



View of oil tankers waiting offshore near the French city of Marseille. Energy security includes developing a more diversified supply of petroleum imports.



— DECLARING EUROPEAN —

# ENERGY INDEPENDENCE

## A DEPENDENCE ON UNRELIABLE RUSSIAN GAS WEAKENS EU POLICYMAKERS

By Maj. Bailey W. Brown, U.S. Army, Marshall Center

**E**uropean dependence on foreign energy creates unacceptable long term strategic vulnerabilities for Europe and Russia. Russia's encouragement of European energy dependence has yielded significant influence over policy outcomes, but at the cost of economic dependency on unequal partners in Europe's energy sector. European vulnerability to Russian energy policy is, in part, a function of Europe's highly fractured, national-level energy policy. Russia can act with a singularity of purpose to influence individual European nations without directly jeopardizing its European Union-wide energy market.

As a single policy actor, Russia has successfully balanced its energy influence and vulnerabilities. Policymakers in individual European countries, by contrast, tend to view energy policy in terms of small scale engagements with Russia and other energy exporters. European energy agreements primarily arise in the form of technical economic agreements at the national level, rather than as coordinated EU efforts. The strategic cost of Europe's current energy model can carry adverse consequences for Europe and Russia.

Europe now faces critical economic challenges about whether Greece, or maybe even Spain, will remain in the EU or eurozone. News of bailout funds, political speculation and demonstrations over benefits and austerity dominates the European political stage. These are pressing matters whose outcomes will shape the future. Solutions will be complex, multidisciplinary and require cooperation among many European countries. Energy security plays a critical role in these solutions.



European security is threatened when European countries are vulnerable to having their electrical and gas supplies severed at any time. Long term economic recovery requires jobs, but job growth is unsustainable in the face of high or unpredictable energy costs. Energy is the foundation of economic productivity, and such productivity is the core issue facing European economies and the eurozone. More than that, energy is the foundation of national power. Without energy independence, there is no strategic depth in military or political endeavors. A country dependent on outsiders to keep the lights on must toe the line drawn by whoever holds the switch.

It is easy to mistake military force for the currency of national power.<sup>1</sup> A substantial body of international law has developed around just war,<sup>2</sup> the just conduct of war<sup>3</sup> and the general use of force. Many treaties address rights and obligations concerning the use of force. Historically, the projection of military force in the form of armies and navies contributed directly to a nation's perceived might and its diplomatic influence. Experience of the Cold War arms race in Europe, Russia and the United States reinforces the notion of detente through superior firepower.

The notion of military force as the key to national power works best in a world of peace and war – a world we no longer inhabit. From the Algerian insurgency to the Cold War, Lebanon to Kosovo, Iraq, Afghanistan, Libya and Syria, the spectrum and complexity of conflict have increased by an order of magnitude. As a result, military strategists have adjusted their ideas of the role of military operations to address the full spectrum of conflict. Military force might now take the form of peaceful patrols akin to police work in one location and combined arms operations in another.

In addition to its dilution in response to a spectrum of challenges, the use of military force in obtaining a decision in a dispute between states increasingly yields to other forms of power. Public accountability through technology,<sup>4</sup> the potential for world-ending nuclear escalation<sup>5</sup> and stark lessons in the limits of maneuver warfare<sup>6</sup> have greatly eroded the role of traditional military force in security strategy. Recent efforts to develop “whole of government” approaches to international challenges illustrate that many military strategists are aware of the need to bring other forms of power into national security analysis.<sup>7</sup> The events of the Arab Spring convincingly demonstrate the dispositive impact of forces outside traditional norms of military power.

A common aphorism among soldiers is that amateurs talk about tactics, while professionals talk about logistics. It is now time for European defense strategists to start talking about energy the same way they talk about Eurofighters and the nuclear shield. Especially in Europe, energy is a critical currency of national power. Economies depend on it. Jobs depend on it. Standards of living depend on it. It is not only proximity of combat formations that will contribute to peace, stability, and regional cooperation – it is access to the energy resources necessary to sustain economic growth and prosperity.

