EUCERS ENERGY TALKS 4

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Preface

In 2015, the European Centre for Energy and Resource Security (EUCERS) together with the Institute for Strategic Dialogue (ISD) and the Konrad Adenauer Foundation (KAS) in London hosted an energy talks series for the fourth year in a row at King's College London.

After the successful cooperation and organisation in 2014, the three partners decided to set a focus on emerging and re-emerging energy superpowers in 2015. Four distinct workshop topics within the overall headline were chosen, to look at different countries, which either used to be significant players and are re-emerging on global energy markets like Iran or Iraq, or are emerging onto global markets as potential superpowers due to developments, such as Kazakhstan or Brazil.

Again, as in the previous years, the ambition was to bring together policy makers, industry experts and academics with an audience made up of policy makers, representatives from the industry, academia and media as well as students and the general interested public and to offer a platform for discussion.

We are delighted to present the results of the four energy talks 2015 in the following report and would like to thank our partners the Institute for Strategic Dialogue and the Konrad Adenauer Foundation in London. Most of all we would like to thank Hans-Hartwig Blomeier, Director of the KAS office in London and his team for their contribution and support in organising the energy talks series 2015. We would also like to thank our KAS Fellows Kalina Damianova and Flávio Lira for their dedicated help with the energy talks series.

Kalina and Flavio have worked tremendously in organising the workshop series, filming the events and editing video material (which can be viewed on EUCERS YouTube channel) as well as summarizing and analysing the findings for this report. Both fellows have also written studies on the topic of (re-) emerging energy superpowers during their year as KAS Fellows at EUCERS. Whereby Kalina focused on the case of Iran as an re-emerging energy superpower and Flávio on the case of Brazil as emerging energy superpower. Both studies are jointly published with the Konrad Adenauer Foundation in the EUCERS Strategy Paper Series and can be downloaded from our website.

I hope you will enjoy the report.

Carola Gegenbauer, Operations Coordinator, EUCERS

Introduction

Current changes and challenges in the international political landscape have caused major shifts in global energy flows and have affected European energy policy. Countries that are traditionally energy importers, such as the U.S. due to the shale revolution, are turning into energy exporters.

Traditional exporters such as producers in the Middle East, on the other hand, are becoming increasingly important oil consumers. By the early 2030s, China will become the world's largest oil-consuming country according to the World Energy Outlook (WEO) 2014 and India, Southeast Asia, the Middle East and sub-Saharan Africa will take over as engines for global energy demand growth.

The WEO 2014 expects the current political turmoil in parts of the Middle East, which remains the only large source of low-cost oil, to put the global energy system in danger of falling short of expectations. Traditional energy superpowers now face competition from new major producers and re-emerging energy players due to international political developments, new energy technologies and discoveries.

In addition, falling oil prices from a peak of more than $125 per barrel in early 2012 to below $50 per barrel in January 2015 have severe economic consequences for existing energy superpowers whose public sectors are dependent on oil revenues.

The EUCERS/ISD/KAS Energy Talks 2015 have examined the role of emerging and re-emerging energy superpowers and the interplay with existing superpowers on markets, particularly the European ones. Energy superpowers can be defined as countries with proven reserves and production and consumption levels significant to global markets.

The partners therefore set a focus on Iran, Brazil, Kazakhstan and Iraq. The workshop series took place at King's College London and featured four separate panel discussions on distinct aspects of emerging and re-emerging energy superpowers and the consequences for European markets.

The aim was to inform the public, politicians, academics, and practitioners about emerging trends in this field by engaging them in a series of thought-provoking discussions. We adopted a broad approach to this workshop series, involving all relevant stakeholders in a neutral and non-partisan environment.

These talks operated based on a 'roundtable' format with Professor Dr Friedbert Pflüger, Director of EUCERS, chairing the discussion among the speakers. The speakers were allotted five to ten minutes to make their opening remarks.

Following this, sufficient time was left to questions and comments from the audience, underscoring the purpose of this series – to engage in discussion, inform, and promote innovative thinking among our participants. The EUCERS/ISD/KAS Energy Talks 2015 welcomed an average of 50 people per session in the audience.

In the following we will discuss and summarize the findings of each roundtable discussion and outline the consequences for energy security and energy policy in Europe.

Kalina Damianova

Flavio Lira

EUCERS/ISD/KAS Energy Talk 1 – Iran as Re-emerging Energy Superpower

On 24th of February 2015, at the War Studies Department of King's College London, the European Centre for Energy Resource Security (EUCERS), together with the Institute for Strategic Dialogue and the Konrad Adenauer Foundation (KAS) in London hosted the first roundtable discussion - "Iran as a Re-Emerging Energy Superpower: Obstacle, Opportunities, Impact" - of the 2015 Energy Talk Series on "(Re-) Emerging Energy Superpowers''.

Professor Dr Friedbert Pflüger, Director of EUCERS and chair of the discussion, opened the debate, emphasising the enormous energy wealth of Iran, making it a remarkably interesting topic to begin the 2015 EUCERS/ISD/KAS Energy Talks on ''Re-Emerging Energy Superpowers''. The series also envisages discussions on Kazakhstan, Brazil and Iraq.. In relation to the event on Iraq, Professor Pflüger mentioned EUCERS cooperation with the EU-Iraq Energy Centre. He also announced a new EUCERS' project on Kazakhstan and the EU, conducted jointly with the Nazarbayev University and supported by the KAS.

Due to various internal and international factors, the world's 4th largest crude oil and 2nd largest natural gas reserves holder and geo-strategically located Iran, has failed to successfully exercise its energy potential domestically and internationally. However, in case of lifting of the international sanctions imposed on Iran due to its not transparent nuclear programme, the eventually re-integrated Iran into the energy markets, if not in the short, but in the longer term will have crucial economic and geostrategic implications for Europe and internationally. In this regard, Professor Pflüger expressed positive hopes that the Iranian President Hassan Rouhani's government was orientated towards reaching a final nuclear deal. The EUCERS' Director concluded with posing

to the panel the key pending questions regarding Iran: What is expected from the International Nuclear Negotiations? And: What will the implications of a re-integrated Iran in the global energy markets be for Europe and internationally?

