reserves is the state-owned Gazprom, Russia's largest company and the world's largest natural gas company. Gazprom is as much a function of the Russian government as a for-profit company, as the division between the Russian state and Gazprom is nebulous. For example, Russia's current president, Dmitri Medvedev, was Gazprom's chairman of the board before he took the presidency and several Gazprom board members are also in the government.<sup>27</sup> Its governmental roots run deep since prior to 1989, Gazprom was the Soviet Ministry of the Gas Industry.<sup>28</sup> Gazprom dwarfs other Russia gas companies, as the next largest Russian gas producer, Novatek, produces only one-thirteenth the gas that Gazprom produces each year.<sup>29</sup> Since Gazprom controls the pipelines, it also controls where the other Russian gas producers can sell their product.

### Russia's Energy Weapon

To protect its leverage over Europe, Russia has created a two-part strategy. First, Russia strives to control natural gas corridors into Europe by building or acquiring their own gas pipeline networks while simultaneously blocking the construction of non-Russian pipelines.<sup>30</sup> Second, Russia is using divide-and-conquer tactics against the EU by crafting bilateral agreements with their European customers.<sup>31</sup>

Gas is Russia's main form of leverage over the West. According to Robert Larsson, a Swedish defense researcher, Russia has used its energy leverage in the following ways:

- supply interruptions (total or partial),
- threats of supply interruptions (covertly or explicit),
- pricing policy (prices as carrots or sticks),
- usage of existing energy debts,

- creating new energy debts,
- hostile take-overs of companies or infrastructure<sup>32</sup>

Since 1991, there have been 55 incidents in which Russia has used this leverage. Yet, not all countries receive the same treatment. Larsson believes that Russia has divided up its customers into three different groups.

The first group is the former Soviet territory, basically the CIS [Commonwealth of Independent States] and the Baltic countries where numerous incidents have been recorded. The second group is made up by former Warsaw Pact members of which some now also are EU and NATO members. Against these states, Russia has been less willing to use the energy weapon to the same extent as against its former space and satellites, but they are definitely being seen as affordable “collateral damage”. Concerning the third group, which basically consists of the Western states of Europe, the USA and possibly Japan and India, no cut-offs aimed at them have been made as far is known, but issues of concerns exist, especially as these states are affected by Russia’s policy towards the CIS states.<sup>33</sup>

As Larsson noted, natural gas has been an especially powerful tool against his “first group”, the newly independent republics from the Soviet Union. “In recent years, Russia has showed no compunction about using its energy resource as a tool of coercion and intimidation against its central and east European neighbors, including Belarus, Poland, the Czech Republic, Georgia and most notably, Ukraine.”<sup>34</sup> The main purpose of these actions is to regain economic control over former Soviet territory and to minimize Western influence in the near abroad. “From Moscow’s zero-sum perspective, European influence in the field of governance, energy and security in the region [former CIS nations] all contribute to denying Russia’s domination over the region, something that it in turn perceives as a threat to its own security.”<sup>35</sup>

An example of Russia’s use of its gas to manipulate a CIS country is when it recently gained ownership of Belarus’ natural gas pipelines. In 2004, Gazprom

pressured Belarus to pay higher prices and sell Beltransgaz, Belarus' gas-pipeline operator which carries one-fifth of Russia's gas exports to Europe. Gazprom had great leverage, as Belarus imports nearly all of its gas from Russia and Gazprom was selling Belarus gas at a substantial discount when compared to market rates. Belarus agreed to the higher prices but temporarily held on to Beltransgaz. In 2006 Gazprom doubled the gas price to Belarus and forced them to provide a fifty percent stake in the pipeline company for \$2.5 billion.<sup>36</sup> In late 2011, Gazprom was able to use the leverage of future gas prices to wrestle away the remaining fifty percent of Beltransgaz for an additional \$2.5 billion. "Gazprom under the terms of the deal would charge \$164 per 1,000 cubic meters of natural gas starting in 2012. That's down from the \$280 per 1,000 cubic meters paid this year and is less than half of what European consumers pay the natural gas company."<sup>37</sup> Although Belarus secured lower cost gas, Gazprom's arrangement stripped away a critical part of their national infrastructure, an action which supports Russia's drive to economically reabsorb near abroad countries.