Russia is ahead of Europe in appreciating the geopolitical and strategic value of energy. Russia has already predicated a significant portion of its national policy on this strategic reality, while Europe continues to treat energy as a matter of economics and technical arrangements between government and industry.<sup>8</sup> Europe has placed itself in a precarious geopolitical position by falling behind Russia in its treatment of energy as a strategic asset.

Europe is massively dependent on foreign energy sources. As of 2009, the EU imported 53 percent of its energy needs and rising.<sup>9</sup> As a result of various EU countries' national-level efforts to reduce the use of nuclear and fossil fuel energies,<sup>10</sup> much of the imported energy now comes from Russia, Algeria and Norway.<sup>11</sup> Russian natural gas plays a particularly prominent role. Germany has officially renounced nuclear energy in favor of Russian natural gas,<sup>12</sup> and Russia plans to increase its exports of natural gas to the EU by an additional 30 to 50 percent by 2030.<sup>13</sup> Europe also imports Russian and Middle Eastern oil extensively. Although Europe's energy market is complex and involves both imports and exports, a preponderance of energy imports comes from Russia.<sup>14</sup>

Efforts are under way to secure additional sources and transit routes in the interests of broader European and Eurasian interdependence. However, realization of those efforts remains years away and, in many cases, years behind schedule and massively over budget.<sup>15</sup> Efforts such as the Nord Stream pipeline to Germany and the South Stream pipeline to Italy achieve only more efficient and reliable delivery of Russian natural gas, deepening rather than alleviating European dependence on Russian energy. Russia supports these developments not only for economic reasons, but for strategic ones.<sup>16</sup> The Russian state gas firm Gazprom specifically identifies them as part of the “Gazprom strategy to diversify the Russian natural gas supply routes.”<sup>17</sup>

The pattern of ever increasing energy importation, particularly from Russia, places Europe in a precarious position of significant dependency on Russian cooperation.<sup>18</sup> Russian cooperation, in turn, depends upon Russian consent to European policies – including defense policies. To the extent that Russian and European political objectives diverge, resulting frictions can lead to higher energy prices, destabilize markets and undermine regional stability. This potential for economic and political instability undermines both Russian and European security interests.

Knowledge among European leaders that Russia can unilaterally cut off approximately half of Europe's oil and gas will inevitably influence European national policies. The ability to unilaterally strangle individual European countries provides Russia not just with an economic tool, but with powerful diplomatic and military influence. European countries that fail to comply with Russian policy objectives “will be punished by denial of energy deliveries, while friendly powers will be rewarded.”<sup>19</sup> In 2006, 2008 and 2009, because of conflicts with Ukraine over prices and transit fees, Russia cut natural gas supplies to Ukraine and

Europe. Each incident triggered a crisis in European energy markets and untold suffering as hundreds of thousands of people in Europe lost heat.<sup>20</sup> The threat of unheated cities in the cold of winter is soft power in its hardest form.

While there are limits to the use of energy as a tool of national power, the threat of energy coercion remains unacceptably high for Europe. Some argue that “energy can be used as a hard power resource only when it is combined with the other tools at Russia’s disposal, including military capacity and diplomatic bargaining,”<sup>21</sup> and that Russia’s very codependence on the market for its natural gas makes it equally vulnerable to its trading partners, if not more so.<sup>22</sup> This may be true against large trading blocks, but Europe’s fragmented energy policy makes each individual member of the EU far more vulnerable to Russian energy coercion than Russia is susceptible to the cost of withholding energy from a few European countries. This high degree of national level vulnerability across the EU compels European powers to consider their continued access to the Russian energy lifeline in every major strategic decision.<sup>23</sup>

Russian leadership is aware of the strategic advantages and perils of leveraging European energy supplies. Russian President Vladimir Putin wrote his doctoral thesis on energy strategy, in which he argues that natural resource planning can help solve “any problem associated with national objectives abroad.”<sup>24</sup> Russia’s “[g]eopolitical influence is served by controlling the majority of Eurasian gas and oil export pipelines, enabling the Russian government simultaneously to exert influence over Central Asian energy producers and European energy consumers.”<sup>25</sup> This shows an awareness of the importance of energy in an integrated national security strategy – an awareness upon which the EU has yet to act.

