



# POLICY PAPER

No. 49, January 2013 © PISM

Editors: Marcin Zaborowski (Editor-in-Chief) ● Wojciech Lorenz (Managing Editor)

Jarosław Ćwiek-Karpowicz ● Beata Górka-Winter ● Artur Gradziuk ● Roderick Parkes ● Beata Wojna

## German and Polish Energy Policies: Is Cooperation Possible?

Jarosław Ćwiek-Karpowicz, Aleksandra Gawlikowska-Fyk, Kirsten Westphal

*Neighbours Poland and Germany have recently started to engage and intensify their dialogue on bilateral energy issues. This may prove to be an indispensable step forward in the future design of integrated EU energy and climate policies. The countries have found themselves on different planes with respect to EU environmental and climate policies. This paper explains the diverging approaches by focusing on the countries' respective energy situations and political priorities within the strategic energy policy triangle. The triangle is composed of energy security, cost efficiency, and sustainability. The paper explores the bilateral challenges and opportunities in finding common ground for a partnership within a fully integrated EU energy market as well as with respect to its neighbourhood.*

### Germany's Energy Background

The German “Energiewende” of June 2011 (based on previous decisions in 2010) has three pillars: nuclear phase-out, the rapid expansion of renewable energy sources and a steep increase in energy efficiency. To bring the major point straight forward, for German energy policy, implementing and steering the 2011 Energiewende is the predominant issue.<sup>1</sup> As a consequence, energy security is almost solely linked to domestic developments and the power sector. Given the sudden shutdown of eight nuclear power plants and the rapid expansion of intermittent renewable energy sources to up to 25 percent of the electricity generation mix by now, the major and immediate concern is system stability in the electricity sector.

Germany's primary energy mix is still dominated by fossil fuels—oil's share is 34%, coal is 24%, and natural gas is 20% (in 2011). Nuclear energy accounted for almost 9% of primary energy consumption, whereas renewables reached an 11% share.<sup>2</sup> Coal, and in particular lignite, is a major source of electricity generation in Germany, while gas represents almost 14%. The share of renewables has significantly increased in recent years, and has already reached almost 25%.<sup>3</sup> In the past year, despite the ambitious policy goals, natural gas has lost ground against coal as the latter has become commercial choice number one. Coal prices have decreased, and the price for emissions under the Emissions Trading Scheme is too low. This becomes a

<sup>1</sup> For further details, see S. Röhrkasten, K. Westphal (a corresponding author), “Energy Security and the Transatlantic Dimension—A View from Germany,” *Transatlantic Journal* (upcoming edition).

<sup>2</sup> Working Group on Energy Balances, March 2012, [www.bmwi.de/BMWi/Redaktion/Binaer/Energiedaten/energie-gewinnung-und-energieverbrauch2-primaerenergieverbrauch,property=blob,bereich=bmwi,sprache=de,rwb=true.xls](http://www.bmwi.de/BMWi/Redaktion/Binaer/Energiedaten/energie-gewinnung-und-energieverbrauch2-primaerenergieverbrauch,property=blob,bereich=bmwi,sprache=de,rwb=true.xls), accessed 27 June 2012.

<sup>3</sup> Federal Statistical Office, Federal Ministry of Economics and Technology and German Association of Energy and Water Industries (BDEW) 2012.

pressing problem for the Energiewende, both, with respect to climate policies and to stability in the electricity sector.