Mr Alistair Burt MP and former Parliamentary Under Secretary of State at the Foreign and Commonwealth Office (FCO) responsible for FCO policy on the Middle East began his statement by acknowledging that after suffering many cataclysms in their long history, the UK-Iran relations were now in tasting phase and had to undergo a gradual healing process. Later in the discussion, he reiterated that the UK was looking forward to having positive outcome of the nuclear talks and seeing a re-emerged Iran, playing a key role for the stability in the Middle East.

In this regard, Mr Burt addressed the issue concerning Iran's identity, questioning whether Iran would emerge as a power taking part in a structured world of rights and responsibilities or it would remain a regime exercising its influence being a counterpole to that structure. According to Mr Burt the greater identity question is a debatable issue within Iran, determinative for the outcome of the nuclear talks, the realisation of Iran's energy potential and the improvement of its overall economy. Given Iran's controversial position in the Middle

East, its future role in the region was another matter Mr Burt questioned. Being aware of the complexity of the leadership in Iran, also in many ways highly democratic, because many people were taking part in the internal debates, he reiterated that important was Iran's final decision on how it would use its influence in the region and internationally.

Finally, Mr Burt outlined another debatable issue concerning what other powers, such as the US or Saudi Arabia were expecting from a re-emerged Iran and what impact it would have on some of the regional balances, leaving the questions open to interpretation.

Professor Jonathan Stern, Chairman and Senior Research Fellow at the Natural Gas Programme, Oxford Institute for Energy Studies, took the case of the Iranian gas exports, basing his arguments on Ms Elham Hassanzadeh's book Iran's Natural Gas Industry in the Post-Revolutionary Period Optimism, Scepticism, and Potential. Although there has been a massive increase in Iran's gas production, the even faster rise of its domestic demand and the effect that the subsidies have on lowering the gas prices make Iran unable to export any significant amount of gas at least until 2030.

Additionally, as pointed out in Ms Hassanzadeh's book, the domestic elites had strong economic grounds to oppose gas exports, since the natural gas usage for reinjection into oil fields and for the petrochemical development produced the biggest economic return from gas to the state. According to Professor Stern even if the sanctions are lifted, the domestic issues resolved and significant foreign investments made, it will still take 20 years for Iran to emerge as a major gas exporter.

Within 10 to 15 years Iran most probably will export modest amounts of natural gas to its neighbourhood, with Iraq and Pakistan being the most realistic destinations. Although Professor Stern remains sceptical about the gas exports, he envisages the Iranian oil exports to have a greater impact to the

energy markets, since the lifting of the sanctions will have an immediate effect on Iran's oil sector.

Dr Frank Umbach, Research Director, EUCERS, King's College London, voiced similar to Professor Stern concerns about Iran's gas exports, highlighting that due to domestic gas shortage Iran might not even be able to fulfil its plans to export to Iraq and Oman, particularly during the winter times.

Additionally, he stressed that if there were lifting of the sanctions, it would be a gradual process, which would not have immediate effect on the gas exports. However, even in case of fast sanctions alleviation, he envisaged that with the remaining domestic challenges it would take approximately 5 years to have larger Iranian gas exports.

Regarding the pro and against gas exports debate within Iran, Dr Umbach stressed that although in Iran there were some interested parties, the exports should not be overestimated at least on the short to midterm. Comparing the internal discussion to the one taking place in the US, he explained that in Iran it encompasses different school of thoughts and added that the complexity of the matter was not entirely transparent to the public. In terms of oil, Dr Umbach was not very optimistic either, arguing that in the worldwide oil competition the energy efficiency, absent in Iran, was becoming an increasingly important factor. Furthermore, he suggested that the oil prices decline would

negatively affect Iran's oil sector, as the Iranian oil exports had already decreased.

Mr David Jalilvand, a PhD candidate at the Berlin Centre for Caspian Region Studies, researching energy and political economy of Iran, confirmed the previous speakers' statements that Iran benefits of domestic gas allocation. However, he added that exporting gas might have strategic advantage for Iran, as it created stronger relations with its customers, making gas exports a more attractive idea to the foreign policy makers in Iran.

He further mentioned that the Iranian energy industry would also benefit from the higher and stable income from the foreign consumers, contrasting to the lower and delayed payments of the domestic ones. Concerning the oil prices drop, he suggested that since the share of oil and gas revenues in the Iranian budget was about 30% and it would be decreased to about 20% in the next budget starting from March the 21st, the difficulties stemming from the prices are considerable but should not be overestimated at the same time.

Moreover, he hinted that the new budget would be based on an oil price of $72 and some non-tax paying semi-governmental companies would now have to pay their share of taxes. To the comment made by Mr Duero on the importance of the increasing Iran's exports of natural gas in the form of electricity, Mr Jalilvand added that Iran had also increased its petrochemical exports, thus improving the balance of its non-oil trade. Mr Jalilvand agreed with the panel that in the upcoming years no major volumes of export were expected, except small ones to Iraq and perhaps Oman and Pakistan.

Ms Kalina K. Damianova, KAS Fellow at EUCERS, conducting a study on Iran as a re-emerging energy superpower, added that the degree of competitiveness of the expected new Iranian oil contracts also gained key significance.

Given Iran's historically inherited reluctance to grant foreign companies access to its energy sector, the extent to which the new legal terms will be satisfactory to the international private sector is determinative for the attraction of the international oil companies in the crucially needing modernisation Iranian energy sector, whose improvement is a key step to any future exports.

As other challenges remained on the domestic level, Ms Damianova added that the sable and transparent implementation of the expected legal reform would actually mark the substantial improvement of the business environment.

She hinted that the possible deepening of the EU-Iran energy relations, might also suggest political and security implications for Europe. Since Iran has been recently discussed as an ascending power, Ms Damianova stressed that power should also entail responsibility and concluded questioning how this responsibility would effectively contribute to the stability and security.

Due to technical and political obstacles, reaching and developing Iran's full energy and export potential might take decades. However, with regard to the encouraging signs of potential reconciliation between Iran and the international community, the 2015 EUCERS/ISD/KAS workshop on Iran discussed the obstacles facing the current situation and the opportunities that might arise in the future, in order to help predicting the geostrategic impacts for Europe.