It should be noted that the use of this power is not without risks. As European energy imports increase, Russia becomes increasingly vulnerable to European economic performance. European energy consumption drives a substantial part of the Russian economy, as “Russia is the EU’s third biggest trade partner, with Russian supplies of oil and gas making up a large percentage of Russia’s exports to Europe.”<sup>26</sup> A broad economic collapse in the eurozone could have profound consequences for stability in Russia and its energy exporting neighbors in Central Asia. As Yegor Gaidar, acting prime minister of Russia, observed in Washington in November 2006, “[t]he collapse of the Soviet Union should serve as a lesson to those who construct policy based on the assumption that oil prices will remain perpetually high.”<sup>27</sup>

Russia’s perspective on energy is informed by the long term context of Europe-Russia relations. Since the end of the Cold War, Russia and Europe have created a normative environment of civility, economic cooperation and a semblance of trust.<sup>28</sup> It is tempting for European and American strategists to view security policy in a context of cooperation – there is even a partnership agreement between Russia and the EU member states.<sup>29</sup> Yet Russia has a long memory, and some argue that the “period of the Cold War has strengthened the traditional Russian view of the

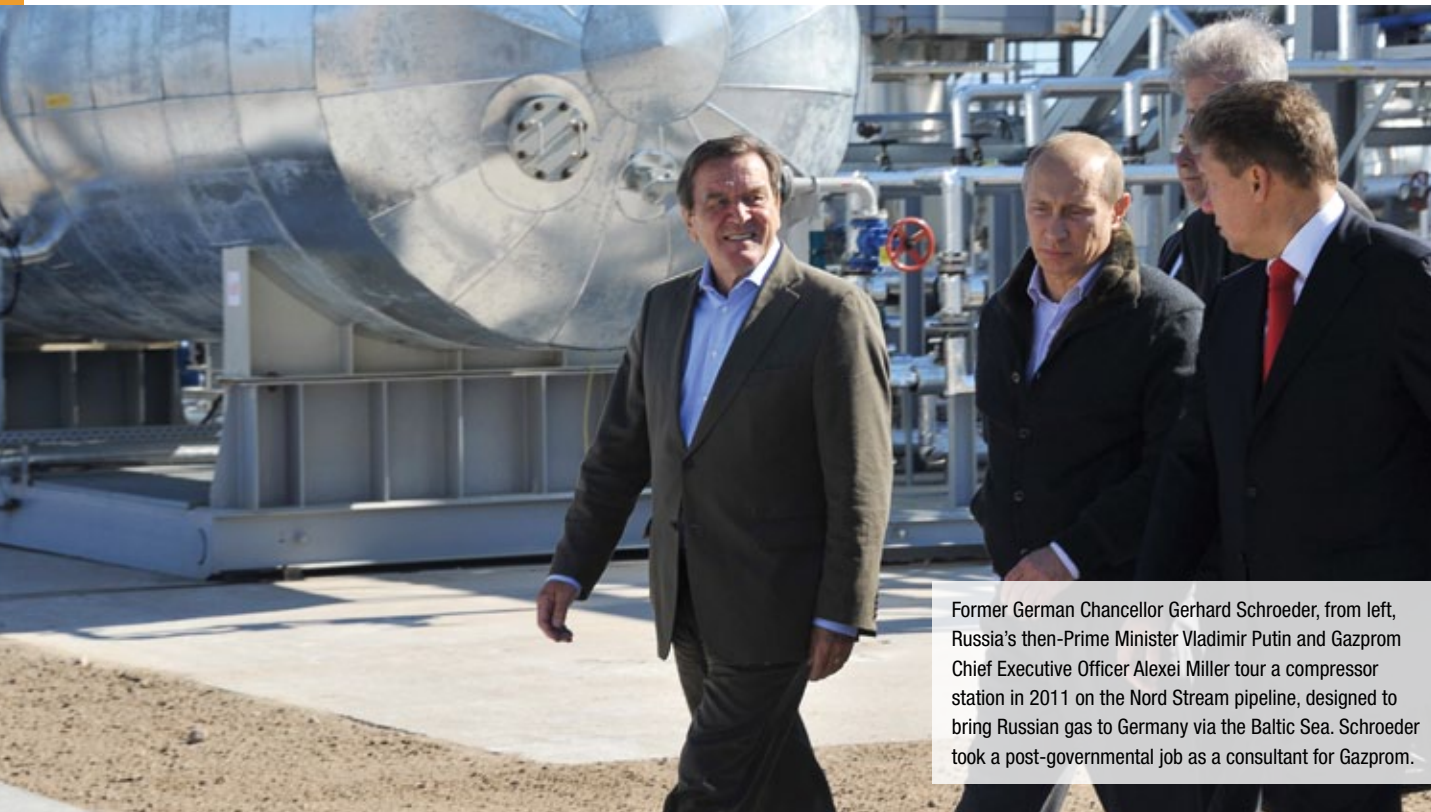
Storks tend a nest near the EnBW nuclear power plant in Phillipsburg, Germany. Phillipsburg is among the nuclear power plants the country has announced it will close in coming decades over fears of radiological disaster.



