EUCERS Newsletter

Newsletter of the European Centre for Energy and Resource Security (EUCERS) **Issue 52, March 2016**

Introduction

Dear readers and friends of EUCERS,

It is my great pleasure to welcome you to this edition of the EUCERS newsletter as the new Editor. In the EUCERS newsletter, we want to inform you about the research and activities that are undertaken at the Centre and by its affiliates. We also want the newsletter to serve as a vehicle from which to present research from and incite debate amongst our wider community of academics and professionals.

In this spirit, I am delighted to present you with two articles in this edition. In the first article, Carola Gegenbauer, the EUCERS operations coordinator, sheds light onto the European Union's new sustainable energy security package and on the question whether the supranational focus on natural gas security is a promising strategy. In the second article, Juri Krack, an expert on political economy and renewable energy and currently a Master's student at the University of Tübingen, analyses the failure of Desertec, the large scale energy project that was supposed to supply up to 15 per cent of Europe's energy demand with renewable energy generated in Northern Africa.

Furthermore, the newsletter will inform you about the recent activities at EUCERS, including a report on the event, which marked the publication of Atlantic Council's (ACUS) report on the prospects of Liquified Natural Gas (LNG) trade. We will also include announcements of fellowships at EUCERS, including the well-established KAS-EUCERS fellowship and a new fellowship scheme targeted towards undergraduate students. Please let me know your opinions and ideas about the published texts. I truly am looking forward to an exciting debate.

And feel free to keep us informed about your ongoing research projects and findings as we are always looking to remain at the forefront of new knowledge and innovative ideas.

Thank you so much for your interest in EUCERS and for being part of our community.

Yours faithfully,

Thomas Fröhlich
Newsletter Editor, EUCERS

In this month's edition

ARTICLES

En route to an EU Energy Union?

By Carola Gegenbauer

On 16th of February 2016 the European Commission presented its sustainable energy security package, a step towards realization of the European Energy Union. The energy package aims at improving energy security, while ensuring sustainability and promoting competitiveness, the three goals of EU energy policy. It was proposed by the Commission 2 months after world leaders have adopted the universal agreement on climate change in Paris. The EU has positioned itself at the forefront in the fight against climate change. While energy from renewable resources are not able to supply European households around the clock, fossil fuels remain important to bridge the gap. But high CO2 emissions of fossil fuels make this a challenging task. Coal, with up to 228.6 pounds of CO2 emitted per million Btu, has the highest CO2 emissions of all fossil fuels. Followed by diesel fuel and heating oil (161.3) and Gasoline (157.2). Natural gas is the cleanest of all fossil fuels with 117 pounds of CO2 emitted per million Btu[1] and is therefore of strategic importance for EU's energy policy. This article is looking at the different provisions of the energy security package, especially in relation to gas, and evaluate if the introduced package can strengthen energy security and assist in establishing the European Energy Union.

The security of gas is at the centre of the energy security package. While gas is the most sustainable of fossil fuels, due to its comparatively low CO2 emissions, the two other goals of EU energy policy, competitiveness and security, are more challenging in the case for gas. First of all, due to its form, gas is traditionally supplied via pipelines. This limits suppliers and routes, which can result in a dependency from few suppliers and sometimes even only one supplier, as well as dependency on transit countries. The need for pipelines also allows for large variations in prices. Whereas there is a global index for crude oil prices, gas – although influenced by oil prices – does not have a global price index. In the European Union import dependency is relatively high. Today the EU imports 66% of gas, which makes the EU the biggest importer of natural gas in the world. A third of all gas imports in the EU come from Russia. Especially Member States in east and southeast Europe are largely dependent on Russian gas. Some Member States, like the Baltic States, are so-called energy islands, which means they are a 100% dependent on gas from one supplier, Gazprom. The gas crises in 2006 and 2009 have shown the severity of European gas import dependency.

Carola Gegenbauer is the Operations Coordinator at EUCERS and a PhD candidate at the Centre for Integration Studies at the University of Bonn. Carola's research focuses on the development of a EU energy policy European integration.

