



**DIRECTORATE-GENERAL FOR EXTERNAL POLICIES
POLICY DEPARTMENT**



ENERGY ROADMAP 2050:

EU EXTERNAL POLICIES FOR FUTURE ENERGY SECURITY

WORKSHOP

AFET



DIRECTORATE-GENERAL FOR EXTERNAL POLICIES OF THE UNION

DIRECTORATE B

POLICY DEPARTMENT

BRIEFING PAPER

**EU ENERGY ROADMAP 2050: EU EXTERNAL POLICIES FOR
FUTURE ENERGY SECURITY**

Presented at the Workshop on

'Energy Roadmap 2050: EU External Policies for Future Energy Security'

held on 5 November 2012

15.30 - 17.00

Altiero Spinelli (ASP) 5G3

WORKSHOP

Policy Department, DG EXPO

for the Committee on Foreign Affairs (AFET)

Monday, 5 November 2012

ALTIERO SPINELLI BUILDING

15.30-17.00 ROOM: A5G-3

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EU External Policies

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Policy Department and the Committee on Foreign Affairs

WORKSHOP

ENERGY ROADMAP 2050: EU EXTERNAL POLICIES FOR FUTURE ENERGY SECURITY

Monday 5 November 2012,

15:30 - 17:00

European Parliament

Brussels

Room: (A5G-3)

Programme

- 15:30-15:40 Introductory remarks by **Mr Ioan Mircea Paşcu**,
Vice Chair of the Committee on Foreign Affairs
- 15:40-15:55 Briefing by **Professor Alan Riley**, City University London
- 15:55-16:35 **Mr. Gunnar Wiegand**, Director of Russia, Eastern Neighbourhood, Central Asia and
OSCE, European External Action Service
- Mr. Andrei Marcu**, Senior Advisor and Head of the CEPS Carbon Market
Forum
- Mr. Szymon Polak**, External Energy Policy Expert, Permanent Representation of the
Republic of Poland to the EU
- Mr. Jean-Arnold Vinois**, Head of Unit, Security of Supply and Networks of the
Directorate General for Energy, European Commission
- 16:35-16:50 Q&A session with MEPs
- 16:50-17:00 Conclusions by **Mr. Jacek Saryusz-Wolski**, AFET Rapporteur

The meeting will be web streamed online:

<http://www.europarl.tv.europa.eu/ParliamentLive.asp>

PART I: SUMMARY OF THE WORKSHOP

1. EXECUTIVE SUMMARY

The workshop “Energy Roadmap 2050: EU External policies for future energy security”, organised by the Policy Department of DG External Policies for the Committee on Foreign Affairs (AFET), took place on November 5th, 2012 in the European Parliament. It aimed at facilitating an exchange of views about the energetic context and the future perspectives of the global market and European energy security.

The participants discussed the parameters of the international energetic scene: the rise of shale gas exploitation and its economic, ecological and geopolitical impacts; the development of the European internal market rules; the future negotiations on climate change. The EU’s energetic future was obviously the main topic and was treated through the analysis of the three pillars of energy policy: security of supply, competitive market conditions and sustainability. The accent was put on the consequences of the US’s growing independency on oil and gas due to the exploitation of shale gas deposits. This recent development is likely to have huge mid-term repercussions on global oil, coal and gas prices and to widen the competitiveness gap between the US and Europe.

The climate change issue and the possibility to create the conditions for a new international agreement were discussed, as well as the future perspectives of renewable energy development. The proficiency of the European Trading Scheme and the research on energy efficiency and carbon capture storage technology were debated. The speakers also insisted on the fact that the full implementation of internal market rules would have a crucial influence on the construction process of the European energy policy. They pointed out the need to strengthen and extend these norms through the development of the European Energy Community Treaty.

Regarding the European energy security, the partnership with Russia, the main supplier of many EU member states, was stressed by the speakers, even though one of the main objectives of the emerging European energy policy is to reduce its dependency on a single source of supply by diversifying its roads and sources of supply. The participants analysed the case of the southern corridor, which is seen as a viable solution, so as to have a clear view of the EU’s future options, despite the fact that Nabucco seems to be in a stalemate.

Various scenarios were presented, with the aim to highlight the need for a reinforcement of European solidarity through the strengthening of the internal market rules and the consolidation of integration. Finally, the participants called for common views and works on these issues, the resolution of which is crucial for the EU’s energetic future.

2. INTRODUCTION



Mircea PAȘCU, Vice-Chair of the Committee on Foreign Affairs, opened the workshop and mentioned it was co-organised with Mr Jacek SARYUSZ-WOLSKI, AFET Rapporteur on Energy Security. He welcomed the Ambassador Cary GRUBAR from the Hungarian Permanent Representation, representative of the Political and Security Committee. Mr PAȘCU underlined the importance of energy security for all European member states and partners and the special awareness on this topic because of the decreasing level of consumption in the context of crisis. In a general context of economic growth, we can imagine that new technologies will be developed, which will provide new ways of better using our energy. He stressed the importance of energy in the EU's relations with its south-eastern neighbours and with major partners of the EU, like the US, Japan, China, India, Brazil, Russia, Indonesia, South Africa. He stressed the necessity for Russia to comply with the EU's internal energy market. He discussed the regulations mentioned in the third energy package and the Energy Charter Treaty and finally mentioned the potential

developments of renewable energy grids between Europe and North Africa. He announced that the scenarios discussed during the workshop would be a first step in the right direction.

2.1 The US shale gas revolution and its impacts

Pr. Alan RILEY started by stating that the environmental issue, though a main preoccupation, made us miss a bigger issue: the shale gas and its potential consequences for Europe's development, growth and competitiveness. According to Pr. RILEY, shale gas is a "revolution" and represents the largest development since the 1920s, when coal was replaced by oil as the main transportation. This fact cannot be ignored when it comes to defining the European internal and external policies.