AFP/GETTY IMAGES

Western Europe as the source of vital threat.[sic]” History and experience “have produced an effect on both Russian thinking and Russian strategy, leading to deep mistrust, suspicion and hostility.”<sup>30</sup> Today, issues surrounding missile defense, Libya, Syria and Iran continue to erode Russia’s trust in Western intentions.<sup>31</sup> Despite efforts to convince Europe that Russia’s proper role is that of a strategic partner in matters of defense policy, Russia can sometimes view NATO as “a hostile alliance that is meddling in its backyard.”<sup>32</sup> Russia finds itself in the difficult position of supplying energy to a Europe whose intentions it does not fully trust, while at the same time unable to fully leverage that energy supply because of its own vulnerability to European economies. This delicate balance means that Russia needs the EU to remain politically and economically secure, but not so secure that it can ignore Russian priorities. In short, Russia has Europe on a leash but still struggles to influence Europe’s direction.

It would benefit European military and foreign policy leaders to recognize that, as military might has declined in



Former German Chancellor Gerhard Schröder, from left, Russia's then-Prime Minister Vladimir Putin and Gazprom Chief Executive Officer Alexei Miller tour a compressor station in 2011 on the Nord Stream pipeline, designed to bring Russian gas to Germany via the Baltic Sea. Schröder took a post-governmental job as a consultant for Gazprom.

AFP/GETTY IMAGES

importance on the international stage, energy has emerged as a new currency of national power. Energy should assume in security strategy an importance once reserved for the emplacement of military divisions. Europe can look to the Russian model for an instructive integration of military, diplomatic and energy policy in achieving national objectives. European leaders should seek ways to develop a similarly unified EU energy policy. With unified policy guidelines, Europe can pursue physical energy independence and become an equal partner with Russia in the energy trade. This EU energy policy and its resulting capabilities should be incorporated, and funded, as a key part of EU security strategy.

The mechanism to achieve this unity is not an EU convention on energy policy, nor is it a set of agreements to be negotiated between sessions on euro lending and debt defaults. The solution to European energy vulnerability is to connect strategic security doctrine with existing EU energy institutions to channel military expenditures into energy infrastructure. Specifically, NATO should engage energy policymakers to develop a strategic model for energy independence.