From a more general point of view, energy security is framed in commercial, not strategic terms. Mid- and long-term challenges for energy security have been identified in the oil and gas markets. But a strategic approach to supply security is only from time to time evident in certain cases in the responses to an external crisis. This is all the more astonishing considering that a major feature of the German energy system is a high degree of import dependency that is well above the EU average. Germany imports more than 70% of the coal it uses, more than 80% of its gas and almost 98% of its oil.<sup>4</sup> Additionally, Germany obtains all of its uranium from foreign sources. Lignite is the only domestic energy source in which Germany is self sufficient. As Germany relies more and more on internal, renewable energy sources such as solar and wind power, the country's overall import dependency will slightly decrease. In external energy policy, Germany's dependence on energy imports is rather framed by mutual interdependence than a problem or risk to national security. For Germany, it has always been a political objective to create and manage mutual interdependencies with suppliers, and Germany has never sought to achieve autarchy. A major energy supplier for oil and gas to Germany is Russia, which accounts for 37% of its oil and 36% of its gas supplies. Further important oil suppliers include Great Britain and Norway, and substantial gas imports come from Norway and the Netherlands. Russia's reliability remains a mantra of German energy policy.

Germany is a critical Member State of the EU, and this is particularly true for energy policy, in both internal market development and external energy relations. Germany is by far the largest energy user within the EU, accounting for almost 19% of the gross energy consumption, 20% of net imports, and almost 19% of electricity generation.<sup>5</sup> Additionally, Germany plays a crucial role by virtue of its geographical location, placing it in the centre of electricity grids and making it a hub for natural gas.<sup>6</sup>

German energy policy has been shaped by EU policies. The EU approach to energy policy builds on its environmental and climate policies and its competition and internal market policies, which are policy fields of shared competencies. In that respect, Brussels is the most important focal point for Berlin.

## **Main Priorities of Germany's Energy Policy**

In recent years, environmental effects and climate change have been the main paradigm guiding Germany's energy policies toward a more sustainable energy system. The Energiewende has been influenced by that angle. The Energiewende, based on the 2011 Energy Concept, aims to phase-out nuclear energy by 2022. The share of renewable energy in the final energy consumption mix should increase to 18% by 2020 and then to 60% by 2050, and in electricity generation even to 80%. Final energy consumption should decrease by 20% by 2020, and by 50% by 2050 (compared to 2008). Moreover, the insulation rate for buildings is supposed to double. In the transport sector, the final energy use should decrease by 10% by 2020 and by 40% by 2050. Additionally, there is a programme to promote six million e-vehicles by 2030.<sup>7</sup> Today, the German political elite and the energy industry are consumed with the energy transition. Besides Germany, only Denmark and the UK have adopted energy policy strategies to achieve low-carbon energy systems by 2050. Yet, in many ways, the Energiewende represents a continuation of policies previously pursued by Germany.

The political decision for a speedier energy transition induces systemic change into a sector that already faces a high level of "unprecedented uncertainty" at the international level. Whereas the state of energy security in the past and present has been perceived as very satisfying and of a high quality, system stability in the electricity sector is becoming a major concern, with fluctuating renewable energy sources gaining more

<sup>4</sup> Working Group on Energy Balances, March 2012, [www.bmwi.de/BMWi/Redaktion/Binaer/Energiedaten/energie-gewinnung-und-energieverbrauch2-primarenergieverbrauch,property=blob,bereich=bmwi,sprache=de,rwb=true.xls](http://www.bmwi.de/BMWi/Redaktion/Binaer/Energiedaten/energie-gewinnung-und-energieverbrauch2-primarenergieverbrauch,property=blob,bereich=bmwi,sprache=de,rwb=true.xls), accessed 27 June 2012.

<sup>5</sup> *EU Statistical Pocket Book 2010*, Section 2.6.1 and 2.6.6, [www.ec.europa.eu/energy/observatory/statistics/statistics\\_en.htm](http://www.ec.europa.eu/energy/observatory/statistics/statistics_en.htm), accessed 27 June 2012.

<sup>6</sup> J.S. Duffield, K. Westphal, "Germany and EU Energy Policy: Conflicted Champion of Integration?," in: V. Birchfield, J.S. Duffield, *Towards a Common European Union Energy Policy: Problem, Progress and Prospects*, Palgrave Macmillan, New York, 2011, pp. 169–186.