Ever since, Member States have made energy policy a shared competence with the Treaty of Lisbon and the Commission has introduced and subsequently developed a strategy for competitive, sustainable and secure energy. Investments in back-up infrastructure were made obligatory and infrastructures to connect member states' energy networks have improved cross-border trade of gas. In the event of supply disruption, the EU implemented rules to secure the gas supply to vulnerable customers and emergency response plans in case of supply disruptions are now obligatory to member states. A gas coordination group has been established to exchange information and define common actions between member states, Commission and the gas industry. The union has also been a supporter in the development of the Southern Gas Corridor, which is to diversify gas supply and develop a route for gas from Azerbaijan. Energy efficiency and the reduction of energy demand has become a priority under the strategy. So has pursuing good relations with EU's external suppliers and transit countries. European energy policy has come a long way since the Commission's green paper on a "European Strategy for Sustainable, Competitive and Secure Energy" in 2006 and the Energy 2020 strategy in 2010. However, stress tests in 2014 showed that Europe is still vulnerable to major gas disruptions. In light of the Russian annexation of Crimea and following political uncertainties, the Commission released a EU

[1] "How much carbon dioxide is produced when different fuels are burned?" U.S. Energy Information Administration, accessible on: https://www.eia.gov/tools/faqs/faq.cfm?id=73&t=11

energy security strategy, specifically targeted at supply from Russia. Some voices have called for even further integration in the energy sector. Donald Tusk, former Prime Minister of Poland, proposed a European Energy Union in an article for the Financial Times in April 2014. The Juncker Commission has taken up this initiative and adopted its strategy for a European Energy Union in February 2015. A new position within the Commission was created. Maroš Šefčovič became the Vice-President of the European Commission in charge of the Energy Union. A year later, in February 2016, the Commission presented the Energy Security Package, with a focus on gas security.

The Commission proposes a supranational approach in security of supply measures by introducing a security of supply regulation. It also addresses the solidarity mechanism in energy, introduced by the Treaty of Lisbon, to counteract gas supply disruptions by offering affected Member States alternative supply routes for gas. Another objective is to ensure intergovernmental agreements in energy are in compliance with EU law, in particular those relevant to EU gas security. As an example serves Germany's current discussion with Russia on a Nord Stream 2 pipeline, critically observed by the Commission. By introducing an ex ante clause the Commission would have more leverage is the decision-making process. The third point of the package concerns Liquefied Natural Gas (LNG). The aim of the LNG and gas storage strategy in the package is to make natural gas available to all Member States from various suppliers at competitive prices. Because of it's liquefied nature; LNG is a global tradable product, as it is not longer dependent on transportation via pipelines. LNG offers access to supply from countries like the Eastern Mediterranean or the US. Due to the shale gas revolution, the US has experienced a strong growth in gas exploration and is looking for new markets to enter. By investing into infrastructure, LNG terminals, the Commission and Vice President Šefčovič aim to make natural gas more accessible, especially in countries that are energy islands, like the Baltic States. The first LNG terminal was opened in Lithuania last year. While Baltic countries used to pay 40-50% more for their gas than for example Germany, since the opening of the LNG terminal, Gazprom has dropped the natural gas price by 20 per cent, without a LNG shipment has even entered Lithuania. The Commission and Šefčovič believe in LNG to be a game changer, as it fulfils the three goals of a sustainable, competitive and secure energy policy. The energy package also targets energy efficiency with a heating and cooling strategy, in the belief that the less energy Member States need, the less dependent will the EU be from external energy suppliers.

The Commission's sustainable energy security package has been criticised for not addressing green technologies sufficiently, focusing too extensively on strengthening gas security instead. While Member States' access to LNG is facilitated in an effort to strengthen security of supply at competitive prices and ultimately complete the internal energy market, the required infrastructure investments oblige the LNG strategy to be a long-term one. More involvement in international agreements in energy can mean the prevention of new infrastructure projects that are not compatible with the Commission's strategy. This could be viewed by Member States as too much involvement of the Commission in national decision-making. In addition, the efforts invested in diversifying away from Russian gas can have further security implications, adding to the already tense relations between the EU and Russia. To ensure energy security, we need a balanced approach to supply diversification, whilst also ensuring a stable environment in relation to energy in Europe and its neighbouring regions.

The Failure of the Desertec Project

By Juri Krack

The global community is unremittingly looking for sustainable energy solutions. One of the largest projects in recent time has been the Desertec Project. Attached with great hopes, Desertec was expected to produce an immense amount of solar and wind power for Europe and the MENA region in the deserts of North Africa and the Middle East. However, the project was discontinued in October 2014 due to a lack of consensus among the stakeholders involved. This article will review the failure of the Desertec Project and its implications.