Nuclear power represents one actionable energy option pending development of viable alternative energy technologies. With effective investment administered by existing nuclear regulatory and industry regimes, Europe could already leverage nuclear power to meet or exceed the projected additional 170 gigawatts of nuclear power required to maintain the 2011 balance of energy sources through 2050.<sup>33</sup> This would require approximately 11

billion euros in investment per year – a lot of money by industry standards, but a modest amount by EU defense standards.<sup>34</sup>

The necessary regulatory and physical infrastructure is already in an advanced stage of development in the form of the Single Electricity Market project. Through this initiative, European heads of state and governments have pledged to create an internal market for electricity by 2014. Throughout the EU, national electricity markets are being reviewed to align with a common European “target model” for cross-border capacity allocation and congestion management upon which the Internal Electricity Market is to be founded. Detailed rules that give legal effect to this target model will be binding on all EU internal borders by 2014.<sup>35</sup>

The target model provides detailed trading and regulatory guidance for a single, integrated European energy market and links national energy capacities across borders to form a flexible whole that responds efficiently to market demands. Critically, the Single Electricity Market also establishes and regulates the infrastructure necessary to maintain the physical interconnectedness of the EU power grid.<sup>36</sup> Existing European private sector energy concerns have already contemplated the standards necessary to integrate nuclear energy and other energy sources into this EU-wide network. The challenges are primarily regulatory, rather than technical.<sup>37</sup> The tools for broad European energy independence are already in place. Implementation is a matter only of political will.

Developing unified energy policies as part of a regional security strategy goes back to the founding of



the EU. The EU descends from the European Coal and Steel Community – an early effort to alleviate European economic vulnerabilities by unifying markets. Energy policy gave birth to the EU, and it should guide EU strategy going forward. This approach makes long term economic sense because consolidation of EU member states' purchasing power can exact concessions from sellers and enhance market cooperation among the EU, Russia and other regional actors.<sup>38</sup> This approach makes political sense because only a consolidated EU effort could appropriately integrate security objectives and national-level energy policies. Finally, this approach makes strategic sense because it offers a unique opportunity to create stable, bilateral energy cooperation between the EU and Russia as equal partners. □

*The views expressed in this report are those of the author and do not necessarily reflect the official policy or position of the Department of the Army, the Department of Defense or the U.S. government.*