80% of the fossil fuels on the planet come from OPEC Countries and Russia, 10% from OECD Countries and China. But if we talk about shale gas, we have almost a negative picture of the traditional fossil fuels map. This is a real major global development with geostrategic and economic consequences, on the US's competitiveness and energy security for instance. The Russian resources are bigger but their extraction is more expensive (due to their reduced accessibility, compared to the US's easily accessible continental deposits). According to Pr. RILEY, we can now talk about a "manufacturing renaissance", especially in the chemical industry, in the US, which is the consequence of the fall of gas prices (\$3 per million BTU – British thermal unit – versus 10 to 14 in Europe). The environmental implications are admittedly real but they are monopolising the media's attention. Pr. RILEY noticed that there were no mass claims against shale gas industry despite the fact that the US's system provides a framework which fosters these procedures.

Scalability is one of the top three problems. The second one is the governance in weak states, which are prone to corruption and unable to build strong state infrastructures and also the necessary conditions for a regulated and green exploitation of shale gas. The last issue is the gas complacency: shale gas

availability is dangerous if every state starts to exploit deposits of cheap gas and stops implementing sustainable energy policies. Pr. RILEY suggested that a shale gas trust be created so as to spread “know how” and develop capability and a carbon tax to foster renewable energies.

Regarding energy security issues, Pr. RILEY underlined the United States’ independence on gas, with 200 years of supply, and its quasi hemispheric independence on oil (Alaska, Offshore, Canada and Latin America). The US now has a tremendous advantage over the rest of the world regarding its fossil fuels supply (the same is true for China, which has large resources in shale gas too). This has a positive effect on the European Union’s energy security, for gas is now supplied through a variety of sources and at good prices; it is all the more true for liquid natural gas (LNG). The US shale gas revolution, the Fukushima incident and the German choice to abandon nuclear energy are all positive for the European Union regarding its LNG supply (ten LNG export facilities are waiting for approbation in the US).

Regarding the negative aspects, Alan RILEY stressed the low gas price that could create a coal dumping in Europe. Cheap US coal is good for energy security but not for the environment. Europe could become the dumping ground for this cheap US coal. This could thwart the European climate change objectives. About the European Union’s oil dependency, Alan RILEY warned that growing US energy independence could provoke a US withdrawal from the Middle-East that Europe should compensate by raising its presence or building aircraft carriers, for instance. The last problem, and one of the most important ones according to Pr RILEY, is the social price of oil – not the lifting one anymore –, which maintains social peace in Saudi Arabia and Russia. The fall of oil price could create disruptions that could affect not only the US, but also the European Union. The development of gas transportation vehicles and home refuelling kits could also impact the oil demand and price. This is positive from an environmental point of view but dangerous from a geopolitical one. Pr. RILEY stressed that these oil and gas flows could foster a regime change in Russia and Saudi Arabia.

Russia’s lower investment level in its gas fields and infrastructures is also a matter of concern if the price of oil and gas decreases to a low level. According to the International Energy Agency, between now and 2035, Russia will need to replace 90% of its current production fields and facilities, an investment of 700 billion dollars (so as to access the High North deposits). This can be difficult in a cheap oil and gas world but essential for Russia to sustain the scale of its current production. Another medium-term problem is the prospect of potential cut off, but the main one remains the lack of investments.

What are the solutions? According to Pr. RILEY, we should actually cooperate with the US to protect the oil flows. Another lead is to encourage the US to provide LNG resources from shale gas bases into Europe. Another option is to look at Ukraine, which has very substantial shale gas resources (Chevron and Shell are already prospecting the country). Algeria has also significant resources and the potential of Eastern Mediterranean gas development. The other prospect is the development of shale gas within the European Union due to resources of some member states like Poland. Gas transportation and home refuelling could also be an opportunity for the European Union’s energy security. Regarding coal and renewables, Pr. RILEY suggests that if we want to prevent Europe from becoming a dumping ground for cheap coal, we need to look at international agreements regarding carbon adjustment at the border). The development of the second and third generations of renewables needs a financial support that could be provided by the gas development.

“We are not an energy island”, said Pr. RILEY to conclude. According to him, Europe cannot decide to be passive because the shale gas revolution is now a reality that will impact its future. We cannot ignore what is going on in the rest of the world. Doing nothing is the best way to become the dumping ground for cheap coal (a trend that could put an end to the gas and renewables development) and to leave Europe highly dependent on increasingly insecure oil and gas supplies.

2.2 EU energy security: Is Russia still the key partner?

Mr Gunnar WIEGAND started by underlining the key role of energy in domestic and foreign affairs in Russia, the European Eastern Neighbourhood, Central Asia and the OSCE. This area regroups producers and transit countries, and energy dimension is an integrated part of our relations. Mr. WIEGAND stressed that the diversification of sources, routes and customers was one of the main stakes, like transition from a monostructure to a more diversified and reliable energy mix and network in both Europe and countries under its responsibility in the DG (Russia, the Eastern Neighbourhood, Central Asia and the OSCE).

According to Mr. WIEGAND, we can observe fundamental changes on the global energy market, like the development of unconventional gas production and LNG supplies. It tends to accelerate the process of transition from old structures. The EU's external energy policies had been impacted by the Gazprom cuts during the winter of 2009. This episode triggered a new reflection on the EU's energy dependency by demonstrating again that energy monopolies can be used for political purposes. It is more the case for countries in our eastern neighborhood than for long term customers in Western Europe. Mr. WIEGAND indicated the importance of implementing the EU gas and electricity liberalisation directives. This basic approach can be illustrated by a few countries' situations, especially Russia's.