The roundtable discussion was followed by Q&A, initiating a vivid debate between the panel and the participants counting to more than 60 people - representatives of the government, the private sector and the academia. The full video coverage from the event can be found on our YouTube Channel. The provided reception afterwards, allowed the debate to continue over some wine and aperitifs.

EUCERS/ISD/KAS Energy Talk 2 – Kazakhstan as Emerging Energy Superpower

On 20th of April 2015, at the River Room at King's College London (KCL), the European Centre for Energy and Resource Security (EUCERS), together with the Institute for Strategic Dialogue and the Konrad Adenauer Foundation (KAS) in London, organized the second event of the "EUCERS/ISD/KAS Energy Talks 2015" on "Kazakhstan as an Emerging Energy Superpower", followed by a panel discussion organised together with the Nazarbayev University and KAS Kazakhstan on EU-Kazakh Relations.

Professor Dr Friedbert Pflüger, Director of EUCERS and chair of the discussion, opened the debate highlighting the importance of Kazakhstan as an emerging energy actor due to its natural reserves of hydrocarbon and its geographical position.

He thanked ISD, KAS London and KAS Kazakhstan and also emphasised the importance of the partnership between EUCERS and Nazarbayev University and mentioned future plans of EUCERS, Nazarbayev University and KAS Kazakhstan on establishing a joint energy competence centre based in Astana.

Kazakhstan has a great potential as an emerging energy superpower. The country's large oil reserves at 30 billion barrels (the world's 12th largest), together with important natural gas and coal production form an important part of Kazakhstan's energy mix, although plans to increase the renewable sector and greener energy production are being developed and carried out. This rationale underlined most of the workshop and seminar discussions throughout the day.

Mr Hans-Hartwig Blomeier, Director of the Konrad Adenauer Foundation (KAS) in London stressed the importance of the EUCERS/KAS partnership, as well as the EUCERS/ISD/KAS Energy Talks series, as a way to have a relevant analysis of energetically important regions in the world that are usually not in the spotlight (but should). He has also stressed that these kinds of studies and discussions have an important link to European energy security and are not isolated from global dynamics.

Dr Kanat A. Baigarin, Vice President of the Nazarbayev University and General Director of Research and Innovation System at the NU, praised the cooperation between EUCERS and Nazarbayev University and the future prospects of collaboration.

Mr Federico Tarantini, International Relations Officer at the DG Energy in the European Commission, highlighted Kazakhstan's status as a frontrunner in the region not only concerning its energy scenario but also its handling of the market environment. According to Mr Tarantini, Kazakhstan ranks 12th in the world when it comes to oil reserves

and 18th in gas reserves, as well as the world's biggest producer of uranium, accounting for 20% of the EU demand for the metal.

The country also relies heavily on coal for domestic power generation and Mr Tarantini spoke about the potential for solar and wind generation in the country. He also highlighted the Memorandum of Understanding signed between the EU and Kazakhstan in 2006, which deals with modernisation of infrastructure and harmonisation in several areas of bilateral relations, such as market conversion and regulatory approximations.

This document was a starting point for the more institutionalised framework of EU-Kazakhstan relations and has borne important fruits since then, relevant examples being the Baku Initiative under the INOGATE Programme. Dr Frank Umbach, Research Director at EUCERS, stressed the geographical characteristics of Kazakhstan, which make it prone to challenges, since it is landlocked and very dependent on pipelines for its energy transportation. Dr Umbach also mentioned how the country is not only a great oil producer but also a transit country for natural gas from Turkmenistan and Uzbekistan. The estimated production of 1.7 million barrels per day in 2014 is noteworthy, particularly in light of the development of the Tengiz, Karachaganak and Kashagan fields.

Mr Amos R. Helms, Director of the Konrad Adenauer Foundation in Kazakhstan, mentioned the importance of this encounter and how Kazakhstan must be taken in consideration as a growing power and an energy actor. He also expressed his appreciation of a productive meeting jointly organised by EUCERS, ISD and both KAS offices in Astana and London.

Ms Aktoty Aitzhanova, chairperson at the JSC National Analytical Centre of Nazarbayev University, talked about the prospects for energy in Kazakhstan, particularly in the oil sector, presenting both conservative and innovative government strategies for this production and their impact on national economy and fiscal balance.

Ms Aitzhanova presented the history of oil production in Kazakhstan (from 0.6 million barrels a day at independence to the current 1.7 million barrels a day). According to some projections this amount can double in twenty

years and keep growing, which might result in rapid depletion of oil reserves.

This may have negative impacts in the country's trade balance and export capacity due to falling oil revenues in the medium term. Economic diversification is thus important for the country and oil revenues might be transferred to projects via different routes of investments.

Mr Yerbol Akhmetbekov, Head of Laboratory of Energy, Ecology and Climate at Nazarbayev University, discussed the topic of non-efficient Kazakh energy management. This can be attributed to the harsh geographical and climate conditions in the country, a large territory with scarce population density, which impacts negatively on transport procedures, leading to significant heat and electricity loss.

Measurements are still not well applied (metering and statistical) and remaining Soviet technological stock is outdated. The metal industry is also very consuming and drains much of the energy produced in the country. Ms Aura Sabadus, EUCERS Research Associate and Senior Reporter at ICIS, stressed the links between the Kazakh government and international investors since Kazakhstan's independence and how the country is committed to participating in peaceful world dynamics, as exemplified by the dismantling of its nuclear capabilities in exchange for continued Western investments.

Ms Sabadus mentioned how intertwined the European Union and Kazakhstan are, since the former is now Kazakhstan's main trading partner.

She also highlighted that both the country's political-economic elite and international investors must realise world dynamics in Central Asia have changed significantly since the end of the Cold War and the (re-) definition of Kazakhstan's relations with the world must be taken up in a constructive manner.

Adiya Belgibayeva, PhD candidate in

Economics at Birkbeck University, as well as a Weidenfeld Scholar alumna of the Institute for Strategic Dialogue, discussed Kazakhstan's potential to become a country of transition between the EU and Eastern Asia.