Russia had more critical and wide-ranging goals when it reduced the flow of gas into Ukraine's pipeline in 2006. "Ukraine plays a critical role as *the* key transit connection between gas producers in Russia as well as Central Asia and gas consumers in the EU."<sup>38</sup>

Today, roughly eighty percent of the gas being exported from Russia to Europe crosses Ukrainian territory, roughly 120 billion cubic meters (bcm) per year. This gas originates variously in Russia and Central Asia, and it passes Ukraine en route to European clients who are the best-paying customers of the Russian gas titan, OAO Gazprom. In fact, two-thirds of Gazprom's revenue comes from the sale of gas that crosses Ukraine, which in turn represents more than 20 percent of growing European gas demand.<sup>39</sup>



In addition to its pipeline, Ukraine also has immense gas storage capability. "The country can store up to 35 bcm of gas (roughly forty percent of Germany's annual demand) in underground gas storage systems, which are mainly located in the west of the country-an ideal location for serving European gas customers."<sup>40</sup>

This reliance upon the Ukraine is unacceptable to Russian Prime Minister Vladimir Putin. According to Clifford Gaddy, Senior Fellow, Foreign Policy, Global Economy and Development, Center on the United States and Europe, "Putin's obsession is to make Russia as independent as possible in its policy making." Putin appears to believe Russia needs to control the pipelines, the method by which Russia delivers energy to Europe, or Russia cannot wield its energy lever.<sup>41</sup> Russia's leadership has no problems with bullying Ukraine since they have continuously made it clear that they do not consider Ukraine an independent state.<sup>42</sup>

What made this situation more significant for Russia was Ukraine's movement towards the West. In late 2004, Ukraine's Orange Revolution removed the pro-Russian leadership and elected the reformist and pro-Western Viktor Yushchenko as president.<sup>43</sup> This was of great concern to Russia since the Orange Revolution "set a major new landmark in the post communist history of eastern Europe, a seismic shift Westward in the geopolitics of the region."<sup>44</sup> More alarming to Russia was Ukraine's interest in joining the North Atlantic Treaty Organization (NATO). Although Ukraine and NATO had established the NATO-Ukraine Commission in 1997, after the Orange Revolution in 2005, "an intensified dialogue on Ukraine's [NATO] membership aspirations and related reforms was launched."<sup>45</sup> The prospect that the flow of Russian main source of wealth,

and therefore influence in the world, goes through a NATO member was unacceptable to Russia's leaders.<sup>46</sup>

Beyond the pure geopolitical situation, Ukraine, like Belarus, was receiving its natural gas at a Soviet-era discount when compared with the price the rest of Europe paid. Although Ukraine accepted that it would have to pay more, it balked at the five-fold price increase demanded by Gazprom, which it considered "unfair, abrupt, and politically motivated."<sup>47</sup> The two sides sparred with Russia threatening to cut off natural gas to Ukraine and Ukraine threatened to stop gas transit to Europe.<sup>48</sup>

Russia took action on New Year's Day 2006. Gazprom reduced the gas it delivered "by an amount roughly equivalent to what Ukraine would have been entitled to extract if a contract were in place." Ukraine responded by taking the normal amount of gas it was entitled to according to the contract, thereby shorting European customers down the pipeline.<sup>49</sup> Gazprom accused Ukraine of stealing gas intended for Europe and of being an unreliable transit country. Ukraine responded that it was continuing its contract by taking gas as a transit fee in lieu of cash.<sup>50</sup>

Gazprom's cutoff immediately drew the anger of the U.S. and European governments. European and United States complaints resulted in the normal flow of gas on January 3. Gazprom's gas cutoff had spillover effects across Europe. After Gazprom's reduction, "Austrian, Romanian and Slovak authorities said supplies from Russia were down by about one-third, while Hungarian gas firm MOL said its supplies were down by forty percent. France was between twenty-five to thirty percent down and Italy twenty-four percent, officials said."<sup>51</sup>

The underlying issues that caused the 2006 cutoff were not fully solved "resulting in one of the largest ever gas supply disruptions" in 2009.<sup>52</sup> Russian Prime Minister Putin directed Gazprom to cut gas shipments sent through Ukraine pipelines for failure to pay its bills and for siphoning off gas intended for Europe.<sup>53</sup> This was a far more serious gas cutoff than the January 2006 incident. By January 7, 2009, gas was completely cut off to sixteen EU nations and Moldova. Gazprom restarted deliveries thirteen days later, only after Russia and Ukraine signed new ten-year contracts.<sup>54</sup>

The 2009 gas crisis caused a major impact in parts of Europe. Although many EU nations made arrangements for gas interruptions after the 2006 crisis, much of south-eastern Europe remained unprepared. "The most seriously affected countries in the Balkans experienced a humanitarian emergency, with parts of the populations unable to heat their homes. Significant economic problems, but not of a humanitarian kind, were also caused in Hungary and Slovakia."<sup>55</sup>