Mr. WIEGAND reminded the audience that Russia has been, by far, the most important energy partner of the European Union (36% of total gas imports, 31% of total crude oil imports, about a third of coal imports) for more than half a century, that it remains the world's largest oil producer and that it owns the world's largest gas reserves. The EU, with 500 million consumers, is Russia's main export market and all prospective scenarios show that Russia will remain a strategic partner in this field despite the fast changing environment. The political dialogue with Moscow is intense: there are regular permanent partnership councils between the EU Energy Commissioner and the Russian Energy Minister, and biannual EU-Russia Submits. According to Mr. WIEGAND, Russia had been, despite some difficulties, a reliable partner. The 2009 crisis led both to an intensification of the dialogue between Russia and the EU and to the joint EU-Russia Energy Roadmap 2050, which should give an outline of long term energy cooperation between the two partners, that shared a common interest (long term security of supplies and long term guarantees of demand). A legally binding framework for the energy relation is still in discussion, partly because of Russian (World Trade Organisation (WTO) accession hesitation and of the creation of a Eurasian customs union by Russia and, of course, because of the resistance against certain European internal market basic rules (third energy packet), which is, in Mr. WIEGAND's opinion, very strong in Russia. Despite these difficulties, observable during every high level meeting, there are some satisfactions (North Stream). There are also difficulties on the trans-Caspian pipeline file which is part of the southern corridor development, which aims to increase the security of supply routes from Turkmenistan and Azerbaijan. Russia is opposing this project for a number of reasons (among others, the lack of an agreement between all Caspian states on Exclusive Economic Zone delimitation).

Mr. WIEGAND noticed the significant market changes underlined by Pr. RILEY with the shale gas revolution in the US. The oil indexation of gas prices is an element in the on-going European Commission's anti-trust investigation against Gazprom. According to Mr WIEGAND, Russia also wishes Moldova and Ukraine to give up the commitments they made within the framework of the Energy Community Treaty. This treaty, now a part of the Association Agreement currently under negotiations, plans the enforcement of the European internal market rules in the field of energy, first in the Balkans and then in the European Eastern Neighbourhood. In his opinion, this process is essential for these countries to attract foreign investments, to diversify their sources and modernise their infrastructures in the energy sector. However, Russia's status as a key partner prevails in the energy sector, from which it draws most of its income (70% of the federation's budget). To conclude, Mr WIEGAND reminded the

audience that the EU wanted Russia to be sure that its quest for diversification of supplies was not a threat to their partnership, but that this could also be perceived as an opportunity for Russia to diversify its sources of income.

2.3 Climate change: Do we need a new global agreement?

Andrei MARCU, Senior Advisor and Head of the CEPS Carbon Market Forum, announced from the start that he was going to approach the question from a very different angle. His intention was to take a look at the global climate change agreements: to him, the main question regarding energy security and the Roadmap 2050 were whether they are relevant or not. He added that, in his opinion, the EU Emissions Trading System (ETS) was the core of the EU's energy policy and wondered whether this was a global or a local phenomenon.

Mr MARCU used to think that carbon prices played an arbitrage role between energy commodities. But it is actually the other way round: energy prices have been driving carbon prices for years. Today's situation is a reflection of this fact. It is thus possible to wonder to what extent the global climate change agreements will have an impact on carbon and energy prices: will there be a new global climate change agreement stating a new target? If so, how stringent will the target be (will it be raised from 20% to 30% by 2020)? Will the new global climate change agreement truly have a global reach or will its influence remain the same as with the Kyoto Protocol? Who will have to do what?

The global climate change agreements can be divided into three stages: the first period, until 2012, corresponds to the first phase of the Kyoto Protocol. With some exceptions (the US, Canada, etc.), the developed countries are involved in tackling the climate change issue; the main preoccupation is the way the countries will not exceed the defined caps. The second phase of the Kyoto Protocol will span the years 2012 – 2020. The reach of this agreement will be even smaller than before, as only the EU, Norway, Switzerland, and possibly the G-77 and some other countries will agree to it. There will be a parallel agreement involving some developed and developing countries which did not take part in the Kyoto Protocol, such as the US, Canada, Japan, and so on. This agreement will not revolve around the carbon tax, because the main aspect of pricing carbon is the ETS. Carbon trading has become a global phenomenon, which will affect energy prices at some point and have an influence on the way we do business in general. As for the post 2012 – 2020 era, a global agreement regarding this third stage is currently being discussed and the negotiations will continue until 2015; the agreement will come into force in 2020. Although its main components are largely unknown, Mr MARCU said that we could surmise that it will be very different from what is being done at present. There will be no differentiation between developed and developing countries, everyone will have to bear their share of the burden, on the basis of what they can do. As all countries will try to tackle climate change, the difficulty will consist in assessing their efforts and in comparing them.

As for the Roadmap 2050, the leakage of European industries into places which do not have a carbon price will continue, but to a very different extent. Furthermore, connecting the energy markets and the carbon markets will have to be contemplated. Today, there is a global energy market in most commodities, which is not the case when it comes to the carbon market. But there will be changes, some steps have already been taken (Australia and the EU have for instance linked their ETSs). Moreover, in the future, as regards global carbon and energy prices, there will be an increasing interdependence between linked systems, with growing renewable portfolios. And the "green race" which began several years ago and continues today will surely keep gathering momentum in the future. The headquarters of the green carbon fund (\$100 billion a year by 2020) have just been allocated to South Korea: it is difficult to tell what consequences will arise from such a choice in the long run, but it will probably not be at the advantage of the EU.

Mr MARCU concluded by saying that the no regret policies included into the Roadmap 2050 about renewables and energy efficiency must be carried out to their end. The global climate change agreements will boost them but do not have to drive them. He then wondered, both as an observer and as a participant in the global climate change negotiations, at what point a global climate change agreement would have an impact on the carbon prices. Every time there is a global conference, he added, these prices are reduced. There will ultimately be an end to this trend, but not before many years.

2.4 Towards a reinforcement of the EU's energy security?



Szymon POLAK, expert on external energy policy at the Permanent Representation of the Republic of Poland to the EU, explained that he was going to focus on the EU's external policy regarding not only the Roadmap 2050, but also other documents.

The EU's external policy derives from the internal market legislation, which is vital for its effectiveness. The current global situation can be summed up as follows: there is a growing dependency on the import of fossil fuels. Many countries provide themselves with fossil fuels through a single source, which puts them in a position of dependency. As regards the EU as a whole, the situation is not that bad, its supply sources are quite diversified; but at a country level, things are slightly different: the majority of Central and Eastern Europe countries, for instance, depend on a single source of gas supply.