<sup>7</sup> For comprehensive information on the 2011 Energy Concept, see [www.bmu.de/english/transformation\\_of\\_the\\_energy\\_system/resolutions\\_and\\_measures/doc/48054.php](http://www.bmu.de/english/transformation_of_the_energy_system/resolutions_and_measures/doc/48054.php), accessed 27 June 2012.

and more shares of generation. But within the interconnected and highly meshed grid of continental Europe, security of supply cannot be properly addressed on a national level anymore. As a consequence, the Energiewende may push Germany towards more integration with its neighbours. “Energy security” in the past had been mainly attached to Russian gas deliveries. In more general terms, challenges on the global oil markets and supply security are a somewhat forgotten subject, as are to a lesser degree gas supply issues. As a consequence, there is still no real energy strategy in the German energy concept for the transport and mobility sector.

In the strategic triangle of energy policy, environmental damage, especially climate change, has been a primary concern. However, cost efficiency is gaining more attention in the debate. For a highly industrialised country such as Germany, with its energy-intensive industries, there is a risk of a loss of competitiveness in global markets. There are rising fears about competitive disadvantages for the German economy if decarbonisation is pursued unilaterally. But the German strategy is also perceived as a new industrial revolution, and if it succeeds it would allow Germany to win a competitive edge.

For Germany, Russia is the major supplier of oil, natural gas and hard coal. The bilateral relationship is one of the major priorities and challenges for German energy policy. There is a question mark of how the relationship will develop in the future. Market power has changed to Gazprom’s benefit. As a result, Gazprom has managed to maintain oil-indexed prices in long-term contracts with German companies and has increased its role in German market segments while Germany’s Ruhrgas has lost its strategic position. Through this lens, a tremor in the close strategic partnership can be sensed.

Regarding common EU energy policy, Germany has been ambivalent. Under its presidency in 2007, Germany backed more assertive climate and environmental policy and pushed the “20-20-20” strategy. As for internal market development and a more competitive market, Germany has taken a more critical stance as German energy companies have lobbied to water down the original proposals with respect to unbundling and the “Gazprom clause” because of their close ties to the Russian company. These strategic business alliances, and the Nord Stream deal in 2005, set Germany and other continental gas-consuming countries with close ties to Gazprom apart from the new Central Eastern European Member States and the UK.

Germany’s ambivalent role towards European energy policy became even more evident when Energiewende, the energy transition project, was approved in June 2011. Energiewende puts Germany in the position of frontrunner on a fast track to more sustainable energy policy. This has implications for its neighbours and the EU. First of all, it adds a new thread of conflict to its European energy relations. In particular, its neighbours have felt sidelined by the speed of the political decisions. Although the decision on the country’s energy mix lies within its national competences, the German transition impacts heavily on its neighbours. This is most evident with uncontrolled loop flows.<sup>8</sup> Second, in order to pursue the goals of Energiewende more cost efficiently and provide for more investment security, German energy policies depend on a consistent climate and energy path at the international level, or at least on the European level.

## **Poland’s Energy Background**

Poland is the largest hard coal producer in the European Union, and close to 90% of electricity generated in the country comes from coal. Due to the significant role of fossil fuels from internal sources in the energy mix, Poland is one of the few EU Member States to have a low level of dependence on energy imports. The Polish score in this regard is about 31%, well below the EU average (53%).

The dominant position of hard coal and lignite in the Polish energy mix is, however, to a certain extent contradictory to the EU’s ambitious strategy to combat climate change. For Poland, major challenges are already posed by binding targets to reduce carbon dioxide emissions and increase the share of renewables by 2020. So far, Poland has fulfilled all of the limits set by the Kyoto Protocol, but mainly as an outcome of the economy’s transformation after 1989 and the decrease in the role of heavy industry. However, there are claims that future EU climate policy, focused on a further decrease of CO<sub>2</sub> emissions, will be too great a burden on the Polish economy.

---

<sup>8</sup> Loop flows are physical phenomena that occur when generation and load centres diverge, thus resulting in differences between commercial schedules and physical flows.

