

EUCERS Newsletter

Newsletter of the European Centre for Energy and
Resource Security (EUCERS)

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Introduction

Dear readers and friends of EUCERS,

It is my great pleasure to welcome you to this latest edition of the EUCERS newsletter, in which we present you with two articles.

In the first article, John Mitchell, a senior research fellow at Chatham House, outlines how the Paris agreements of the COP-21 will exacerbate the shift of global oil markets from the Atlantic hemisphere to towards Asia.

In the second article, Mauro Bellmund, a researcher at the University of Copenhagen, develops a scenario for energy security through the German *Energiewende*. I invite the readers to send me your assessment of this scenario and discuss possible consequences for European energy and geo-politics.

Furthermore, the newsletter will inform you about the recent activities at EUCERS, including the latest EUCERS strategy paper on “China’s Expanding Overseas Coal Power Industry.”

Feel free to keep us informed about your research projects and findings as we look to remain at the forefront of new knowledge and innovative ideas. Thank you for your interest in EUCERS and for being part of our community.

Yours faithfully,
Thomas Fröhlich
EUCERS Newsletter Editor

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ARTICLES

Oil after Paris

By John Mitchell

The Paris agreements of December 2015 were a diplomatic triumph. Governments of nearly 200 countries agreed to mitigate climate change with policies determined by themselves individually, and not dictated by any top-down formula. These “intended nationally determined contributions” (INDCs) are clearly articulated in the case of some countries but vague in the case of others. Generally, developed countries intend to reduce the absolute level of emissions from a baseline and developing countries intend to reduce the fossil fuel intensity of their economies. Together the intentions are probably not sufficient to achieve the Agreement’s objective of limiting increases in global average temperatures to below 2°. There is a review process built into the agreement that will put pressure on governments to take tougher measures in future. Clearly, the general trend is to reduce consumption of fossil fuels, but how far and how quickly is uncertain. However, there is no going back.

For the oil industry the post-Paris process comes on top of existing trends already changing the shape of the oil industry and market, and presenting strategic challenges to industry participants, consumers and governments who depend on fossil fuel production and trade.

“Everybody knows” about the surprise expansion of oil and gas production in the United States since 2012. This was due to the application of horizontal drilling and hydraulic fracturing to extensive shale and tight oil resources, which had not previously been developed. Those who follow this situation closely also know that the fall in oil prices since 2014, damped the fracking expansion and presented various challenges to individual companies (mostly financial), but has not eliminated this new and flexible source of supply – moreover it will expand again if oil prices rise. Much of the resilience of the fracking industry in the US is the result of new technology, better management control, and a legacy of drilled but undeveloped wells.

The second big change has been the switch of the centre of gravity of international oil trading from west to east.

John Mitchell is an Associate Fellow at the Chatham House Energy Research Programme. In 2007, he received a lifetime achievement award for research from King Abdullah at the opening of the 3rd OPEC Summit in Riyadh. Prior to joining Chatham House in 1994, John pursued a successful career at British Petroleum.

Twenty years ago some 40% of Middle East production was shipped west to the Atlantic markets of US and Europe. The growth of Asian consumption has turned that around. Since 2012 the Asia-Pacific countries need to import more oil than the Middle East can export. Asian companies are investing in and importing oil from eastern Russia, Central Asia and Africa who have replaced the Middle East as swing producers. The Atlantic basin countries, taken together, are in very broad terms a self-sufficient region: under a wide range of scenarios net imports of the US and Europe are supplied from the Americas, Africa, and the pipeline system of Russia. This is a fundamental change from the position when the Western countries depended on supplies from the Middle East. Now, the Atlantic market is dominated by free trade between private sector companies. There are liquid commodity markets in New York and London, which set prices daily for benchmark crudes.

Things are different east of Suez. Most exports from the Middle East are by state oil companies. Their contracts restrict the resale of these exports and therefore constrain the possibilities of liquid spot markets. The importers in Asia are, in most cases, local companies: although the private sector international companies do have a role it is a small one. The Eastern and Western markets are linked by a hinge of producers who arbitrage one against the other for the best price. There are some physical connections. East Russian and central Asian supplies are linked by pipeline to the Pacific markets, Azerbaijan exports to the Mediterranean. Though prices do arbitrage somewhat between East and West, we effectively have a dual global market separated by geography, market structure, and of course politics. The big question for the future is whether supplies from the Middle East– which now go almost entirely to Asia – will continue to be protected by the U.S. Navy and all that goes with it.

All the numbers are slippery, but the Paris agreements put an extra twist to the challenges already facing the oil industry from the fall in demand in developed countries - mainly in the open markets of the Atlantic- and will suppress growth in developing countries in Asia.