Juri Krack is a Master's student in European Energy and Climate Politics at the University of Tübingen. Previously, he studied at the University of Passau, the Mid Sweden University, and Tufts University. In 2015, Juri attended COP-21 in Paris as a student delegate.

The MENA region faces major challenges due to ongoing demographic change. The population is expected to grow from 432 million in 2007 to 692 million in 2050.[2] Large cohorts of young people will enter the labor market each year, producing structural and social problems. In light of continuing population growth, demand for fresh water and energy are projected to grow considerably. The water deficit in MENA is expected to grow from 60 billion m³/year to 150 billion m³ in the year 2050. At the same time, electricity consumption in MENA will rise from 1000 TWh/year to around 3000 TWh/year.[3]

First drawn up together with the Trans-Mediterranean Renewable Energy Cooperation network, the Desertec Project was one of the flagship projects of the ongoing EU-MENA cooperation. An international network of politicians, academics and economists were the driving force behind Desertec. The Desertec Foundation, established in 2009, then translated the idea into a concrete policy framework. A few months later, the Desertec Foundation and 12 European companies created the Desertec Industrial Initiative (DII).[4] The DII would cover the investment costs of the ambitious project and set up the framework conditions between the stakeholders of the project.

The basic idea behind Desertec was to install a network of solar power systems and wind farms in the Saharan desert of Tunisia, Morocco, Algeria, Libya and Egypt. The Sahara receives 15-30 % more of solar radiation per square meter than southern Europe.[5] A large number of Concentrated Solar Power systems (CSP), photovoltaic facilities (PV), and wind plants was planned to meet 15% of Europe's electricity needs by 2050.[6] The supply of electricity was to be guaranteed by the construction of high-voltage direct current lines (HVDC) to Europe.

Different political and economic interests

However, the focus of the project on exporting electricity to Europe should be considered questionable. In the near future, energy needs in sub-Saharan Africa will be more pressing than in Europe. It is assumed that the total energy demand in sub-Saharan Africa will almost double in 2040 compared to present levels. In addition, by having enough fluctuating sources of renewable energy itself, the EU needs a reliable base load in its grid system, which at this point is ensured by conventional power plants. Therefore, it would hardly make any sense to export wind or PV generated electricity from North Africa, as long as it is impossible to store this electricity. A further problem would result from the fact, that the HVDC transmission lines are costly and still suffer significant efficiency losses in the grid. The power loss per 1,000 km amounts to 3 to 4 per

[2] **Roudi-Fahimi, F. and Kent M.** (2007). Challenges and Opportunities--the Population of the Middle East and North Africa, Population Reference Bureau.

[3] **Knies, G.** (2009). Clean Power from Deserts–The Desertec Concept for Energy, Water and Climate Security, Whitebook 4th Ed., DESERTEC Foundation, Hamburg, 2009.

[4] **Lilliestam, J. and S. Ellenbeck** (2011). "Energy security and renewable electricity trade—Will Desertec make Europe vulnerable to the "energy weapon"?" Energy Policy **39**(6): 3380-3391.

[5] **Erdle, S.** (2010). "The DESERTEC Initiative: Powering the development perspectives of Southern Mediterranean countries?".

[6] **DLR, Deutsches Zentrum für Luft- und Raumfahrt** (2013). "Desertec: Solarstrom aus der Wüste."

cent.[7] The distance between Hamburg and Tunisia would be more than 3,000 kilometers, leading to an overall loss of around 10 percent. As a result, one of the main technical challenges of Desertec would have been the grid feed-in into the European grid system.

From a policy-perspective it became certain that the European and North African governments pursued different economic and political interests in the project. As one of the key drivers at the European level, Germany had declared goals to promote sustainable energy in its development policy. The country was particularly well positioned to contribute to the project and based the office of the DII in Munich. In contrast, France favored the export of nuclear energy to the North African Region rather than supporting Desertec.[8]

In North Africa, Morocco, Tunisia and Egypt all had a strong interest in implementing Desertec. Morocco and Tunisia are resource-poor countries, which have to import electricity from abroad.[9] The countries regarded the project as an opportunity to attract investment in its renewable energy sector, allowing them to meet their growing power demand in the future. Contrary to Morocco and Tunisia, Algeria and Libya gain a substantial amount of their GDP from oil and gas exports. Therefore, they are not dependent on energy imports and did not support Desertec to the same extent.[10]

The bigger the better?