One important obstacle for the country's integration with world markets and dynamics is its heavy dependence on oil exports, whose share is still growing in the country's overall foreign trade.

Kazakhstan mainly imports goods from the Eurasian Economic Union and not from the European Union, although the latter is the main investor in the country (comprising 50% of its FDI).

The bulk of this investment, however, is still in the hydrocarbon sector, although Kazakhstan is in strong need of infrastructure and institutional development if it is to become an important player in trade and energy both in the region and worldwide.

The roundtable discussion was followed by a Q&A session with academics, government personnel, representatives from the industry and the media. The video coverage of our event can be found on our YouTube Channel.

EUCERS/ISD/KAS Energy Talk 3 – Brazil as Emerging Energy Superpower

On 15th of July 2015 at the Council Room at King's College London (KCL), the European Centre for Energy and Resource Security (EUCERS), together with the Institute for Strategic Dialogue and the Konrad Adenauer Foundation (KAS) in London, organised the third event of the "EUCERS/ISD/KAS Energy Talks 2015" on "Brazil as an Emerging Energy Superpower".

Professor Dr Friedbert Pflüger, Director of EUCERS and chair of the discussion, opened the debate highlighting the relevance of Brazil as an emerging energy superpower due to its successful management of renewables and, to some extent, non-renewables, as well as having a cleaner energy mix than many countries. This makes Brazil an important regional actor both at the energy and at the geopolitical level. He thanked ISD and KAS London for their help with this workshop as well as with the previous discussions that covered Iran and Kazakhstan and wished a fruitful discussion on the South American country.

Brazil currently has 13.2 billion barrels of proved oil reserves according to the EIA, as well as 13.7 Tcf of natural gas. Crude oil production is 2.7 million barrels per day and natural gas production is 911 Bcf. The country's energy mix is very dependent on renewables and hydropower alone accounts for over 70% of the electricity generation (EIA, 2014). A larger hydrocarbon production is expected to arise from the offshore pre-salt layer in the upcoming years and greener projects such as solar and wind power generation have been gaining momentum in the country, although there is still a long way to go.

Mr Hans-Hartwig Blomeier, Director of the Konrad Adenauer Foundation (KAS) in London, stressed the importance of the EUCERS/KAS partnership and of the EUCERS/ISD/KAS Energy Talks series. On Brazil, Mr Blomeier highlighted the relevance of renewables in such a large country and also mentioned the environmental concerns of large harvests for fuel rather than food production. In addition, Mr Blomeier commented on the role Brazil plays regionally both at the energy and at the political level and the need to understand its modus operandi.

Mr Túlio de Andrade, Head of the Energy, Environment and Climate Change Section of the Embassy of Brazil in London, presented an outlook on Brazil's energy mix, which has a 42% renewable composition, and focused on

the country's clean energy move, which has been a reality for many decades in the country.

Renewables are responsible for 75% of Brazil's electricity generation and the government, according to the diplomat, has promoted projects for wind and solar power. This makes the transition to a low-carbon economy not so much applicable to Brazil since the country already has a strong foot on non-polluting resources.

Dr Alexandre Strapasson, Honorary Research Associate at Imperial College London, presented the country's scenario of biofuels, of which Brazil is the world's second largest producer, with a special emphasis on land use coupled with food demand. The professor stated that the higher the demand for animal products such as meat is, less land will be available for biofuel production such as ethanol, which, in Brazil, is usually derived from sugar cane.

Dr Strapasson believes Brazil could be more aggressive when it comes to biofuel production. According to him, unlike the common assumption, the use of land for biofuel production such as ethanol does not result in larger deforestation and environmentally there is an overall gain as less pollution is generated when biofuels are used by the transport sector.

Dr Frank Umbach, Research Director at EUCERS, stressed Brazil's geographical characteristics, as well as its vast resources and energy consumption/production (world's 8th and 10th largest respectively). Particularly concerning its hydrocarbon production, Dr Umbach shed light on Brazil's major challenges for the future development of the pre-salt layer, which, notwithstanding its massive reserves at 28-35 billion barrels according to Petrobras (POLITO, 2014), present challenges that are both technological and economical. In addition to this, the price of an oil barrel at US$50 as of mid-July 2015 has made the development of such fields a less attractive activity, possibly hindering Brazil's promise of self-reliance in the hydrocarbon sector in the near future.

Mr Thomas Fröhlich, specialist on Brazil's ethanol diplomacy, has presented the situation of ethanol production in Brazil as linked to the country's energy diplomacy, which was strengthened during the administration of Luiz Inácio Lula da Silva (2003-2010).

Internationally, Brazil has taken up to the "commoditization" of ethanol by trying to create an international market for the product by widening both the producer and the consumer base, hence becoming a

major international player in this respect. The researcher has also commented on the prospects for the ethanol market in Brazil and worldwide, which can benefit greatly from recent technological advances in agriculture leading to its development elsewhere.

One particular problem of ethanol's advance in the world market is commodity prices, which are often difficult to predict. However, matters of sustainability and trade barriers are often political and can be more easily overcome when compared to the offer-demand dynamics of global fuels. Mr Daniel Rossetto, director at Climate Mundial Ltd., discussed Brazil's possibilities for solar power generation, which, although attractive, has been promoted by the government to quite a limited extent. According to Mr Rossetto, when it comes to renewables Brazil has a good record of hydropower and, more recently, wind power.

However, that differs for solar power, despite its potential of 6 kWh/m2 in some states in the Northeast. Currently, solar power makes up less than 1% of the country's electricity mix and the cost-effectiveness of wind over solar power in the past decade has made the latter more competitive in Brazil.

Dr Flávio Lira, 2014/2015 KAS fellow at EUCERS, highlighted Brazil's rationale for energy production at the strategic level. The country has historically insisted on different forms of energy production as a way of decreasing foreign dependence and making use of its natural resources in a competitive manner.

At the same time Brazil does not have the mission of championing cleaner energy production. This has rather happened due to the natural availability of strong river streams, wind and sunlight, as well as the centuries-long culture of sugar cane plantation that could also serve ethanol production.

