

6<sup>th</sup> Transatlantic Energy Security Dialogue

## Strengthening Europe's Role in Global Energy Governance

### ***Conference Report***

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# 1. Introduction

In recent years, calls for a “single European voice” in global energy relations have garnered increasing attention among policymakers in Brussels as well as EU member states. Supporters of a European “Foreign Energy Policy” claim that such a “single voice” is crucial for the EU to effectively deal with the many energy challenges it is confronted with in the 21<sup>st</sup> century. Critics of such a “single voice” allege that member states will never cede sovereignty to a supranational body in such a crucial policy domain and also frequently assert that the European Commission does not yet have the necessary expertise and experience to be a competent leader on external energy policy. These discussions have received the most attention in the context of the evolving European gas market. Internally, liberalization and deregulation are being pursued with the objective of fostering more competition and more efficient markets. Externally, however, the EU is confronted with a supply oligopoly that is raising thorny political issues.

Thus far, the substantive debate on Europe’s “single voice” in global energy has remained rather superficial. Significantly, it remains preoccupied with buzzwords such as “import dependence,” implicitly assuming its inevitability and always means vulnerability; it also tends to ignore the key role markets play in today’s energy business, especially the extent to which the “rules of the game” – the institutional infrastructure underlying increasingly global energy markets – determine outcomes in these markets; and it constantly alludes to the goal of combating climate change without specifying what mechanisms would actually allow linking the issues of security of supply and emissions reductions. Thus, proponents of a Europeanized external energy policy often base their assumptions on a fairly narrow interpretation of how global energy relations are evolving and what the key challenges are that the EU and its members are confronted with in the years ahead.

This Transatlantic Energy Security Dialogue (TESD) session provided an important and timely opportunity to broaden the debate on Europe’s role in global energy governance. The conference was structured around three main substantive parts:

*First, an analysis of Europe’s role in global energy relations.* Throughout the conference, one of the red threads was Europe’s external energy policy and the mechanisms and instruments the Union has at its disposal to project an external energy and climate policy. Furthermore, the conference was designed to identify gaps in the EU’s toolbox, specifically with regard to the evolving structure of the gas market. Within the context of a liberalized internal market, the conference addressed how the EU can effectively confront an oligopolistic external supply situation, a discussion which also included perspectives from other key players in the global energy market, most notably the US and China.

*Second, a review of the challenges the EU and its member states are confronted with in the energy domain.* Building on the first panel, which focused on “Taking stock: Europe’s role in global energy relations”, the conference moved on to a session of parallel working

groups to zoom in on three specific issues: the future of gas transit in Europe and the prospects of enhanced competition; the prospects for LNG in the European gas market; as well as mechanisms to manage Europe's dependency on foreign oil in the years ahead. This discussion also took various current trends into consideration, including (i) the ongoing global financial crisis and its effect on demand, levels and pace of energy investments; (ii) the changing nature of the natural gas business and its effects on existing contractual and market structures; and (iii) the design and impact of climate mitigation policies, focusing on the evolving demand for low sulfur crude, and on the development of carbon markets and potential Kyoto-2 schemes that are likely to profoundly affect markets of fossil fuels and their relative prices.

*Third, an assessment of Europe's climate change policies, with a particular focus on the EU-China relationship.* During the past decade, the European Union has provided global leadership in the field of climate change mitigation – one key example of the emerging European role in global energy governance. In this context, one of the major challenges the EU is confronted with is China. China is now the world's largest emitter of CO<sub>2</sub>. Yet, thus far, China opposes any binding commitments for emissions reductions. Notwithstanding the tough stance the Chinese are taking in global climate talks, the Chinese domestic position on the climate challenge has shifted in interesting ways in recent years, providing some hope for more engagement in the future. A panel discussion explored the potential role that the EU can play during this crucial phase in the evolution of China's approach to climate change. Working group sessions zoomed in on two specific issues: the way in which the EU formulates its climate policy towards China (with a particular focus on CCS technology) and the future of the CDM mechanism for China.

The concluding panel discussion provided an opportunity to discuss the future prospects of a European foreign energy policy and potential alternative scenarios.

This TESD brought together professionals from all sectors (governments, NGOs, business, the media, think tank and universities) in order to promote constructive debate on these issues through speeches, panel discussions and small working groups. The dialogue sessions were also designed to complement our research program on global energy governance and serve as an important forum for both presenting our ideas and receiving feedback. The dialogue was generously supported by the European Commission, the Dräger Foundation and E.ON Ruhrgas AG.

The following report is based upon conference proceedings and is divided into the following sections: Chapter 2 discusses the potential for a European common voice on energy affairs vis-à-vis its energy mix and supply regions, namely the Caucasus region and Russia. Chapter 3 focuses on the role of the EU in engaging China in global climate governance. Chapter 4 concludes.

## **2. A Common European Energy Policy?**

On 1 December 2009, one day prior to the convening of this Transatlantic Energy Security Dialogues session, the Lisbon Treaty came into force and Catherine Ashton assumed her post as the first High Representative of the Union for Foreign Affairs and Security Policy of the European Union. While conference participants stressed that the Lisbon Treaty is both a big ambition and an important means to an end for creating a common vision on foreign policy, this is only the first step—there is still a long way to go before a single voice on energy policy will be achieved.

A framework for the conference was established with a discussion on two separate European agendas that have defined the EU's energy policy to date: The Brussels Agenda and the Transatlantic Agenda. The Brussels Agenda emphasizes a leading role for Europe vis-à-vis climate change and environmental policies, regional economic issues and the new neighborhood agenda while the Transatlantic Agenda stresses a regional approach for Europe regarding energy issues, with the U.S. dealing with the key issues on a global scale. However, with U.S. President Barack Obama “hitting the reset button” with respect to global relationships, there is now some degree of alignment between these two agendas with the U.S. emphasizing a greater role for Europe in global affairs while, at the same time, slowly embracing new policies to mitigate climate change, including potential involvement in a global post-Kyoto deal.