As the Roadmap 2050 shows, gas will play a vital part in the short and medium term. It is estimated that by 2030, 81-89% of the world's countries will depend on gas imports. This is mainly due to the depletion of the indigenous resources and to a growing consumption. The main challenge will thus be to tackle the increasing dependency on gas by finding adapted solutions (related to infrastructures, among others), so as to mitigate the risks and the trends of the future. The aim will be to diversify gas suppliers, routes and sources: every member of the EU should have access to at least two external gas and energy sources.

As regards the main internal and external risks and threats facing the EU, some of them are particularly significant: the anti-competitive practices on the European market; the geopolitical and commercial risks (reflected in some of the regulations, especially on security of supply); the geopolitical and historical risks; the increasing global demand; the developing climate policies; the nuclear phasing out in some EU countries. The 2009 gas crises are also worth mentioning, for they triggered major changes in and additions to the EU's legislation (especially as regards the development of infrastructures within the internal market).

Mr POLAK then mentioned two Roadmap 2050 key assumptions. First, the low emission transformation of the energy sector can be tactically and economically achievable if two conditions are met: a single global and comprehensive legally binding climate agreement and the trading of Carbon Capture and Storage (CCS) technology in the years to come. Second, it is always sensible to have a plan B, in case these conditions were not met in the future.

Mr POLAK then offered some solutions. A general solution would consist in finding a balance between the three pillars of the energy policy (competitiveness, security of supply, sustainability), without

neglecting any of them. Furthermore, for the EU to achieve its goals, some key principles must be followed: it is crucial that there be a well-functioning internal market and that a common legal area, based on the “*acquis communautaire*”, be established. Moreover, the access to the EU market must be based on rules so as to avoid market distortion, it is imperative that the agreements with key suppliers and transit countries (such as the new Partnership and Cooperation Agreement – PCA – or the New Bilateral Agreement – NBA) be fully consistent with the EU’s internal legislation and that the relations with the third countries be based on the internal energy market, which is due to be completed by 2014. Finally, both the existing and the new mechanisms and instruments must be used coherently.

As for the main tools used to export the EU’s legal framework inside and outside the EU, Mr POLAK wished to put emphasis on two points, namely: the Energy Charter Treaty and its necessary modernisation, and the energy community, which has to be strengthened and extended, so as to avoid reproducing the current situation in the future.

Mr POLAK concluded by saying that a well-balanced approach to competitiveness, security of supply and sustainability was vital. He insisted on the fact that the context was crucial: it is necessary to assess the conditionality of the decarbonisation scenarios, the growing gas and oil dependency and the external and internal risks and trends. To him, no solution can be implemented if the internal market does not work well, if the suppliers, routes and sources are not diversified, if the indigenous resources are not exploited and if the external policy is not based on the “*acquis communautaire*” and efficient enough. He recommended that the EU, which already has most of the necessary instruments at its disposal (in the form of the legal acts it drew and its environmental organisations), keep using them and review the tools which are not efficient enough.

2.5 The need to implement internal market rules



Mr Jean-Arnold VINOIS highlighted the internal market improvements, saying that a lot had been done since 2007 in terms of binding legislation on energy (common energy policy goals in March 2007, Energy package 2020, Energy roadmap 2050, etc.), especially under the German presidency. The third internal market package in 2009, which has been fully implemented since March 2011, is also a real move forward. As for renewables, Mr VINOIS reminded the audience that the 20% objective is an average value at the European level, and that it varies depending on the state in question. The ETS put in place in 2009 is working well, even though the economic crisis has provoked a reduction of the activity and emissions, and therefore a fall in the carbon price. The Environment Commissioner Hedegaard is well aware of this fact.

Mr VINOIS insisted on the importance of the January 2009 gas crisis. It revealed that each member state was depending on its neighbours, particularly in case of supply disruptions. Mr VINOIS noted that France, for instance, has always seen security of supply as a “*prérogative régalienn*e”, and, as such, deeply incruste

d in national sovereignty. Regarding this starting point, many things have been done towards dialogue and the development of common rules, with the adoption, one year after this crisis, of the regulation on the security of gas

supply (common risks assessments, emergency plans in case of sudden disruptions). Reverse flows on gas pipeline are another progress allowed by the internal market legislation development. Before 2010, the gas could just be transported from East to West. For instance, a modification of the Yamal Pipeline status (joint venture between Gazprom and PGNiG, the Polish state oil and gas company) allowed Poland to get gas from Germany during the tough winter of 2012. According to Mr VINOIS, this episode shows how important it is to fully implement the legislation on the internal market.

Despite these successes, some difficulties remain regarding some intergovernmental agreements. For instance, agreements between Russia and some Eastern European countries are likely to hamper the full implementation of the EU's internal market rules, which have been extended to energy because of the Energy Community Treaty. Moldova and Ukraine are part of this treaty; Turkey wants to stay outside for now and asks for the opening of the chapter 9 (Financial Services) of the accession negotiations.

According to Mr VINOIS, internal market rules are absolutely vital to demonstrate the willingness of the EU to work in a consistent and coherent way with its neighbours. Those are the main objectives pursued by the 2050 Energy Roadmap and the Gas Advisory Council, which both included Russia. All scenarios for 2050 show gas consumption is likely to stagnate because of the improvement of energy efficiency and the development of renewables. The diversification of the European supply sources is an opportunity for Russia to diversify its client portfolio. To conclude, Mr VINOIS reiterated his main message, arguing that the EU's credibility in its external actions depends on its ability to fully implement the internal market rules.

3. DISCUSSION



Mr Evgeni KIRILOV, member of the European Parliament, enquired about the European Commission's position on the South Stream project, especially regarding the recent conclusion of an agreement between Gazprom and Bulgaria, the first country of the Black Sea to make such a commitment. His second question was about the failure of Nabucco – which is, in his opinion, not only a matter of energy – and the political aspects of other pipeline files (“little Nabucco” backed by Turkey and Azerbaijan, TANAP).