Brazil's current challenges of hydrocarbon production – low oil prices and difficulties of investment in the pre-salt layer – is an example that the country is currently operating in two energy fronts: the more traditional renewable base (hydropower and ethanol) and a newer hydrocarbon focus (particularly pre-salt) seeking ultimate independence in this area, notwithstanding the current shortcomings of its E&P sector.

The roundtable discussion was followed by a Q&A with academics, government personnel, industry participants and the media. The video coverage of our event can be found on our YouTube Channel.

EUCERS/ISD/KAS Energy Talk 4 – Iraq as Re-Emerging Energy Superpower

As part of 2014/15 Energy-Talks Series the European Centre for Energy and Resource Security (EUCERS) in cooperation with the Konrad Adenauer Foundation (KAS) in London and the Institute for Strategic Dialogue (ISD) under the overall theme of "(Re-) Emerging Energy Superpowers" held the fourth discussion on the topic of Iraq's Re-emergence as an Energy Superpower. The event was hosted in partnership with the EU-Iraq Energy Centre (EUIEC) on the 30th of November 2015, at King's College London.

Iraq, a major energy player prior to the war, has started ramping up oil output from the oil and gas-rich regions of Kurdistan in the north to Basra in the south, aiming to become one of the world's key oil and gas exporters. Ongoing exploration throughout Iraq, particularly in the Iraqi Kurdistan (endowed with vast oil and gas reserves) has potential to change the global and European energy landscape.

According to the International Energy Agency (IEA), the country is in a position to supply up to 50% of Europe's increased needs of oil in the coming three decades. Although production continues to increase, security threats from the Islamic State (IS) offensive and political disagreements between the Kurdish Regional Government (KRG) and Baghdad, among other reasons, have had negative impact on Iraq's planned targets for energy production and export.

The dynamic development of the complicated political and security situation in Iraq, along with Iraq being on the verge of becoming an energy superpower, have led us to choose it again as a workshop topic in 2015 to discuss the key risks and opportunities as well as the impact these will have on international and European energy markets.

Professor Dr Friedbert Pflüger, Director of EUCERS and chair of the discussion, opened the workshop underlining the importance of Iraq's oil and gas potential – world's fifth-largest oil and 13th largest gas reserves holder – for the global oil and gas supply. The complicated regional and domestic political and security situation have had undoubtedly a negative influence on the course of development of Iraq's energy potential, but nevertheless oil output started to ramp up, especially in the northern parts of Iraq. This has once again attracted International Oil Companies' interest and has raised questions about the future development of Iraq's energy potential.

Professor Pflüger's opening statement was followed by an address from Hans-Hartwig Blomeier, Director London Office, Konrad-Adenauer-Foundation (KAS). Reiterating the fruitful cooperation between EUCERS, KAS and ISD, he announced that the first event in the EUCERS/ISD/KAS energy talk series 2016 will be dedicated to North Sea Oil and held in Edinburgh on the 30th of January 2016. Professor Pflüger then set some of the framework questions for the discussion: The future of Iraq's oil and gas production and exports; the course of development of the complicated internal divisions and especially the future of the relations between the Kurdish Regional Government (KGR) and Baghdad.

Mehmet Sepil, a long time entrepreneur and founder of Genel Energy, set the background of the oil and gas development in Iraq through the years to point out that lately a lot of changes had influenced the development of Iraq's energy sector – the main being the Daesh (or also called the Islamic State – IS) and the drop in oil prices.

Although the Kurdistan region had been successful in oil production and exports the revenues and investments had been negatively affected by the unstable security and global oil market situation. Mr Sepil, commented that despite the issues regarding the KGR oil contracts legality and other authority

related disagreements between KGR and Baghdad that had threatened the success of Kurdish oil exports, Turkey continued to import oil from the Northern fields through the Kurdistan pipeline. His expectations envisaged that although there was not yet an actual settlement between KGR and Baghdad, the de facto understanding between the two would eventually become an accepted reality, also acknowledged by the international community.

In relation to Kurdistan gas, he noted that Turkey, having gas demand needs domestically and having experienced lately confrontations with Russia, would look for diversification options for its gas imports. Therefore, the Northern Iraqi gas issue would become an important topic in Turkey in the near future, in his opinion. Regarding the Production Sharing Agreements (PSAs), Mr Sepil, underlined that the PSAs framework was more favourable to the IOCs in the context of the dynamic global oil market. Stefan Haid, Principal, Civil Economics, Energy and Infrastructure, Roland Berger GmbH and responsible for the EU-Iraq Energy Centre project (EUIEC), put an emphasis on the improvement of the security situation in Iraq, as the most important precondition for Iraq's emergence as a global energy player.

Overcoming Deash, being the first obstacle, the contracts were marked as the second important precondition for successful IOCs' investments in Iraq and the third challenge was the payment issues. Investments security was another critical matter that should be improved, according to him. Additionally, the availability of skilled workforce and overall progress in the aforementioned areas would make the domestic environment more reliable, according to Mr Haid. The power structure improvement to help avoid blackouts was an issue that Mr Haid also mentioned. In the context of the abovementioned challenges, the EUIEC, an EU supported project to which EUCERS is an academic partner, focuses on 4 goals: training, business cooperation, policy dialogue and research. Training, being one of the key components, the Centre aims to become self-sufficient and to generate incomes and invest in research projects and conferences. Mr Haid

concluded that Iraq, with the help from outside – a role that EUIEC would like to contribute to – improving the outlined challenges had the potential to become a global player.

In the context of the EUIEC – EUCERS cooperation, Professor Pflüger introduced Dr Usama Karim, who as a senior research fellow at KCL and as consultant on the EUIEC project to Ronald Berger Strategy Consultants will be advising on setting up the research part of EUIEC. Among Dr Karim's remarks during the event were that Iraq's significantly increased overall oil supplies and in specific, its exports to the U.S. In 2015 Iraq added half a million barrels per day to the global market, making the country the leading contributor to oil export growth for that year, according to recent International Energy Agency data. Iraqi crude exports to the US surged to 521,000 bpd for October, according to the US Energy Information Administration (EIA). This amounts to more than half the supply from SA to the US, as Dr Karim noted.