Russia's gas leverage has helped stop Ukraine's move towards the West. The nation elected a pro-Russian prime minister who approved a gas-for-Black-Sea-Fleet deal, allowing the Russian navy to operate out of the Crimea until 2042. In addition, Ukraine stopped its pursuit of NATO membership. When gas prices increased in 2011 as per the 2009 agreement, Ukraine requested Moscow lower their prices. Not surprisingly Moscow responded that they would consider it if Ukraine sold its natural gas company Naftogaz to Gazprom.<sup>56</sup> Both Belarus and Ukraine provided the EU an example of the danger of reliance upon Russian gas.

### European Response

The transit issues with Ukraine in 2005 and 2009 changed perceptions of Russia, which had has a long history of stable natural gas exports to Europe starting in the

middle of 1970s.<sup>57</sup> European nations through the EU and individually developed strategies to improve supply security.

European leaders recognize the threat that over-reliance on Russian gas causes, and have developed an energy strategy to reduce its reliance on Russian gas as well as minimize its carbon footprint. The "20-20-20 Initiative" is an EU energy policy that "has evolved around the common objective of ensuring the uninterrupted physical availability of energy products and services on the market, at a price which is affordable for all consumers (private and industrial), while contributing to the EU's wider social and climate goals."<sup>58</sup> The 20-20-20 Initiative has three main goals. First, by 2020 the EU should be emitting twenty percent less greenhouse gases as compared to 1990 levels, second it should have a share of renewables in its energy mix equal to at least twenty percent, and finally its energy efficiency should improve by at least twenty percent.<sup>59</sup> To meet these goals, the EU will spend approximately €1 trillion "both to diversify existing resources and replace equipment and to cater for challenging and changing energy requirements."<sup>60</sup> A key structural change is the creation of pipeline infrastructure that can bring non-Russian gas into Europe.

To increase the diversification of supply sources to reduce dependence on Russian gas, the EU is supporting the construction of pipelines that will transfer gas from Central Asia, known as the "Southern Gas Corridor," that by-pass Russian territory. The most critical project in the Southern Gas Corridor is the Nabucco Pipeline. The EU is also coordinating with north and west African countries to create the Trans-Saharan Gas Pipeline (TSGP) which will transfer Nigerian gas through Niger to Algeria.<sup>61</sup> Finally, the EU is forming the New Europe Transmission System (NETS)

which will integrate gas transmission operators across Central and South Eastern Europe.<sup>62</sup> NETS would "strengthen these countries' position, individually and as an interconnected group, in negotiations with Russia for gas supplies. And, thanks to interconnections, it would reduce the national systems' vulnerability to Russian takeover attempts."<sup>63</sup>

While the EU is attempting to reduce its dependence on Russia, Germany, Italy, and France are building bilateral agreements with Russia which undermine the EU's unified front against Russia. The EU recognizes the danger that these deals cause to Europe's bargaining power and have "announced plans...aimed at stopping countries from striking bilateral deals that cede too much power to oil and gas exporters like Russia."<sup>64</sup> According to the European Union energy commissioner, Günther Oettinger, Europe needs to "look beyond its borders to ensure the security of energy supplies" and "act together and speak with one voice."<sup>65</sup>

### Third Energy Package (TEP)

One strategy the European Commission is using to improve energy security is to open up European energy markets to competition through legislation. The Commission adopted TEP in September 2007, which recommends, "the effective separation of supply and production activities, harmonization of the powers of national regulators, better cross-border regulation and effective transparency."<sup>66</sup> Although Gazprom is not specifically mentioned, this energy package places limits on the ownership of EU pipeline infrastructure by gas suppliers, forcing companies to unbundle assets to separate production from distribution. These rules are designed to force Gazprom to sell parts of its pipelines in the EU.<sup>67</sup> For example, Lithuania "is planning to split state gas

company Lietuvos Dujos, in which Gazprom is a shareholder, into a transport and a trade component, with the trade company remaining under government control."<sup>68</sup>

Not surprisingly, Russia considers TEP requirements as an attack on their gas industry. Russian officials believe the TEP measures "are discriminatory and first of all directed against the Russian concern Gazprom." Prime Minister Putin said that TEP "could be equaled to confiscation of property"<sup>69</sup> Gazprom is also concerned that TEP creates three systemic risks.