Nevertheless, Poland is already on track to meet its binding targets. In 2009, the government adopted a new energy strategy that envisages real change over the next two decades. The share of renewable energy sources, crude oil, natural gas and nuclear energy will increase in the Polish energy mix, while the significance of hard coal and lignite will decrease.<sup>9</sup> In this respect, one may perceive the Polish plans as a transition, comparable in terms of a change in the electricity mix<sup>10</sup> to Germany's Energiewende. But the electricity sector faces many other challenges, among which the need for new investment is the most pressing.

Unlike coal, other hydrocarbons are mainly imported. The majority of natural gas and crude oil consumed in Poland comes from abroad. Russian oil and gas supplies cover 90% and 65% of domestic demand, respectively. Due to its transit role, Poland for a long time was able to receive energy supplies from Russia at a reasonable price as two of the main energy routes from Russia to Germany, the Druzhba and Yamal pipelines, ran through its territory.

These circumstances changed between 2011 and 2012 when the Nord Stream gas pipeline was launched, as well as the Baltic Pipeline System and Ust-Luga crude-oil terminal in Russia. The significance of Poland's transit role for Russian energy exports was reduced, as a considerable amount of Russian fossil fuels can now be delivered directly to Germany and other countries in Western Europe. The new situation has begun to diminish the bargaining position of the Polish energy companies with their Russian partners.<sup>11</sup>

## Main Priorities of Poland's Energy Policy

There are two main long-term challenges for Poland's energy security. First of all, Poland's aim is to diversify its energy external supplies and limit its dependence on Russian sources. Poland should also address the issues of aging generation assets and a lack of necessary investments in the internal grid and interconnectors, in both the gas and electricity sectors. These are indispensable not only to increasing the country's security of supply but also in accommodating more renewable power generation and integration with its neighbours.

From the point of view of Poland's energy interests, it is crucial to diversify, liberalise and integrate with the EU energy markets. Therefore, a priority is the timely completion of the LNG terminal in Świnoujście by mid-2014, as well as the further construction of gas and electricity interconnectors, enlargement storage capacity, and the liberalisation of the domestic gas market. Also, building a competitive energy market for electricity and gas is of major importance as it will be beneficial for all consumers and will reduce the possibility of domestic and foreign companies gaining a monopoly. The prerequisite is to implement the EU's Third Energy Package.<sup>12</sup>

Poland also has a chance to increase its energy security and reduce its dependence on external suppliers by seriously exploring unconventional natural gas fields. Compared with other EU countries, Polish resources seem to be quite promising. According to the U.S. Energy Information Agency, Polish shale gas reserves are estimated at 5.3 trillion cubic metres; however, a recent survey made by the Polish Geological Institute shows a lower calculation.

It is worth mentioning that the public debate about shale gas has not, so far, revealed any serious division in society or between political parties. This is probably because of the high cost of the energy dependency on Russia and the strong will amongst Poles to establish a competitive gas market that eliminates monopolistic practices. The development of shale gas production in Poland would certainly change the gas market, not

---

<sup>9</sup> Ministry of Economy of the Republic of Poland, *Polityka energetyczna Polski do 2030 roku* [Poland's Energy Policy to 2030], Warsaw, 2009, Annex 2.

<sup>10</sup> According to the updated forecast from the Ministry of Economy, in 2030 the electricity mix will be as follows: lignite, 33%; hard coal, 21%; nuclear, 17%; renewables, 17%; natural gas, 10%. Agencja Rynku Energii, *Aktualizacja prognozy zapotrzebowania na paliwa i energię do roku 2030* [Actual forecasted demand for gas and energy to 2030], Warsaw, 2011, [http://www.mg.gov.pl/files/upload/11099/ARE%20MG\\_2011\\_Raport\\_koncowy\\_01\\_09\\_2011.pdf](http://www.mg.gov.pl/files/upload/11099/ARE%20MG_2011_Raport_koncowy_01_09_2011.pdf).