Firstly, Mr VINOIS reminded the audience about the European Commission's gas policy objectives to diversify the supply routes, sources and counterparts and about the highest priority rank given to the Southern corridor. South Stream is only adding a new route to the already existing one that transports Russian gas to Europe, but which crosses Ukraine, which is why the EU gives priority to the southern corridor, which could be made of several pipelines. Secondly, Mr VINOIS explained that the Nabucco concept was designed to have a dedicated pipeline to bring Caspian and Iraqi gases into the EU through the southern route. In his opinion, this concept is still quite alive, with the South Caucasus pipeline (which crosses Azerbaijan and Georgia and is to be extended), TANAP, which is under discussion at the moment, and two routes with the “Small Nabucco” (from the Turkish border to the

terminal of Baumgarten in Austria) and the Transadriatic pipeline crossing Greece and Albania to reach Italy. There are negotiations about these pipelines between the companies and the consortium which administrate Shah Deniz, the largest natural gas field in Azerbaijan. The European Commission is still supporting those projects that are part of the southern corridor and hopes that the Shah Deniz operators will take a decision by mid-2013.

South Stream is a Russian venture with individual member states. The Commission does not see the need for these new infrastructures because the gas road from Russia to the EU still exists. Some bilateral treaties concluded between some European member states and Russia did sometimes not comply with the internal market rules. According to Mr VINOIS and the National Regulatory Authority, abiding by these rules is a non-negotiable condition to properly launch the pipeline. The Commission has proposed to coordinate these negotiations to have a consistent approach. As a conclusion, Mr VINOIS stressed that the South Stream case will be treated like all the other pipelines' and simply needs to fully comply with the internal market rules.

4. CONCLUSIONS

Mr SARYUSZ-WOLSKI began by reminding the audience that the workshop had been organised and initiated so as to discuss the Roadmap 2050 redacted by the European Commission, on which the European Parliament had to take a stance.

According to him, the Parliament has to be critical towards the executive, and not apologetic. That is why expressed some criticisms about the document, in the hope that the second version would be more robust after this parliamentary session.

The first comment Mr SARYUSZ-WOLSKI made on the document was that it was static: it does not take into consideration the political dimension of energy policy (the fact that there are new producers, new technologies, new flows of supply and demand, etc.). The document is also "introvert" in the sense that it focuses on the sole internal market, which is no doubt important, but the external market must not be neglected either. Moreover, the climate policies are overoptimistic, for they only contemplate the best-case scenario, which is not without risks. Furthermore, the recommended measures (such as the implementation of the Southern corridor) look great on the paper, but may be difficult to take.

Energy is and will remain a foreign policy tool. Its geopolitical and external dimensions are not enough taken into consideration in the document. The EU should more invest in order to export its energetic regulatory framework into its neighbour countries and further, by using the tools it already has: the Third Energy Package, of course, but also the Energy Charter Treaty and the Energy Community Treaty, both of which are not mentioned enough in the document. As regards the predictions about the future energy demand, they are based on a scenario which may or may not come to life. Not considering other possibilities undermines the economic viability of the investments and the strategic infrastructures (such as the Southern corridor). Furthermore, the policies are incoherent, for if everything happens as expected, if there are less carbon emissions, if the countries do not depend on fossil fuels anymore, why would the EU need new infrastructures, new pipelines, and so on?



If a global climate deal is not struck (which is a possibility) and if there is no alternative scenario, the EU will then be faced with a geostrategic and security risk; that is why it is necessary to contemplate a scenario B. What if, in the future, the EU is still trapped between the climate target, the resistance of its global partners and the imperative of economic competitiveness on the global market? Energy policy should be viewed as a policy on its own, and not as a by-product of climate policy. The document must be realistic.

Energy policy could have a major impact on the EU's affairs in the future, a positive one if it is "europeanised", if the obstacles are overcome and if it becomes a strategic issue, and a negative one if the EU continues its current policy, that is if it keeps not taking notice of the world around it or overlooking the competitive aspect of energy policy.

It is necessary that the EU do everything in its power so as to implement efficient climate and energy policies. The EU's foreign policies must be both coherent and credible; they have to be addressed in a holistic way. The neighbourhood, trade and development policies have to be taken into account in the EU's energy and climate policies. Moreover, it is crucial to give up the single-driven approach which prevails today. Mr SARYUSZ-WOLSKI concluded his intervention by saying that the EU has to live in the real world, where foreign policy and energy policy go hand in hand and in which it is imperative that the European community learn to defend itself.

PART II: BRIEFING BY PROFESSOR ALAN RILEY

1. INTRODUCTION

The Energy Roadmap 2050 provides a framework for the development of European energy markets. However, one of the major difficulties for energy policy makers in the Union Institutions and in the Member States is to calibrate and then re-calibrate policy in the light of major energy developments. This is particularly difficult at this time. The world is at the beginning of perhaps the greatest development in the energy industry since the 1920s when coal was replaced by oil as the principal fuel for transportation. The so called 'shale gas revolution' has the potential to have as great an impact on energy markets. Like coal it is widely dispersed and when undertaken at scale is likely to be cheaper than all other fuel sources save coal and with good geology and the latest technology sometimes cheaper than coal.

At a geopolitical level the impact of the shale gas revolution is enormous. The 80:10 ratio which has held for decades—that 80 % of all fossil fuels are in OPEC countries and Russia and only 10 % in OECD countries and China is in the process of being imploded. The Americas may well end up the centre of fossil fuel production with the United States becoming the swing producer. Already North America is close to hemispheric energy independence¹.

Europe cannot ignore the shale gas revolution. Even if not a single molecule of shale gas is produced in Europe, Europe will be affected. One question for the Union and the Member States discussed below is whether American 'energy independence' has the effect of increasing European energy insecurity.

There is also a knock on effect on European climate change policies. Cheap gas in the United States may in fact mean American coal being dumped in Europe undermining both gas and renewables.

This short paper seeks to look at future European security issues through the lens of developments in the global energy markets. Part two provides an overview of developments which may affect European energy security; part three looks at some solutions which may be adopted to the questions raised in part two; part four offers a conclusion.