1. Demise in property rights
2. Demise in operational rights
3. Risks of losing revenues due to pricing model adjustments

Gazprom is actively resisting TEP and threatening dire consequences if it is implemented. Sergei Komlev, Head of Contract Structuring and Pricing, Gazprom Export, stated that this new environment will force Gazprom to adjust their operational activities and renegotiate sales and transmission contracts. Komlev also claims that TEP will reduce Gazprom's flexibility in supporting daily increases or decreases in gas needs. "Restriction of re-nomination rights will have adverse affect on flexibility of deliveries. I would like to stress that taking into account seasonality and extremely uneven demand throughout a day – reliability and flexibility are of paramount importance for the gas industry."<sup>70</sup>

Even with the passing of TEP, it may be too late for the EU to reign in all of its member nations as Germany and Russia are now tied by the recently constructed Nord Stream pipeline.<sup>71</sup> This pipeline and the bilateral agreements between Europe's most powerful state and Russia make European dependence from Russian gas more

unlikely. The European Directorate-General for Energy encapsulated this situation by stating, "despite serious gas supply crises that have acted as a wake-up call, exposing Europe's vulnerability, there is still no common approach towards partner, supplier or transit countries."<sup>72</sup>

### Nord Stream



Figure 1, Nord Stream Pipeline, source: <http://www.businessnewsnorway.com/2011/05/financing-nord-stream-pipeline/>

The Nord Stream pipeline, a project that exemplifies Russia's divide-and-conquer strategy, may be the best example of how national self-interest trumps the EU's desire to diversify its gas supplies. Nord Stream is a \$12 billion pipeline that connects Russia with Germany by traveling 760 miles underneath the Baltic Sea. This route bypasses Ukraine, Belarus, and Poland "to deliver 55 bcm of gas a year, almost ten percent the entire EU annual gas consumption, or roughly one third the entire current gas consumption of China."<sup>73</sup> In a show of multi-national unity, the pipeline was officially opened on November 7, 2011 by Chancellor Merkel and Russian President Medvedev along with the prime ministers of France and the Netherlands and the EU Energy Commissioner. However, the pipeline has been nicknamed the "Molotov-Ribbentrop Pipeline" by Polish officials because of the exclusionary nature of this Russia-German

venture. This pipeline could have been constructed for much less if it had gone through Eastern Europe, "but the purpose of Nord Stream from the beginning was to bypass countries Moscow still considers to be part of its sphere of influence."<sup>74</sup>

Russia's geopolitical message here is clear: It doesn't trust the new EU member states as transit countries or even as energy consumers and is willing to incur enormous costs to bypass them. The other message—or implied threat—is that Nord Stream will allow the Kremlin to cut off gas deliveries to Eastern Europe through current pipelines without reducing energy supplies to Germany.<sup>75</sup>

How can Germany justify support for a project that not only increases Russia's hold on the European gas market but also provides Russia with additional leverage against Poland and the Baltic States? The main actors' public message on the project attempts to diminish the concerns. "Proponents of Nord Stream, most notably Germany, Russia and the Nord Stream consortium, have largely dismissed the concerns as unwarranted and argue that the pipeline is a common European project that all EU-members should embrace, as it will provide much-needed gas to an increasingly energy-thirsty union." A common theme to justify this bilateral pipeline is that although Germany will remain dependant on Russian gas, Russia will become dependent upon Germany's payment, creating a stabilizing interdependency. In addition, the project has received support from key German politicians.

Nord Stream was championed by former German Chancellor Gerhard Schröder, who now serves as one of its executives. From within her previous coalition government, current Chancellor Angela Merkel lobbied successfully for EU endorsement of the project even though the pipeline consortium is registered in Switzerland [a non-EU nation to avoid scrutiny] and controlled by Russia's Gazprom. Of the dozens of companies involved in the pipeline's construction, not one is from the Baltics, Central or Eastern Europe.<sup>76</sup>

Although the common mantra from Russia and German officials is that Nord Stream is a European project that should be supported by all European states, a key



factor for Nord Stream's creation is that Germany needs a replacement for the nuclear power it is retiring.<sup>77</sup> Chancellor Merkel has voiced opposition to the nuclear phase-out, but resistance from the German Green Party and nuclear energy's declining support make that an impossibility. As one writer on the topic stated, "one might ask whether Nord Stream would ever have left the drawing board had it not been for the current energy dilemma facing Germany."<sup>78</sup> Finally, Germany has a strong energy lobby and a pro-Russian business block that supported the creation of Nord Stream.