The total cost of the Desertec project was estimated at € 400 billion, of which up to 15% would be necessary for the HVDC transport infrastructure.[11] Private investors of the DII would have been responsible for most of the funding, over-burdening the DII. Higher financial contributions from states or multilateral financing institutions would have been necessary.

From the outset, the Desertec project was framed as a project, which would supply energy to Europe and deal with the problem of climate change. Local and humanitarian aspects only played a minor role. Reaching a consensus between stakeholders in such a megaproject is extremely challenging. In the case of Desertec, the stakeholders formed a diverse group of transnational companies, governments, NGO's, small investors and firms as well as the local population. The problem of disunity was compound by the absence of leading actors and thus led to the lack of progress in the Desertec project.

Access to finance is crucial

Access to funding is the most important aspect for renewable energy projects, especially when projects are built in countries with lower public and private funding capacity. Development banks are an actor that could compensate for the lack of such funding sources, but often require complex and extensive application procedures. Unlike large-scale projects, small projects offer the advantage of simpler and quicker application processes for funding. In the end, the enormous scale of Desertec made it impossible to secure the required $400bn in long-term financing.[12]

There are numerous funding schemes from development banks, which are designed to fund projects in renewable energy sources. For example, EU projects in developing countries are eligible for funding from the Multilateral Investment Guarantee Agency and the European Project Bond Initiative.

The example of the Quarzazate CSP plant in Morocco shows how multilateral funding from different sources is possible. Financed by a consortium comprising the

[7] **Sören, S**. (2009). "Desertec: Wirtschafliche Dynamik und politische Stabilität durch Solarkraft." GIGA Focus Nr. 11 2009.

[8] **Erdle, S.** (2010). "The DESERTEC Initiative: Powering the development perspectives of Southern Mediterranean countries?".

[9] **Klawitter, J**. (2010). Towards a sustainability framework for the desertec concept, University of Applied Sciences.

[10] **Lilliestam, J. and S. Ellenbeck** (2011). "Energy security and renewable electricity trade—Will Desertec make Europe vulnerable to the "energy weapon"?" Energy Policy **39**(6): 3380-3391.

[11] **Erdle, S.** (2010). "The DESERTEC Initiative: Powering the development perspectives of Southern Mediterranean countries?".

[12] **DII, Desertec Industrial Initiative** (2013). "Desert Power: Getting started."

World Bank, the EIB, the ADB, national development banks and private investors, the project will be the largest CSP plant in the world.[13]

Having a clear idea of future requirements of the energy system is important, especially in the context of expanding the deployment of renewable energies. In the case of Desertec, the strong focus on electricity exports from the MENA-region to Europe without taking into consideration the diverse local interests was a mistake. Instead of planning large-scale projects, a focus on projects on the regional level is often the key to a successful implementation. The smaller size of the project reduces the number of stakeholders and thus its complexity. Furthermore, a bottom up approach offers the opportunity to integrate local businesses and thereby increase the acceptance of the project in the local population. The EU and its member states should work to set clear project structures for future projects and focus on smaller, local projects instead of supporting risky megaprojects.

DISCLAIMER

[13] **Pariente-David, S.** (2013). "Quarzazate I CSP project." World Bank.

ACTIVITIES

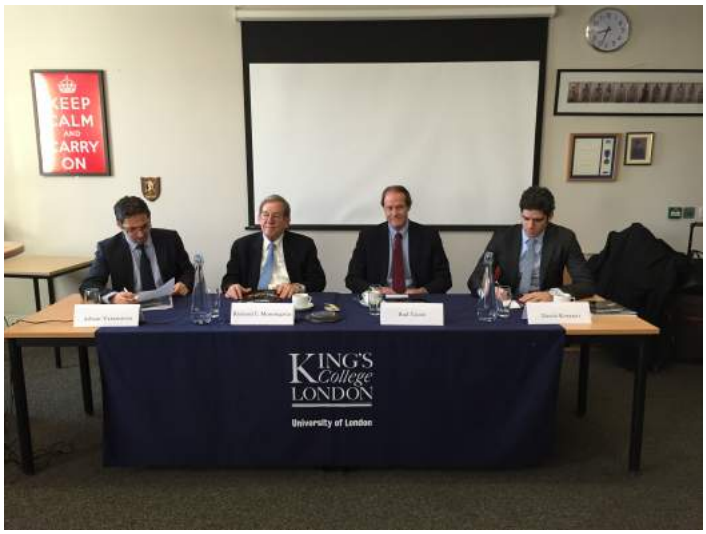
EUCERS Event to mark launch of ACUS report on LNG