He was however sceptical in relation to Export-import of gas between Iraq-Iran which he finds too costly if infrastructure is short-term and not linked to a strategic link to EU or regional markets.This could be an opportunity

for all three stakeholders given the window of opportunity created by the 5+1 agreement for EU companies. On the technical development side, Dr Karim shared some details on the recently completed projects. Train1 of FCP (sour) gas project had finally started production: its a small project but hugely important, in fact historic for Iraq, according to him.

Gas flaring in Iraq account for approximately 50% of Shell group flaring work on the project would continue until Train2 is completed. Train 2 (sour gas) followed by sweet gas production, when completed, would supply enough gas to generate some 750 Mw of electricity, Dr Karim added. An Iraqi legislation and codes of practice on flared gas for the oil and gas industry is much needed to ensure that all produced gas is recovered, implementing Zero flaring policy by say 2030, and all new ventures to include Zero flaring as standard. This would align the country to become a signatory to the "World Bank Zero Routine Flaring by 2030 Initiative" announced in a major climate change event in the US, to which Shell and other IOCs are also committed. Concluding that, in his opinion, the Iraqi government should support this initiative and work with the oil and gas industry to make it a success.

Dr Frank Umbach, Research Director at EUCERS put the Iraqi case in a broader international perspective. In the context of the dynamic global oil market, the dramatic drop in oil prices became a game-changing factor, influencing forecasts for

production growth, including Iraq's production developments. Taking that into consideration, the future oil production development in Iraq was also dependent on the scenario, which would lead the global oil prices, according to him. Whether the prices would go up or remain and even decrease further, according to Dr Umbach, was a course that could be influenced by many variables. The development of the United States' energy potential and whether its peak would be reached by 2020 or after was one of the main determining factors that he pointed out.

According to Dr Umbach, if a continual low price scenario had to be addressed in the future, oil production forecasts for Iran and Iraq would have to be reconsidered. He noted that the International Energy Agency, although acknowledging Iran and Iraq's future oil production growth, reconsidered its previous forecast and made the present ones more moderate, in line with the low oil price scenario. In this context, efficiency would become a key investment condition for IOCs and oil rich states would have to start reconsidering some of their domestic conditions, Dr Umbach added.

Such process had already started in producing countries – liberalisation of domestic criteria had been noticed with the aim of attracting foreign investments. This change is in line with the increased competition between the (re-)emerging energy resources rich countries, targeting attraction of IOCs to their energy sectors. The geopolitical factors, the rivalry within the OPEC, itself, and the regional stability were other important variables that Dr Umbach mentioned. Deterioration of the Middle Eastern security environment might hamper production or on the other hand might lead to an opportunity for other energy reserves rich countries to jump in – all depending on where the investments would flow.

Professor Dr Friedbert Pflüger, closed the discussion by, once again, outlining the domestic and international challenges that Iraq experienced, but was positive that working together – EU from one side and Iraq from the other – to overcome and improve the domestic conditions, Iraq would become a leading energy player in the future.

What does the re-emergence of Iran, Brazil, Kazakhstan and Iraq as energy superpowers mean for the EU?

IRAN AS A RE-EMERGING ENERGY SUPERPOWER

The workshop on Iran but also the study on Iran's re-emergence on global energy markets by Kalina Damianova, KAS Fellow at EUCERS, investigated the opportunities, obstacles and implications, which Iran's re-integration will entail for international and European energy markets.

Based on the workshop discussions and findings of the study it could be concluded that Iran has potential to develop in three main energy branches: oil, gas, and refinery and petrochemicals. Successfully exercising its potential, Iran could become a leading energy ''superpower''.

Iran has enormous energy potential, but the development of its energy sector has suffered greatly from its international isolation. After international sanctions are lifted Iran, once being a major oil producer and exporter, could re-emerge on global oil markets as a leading oil power in the short to mid term, while in terms of natural gas, it will take longer time to see Iran as a key exporter.

In the context of shifts in the energy flows' direction and a dramatic drop in oil prices, Iran's re-integration on the international market will inevitable affect Europe – a major energy consumer and also host of European oil companies. Re-opening Iran's oil and gas sector will undoubtedly offer many new opportunities for the European oil companies.

Investments will help speed-up the process of modernisation and increase of oil and gas production. Once a major exporter of oil to the EU, Iran's oil exports strategy will seek to renew its lost market share in Europe and increase its exports to Asia. Iran's participation among Europe's oil suppliers could improve the variety of the oil importers and thus strengthen Europe's energy security.

Iran, the world's largest natural gas reserves holder, has also a vast domestic consumption. Teheran's policy has and will continue to encourage gas allocation to its domestic market. However, the state is working to improve efficiency and increase production, which in a longer term will allow it to become a natural gas exporter.

''A Framework Strategy for a Resilient Energy Union with a Forward-Looking Climate Change Policy'' of 2015 sets a key target in front of the European Commission to 'work with Member States to develop access to alternative suppliers'. Iran's importance for the EU's energy and especially gas security has been acknowledged in a number of EU documents that mention the state as a potential energy partner, under the conditions of lifted sanctions. This could be possible by increasing Iran gas exports to Turkey and subsequently directing the export to Europe through the Southern Gas Corridor infrastructure.

However, from Iran's perspective, if gas exports to Europe are considered, Iran will probably prefer to ship LNG instead of building pipelines, because pipeline routes hide risks of disruptions, legal difficulties and are subject to tariffs. Iran does not have any LNG infrastructure in place at the moment.

But, there are projects that are in advanced stage of development and after the sanctions are lifted Iran will prioritise their conclusion. LNG imports to Europe are also a vital part of EU's energy diversification strategy.

Although probably not in the short or even mid term, potential Iranian participation among EU's gas suppliers might be considered an option for improvement of the EU's energy security, creating competing gas prices and alleviating some of the EU's gas supply dependence on limited suppliers, in the long term.

Strengthening EU-Iran energy relations could also entail political and security outcomes. Therefore, deeper understanding and analysis of Iran's future regional and international position is required in order to establish a coherent EU strategy and mutually successful approach between the EU and Iran.