The cooperation between Germany and Russia could portend the weakening of Europe's unity. In July 2011, Germany's Merkel and Russian's Medvedev held talks shortly after the opening of Nord Stream. The energy cooperation agreements that Merkel and Medvedev discussed "are an indicator of the rapidly strengthening ties between Russia and Germany as well as of Berlin's willingness to stand as an unconcerned actor in Moscow's efforts to increase its influence in its periphery and in Central Europe."<sup>79</sup>

### Non-Russian Gas Options

Although Nord Stream ties Europe closer to Russia's gas supply, the EU is still working to secure new gas suppliers who can ship or pipe the gas to Europe over territory not controlled by Russia or its clients. Potential non-Russian suppliers that can increase the amount of gas they send Europe include Nigeria, Qatar, and the nations of Central Asia to include Iran, Azerbaijan, and Turkmenistan.

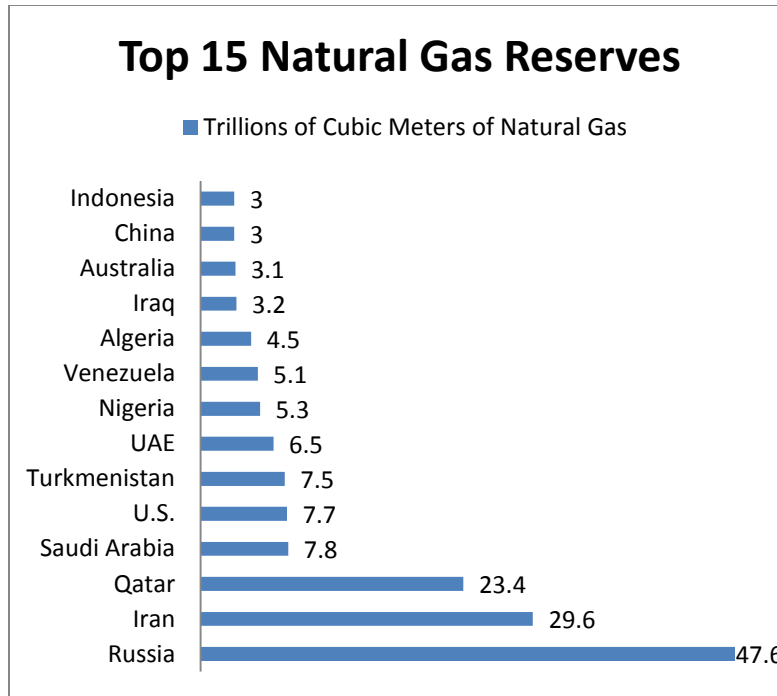


Figure 2. Top 15 Natural Gas Reserves, source: <https://www.cia.gov/library/publications/the-world-factbook/rankorder/2179rank.html>.

With the world's third-largest reserves of natural gas, Qatar has the potential to increase its gas exports to Europe. Qatar's potential to supply Europe has been further enhanced by fracking in the United States and Canada.

Rising shale gas supplies have significantly reduced U.S. requirements for LNG, a move that has already had geopolitical implications. This shift has played a key role in weakening Russia's ability to wield an 'energy weapon' over its European customers by offering European customers an alternative supply in the form of LNG displaced from the U.S. market.<sup>80</sup>

Yet Qatar's major weakness as a supplier is that it is not connected to gas pipelines that supply Europe or Asia, so it must transfer gas by liquefying it into LNG. This lack of pipeline connectivity has forced Qatar to become the world's largest exporter of LNG.<sup>81</sup> Converting gas into LNG is more expensive than transporting gas over a pipeline since LNG requires infrastructure and energy to liquefy, ship, and then regasify at the receiving terminal. Although fifteen percent of Europe's gas imports are LNG, building

additional regasification facilities would be costly.<sup>82</sup> Beyond the additional cost of the LNG process, security is an issue since the LNG transport ships must traverse the Strait of Hormuz and the Gulf of Aden to transfer Qatari LNG to Europe.

The \$12 billion TSGP is envisioned to transport up to 20 bcm a year of Nigerian gas, the world's eighth-largest gas reserve, across 4,128km of Africa to Algeria. The TSGP's length, which is predicted to be the world's longest pipeline, would take it across some of the planet's most difficult environments, as well as some of the least secure areas where it would be vulnerable to insurgent and terrorist movements. In Nigeria, the Movement for the Emancipation of the Niger Delta pledged to attack the pipeline's construction at its point of origin. Further north in the Sahel region, the pipeline is threatened by Tuareg guerillas and al-Qaeda in the Islamic Maghreb. Although all the African countries involved with the project consider it important to the development of their resources, the security requirements "are liable to raise costs beyond profitability for this extremely ambitious project."<sup>83</sup> Another option to improve Nigeria's gas output is to increase its LNG capabilities, however like Qatar there would be increased transportation costs and security issues with this option.