1. War is often taught as “merely a continuation of diplomacy by other means,” as stated in Carl von Clausewitz’s *On War*. See Clausewitz, Carl von (1984) [1832]. Howard, Michael; Paret, Peter. eds. *On War* [Vom Krieg] (Indexed ed.). New Jersey: Princeton University Press. p. 87.
2. Traditionally known as *Jus ad Bellum* (Latin for “right to war”) and enshrined in the UN Charter, the London Charter and the Kellogg-Briand Pact.
3. Traditionally, *Jus in Bello* (justice in war), enshrined in the Hague Conventions.
4. Witness the Arab Spring uprising, in which public frustration at regime policies triggered widespread and collective action that undermined the sovereignty and perceived legitimacy of several seemingly entrenched leaders.
5. Nuclear detente remains U.S. policy. See, e.g., “Nuclear Posture Review Report,” Department of Defense, April, 2010, p. iv, stating that, while “facing the increasingly urgent threats of nuclear terrorism and nuclear proliferation, the United States must continue to address the more familiar challenge of ensuring strategic stability with existing nuclear powers – most notably Russia and China.”
6. Defense strategists can argue that the Korean, Arab-Israeli, Falkland, and first Gulf wars demonstrated conclusively the superiority of first-world military forces on conventional battlefields, forcing poorer combatants to employ an “evolved form of insurgency” using “all available networks – political, economic, social, and military, to convince the enemies political decision makers” to capitulate. Thomas X. Hammes, *The Sling and the Stone: On War in the 21st Century*, Zenith Press, St. Paul, Minnesota, 2004, p. 2.
7. Walter Pincus, “Pentagon Recommends ‘Whole-of-Government’ National Security Plans,” *Washington Post*, February 2, 2009, retrievable at <http://www.washingtonpost.com/wp-dyn/content/article/2009/02/01/AR2009020101964.html>
8. European Nuclear Energy Forum, Bratislava – Prague, Working Group Report, “Innovative Financing for Deployment of Nuclear Power Plants and Development of Next Generation,” dated April 4, 2011, retrievable at [https://docs.google.com/viewer?a=v&q&q=cache:ivw2PSWvaw0J:ec.europa.eu/energy/nuclear/forum/opportunities/doc/financing\\_models/enef\\_-\\_financing\\_report\\_final.pdf&hl=en&gl=us&pid=bl&srcid=ADGE-EShduF62ZrOioBBcTn8OtKkKXbWtPSiIUv4pSDMjYsy2JbF4HvAF6Py-LjZaqdADHcM4xUKOQYW65DeSwBO608NuR-D7MNYOU0866XoKVUC\\_JIECaFZ\\_qbSd3IV8eUa-NB-o&sig=AHIEtbRRx0onJEpSgQkiwYvP57TZY88wQ](https://docs.google.com/viewer?a=v&q&q=cache:ivw2PSWvaw0J:ec.europa.eu/energy/nuclear/forum/opportunities/doc/financing_models/enef_-_financing_report_final.pdf&hl=en&gl=us&pid=bl&srcid=ADGE-EShduF62ZrOioBBcTn8OtKkKXbWtPSiIUv4pSDMjYsy2JbF4HvAF6Py-LjZaqdADHcM4xUKOQYW65DeSwBO608NuR-D7MNYOU0866XoKVUC_JIECaFZ_qbSd3IV8eUa-NB-o&sig=AHIEtbRRx0onJEpSgQkiwYvP57TZY88wQ), which makes no mention of nuclear energy as an appropriate vehicle for defense expenditures.
9. European Commission, EUROSTAT, Statistics Explained, Energy Production and Imports; retrieved from [http://epp.eurostat.ec.europa.eu/statistics\\_explained/index.php/Energy\\_production\\_and\\_imports#Further\\_Eurostat\\_information](http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Energy_production_and_imports#Further_Eurostat_information)
10. Richard J. Anderson, “Europe’s Dependence on Russian Natural Gas: Perspectives and Recommendations for a Long-term Strategy,” George C. Marshall Center Occasional Paper No. 19, September 2008.
11. Europe’s Energy Portal, retrievable at <http://www.energy.eu/#dependency>
12. Bloomberg, “Russian Gas Beckons for Germany as Merkel Turns From Nuclear,” by Tony Czuczka, dated April 8, 2011, retrievable at <http://www.bloomberg.com/news/2011-04-07/russian-gas-beckons-for-germany-as-merkel-turns-from-nuclear.html>
13. TR.com, “Gazprom to boost export to EU by 50%,” April 28, 2012, retrievable at <http://rt.com/business/news/gazprom-eu-export-plans-213/>
14. European Commission, EUROSTAT, Statistics Explained, Energy Production and Imports; retrieved from [http://epp.eurostat.ec.europa.eu/statistics\\_explained/index.php/Energy\\_production\\_and\\_imports#Further\\_r\\_Eurostat\\_information](http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Energy_production_and_imports#Further_r_Eurostat_information)
15. The Nabucco pipeline is regularly jeopardized by political and financial challenges arising within the various transit states. At present German energy firms and Hungary are considering withdrawal from the project, with Hungary looking to Russia as a strategic partner for a southern distribution network for natural gas. Efforts are ongoing to save the project. See Deutsche Welle, “Nabucco pipeline future uncertain as Hungary backs Russian rival,” April 26, 2012, retrievable at <http://www.dw.de/dw/article/0,,15910599,00.html>
16. Alexander Ghaleb, *Natural Gas as an Instrument of Russian State Power*, Strategic