The international private sector companies face stranded assets downstream in Europe and the US and an overall uncertainty about global oil demand and future prices. They, and their shareholders, will question their recent strategies of upstream expansion based on large and difficult projects, which are also large scale and high on the cost curve. For some companies the strategic response may be to focus more on natural gas developments for export. However the “bridge to gas” may be overhyped. The market for gas in power generation in many countries is the residual after government renewables policies have been fulfilled, nuclear plants have been built, and cheap coal imports may continue to have a role. In the next few years the fuel market in the power sector is probably more uncertain than the market in the transport sector where oil will retain a diminished dominance at least until battery technology comes along, supported by cheap power.

The continuing, though softened growth in Pacific markets presents a challenge for the National companies there, and in the Middle East and Central Asia. They need to expand production for Asian markets and also for their own growing consumption. Financing this may be the challenge in an era of probably sloppy oil prices and after a period of high borrowing which has left them with substantial debts either on their own balance sheets or through their government owners.

There are also challenges for the governments of countries where the fossil fuel industries are the principal source of government revenue and foreign exchange earnings. The national transformation plan of Saudi Arabia aims for a radical shift away from dependence on oil exports: it remains to be seen whether it can be achieved in the relatively short time span indicated.

Investors in demand – in the technologies of consumption: vehicles and electricity – also have thinking to do. It will be a few years before they know for certain that the Paris policies will be implemented and how far and fast they will be strengthened.

The German “Energiewende” and its effect on energy security

By Mauro Bellmund

In October 2016, the European Parliament ratified the Paris climate agreement to counter climate change. More and more countries seem to take steps to limit global warming. In Germany, the government initiated the “Energiewende” (energy transition) in the early 2000s, a series of policies that aim to drastically increase the share of renewable energy and to reduce greenhouse gas (GHG) emissions.

In this article I analyse the controversy about the Energiewende and if the Energiewende improves Germany’s energy security. Therefore, I will explore the relation between the German energy security and the dependency on Russian gas.

Energy supply in Germany and energy system

In 1990, renewable energy sources had an almost negligible share of 3% in the German power production. Twenty-five years later, the situation has changed. In 2015, more than 31% of the energy sources used for power production are renewable.

This change in the German energy system is remarkable, because changing an energy system comes with high cost due to strong path dependency.

The political goals of the Energiewende

The three main guidelines for energy security are affordable, guaranteed, and environmentally sustainable energy supply. In the more recent past Germany tried to increase the level of environmentally sustainable energy in the energy mix, without jeopardizing the two other goals.

Energiewende can be understood as transition from fossil energy sources as well as nuclear energy to a sustainable energy supply through renewable energy in Germany. Furthermore, the Energiewende aims to protect the climate and to modernize the national energy infrastructure.

In the framework of the 2010 Energiewende, Germany agreed – among others – on the following aspects: to

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reduce the CO₂-emission of 40% by 2020¹, to exit nuclear energy by 2022 and to increase the use of renewable energy resources for power production to 35% by 2020. These ambitious goals should be reached through the improvement of energy efficiency and the massive expansion of the renewable energy sources.

The decision of the German government to start the Energiewende sparked new controversies. There are a number of opposing opinions whether the Energiewende improves or deteriorates German security.

On the one hand, the Energiewende could lead to a higher degree of security. The substitution of gas in the energy mix by sustainable energy limits the German dependency on the import of Russian gas. Because of the current geopolitical situation, in which tensions between Russia and EU countries are high, this can be seen as an increase in energy security.

Opposing voices fear that the Energiewende will make the German grid increasingly unstable. Volatile energy sources like wind energy and solar power are not able to provide a steady supply of energy. However, power outages did not increase on average over the last years even though the share of renewable energies in the energy mix was increased significantly.

Another concern is that Germany requires a “Smart Grid” to cope with changing energy demands and supply during daytime. Such an online network makes the system more vulnerable to sophisticated cyber-attacks, which might lead to major black-outs, as recently happened in Ukraine.

¹ The base year is 1990.

The relevance of Russian gas for the German energy mix

The majority of EU member states are highly dependent on Russian gas imports. In 2015, Germany imported 35% of its total gas imports from Russia.

A study by the Fraunhofer Institute shows that despite the increasing share of Russian gas, Germany can achieve energy independence by 2030, if the Energiewende is consequently applied. This would have a crucial effect on energy security, as Germany's energy dependence is a problem for energy security in the light of the current tensions in the relationship between Russia and Germany.

Russian gas embargo up to five months

Due to a high dependence on Russian gas, Russia has a powerful leverage over Germany. An embargo of the Russian gas imports imposed through the Russian government would pose immense problems to Europe in general and Germany in particular in the medium-term. In the first three months of an embargo it would not lead to major energy cuts in Germany due to Germany's significant gas reserves. Yet, energy shortfalls in Europe are likely to occur.

Therefore, in the first five months of a Russian gas embargo the impact on German supply security would be significant, yet manageable, due to German gas storage, an increase in the import of LNG from the German neighbouring countries, and a fast boot up of reserve energy power plant capacities. Nevertheless, a strong impact on the financial market is conceivable with consequences for German energy security.

Another consequence of a five months embargo would be the difficulty to refill German reserves, thus resulting in a lower short-term supply security.