### Southern Gas Corridor

With the limitations of both Qatar and Nigeria, Azerbaijan and Turkmenistan appear to be the best options to diversify Europe's gas supplies. To gain access to this gas, the EU has backed the creation of the Nabucco pipeline which allows Caspian-region and Middle Eastern nations to move gas to Europe on a pipeline outside of Russia's control. The pipeline route starts in Eastern Turkey, and runs through Bulgaria, Romania, and Hungary, ending in Austria near Vienna. The Nabucco pipeline was initiated by the Austrian OMV company in the late 1990s to transport Iranian gas to

Europe. However, U.S. sanctions stopped the project from proceeding.<sup>84</sup> The project found new suppliers in the form of Iraq, Azerbaijan, and Turkmenistan, giving new life to the project.

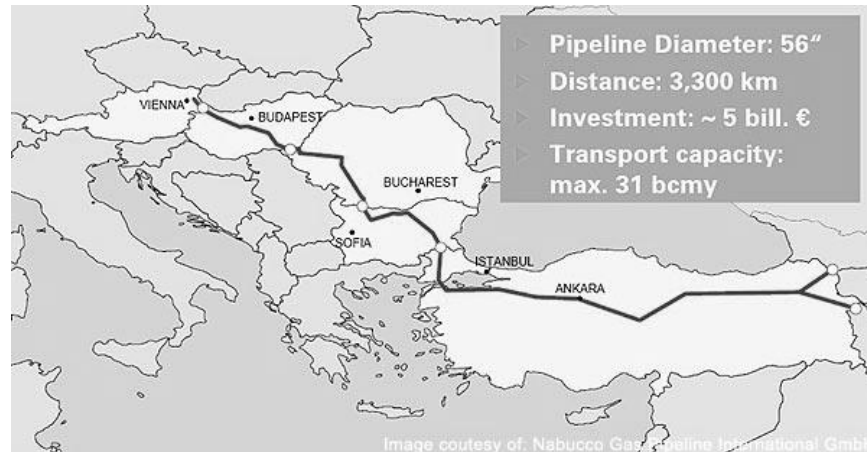


Figure 3. Proposed Nabucco Pipeline Route, source: <http://www.hydrocarbons-technology.com/projects/nabuccopipeline/nabuccopipeline1.html>

Many countries in the region have declared their support for the Nabucco Pipeline. Azerbaijan, with its Shah Deniz 2 field, is working with the Nabucco project, but the nation would not single-handedly produce enough gas to make the pipeline economically feasible. Iraq supports the pipeline, with its foreign minister stating that the project was of great importance to Iraq.<sup>85</sup> However, Richard Morningstar, the U.S. Special Envoy for Eurasian energy believes that "it could be a number of years before natural gas exports are possible [from Iraq]" due to the turmoil in the country.<sup>86</sup> This makes Turkmenistan's support especially important to the realization of the Nabucco pipeline. "European proponents of the project have courted Turkmenistan, Central Asia's biggest reserve holder, as a potential supplier for the pipeline."<sup>87</sup> In mid-January 2006, Matthew Bryza, a U.S. Deputy Assistant Secretary of State discussed with Turkmenistan's president "cooperation on developing and exporting Turkmen energy

resources, in order to 'enhance competition on European markets.'<sup>88</sup> In November 2010, Turkmenistan offered to deliver 40 bcm of gas annually through Nabucco, which greatly increased the likelihood the Nabucco pipeline project would be implemented. The United States also supports the Nabucco pipeline because it will increase the number of gas suppliers and delivery routes for Europe, with the important caveat that no Iranian gas will be transported.<sup>89</sup>

Turkmenistan gas can reach the Nabucco pipeline only with the creation of the Trans-Caspian Gas Pipeline (TCGP). This pipeline will cross from Turkmenistan into Azerbaijan under the Caspian Sea, thereby avoiding both Russia and Iran. In an unusual display of European unity on energy policy, the EU held talks on behalf of all twenty-seven member states to negotiate an multilateral energy treaty with Turkmenistan.<sup>90</sup> In addition, The EU is also working inviting Kazakhstan to join the TCGP.<sup>91</sup>