2. GLOBAL ENERGY MARKET CONTEXT FOR EUROPEAN ENERGY SECURITY

The 'shale gas revolution' is probably the greatest development in the energy industry since the 1920s. US production of shale gas has leapt from 1 % of natural gas production in 2001 to over 35 % in 2011. The EIA estimates that the US has 25tcm of technically recoverable resources of shale gas, combined with conventional resources enough to last the United States for 200 years². This 'revolution' is not confined to the United States, the EIA estimates that China has even greater recoverable resources. Substantial shale gas resources are believed to exist in Argentina, Mexico, Ukraine, Australia³. In all those states developed is now ongoing underpinned by assistance in all but Australia from the United States.

¹ Citibank, America the New Middle East? (New York, 2011)

² EIA, World Shale Gas Resources (Washington DC, 2011) 3.

³ WSR, *ibid*, 38.5tcm of technically recoverable resources.

The United States has so much gas available that prices have collapsed to approximately USD3MMBTU (the European equivalent is USD8-10 MMBTU). This has led to a major upswing in gas use, undermining the coal market which has seen coal for power generation fall to around 30 % of all power generation from a height of 50 % as recently as 2005⁴. Low gas prices are also rebuilding the American industrial base as chemical and other energy intensive industries are 'onshored back to the United States'⁵.

It is not only shale gas that is being found. There are also significant amounts of shale oil and hydrocarbon liquids being recovered. A recent paper from the Belfer Centre at Harvard University suggests that by 2020 the US could be recovering as much as 6.7 million b/d of shale oil and hydrocarbon liquids⁶. The US only imported 11mbd in 2011⁷.

From the perspective of European energy security there are a number of advantages and disadvantages from the shale gas revolution.

On one view the shale gas revolution in the United States increases European energy security. In 2010 it was clear that liquid natural gas shut out of the United States because of the shale gas glut headed to the European market creating significant market liquidity. This ended up being a temporary phenomena because of the draining of liquidity from the market due to the Fukushima disaster. However, while there is a tightening in the market it is also the case that a lot of LNG coming on stream; and that the 'shutout' effect on LNG experienced in the US may well occur elsewhere as shale gas production gets underway⁸.

In addition, there is the prospect of shale gas being shipped as LNG from stranded locations such as Alaska, Canadian Western Seaboard and from the Eastern Seaboard. Eastern Seaboard liquefaction facilities in particular, if they are permitted by the US Department of the Environment, could play a role in supplying European consumers.

There is still a US domestic argument to be addressed in respect of exported shale gas as some industrial producers take the view that shale gas as LNG would result in higher gas prices. However, there is a compelling contrary argument that shale gas is too cheap which threatens production levels and will result shortly in increased prices. Exporting shale gas as LNG is a means of generating additional revenues to maintain production levels and profitability.

Potentially even Eastern Seaboard shale gas could be exported to Asia not Europe. This at first sight is all the more likely as in 2014 the enlarged Panama Canal will be available to take LNG carriers into the Pacific. However, the scale of LNG and offshore developments in Asia, from the Australian shale and conventional gas developments to the Alaskan and Canadian export of shale gas as LNG raise serious questions of whether Asian prices will provide sufficient arbitrage to make shipments worthwhile. Furthermore, there is the danger of liquefaction capacity outstripping gasification capacity in Asia. Hence, Europe may find itself being able to draw on US shale gas as LNG.

In addition, there is likely to be more LNG coming on stream from a number of conventional and unconventional sources after 2015 as final investment decisions are made. Much of this new capacity

⁴ Martin, In Europe, Coal Regains its Crown, Forbes, July 2012.

⁵ IHS Global Insight, The Economic and Employment Contributions of Shale Gas in the United States, Washington DC, 2011.

⁶ Maugeri, Oil, The Next Revolution (Harvard, 2012).

⁷ EIA, Oil Import Figures in 2011, http://www.eia.gov/dnav/pet/pet_move_impcus_a2_nus_ep00_im0_mbbldpd_a.htm

⁸ BP Energy Outlook 2030, London, January 2012. The Outlook projects growth at 4.5 % pa to 2030.

will go to Asia. However, given the Chinese commitment to shale gas with a initial plan for 6.5bcm by 2015 and 60-100bcm by 2020 it is open to question how far all that capacity is likely to end up in Asia⁹.

Less happily from a climate change perspective, but positively from an energy security perspective the collapse in US gas prices has resulted in a surge of US coal being exported to Europe¹⁰. If as expected gas prices only rise marginally then this trend is likely to continue. As other states develop shale gas production it is likely that domestic coal production will be exported with one of the major destinations for coal being Europe. Europe would become the dumping ground for cheap coal, which while negative for CO2 emissions does provide Europe with energy security advantages.

Less happily is the impact of the shale revolution on the oil market. The US has moved to encourage development of natural gas in transportation, this will reduce demand for oil over the medium term. More substantially is the prospect for significant supplies of oil from shale oil plays. The US is already recovering over 500,000 b/d from the Baaken field. The Belfer Centre suggests that by 2020 a series of US oil shale plays could be delivering 6.6 mbd by 2020¹¹. Together with offshore and access to Canadian and Mexican resources, North America is likely to be 'energy independent' in oil within its hemisphere by the end of this decade.

The consequences for the European Union are profound. The EU and its Member States become increasingly dependent on the United States for supply security in respect of oil when the US itself is no longer dependent on middle eastern oil. Can the United States be expected to keep its military assets indefinitely, such as the Vth Fleet, in the Gulf as a public service to the European Union? Do the Member States with significant naval and military traditions such as the United Kingdom and France have to take a larger role in maintaining the security of the region and access of oil tankers to the Gulf and Suez?

This is not the only energy security issue here. As the Belfer report points out there is a non insignificant risk with new sources of oil coming onstream, from offshore to shale oil combined with diversion from oil to gas to create significant price liquidity. Traditionally, even a major fall in prices would not destabilize major oil producers like Saudi Arabia or Russia. The lifting price of oil was very low (often less than USD20 a barrel). Hence unless there were extreme price falls the major producers could tighten their belts and cope. However, the lifting price is no longer the key price.

The key price now is the social price. The social price is the price needed to maintain the incumbents in power and ensure social peace. That price is variously advanced for Saudi Arabia and Russia as being between USD80 and 110 a barrel. Clearly both states could deal with a temporary fall by drawing from their reserves. However, they cannot deal with any sustained fall.