KAZAKHSTAN AS AN EMERGING ENERGY SUPERPOWER

Kazakhstan has been a relevant energy player since Soviet times. Although formerly circumscribed to Moscow's jurisdiction, it was an integral part of the USSR's energy network. After independence, the country went on to modernise its exploration and structure due to heavy foreign investment and has since become the world's 17th oil producer, 10th coal producer and 30th natural gas producer.

When it comes to oil, Kazakhstan's main export

(1.4 million bbl/day), the country has the world's 12th largest reserves, accounting for 30 billion barrels according to recent estimates (EIA, 2015). This is mainly due to production from the Tengiz and Karachaganak fields, which accounted for half of the 1.70 million bbl/d of total petroleum liquids production last year.

The Kashagan field, which is expected to play an important role in the country's production, has faced serious technical challenges, which are currently being addressed by the main investors and the Kazakh government. The field is expected to become operational in 2016. Kazakhstan's oil exports are mostly headed towards Europe (which makes the development of a strong institutional EU-Kazakh energy relationship particularly strategic to both parties), although 16% of it is already transported to China.

KazTransOil, the country's state-run pipeline company, controls the 3,400-mile network. To a lesser extent, railways are also used for this purpose. One of Kazakhstan's main challenges is the optimisation of such routes now that European, Chinese and maybe Iranian markets might become a tripod for the country's exports.

The country's recent ministerial rearrangement of 2014, which resulted in the former Ministry of Oil and Gas being absorbed by the Ministry of Energy, might be a sign of new government attempts at public management of strategic resources.

However, tensions between the West and Russia, as well as Astana's growing relationship with Moscow and Beijing, might signal a changing scenario, which must be well assessed by analysts and investors.

Having so much to offer, it remains to be seen whether this Central Asian giant will develop its hydrocarbon capabilities to its full potential – and whether that will be beneficial to both the Kazakh state and the remaining interested actors.

The workshop on Kazakhstan's emergence as energy superpower concluded that energy links between Kazakhstan and the European Union are already relevant and have the potential to keep growing. One important point to consider is that Kazakhstan has its own aspirations as an emerging energy superpower and its national strategies, both present and future, must take neighbouring and distant regions into account.

The EU's perception of Kazakhstan as an important partner in the global energy scenario must translate into clear improvements of the country's economic and social capacities, both within the energy scenario and within its institutions.

An economically more competitive and socially cohesive Kazakhstan will be able to not only position itself as a sound supplier of renewable and non-renewable energy in Eurasia (thus becoming an increasingly more reliable producer for Europe and Asia) but also to benefit from investments and partnerships that might diversify the country's export programme, making it less dependent on great powers.

This enhanced freedom of choice for on-going and future projects could make Kazakhstan more easily linked to Europe institutionally and economically, which would reflect in stronger and trustworthy bilateral energy relations.

There will most certainly be high demand for Kazakh hydrocarbons – and probably renewables, as long as the country is successful in developing them – in Asia, particularly China. If the European Union is to become a "natural" partner for Kazakhstan, strengthening the country's market and institutional capacities through investment, education and social programmes is a fair start, since the Central Asian country is geographically closer to important geopolitical centres which might offer the prospect of more inventive alternatives to the on-going long-distance purchase of European markets.

BRAZIL AS AN EMERGING ENERGY SUPERPOWER

Brazil has been a great energy producer and consumer for decades. The country ranks as the world's 8th largest energy consumer and 10th largest producer according to the EIA (2014) and, in the Americas, it ranks third among consumers, behind the US and Canada. Brazil is also the largest producer of oil in South America.

E&P activities are heavily concentrated in the hands of Petrobras, the state-owned national oil corporation, which, until 1997, held a monopoly on such operations, which are now open to domestic and foreign companies.

Brazilian liquid fuel consumption reached 2.7 million barrels per day (bbl/d) in 2014 (2 million bbl/d of crude oil and 527 thousand bbl/d of biofuels) whereas consumption surpassed 3 million bbl/d. Brazil has a substantial share of its energy mix composed of ethanol (19%) following a national policy initiated in the 1970's.

Brazil's biggest energy challenge relates to its fossil fuel industry and whether it will be able to develop its downstream capabilities while new discoveries are being made. Foreign companies have been important players through the country's usual E&P contract models, both the concession regimes and the more recent PSA ones.

From a European perspective, having a stable and reliable energy management in Brazil is important for two reasons: first, it integrates Brazil and South America further into a world energy continuum of supply and demand, keeping an extra source that is relevant in cases of shortage of oil and natural gas elsewhere.

Secondly, it will operate in an order of local stability promotion, not only trade-wise but also economically and politically, which is in the interest of both sides of the Atlantic.

Brazil's contribution to an energetically solid American Continent concerns good relations with its neighbours, which are both buyers and suppliers in mutual interaction, which means foreign policy is key to an increasingly integrated South American energy grid in the future.

With few cases of accusations or unrest, the country's energy relations with its vicinity is rather nonviolent, which contributes to a peaceful region in a broader geopolitical sense, notwithstanding the forecast of larger demand both from surrounding countries and Brazil itself.

At the EUCERS/ISD/KAS Energy Talk on Brazil as Emerging Energy Superpower participants overall agreed that Brazil plays an important role in energy regionally and that the volume of its production is relevant when it comes to hydropower and, more recently, the oil and gas sector.

As an apparent rising power, Brazil seeks to secure its energy supply in a time of rising domestic demand. Notwithstanding its rising production of oil and gas at the upstream level, the country's downstream capabilities are still not ready to deal with the heavy crudes that make up most of Brazilian production.

The pace of (re-) investment stemming from upstream gains to the downstream sector in the country, as well as the fair and realistic use of the local contents rule for further E&P development, might shield the country from higher energy turmoil that might threaten its oil and gas industrial base. Renewables shall remain a relevant part of the country's energy mix even though hydrocarbon production has recently been on the rise.

From a EU perspective, an energetically stable Brazil is important both at a geopolitical level (by helping bring stability to Latin America, a historically relevant partner of European countries) and when it comes to supply and demand, particularly concerning hydrocarbons.