<sup>11</sup> See in detail: J. Ćwiek-Karpowicz, "Poland's Energy Security: between German Nuclear Phase-out and Energy Dependency from Russia", *International Issues & Slovak Foreign Policy Affairs*, vol. 21, no. 1-2, 2012.

<sup>12</sup> See more: A. Gawlikowska-Fyk, "Fragmented Energy Market in the EU," *PISM Bulletin*, no. 118 (451), 11 December 2012, <http://www.pism.pl/publications/bulletin/no-118-451>.

only in Poland but also in Central Europe. Therefore, the Polish experience is being closely observed by the EU and its Member States that also have significant shale gas reserves.

In terms of electricity, Poland has to change its generation mix in order to fulfil environmental objectives. This may also lead to a lowering of dependence on external energy suppliers, associated with Polish plans to build the country's first nuclear power plant. According to the government's plan, by the end of 2013 a final location will be chosen and the contract for construction should be signed. By 2022, the first reactor should be in service.

## Conclusion

Energy cooperation between Germany and Poland currently faces some challenges, mainly those connected to different stances towards climate change and the power generation mix. Both countries have engaged in an energy transition, with Poland guided by the paradigm of "energy security" and Germany guided by "sustainability". Both countries, in that respect and at first glance, build upon a sense of "energy sovereignty" rather than in giving priority to internal market development and "solidarity". But the dynamic of energy flows constitutes the necessity to cooperate, as does internal market development. In order to move forward, a prerequisite is a mutual understanding of these energy policy backgrounds and of the different rationales behind the strategic decisions. Neither country should expect or require the other to take its policy goals, but rather should find a common and mutually accepted solution. Both should engage in discussions with each other, but equally important, they should find out about the other's "red lines" as they work towards the achievement of a necessary compromise. Moreover, cost efficiency is gaining more importance in both countries. This may prove to be the engine of closer cooperation in the achievement of markets of scope and scale. Moreover, the motivation of industrial and technological policies behind new development paths such as shale gas and renewable energy may gain importance. This may also help to open new initiatives to reducing greenhouse gas emissions in a second step, as both paths have an effect on climate change mitigation.

In the electricity sector, both countries, as close neighbours, will have to cooperate and solve mutual problems regarding the integration of markets and issues concerning the security and stability of networks. The first step has already been taken with the signing by transmission system operators (PSE Operator and 50Hertz) of an agreement to effectively reduce unplanned power flows (so called virtual phase shifters, and in the future install real phase shifters). The bottom-up approach, undertaken many years ago, has proved to be fruitful but may still require some assistance from a higher, political level. Moreover, the gas sector illustrates how the relationship has changed and positively developed over the past seven years. The virtual reverse flow on the Yamal pipeline is working, thus enabling the purchase of gas from German contractors even though it still originates in Russia. The long-awaited physical reversal, allowing gas to flow from Germany, is to follow, hopefully, in 2013. PGNiG is active on the German market, as are German companies in Poland.

The most serious consequences for Polish energy companies could be that their actions will bring closer cooperation between Russia and Germany in the oil sector. The further acquisition of German refineries by Russian companies, especially those located close to the Polish border, may lead to the closure of the Druzhba pipeline and to the enlargement of the oil terminal in Rostock and the Rostock–Schwedt pipeline. In that case, the Russian companies would gain a better bargaining position vis-à-vis firms from Poland (Orlen and Lotos) and other EU members.

Closer cooperation between Central European states in the oil sector is needed, first of all due to the environmental risk caused by increasing traffic on the Baltic Sea after the launch of the BPS-2 and Ust-Luga oil terminals. These countries should pay more attention to Caspian oil and to the possibilities of having improved access to these deliveries.

*This paper was prepared within the framework of the PISM-SWP energy dialogue, with the support of the Konrad Adenauer Foundation. Dr. Jarosław Ćwiek-Karpowicz is head of the Research Office at PISM, Dr. Aleksandra Gawlikowska-Fyk is an analyst with PISM, and Dr. Kirsten Westphal is a senior associate in the Research Division at the German Institute for International and Security Affairs (SWP).*