The major energy security issue for the European Union is that any sustained fall in oil prices would undermine both Saudi Arabia and the Russian Federation potentially putting at risk oil supplies from both. In such circumstances Europe could face significant supply stress. The United States to protect its own access to resources could ban all fossil fuel exports. The Chinese would seek what oil resources that were available in the Middle East, leaving Europe dependent on whatever could be extracted from a chaotic Russia.

The shale gas revolution also has a major impact on the Union's renewable plans for developing solar energy in North Africa. The difficulty here is that as cheap coal is dumped in Europe, along later on with

⁹ China sets Target for Shale Gas Development, The Financial Times, 16th March 2012.

¹⁰ EIA, Coal Production Quarterly, 1Q 2012. The first quarter of 2012 alone saw a 49 % increase in US coal exports to the European Union.

¹¹ Mageuri, op cit.

significant LNG resources the market for imported renewable power will come under tremendous pressure. Equally, in domestic North African markets access to cheap coal and gas will make it difficult to develop a local renewable economy.

There are two other major developments worth noting. The first positive, the second negative for energy security. The positive development is the discovery of gas in the Eastern Mediterranean, the potential of the fields found in Israeli and Cypriot waters appears to be very significant with discoveries so far of approximately 1 tcm of recoverable resources¹².

More negatively is the overlooked report contained within World Energy Outlook 2011 that Gazprom needs to replace all 90 % of current production by 2035. In that time it needs to raise USD 730 billion in 2010 dollars to pay for both field investment and transmission pipelines¹³. One question that remains hovering over European gas supply security is the ability of Moscow to sustain over time sufficient investment to maintain supply. That question has to be asked when Moscow has withdrawn from provisional application of the investor protection provisions of the Energy Charter Treaty; the resource base is more expensive to develop than existing fields and with the shale gas revolution there are a large number of alternative and cheaper gas fields into which investors can sink capital.

3. OPTIONS AND ACTIONS FOR THE EUROPEAN UNION AND THE MEMBER STATES

In this rapidly changing energy world the EU and the Member States need to take steps to ensure their energy supplies:

3.1 Oil

The primary energy security threat stems from access to oil. In the first place the Union and the Member States should take steps to ensure that domestic resource production is secured and developed. This refers to both offshore and onshore developments, conventional and unconventional.

The Union can also look at how far it would be possible to reduce use for example by switching fleet vehicles to gas as a first step in reducing the use of oil in transportation. Creating national and EU gas transportation regulations, combined with national tax incentives to encourage the development of a gas transport infrastructure across the territory of the Union.

The Member States need to also consider how far they are prepared to provide support to the United States in their policing of the Gulf sea lanes. As the US moves toward hemispheric 'energy independence', the EU and its Member States cannot expect to remain the pre-eminent global free riders.

3.2 Gas

The Union needs to look carefully at how to develop its own resources. Whilst there is greater liquidity on its way to Europe this cannot be guaranteed at least in the short to medium term. Equally given the scale of investment required in the Russian gas market, the Union cannot rely on gas supplies being

¹² For a discussion of the scale of the resource base and its implications see Natali, The Eastern Mediterranean Basin: A New Energy Corridor, INSS, July 2012.

¹³ IEA, World Energy Outlook 2011, 310.

delivered from that source either. Both onshore and offshore resources need to be developed, largely by Member State, incentives to develop and enhance domestic supply. This would include shale gas.

There is also a major environmental consideration here: If Europe does not its own domestic gas resources it is almost certainly doomed to become the global supply dump for coal. Conventional gas resources have a chance to become competitive against imported cheap coal with application of the ETS or a carbon tax. Without domestic production it is likely imported cheap coal will undercut more expensive imported gas.

3.3 Eastern Med

The difficulty with the Eastern Med gas resources is the complexity and scale of the legal problems from the Cyprus question; to economic zone disputes to the status of the Palestine Authority. While these issues are complex the potential of opening up these resources for the region and the Union is considerable. The Union and Member States with experience of offshore development should look at assisting in development.

3.4 LNG Strategy

The EU and the Member States should consider directly making representations to the US government in respect of gas export licences for LNG. Foreign policy interests of the United States is one of the DOE's basis for assessment. The Union can make a very powerful case for a mutual interest between the US and Europe in ensuring LNG exports take place.

3.5 Renewables

In a world of cheap and unlimited coal and gas it will be difficult to launch major renewable projects. Renewables will suffer immense demand destruction and investors refuse to make capital commitments to those markets. However, this does not mean the Union should give up on renewables. One approach is to combine development of gas resource development in North Africa with development of renewables at scale. The gas resource development provides the revenue stream which, together with Western investment capital, can be deployed to then begin building the renewable network and infrastructure.

4. CONCLUSION: DEVELOPING THE ROADMAP TO DEAL WITH EUROPEAN ENERGY SECURITY

Europe faces a very difficult external energy policy situation. Its conventional resources are dwindling. The United States no longer shares a common supply need for Middle Eastern oil but continues to protect the resource. Given the dysfunctional nature of the Russian gas market, significant quantities of imported gas supplies are also at risk. Renewables are being undermined by coal dumping and to a lesser extent by gas.

The Union and the Member States need to create a clear strategy to ensure supply security. There is also a case for the Union learning from the United States. In November 2011 the State Department established the Energy Resources Bureau within the Department to undertake the planning to ensure US supply security. There is a case for the EAS and the Commission together to look at creating its own ERB to work with the Member States to plan and execute such a strategy.

However, ultimately supply security is likely to remain a Member State prerogative. Wherever the political and legal authority is situated the case remains that the European Union is becoming increasingly vulnerable to supply threats in respect of oil but also potentially gas.