- Studies Institute, U.S. Army War College, Carlisle, Pennsylvania, October 2011, retrievable at <http://www.strategicstudiesinstitute.army.mil/pubs/display.cfm?pubID=1088>
17. The Voice of Russia, “Nord Stream to become more powerful,” by Natalya Kovalenko, May 12, 2012, retrievable at [http://english.ruvr.ru/2012\\_05\\_12/74520106/](http://english.ruvr.ru/2012_05_12/74520106/); South Stream Info, retrievable at <http://south-stream.info/?L=1>
18. Dr. Andrew Monaghan, “NATO Targets Energy Security,” *Per Concordiam*, March 2010.
19. Peter Rutland, “Russia as an Energy Superpower,” *New Political Economy*, Vol. 13, No. 2, June 2008.
20. BBC News, “Ukraine ‘making gas crisis worse,’” January 10, 2009, referring to the 2009 crisis.
21. Peter Rutland, “Russia as an Energy Superpower,” *New Political Economy*, Vol. 13, No. 2, June 2008.
22. Andrei Shleifer and Daniel Treisman, “Why Moscow Says No: A Question of Russian Interests, Not Psychology,” *Foreign Affairs*, Vol. 90, No. 1, January 2011, p. 126.
23. For an individual ranking of European national vulnerability to Russian energy conservation, see Alexander Ghaleb, *Natural Gas as an Instrument of Russian State Power*, Strategic Studies Institute, U.S. Army War College, Carlisle, Pennsylvania, October 2011, pp 20-26, retrievable at <http://www.strategicstudiesinstitute.army.mil/pubs/display.cfm?pubID=1088>
- See also Platts.com, “National interests limit EU’s gas bargaining power: Oettinger,” January 25, 2012, quoting EU Energy Commissioner Gunther Oettinger’s statement that “National policies are taking preference over EU policies.” Retrievable at <http://www.platts.com/RSSFeedDetailedNews/RSSFeed/NaturalGas/8847706>
24. Vladimir Vladimirovich Putin, “The Strategic Planning of Regional Natural Resources Under the Formation of Market Relations,” Ph.D. thesis, Economics Department, Saint Petersburg State Mining University.
25. Alexander Ghaleb, *Natural Gas as an Instrument of Russian State Power*, Strategic Studies Institute, U.S. Army War College, Carlisle, Pennsylvania, October 2011, p 55, retrievable at <http://www.strategicstudiesinstitute.army.mil/pubs/display.cfm?pubID=1088>, citing Paul Domjan and Matt Stone, “A Comparative Study of Resource Nationalism in Russia and Kazakhstan 2004-2008,” *Europe-Asia Studies*, Vol. 62, No. 1, January 6, 2010, p. 43.
26. European External Action Service.
27. Professor Kari Liuhio, Turku School of Economics, Turku, Finland, “Energy in Russia’s foreign policy,” *Electronic Publications of Pan-European Institute*, October 2010, p.4.
28. European External Action Service, stating that “The Ongoing cooperation is based on 4 specific policy areas. These ‘common spaces’ cover economic issues & the environment; Freedom, Security & Justice; External Security; and Research & Education, including cultural aspects.” Retrievable at [http://eeas.europa.eu/russia/index\\_en.htm](http://eeas.europa.eu/russia/index_en.htm)
29. Agreement on partnership and establishing a partnership between the European Communities and their Member States, of one part, and the Russian Federation, of the other part, dated June 24, 1994, effective December 1, 1997. But see Erin Carriere-Kretschmer and Katie Holzgart, “European Worries About Reliance on Russian Energy Were Already High,” *Pew Research Center*, retrievable at <http://pewresearch.org/pubs/1083/>, suggesting that this dependent relationship also fuels suspicion of Russia within Europe.