Russia is working diligently to stop Turkmenistan's gas from reaching European markets by attempting to halt the construction of the Trans-Caspian and Nabucco pipelines. The Russians are attacking the Trans-Caspian pipeline by threatening lawsuits and emphasizing the ecological risks (which is ironic considering their Nord Stream pipeline runs under the Baltic Sea). Russian President Dmitry Medvedev recently stated, "There are questions of the legal status and ecology, and we must pay attention to them against the backdrop of current developments in the Caspian Sea basin."<sup>92</sup> By law, all five nations that border the Caspian Sea must agree to the pipeline. Konstantin Simonov, head of the Russian National Energy Security Fund has said:

This project is extremely dangerous for us, because it will change the gas map [in the European space]. Why should we be passive observers?

Russia perfectly understands that the decision on the construction of undersea infrastructure must be made by the five Caspian states. There must be no countries, which have no access to the Caspian Sea, in the making of such decisions. That would be a flagrant violation of law.<sup>93</sup>

In addition, a Russian Foreign Ministry spokesman wondered why the EU was supporting a project "on which none of the EU member states border."<sup>94</sup> Even with the pressure from Russia, "Turkmenistan says it is determined to back the creation of a natural gas supply route to Europe and will ignore attempts by Russia to impede its efforts."<sup>95</sup>

To counter the Nabucco Pipeline, Russia has proposed the creation of the South Stream Pipeline, which will run across Russian territory, under the Black Sea to Bulgaria, Serbia, and Hungary ending in Northern Italy. South Stream AG, the joint venture company that is creating the pipeline is an international partnership as "Gazprom has a fifty percent stake in the project, Italy's Eni twenty percent and France's EDF and Germany's Wintershall fifteen percent each."<sup>96</sup> The Russians plan to place the submerged portion of the pipeline on Turkey's side of the Black Sea to avoid crossing Ukrainian territory, thus cutting them out of any transport fees. Once completed, South Stream has the potential to transfer 63 bcm of gas per year to Europe.

Gazprom is aggressively working to make South Stream a reality in order to eliminate support for Nabucco. "To gain energy 'allies', Russia is offering supply agreements and extensions of Gazprom's South Stream to countries along Nabucco's planned route and their immediate neighbors."<sup>97</sup> Russia also appears to be buying off European leaders to support the South Stream project. A newspaper article that referenced information in a United States diplomatic cable released by Wikileaks, stated

former Italian Prime Minister Silvio Berlusconi personally profited from energy deals between Italy and Russia.<sup>98</sup>

One of the major roadblocks for the South Stream pipeline is the cost. The \$20 billion price for the South Stream pipeline is estimated to be twice that of the Nabucco pipeline.<sup>99</sup> The reason for South Stream's larger price tag is the "offshore pipeline underneath the Black Sea, which accounts for about sixty percent of the total capital cost of the system."<sup>100</sup> Another roadblock is the European Commission which is conducting an antitrust investigation against Gazprom, forcing them to abandon attempts to transfer Azerbaijan's gas and moving South Stream's terminus from Austria to Italy.<sup>101</sup> However, the South Stream project received permission from Turkey to build across its territory in late 2011, "giving the project a clear run into the lucrative markets of Europe."<sup>102</sup>



Figure 4. Proposed South Stream Route, source: <http://www.hydrocarbons-technology.com/projects/southstream/southstream1.html>

South Stream is a direct Russian threat to the Nabucco pipeline and is primarily driven by Russian strategic interests.

South Stream is ultimately a reactive project, as it was designed only after the EU announced its desire to establish a direct (non-Russian controlled) Caspian Sea-Middle East-EU southern gas corridor, primarily through the Nabucco pipeline. South Stream's route is almost identical to Nabucco, as it intends to pre-empt the start of the latter project and thus prevent new gas from entering European markets independent of Russian control. If South Stream is built, it will pull gas from Central Asia and possibly Azerbaijan in its direction, potentially leaving less Caspian supplies for Nabucco or for other east-west gas pipeline projects such as Turkey-Greece-Italy (TGI). Russia could then increase its political control over the Caucasus and Central Asian regions.<sup>103</sup>

In addition to the strategic impact South Stream will have on Europe and Central Asia, it will also advance Russia's leverage against Ukraine. "The reasoning is that, if South Stream is built, then most gas flows through Ukraine would be diverted to South Stream, putting substantial economic and, therefore, political pressure on Ukraine."<sup>104</sup>

South Stream's public affairs website states that the pipeline "is aimed at strengthening the European energy security. It is the key project in the diversification strategy for gas supply routes to the EU."<sup>105</sup> Much like Nord Stream, South Stream will diversify gas routes into Europe, but the routes will remain under Russian control. Thus, Europe will remain tied to Russia for its natural gas supplies.