PART III: POWERPOINT PRESENTATION



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Shale: Turning the World Upside Down

- European External Energy Policy is not taking account of the global impact of the shale revolution
- European environmental arguments are resulting in policymakers missing the bigger picture.
- The ability to access shale rock cheaply and easily for fossil fuels is the greatest development in the energy industry since the 1920s



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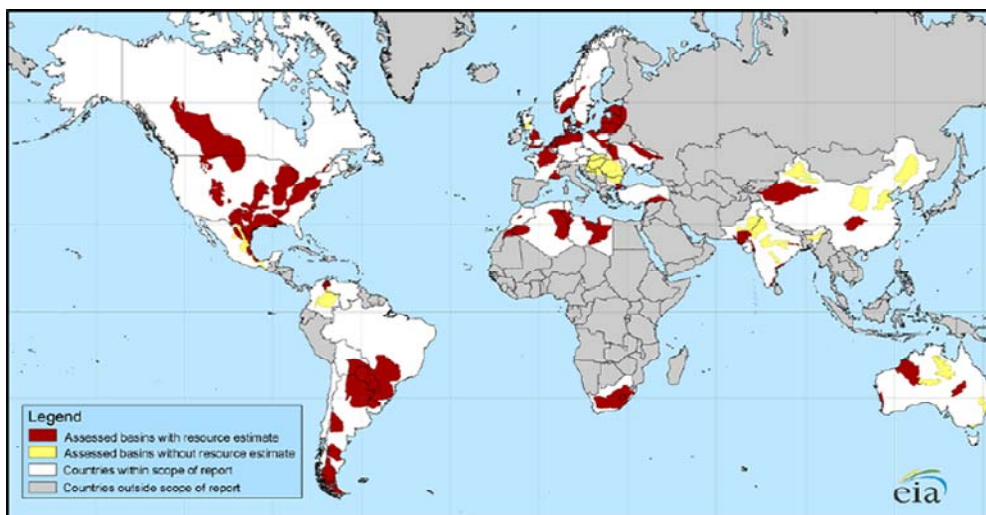
80:10 Ratio Dead

- 80:10 ratio
- 80% of fossil fuels in OPEC countries and Russia
- 10% in OECD countries and China
- Profound geostrategic consequences



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Shale Gas: Cheap & Widely Dispersed



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US Energy Transformation

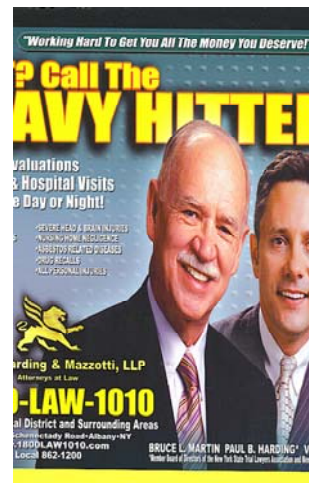
- In 2001 US shale gas production 1% of US gas production
- 2011 shale gas represented 34% of US gas production
- 25tcm of recoverable resources
- US surpassed Russia as the world's largest gas producer
- Prices collapsed to \$3MMBTU (Europe 10-14)
- Manufacturing Renaissance in the US.



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Environmental Implications

- Controversy in Europe over shale gas development
- Over 1 million fracs in US yet the American tort bar is nowhere to be seen
- Given financial advantage of civil litigation in the US any major problem with shale would have resulted in mass claims



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Real Environment Issues

- Scaleability....coping with logistic and regulatory impact
- Weak States
- Gas Complacency
- Solutions include a Shale Gas Trust in the EU.
- Maintain pressure to avoid complacency..carbon tax and renewable investment



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Hemispheric Energy Independence

- US is 'independent' in gas
- Hemispherically independent in oil.
- Profound geopolitical consequences for Europe and China
- China move toward energy sufficiency 38tcm of recoverable resources



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Implications for EU Energy Security

- Greater availability of gas resources from a broader range of sources
- Even if the EU does not develop shale gas itself
- Over time the prospect of a greater variety of sources of gas for the EU



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LNG Flows into Europe

- Shale gas has already an impact in Europe
- 2010 LNG dumping due to 'shale shutout' in US
- Fukushima drained liquidity
- But indicated trend
- More shutouts in prospect
- Shale gas as LNG



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Less Positive Impact of US Shale Gas

- Coal 50% of US power generation in 2005
- Now 30%.
- Shale gas cheaper than coal
- Coal dumping in Europe
- Danger of even greater coal dumping
- Good for energy security
- Not good for the environment



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Greater Oil Dependency for Europe

- US at least hemispheric independent in oil
- US does not need middle east oil
- US military assets provide security for EU's oil supply
- For how long will the US render this social service for the EU?



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Dangers from the Social Price of Oil

- Traditionally the key price of oil has been the 'lifting' price
- In some parts of Saudi Arabia and Russia the lifting price could be as low as \$5 a barrel.
- Now however the key price is the social price-the price needed to maintain social peace
- Prospect for the EU of oil price flows being disrupted by chaos in oil producing states



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Reinforced by Home Refuelling

- Already US is promoting natural gas transportation
- Tax regime for fleet vehicles
- Energy 'killer app' Home Refuelling Kits...turns US natural gas network into millions of refuelling stations
- Potential for radically reducing US oil demand



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Greatest Energy Danger for Europe

- Shale oil and natural gas transportation boom push the oil price to a structurally lower price
- Structurally lower prices disrupt oil flows to Europe and ignite regime change
- US largely unaffected by turmoil has own domestic supplies and those of neighbours.
- Europe oil supply stressed



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European Energy Security-Solution 1

- Supply Security for Oil for Europe requires greater commitment to ensure oil flows
- Greater co-operation with the US in protecting oil flows from the middle east



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Solutions for Europe-New Gas Sources

- LNG Resources-US and other states potentially provide gas to Europe
- Algeria and Eastern Med gas development
- Shale gas in Europe?
- Act on gas transportation and Home Refuelling



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Coal & Renewables

- EU needs to seek international coal suppression agreements
- Coal carbon adjustments at border
- Deploy renewables alongside gas in North Africa to provide base for desertec developments?



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European Energy Security

- EU is not an energy island
- Even if Union decides to do nothing it will be profoundly affected by the shale revolution
- To do nothing is to leave Europe as the global market for coal dumping
- And also to leave Europe highly dependent on increasingly insecure oil supplies



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