30. Victor Kremenyuk, “Changes in European Security Landscape: A Russian View,” prepared for the HISS/CEPS European Security Forum, Brussels, July 8, 2002. Retrievable at <http://www.eusec.org/kremenyuk.htm>
31. Dmitri Trenin, “Deficit of Trust,” *Security Times*, February 2012, retrievable at <http://www.carnegieendowment.org/2012/02/04/deficit-of-trust/9st5>
32. Alexander Ghaleb, *Natural Gas as an Instrument of Russian State Power*, Strategic Studies Institute, U.S. Army War College, Carlisle, Pennsylvania, October 2011, p. 43. Retrievable at <http://www.strategicstudiesinstitute.army.mil/pubs/display.cfm?pubID=1088>
33. European Nuclear Energy Forum, Bratislava – Prague, Working Group Report, “Innovative Financing for Deployment of Nuclear Power Plants and Development of Next Generation,” April 4, 2011, retrievable at [https://docs.google.com/viewer?a=v&q&q=cache:ivw2PSWvaw0J:ec.europa.eu/energy/nuclear/forum/opportunities/doc/financing\\_models/enef\\_-\\_financing\\_report\\_final.pdf&hl=en&gl=us&pid=bl&srcid=ADGEEShduF62ZrOioBBcTn8OtKkKXbWtPSiIUv4pSDMjYsy2JbF4HvAF6Py-LjZaqdADHcM4xUKOQYW65DeSwBO608NuR-D7MNYOU0866XoKVUC\\_JIECaFZ\\_qbSd3IV8eUa-NB-o&sig=AHIEtbRRx0onJEpSgQkiwYvP57TZY88wQ](https://docs.google.com/viewer?a=v&q&q=cache:ivw2PSWvaw0J:ec.europa.eu/energy/nuclear/forum/opportunities/doc/financing_models/enef_-_financing_report_final.pdf&hl=en&gl=us&pid=bl&srcid=ADGEEShduF62ZrOioBBcTn8OtKkKXbWtPSiIUv4pSDMjYsy2JbF4HvAF6Py-LjZaqdADHcM4xUKOQYW65DeSwBO608NuR-D7MNYOU0866XoKVUC_JIECaFZ_qbSd3IV8eUa-NB-o&sig=AHIEtbRRx0onJEpSgQkiwYvP57TZY88wQ)
34. European Defense Agency, “EU and US government Defence Spending,” January 25, 2012, stating that, “EU aggregated defence expenditure decreased from €201 billion in 2008 to €194 billion in 2010.” Retrievable at [http://www.eda.europa.eu/News/12-01-25/EU\\_and\\_US\\_government\\_Defence\\_spending](http://www.eda.europa.eu/News/12-01-25/EU_and_US_government_Defence_spending)
35. Single Electricity Market Committee Consultation Paper, “Proposals for Implementation of the European Target Model for the Single Electricity Market,” dated January 24, 2012, p. 18-21.
36. Agency for the Cooperation of Energy Regulators, Framework Guidelines on Electricity Grid Connections, dated 20 July 2011.
37. EURELECTRIC & VGB Comments paper, ACER Framework Guidelines on Electricity Grid Connections, May 2011, page 20, asking “if nuclear power plants were required to comply with a specified frequency value (or range), but the safety standards set in their safety permits prohibit such operations, which principle would be prioritised?” Also European Network of Transmission System Operators for Electricity FAQ, “Network Requirements for Grid Connection Applicable to All Generators,” January 24, 2012.
38. For a mathematical model of the effects of fractured versus unified gas purchasing by EU member states, see Edward Hunter Christie, “The potential for an EU Gas Purchasing Agency,” pp. 46-54, published under FIW-Research Reports 2010/11 as part of a paper series titled, “Vulnerability and Bargaining Power in EU-Russia Gas Relation,” retrievable at [http://www.europeangashub.com/article/detail.php?parent\\_id=2&id=123](http://www.europeangashub.com/article/detail.php?parent_id=2&id=123)