On 25. February 2016, EUCERS welcomed the Atlantic Council (ACUS) at King's College London for an event marking the launch of the new ACUS report on "Surging Liquefied Natural Gas Trade". Author Bud Coote, Senior Fellow at the Global Energy Center at the Atlantic Council and former international energy analyst at the CIA, presented his report on LNG followed by comments from Ambassador Richard L Morningstar, Founding Director of ACUS' Global Energy Center and David Koranyi, Director of the Eurasian Energy Futures Initiative, Atlantic Council. The discussion was chaired by EUCERS' Associate Director, Dr Adnan Vatansever.

In his report, Bud Coote focuses on how US Exports of LNG will benefit European and global gas supply. Mr Coote's presentation started with an overview on the development of LNG, the strong growth in the last decade and the future market potential. The first developments of LNG were caused by a shortage in US gas supply about ten years ago. Now the recent shale gas revolution has triggered a new wave of investment for LNG and former import terminals in the US had to be transferred into export terminals. Mr Coote explained that LNG, in contrast to natural gas that needs to be transported via pipelines, can be traded international. World production of LNG has grown to 333 bcm in 2014, which accounted for one-third of all traded gas.

Mr Coote than moved on to ask whether the increased US production of LNG find sufficient markets. Natural gas prices have reached record heights in the European and Asian markets in the last decade but oil and gas prices have dramatically declined since 2014 and the IEA has also predicted growth of demand to slow down. However, natural gas –the cleanest fossil fuel – is still in demand and LNG could assist in diversification efforts and improve competition, especially in Europe. For Europe, LNG could mean increased independence from one dominant supplier, Russia. Baltic countries used to pay 40-50% more for their gas than for example Germany. Since the opening of the first LNG terminal in Lithuania this has changed, without a shipment of LNG has even entered Lithuania. The pure possibility already changed the geopolitics of energy.

Another point Mr Coote made is the lack of competition in global LNG markets. Australia is the US' biggest competitor. LNG from the Eastern Mediterranean and East Africa is potentially entering the world market, but in smaller quantities. Mr Coote also mentioned the potential of the Chinese market and how the uncertainty in China's negotiations with Russia about natural gas supply could work in favour for US LNG exports.



Mr Coote's presentation was followed by a comment by Ambassador Morningstar, who elaborated further on what LNG from the US could mean for Europe. More competition in the market and the entrance of new suppliers could give Europe more bargaining power in negotiating with existing suppliers, like Russia. And more suppliers of gas will also bring more price stability into the very volatile gas market. Mr Koranyi followed Ambassador Morningstar and commented on the EU energy security package, which was released the week before our discussion. Mr Koranyi focused on the provision on LNG, which recognizes the enormous potential of LNG for the European market. LNG would be an opportunity for the EU to complete internal energy market and for the US the European market has a high potential, with an annual natural gas demand of 200 bcm of all 28 Member States.

The following discussion with the audience, students, academics, energy industry experts, media representatives and the general interested public, raised points on LNG in general but also the growth potential for other markets such as India, where coal dominates the energy mix. Which lead to the question on environmental costs of

cheap energy and a discussion on the "real" costs of energy. Because natural gas is the cleanest fossil fuel, together with the potential of LNG to be sourced from multiple suppliers and therefore increase competition and energy security, LNG has the potential to contribute to the three goals of the EU's energy policy: Secure, competitive and sustainable energy.

The event can be viewed in full length on our YouTube channel www.youtube.com/eucers

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ANNOUNCEMENTS

EUCERS Strategy Paper

We are delighted to announce the publication of EUCERS Strategy Paper No.8. Our KAS Fellow at EUCERS 2014/15, Flavio Lira, has written his study on Brazil's hydrocarbon sector. The study called "Drilling southwards: presenting Brazil's hydrocarbon scenario in light of its growing E&P operations" is now available for download from our website on www.eucers.eu.

KAS Fellowship 2016-17

We are delighted to announce that EUCERS will be running the KAS Fellowship in Energy Security again in 2016-17.

EUCERS Undergraduate Fellowship

King's Undergraduate Fellow at EUCERS gives undergraduate students the unique opportunity to work with EUCERS. Find out more here http://www.kcl.ac.uk/campuslife/ke/ug-rfs/Student/Student-Home.aspx

2nd EUCERS/ISD/KAS Energy Talk on the Future of Oil Prices – How low, how long?