It is questionable if Germany is able to compensate the outage of Russian gas – after consuming its energy reserves – if an embargo exceeded a timeframe of six months or longer. Many Eastern EU member states would face serious supply problems after six months of embargo.

Europe's limited scope of action in the bilateral relation with Russia

Europe's scope of action in its international relations is limited by its dependency on Russian gas. A good example is the actions taken by the EU in the Ukrainian crisis.

After the Russian intervention in Ukraine through the annexation of Crimea, the EU imposed a series of sanctions against Russia. The first and second round of EU sanctions in the beginning and end of March 2014 aimed to display European disapproval towards Russian activity in Ukraine. The sanctions affected Russia merely peripherally as warning measures. These sanctions were extended and tightened in the following months to a number of economic sanctions that focussed on Russia's state finances, energy and arms sectors, as a reaction to the intensification of the situation in Ukraine. Most recently, the EU Council prolonged these sanctions until March 2017.

The impact of the latest sanctions was by far bigger than the timid sanctions in the beginning of 2014. In particular, the sanctioning of the energy and finance sector entailed an isolation of Russia from the West and resulted in a slowdown in economic growth.

Stricter sanctions could have reached a Russian turnaround in Ukraine. Yet, this was not an option due to possible Russian counter-actions like an increase in gas prices or a complete gas export stop.

Conclusion

Germany tries to counter climate change with the Energiewende. Over the past 25 years, the share of renewable energy sources for German power production increased from 3% to 31%. In the framework of the Energiewende, Germany not only tries to manage an energy transition from fossil and nuclear energy to a sustainable supply through renewables, but it tries at the same time to modernize the energy infrastructure. Ideally, the Energiewende should achieve its goals without jeopardizing Germany's economic competitiveness and it should lower the energy costs for private households and the industry in the long-term perspective.

With all the above arguments taken into consideration, the advantages of a steady continuation of the Energiewende prevail. The argument that Germany's GHG emissions can be decreased dramatically through the Energiewende is essential. Furthermore, the relation between Energiewende and energy security is essential.

The Energiewende has a crucial effect on Germany's energy security in the middle- and long-term perspective. Given the current geopolitical situation, a potential three-month gas embargo could be stemmed by Germany. However, if an embargo exceeded five months, reserves would exhaust and it is hardly feasible to compensate the lack of Russian gas through the import of expensive LNG. These energy cuts would hit the German economy and have a lasting effect on German energy security. The Energiewende offers a solution to minimize the dependency to an acceptable level, in which Germany can become independent from Russian gas a relatively short period of time.

Such newly-gained independence would extend the German and the European scope of action in the bilateral relation with Russia. The European behaviour in the Ukrainian crisis displayed the limitations of European action in relation with Russia, due to the fear of counter-actions.

There remain two central criticisms of the Energiewende. There are concerns that the Energiewende will lead to an unstable energy grid and to a cost-intensive energy supply – which might jeopardize Germany's economic competitiveness. These concerns are not yet overcome completely and the uneven distribution of the costs for adjustments to the energy infrastructure adds to public distrust of the Energiewende.

However, climate change and strategic considerations might suggest to embrace change. The argument of energy security through independence might be a decisive reason for a modernization of the energy systems in various countries. The Energiewende is one suggestion for exploiting this window of opportunity.

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The views expressed in this Newsletter are strictly those of the authors and do not necessarily reflect those of the European Centre for Energy and Resource Security (EUCERS), its affiliates or King's College London.

EUCERS ON THE ROAD

Our team represents EUCERS at various conferences and events all over the world. This section gives a regular update and overview of conferences and interview contributions by EUCERS Director Professor Dr Friedbert Pflüger, Research Director Dr Frank Umbach and Associate Director Dr Adnan Vatansever, as well as by our Research Associates.

12.10.2016 Seoul, Republic of Korea	Friedbert gave a presentation on the “2017 Oil Prices Outlook” at the World Knowledge Forum.
07.10.2016 Frankenberg, Germany	Frank gave a presentation on “Globale Energiemegatrends versus weltweite Klimaschutzpolitik“ at the Viessmann Dialog Event.
07.10.2016 Meisenheim, Germany	Friedbert gave a speech on “The Implementation of the Paris Agreement in the Energy Industry”.
05.10.2016 Alpendorf, Germany	Friedbert moderated the Viessmann Energy Forum.

PUBLICATIONS

Pflüger, Friedbert, “From Peak Oil to Peak Demand”, in: Business and Diplomacy Magazine.

Umbach, Frank and Ka-ho Yu, “China’s Expanding Overseas Coal Power Industry – New Strategic Opportunities, Commercial Risks and Geopolitical Implications”, EUCERS-Strategy Paper No. 11, August 2016, 64 pp.

Umbach, Frank, “Ankara doesn't want to be dependent on Russia”, an interview by Elmira Tariverdiyeva in: Trend (Azerbaijani news agency) – <http://en.trend.az/business/energy/2671816.html>

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