If Brazil is able to solidify its E&P operations in the near future, its historical trade links with the EU will be a significant starting point for a stronger import/export chain between Western countries and Brazil.

This might result in increasing purchases of European refined products by Brazil and of both crude and refined Brazilian products by the EU. Joint research and operational projects between Brasilia and Brussels involving energy diversification and energy security are likely to create a healthy interdependence that benefits both sides, which demand energy at an increasing level and constantly seek reliable partners for affordable and safe meeting of their demands.

IRAQ AS A RE-EMERGING ENERGY SUPERPOWER

In 2014, the IS seized some northern Iraqi oil fields, but later the control was to a large extent regained by the Iraqi state. Serious damage to the recently liberated Baiji refinery and reoccurring attacks on export pipelines and oil field in other liberated northern fields all point clearly to the dimensions of the threats.

Damage to the infrastructure from attacks affects production levels and creates a more insecure business environment, which makes some IOCs' reluctant to remain present in the region.

In the context of this uncertain situation the disagreements between Baghdad and the KGR remain present, regardless the agreement over oil and gas export revenues distribution that the two reached in the end of 2014.

According to the latest analysis of the U.S. Energy Information Administration (EIA), Iraq holds about 144 billion barrels of proven crude oil reserves, making it the world's fifth-largest oil reserves holder. Iraq is also the 13th largest natural gas reserves holder with about 3.4 trillion cubic meters (tcm) of proven natural gas reserves, ultimately 7.9 tcm recoverable, according to IEA.

Iraq's oil fields are onshore, with its largest (supergiant fields, holding more than 5 billion barrels recoverable oil each) in the south areas. Fewer fields are known to be in the central and western Iraq. They include a giant natural (non-associated) gas field on the border with Syria. These vast areas remain largely underexplored.

Along with some northern fields, they are in military operation zones or even under more direct threats, especially those in areas still occupied by IS. The majority of the natural gas fields are situated in the north of the country, but the largest share of Iraq's natural gas reserves is associated with major oil fields located in the south of the country.

Historically, Iraq's oil production has greatly varied. In 2003 due to the Iraq war, it dropped to less than 1.5 million barrels per day (mbpd), compared to its peak in the 2000 when it was at about 2.5 mbpd.

After the war, the oil sector began rapidly recovering and surpassed the pre-war levels significantly by reaching almost 4.4 mbpd in June 2015, exceeding the central case scenario projection (4.2 mbpd by end of 2015) of the IEA in their 2012 flagship report on Iraq's energy outlook.

The total pipelines export quantities reached record levels in April 2015, nearly 3.2 mbpd, of which 2.7 mbpd from the southern terminals and 0.5 mbpd through Ceyhan. However, crude oil production and exports have been less than planned for the period.

The political dispute between the central Iraqi government and the semiautonomous northern region's KRG over sovereignty issues, resource management, and oil contracts legality is a significant factor for both sides not reaching their export targets.

The energy sector has been further troubled by attacks on the pipeline infrastructure and the IS security threat. As a consequence, Iraq and the operating IOCs' ambitious oil production goals – 12 mbpd by 2017 – had to be reconsidered to a more moderate target of about 9 mbpd by 2020. Similarly, the KGR aiming for greater production levels has to now re-estimate its targets due to project plans delays, lack of developed infrastructure and security threats.

The natural gas industry in Iraq has also been affected by the above-mentioned challenges, but one of the main obstacles has been the vast flaring costing the country's producing oil fields, particularly in Basra, more than $5 million wasted dollars per day.

Iraq is the fourth-largest natural gas flaring country in the world, according to EIA data for 2011. A $17 billion deal with Shell will treat 20 billion cubic metres (bmc) per year of associated gas from 3 super-giant fields by 2017.

A 90-115 bcm can be expected in 2035 according to the IEA, which, if not hampered by the named risks, could make Iraq a gas (top 10) producer to be reckoned with.

After Iraq is able to satisfy its own energy needs it could become an exporter of gas by around 2020 and reach more than 10 bcm for export to neighbouring countries and Europe on later phase.

Development of Iraq's vast oil fields will make Iraq a leading oil producing country and a global oil exporter in the future.

In terms of natural gas, after Iraq is able to satisfy its own energy needs it could become an exporter of gas by around 2020 and reach more than 10 bcm for export to neighbouring countries and Europe on a later phase.

Therefore, Iraq undoubtedly holds all preconditions to become a leading energy superpower, which will affect the global oil market, the EU as a consumer and the major European Oil Companies as investors in Iraq's oil and gas sector.

However, a number of domestic and international obstacles have been outlined on the EUCERS/ISD/KAS workshop. Not being able to effectively tackle these challenges, Iraq's future of an energy player might be threatened or at least significantly slowed down.

In this regard, the EU, aiming to play a regional security actor role and also working on improving its own energy security, should work jointly with Iraq on establishing and developing a coherent and mutually beneficial strategy.

And in cases, such as according to Dr Karim words, when strategies for sustainable growth in the Iraqi energy sector is more on paper than in reality, EU's experience and expertise in implanting policies and building strategic goals and plans, the EU-Iraq cooperation may bring some positive changes.

Joint efforts should aim at improving the security in the region, the political settlement within Iraq and lead to the successful realisation of the Iraqi energy resources – both for satisfying Iraq's domestic needs and also for future EU-Iraq cooperation in the field of energy security and diversification.

The findings of the workshop show that key strategic areas that will need improvement and that will benefit from EU–Iraq collaboration are training, business cooperation, research and strategy implementation.

APPENDIX

List of EUCERS/ISD/KAS Energy Talks

Energy Talk 1
Iran's Re-emergence as an Energy Superpower: Obstacles, Opportunities, Impact
24 February 2015, 13.30-15.30 with a reception afterwards.

Energy Talk 2
Kazakhstan's Emergence as an Energy Superpower
20 April 2015, 9-11.00 with a lunch afterwards.

Energy Talk 3
Brazil's Emergence as an Energy Superpower
15 July 2015, 14-16.00 with a reception afterwards.

Energy Talk 4
From the South to the North: Iraq as a Re-Emerging Energy Superpower
30. November 2015, 17-19.00, with a reception afterwards.

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