### Fracking - The X Factor

One of the unknown variables for the future of Europe's gas is the impact that fracking will make. According to a recent study, "the emergence of shale gas is perhaps the most intriguing development in global energy markets in recent memory."<sup>106</sup>

Fracking has allowed the United States to significantly reduce its requirements for the import of LNG and has dramatically increased its gas reserves. In 2003, the National Petroleum Council estimated that North America had approximately 1.1 trillion cubic meters (tcm) of recoverable gas. With the advent of fracking, Advanced Resources International now predicts that there are 54 tcm of gas in North America, a fifty-fold



increase.<sup>107</sup> Fracking may convert the United States from a gas importer to a gas exporter.

Poland is following North America's lead and is aggressively pursuing shale gas recovery. Poland is leading Europe in developing its shale gas reserves. The Polish Prime Minister, Donald Tusk, believes fracking will benefit his nations by reducing Poland's dependence on Russian gas, creating tens of thousands of jobs and generating revenue for the government.<sup>108</sup> According to the U.S. Department of Energy, "Poland has recoverable shale gas resources of 5.3 tcm, equivalent to more than 300 years of the country's annual natural gas consumption."<sup>109</sup>

Although fracking has the potential to redraw the gas resource picture, it faces resistance on both sides of the Atlantic from those concerned with its ecological impact. In the United States, fracking is blamed for poisoning water, causing earthquakes, and having a higher greenhouse footprint than coal and oil.<sup>110</sup> Fracking also uses millions of gallons of water and creates toxic wastewater that is either left underground or flushes to the surface.<sup>111</sup> In Europe, the French have banned fracking and the European Parliament is debating whether to ban all unconventional gas extraction in EU countries.<sup>112</sup> The question is will the need for energy trump the concerns on fracking's safety? Although it is likely that the United States will accept the risk, it will be a difficult sell in the cautious and environmentally friendly Europe.

### Conclusion

Europe's ability to marginalize Russia's gas stranglehold remains unlikely. Europe's desire to reduce CO<sub>2</sub> emissions has eliminated coal as an option and its anti-nuclear leanings is removing nuclear-generated electricity from its grid, increasing Europe's need for gas and therefore its reliance upon Russia. Renewable energy and

increased efficiency will not reduce Europe's need for natural gas. Most importantly, the EU's attempt to diversify its gas supply appears to have been effectively countered by Russia with the creation of Nord Stream and eventually the South Stream pipelines.

Relying upon fracking to improve Europe's gas option is a risky move. The environmental movement is quick to point out the possible dangers of fracking, and this message appears to be gaining traction in Europe. The exception is Poland, which emulating Germany's example of protecting its own interests, may refuse to follow the EU's potential restrictions on fracking in order to shelter itself from Russian energy manipulation.

If the EU wants to marginalize Russia's hold on its gas supply it will have to show unity and make unpopular decisions. First, it will have to reverse the elimination of nuclear power from its energy portfolio as nuclear power is the most effective way to not only reduce its gas needs, but also to reduce its greenhouse gases. Second, the EU must look towards coal mated with carbon capture and storage to provide additional energy diversity. Third, Europe should pursue fracking opportunities to increase its indigenous energy supplies. Fourth, Europe must create a non-Russian controlled path to Central Asia's gas supply. These steps, in addition to the 20-20-20 plan and the TEP, will provide Europe with greater energy independence.

Unfortunately, it appears the EU has neither the will nor the unity to make the hard decisions and implement these steps. Countries and leaders are taking the path of least resistance in order to improve their political standings or to enrich themselves. This lack of unity and leadership has created an especially bleak situation for Eastern Europe and CIS countries. Gazprom has already taken possession of Belarus' pipeline

system and it is at the mercy of Russia gas prices. With the creation of Nord Stream and South Stream, Russia can bypass Ukrainian territory allowing them cut off gas deliveries without affecting the rest of Europe. Only Poland, through the use of fracking, is in a position to protect itself from Russian energy manipulation. Although the Western European nations may believe that they have established agreements to ensure the flow of Russia gas, they remain under the yoke of a xenophobic supplier. These countries should not be surprised when they find that coercion is a byproduct of the natural gas they receive.

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