Join us on 20th of April from 12-14.00 with a reception afterwards. RSVP to carola.gegenbauer@kcl.ac.uk

EUCERS Executive Energy Seminar 2016 - Save the Date

EUCERS will be hosting the EUCERS Executive Energy Seminar for the fifth time in 2016. The one-week programme will take from 23.-27. May 2016. Please visit www.eucers.eu and navigate to the Executive Seminar page for more information on the programme and the application procedure.

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.

18.03.2016 Rome, Italy	Fran gave a presentation on "Emerging Threats and Cyber Security Challenges in the Maritime Sector" at the European Cooperation Network on Critical Infrastructure Protection (EUCONCIP) Training Workshop in Rome.
17.03.2016 Rome, Italy	Frank gave a presentation on "Cyber Security Policy for the Energy Sector. Cyber Resilience versus Cyber Security?" at the European Cooperation Network on Critical Infrastructure Protection (EUCONCIP) Training Workshop in Rome.
10.3.2016 Baku, Azerbaijan	Friedbert moderated the panel on "The Future of Energy, the Future of Global Governance?" at the 4th Global Baku Forum.
29.02.2016 – 08.03.2016 Singapore	Frank was an invited participant (as one of two European experts) at the "International Wikisense (Online) Exercise 2016" on Singapore's national security issues on the topic "Energy Security" of the Singapore government, organised by the Centre of Excellence for National Security (CENS) of the S. Rajaratnam School of International Studies (RSIS) at Nanyang Technological University Singapore, together with the National Security Coordinating Secretariat (NSCS) in the Prime Minister's Office, Singapore.
25.2.2016 Berlin, Germany	Friedbert gave a presentation on "The Future of European Energy Supply – Geopolitical and economic perspectives" for Fluxy's.
16.02.2016 Astana, Kazakhstan	Frank was a Presenter and Panelist at the panel discussion "Geostrategic Challenges of Energy Security" at the Nazarbaev-University, Konrad-Adenauer Foundation (Astana/Kazakhstan) in Astana.
16.02.2016 Astana, Kazakhstan	Frank gave a Presentation on "Strategic Perspectives for Bilateral Energy Cooperation between the EU and Kazakhstan - Geo-economic and Geopolitical Dimensions in Competition with Russia's and China's Central Asia Policies" at the Nazarbaev-University, Konrad-Adenauer Foundation (Astana/Kazakhstan) in Astana.
11.02.2016 Berlin, Germany	Friedbert spoke at a conference organised by the Energy and Resource Policy Committee of the Bavarian Economic Advisory Council on "Germany's Energy Policy – An External View".
11.02.2016 Jerusalem, Israel	Frank gave a Presentation on "Changing Geopolitical Situation: EU-Ukraine-Russia and the Impact on European Energy Security" at the international Conference "Geopolitics and Energy in the Middle East and Eastern Mediterranean: Current Dynamics & Future Prospects", KAS, USAK, Truman Institute and Basskent University, in Jerusalem/Israel.
30.01.2016 Edinburgh, UK	Frank gave a presentation on "The North Sea and the Future of Oil – Global Impacts on UK, Scotland and Norway", EUCERS-KAS workshop in Edinburgh.
25.01.2016 London, UK	Frank participated in the EUCERS's Expert Workshop "Options for Gas Supply Diversification for the EU and Germany in the Next Two Decades", EUCERS/King's College London.

PUBLICATIONS

Umbach, Frank and Slawomir Raszewski, "Strategic Perspectives for Bilateral Energy Cooperation between the EU and Kazakhstan - Geo-economic and Geopolitical Dimensions in Competition with Russia and China's Central Asia Policies", Konrad-Adenauer-Foundation/EUCERS, Berlin-Astana, EUCERS-Strategy Paper No.8, February 2016, 68 pp.

Frank gave an interview on closing and mothballing Germany's most modern gas power plants and the challenges to ensure conventional back-up and base-load capacity for its renewable expansion in: Joshua Posaner, 'German Mothballing Dispute Heading to Court', Interfaxenergy.com-Natural Gas Daily 2016, p. 3.

SOCIAL MEDIA

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If you have found our Newsletter interesting, wish to hear more about our activities, or, indeed, contribute with ideas or essays, please contact Carola Gegenbauer, Operations Coordinator EUCERS on carola.gegenbauer@kcl.ac.uk or call 020 7848 1912.

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