Most participants agreed that the EU has a relatively comprehensive and understandable voice with regards to climate policy, which represents Europe's key contribution to global energy governance. This will be discussed more in Chapter 3. Regarding energy, this is a different story altogether. While participants generally agreed that it is necessary for the European Union to speak with a common voice regarding energy issues, they also stressed that this is an extremely tricky issue as there are a wide range of voices arguing from many perspectives. Whether it is denouncing Russia for politicizing resources or voicing skepticism over the power of commodities markets to generate effective competition, the perspectives are often times shrill and reductive and thus not particularly productive.

In this context, conference participants discussed Europe's energy import needs, the regions from which these resources (primarily oil and natural gas) come and from which could be supplied in the future, and how a “single voice” on foreign policy vis-à-vis energy could be wielded.

### **2.1 Europe's Import Needs: Oil and Natural Gas**

Europe's dependency on gas imports has received much political attention in recent years. In contrast, Europe's reliance on oil to fuel its economy (and in particular its transportation sector) is often overlooked. Domestic supplies (in particular from the North Sea as well as Norway) are set to decline while biofuels, at one point thought to be a viable alternative, have seen limited growth and also raise other thorny political issues.

Further attempts to foster energy efficiency will reduce Europe's oil intensity; however, the Union will remain dependent on oil imports for the foreseeable future.

In 2007, oil consumption in the European Union was roughly 700 million tons. Of this, about 33 percent was supplied by Russia, 17 percent by the EU, 13 percent by Norway, 6 percent by Saudi Arabia, 6 percent by other Middle Eastern countries and 20 percent by the rest of the world. According to projections, EU oil imports will hardly change until 2030.

The EU's import dependency has a number of political implications. First, as Russia has provided almost a third of EU oil imports, the EU must develop a stable relationship with Russia in a global context. Second, the EU will need to pay for its oil diversification through the financing of Eastern/Central European infrastructure. Third, the EU will need to develop a comprehensive strategy for Africa. Lastly, the EU will need to ensure its energy security by attracting enough oil supply to meet demand projections, which with competition from the East, i.e. China and India, may prove to be difficult.

With respect to natural gas, as a whole the situation is better, since domestic production satisfies about two fifths of consumption needs. Gas is mainly imported from four big suppliers: Russia (~42 percent), Norway (~24 percent), Algeria (~18 percent) and Nigeria (~5 percent). However, the share of gas imported from Russia is set to grow in the years ahead unless the EU can further diversify its gas mix.

The Russian-Ukrainian gas crisis has focused the attention of policymakers on Europe's (growing) dependency on Russian gas. Early accusations of Russia as the main culprit behind the crisis – presumably engineering a gas shortage to accomplish political objectives – have given way to a somewhat more nuanced discussion that has shed light on the complex and often murky structure of transit arrangements that govern gas trade.

Moreover, the global economic crisis has led to a significant demand decrease for natural gas (e.g. in European gas-to-power and industrial consumption), and the timeframe for economic recovery is uncertain. However, even if the next years will be characterized by oversupply and price volatility due to the current supply glut, supply is being diversified and the contractual outlook is quite positive with many long-term contracts in place.

Notwithstanding the economic crisis, the market for gas in the EU is growing rapidly and projections are that by 2030, EU gas demand will be twice that of China and India combined. One major concern is that the current sluggish economic climate is causing underinvestment in large long-term projects necessary to satisfy increased future demand. Furthermore, the quest for diversification has triggered discussions on the need to stabilize the traditional corridors, new supply routes, as well as diversifying through Liquefied Natural Gas (LNG) imports.

While pipelines are the most economically efficient method of transporting natural gas, the growth of LNG and the development of a global gas market are creating new opportunities for diversification of natural gas supplies. The surprising non-conventional (shale) gas revolution in the United States has fundamentally changed the market for LNG and has had a profound effect on the attractiveness of the European Union as a

destination for LNG. The increase in U.S. domestic gas production has significantly lowered its gas import estimates and has thus freed up LNG cargoes for other markets, including Europe, at more favorable prices.

However, while current demand is low, projections forecast tight markets in the future due to underinvestment and an increase in demand coinciding with economic recovery. This may call into question the attractiveness of the EU as an LNG destination while the premium markets in East Asia attract higher prices.

Moreover, while LNG can provide a source of gas diversification, an increase in the number of LNG ships traveling through maritime chokepoints presents additional logistical as well as security implications.

## **2.2 Russia and the Caucasus: Testing Europe's "Common Voice"**

The Caucasus region provides the most geographically convenient source for diversification of EU oil and natural gas supplies. The Caucasus region has been a historical battleground for control of overland trade routes amongst China on the east, Europe on the west, and Russia to the north. When oil and gas discoveries first occurred in and around Baku and then in Kazakhstan, Turkmenistan and Uzbekistan, the new energy trade replaced historic overland trade routes. Russia's dominance effectively forced this energy trade to develop in a north-south pattern with energy routes, including pipelines, all moving north into Russia.

Today, the effort to break Russia's monopoly on transport routes is at the forefront of energy politics in the region and there are a number of players involved. First and foremost is Russia, which maintains its political and economic hegemony over the region. Secondly, there are those countries in this region carefully moving away from Russian dominance while balancing competing interests. Third is the European Union, whose goal is to diversify its energy sources (primarily gas) to satisfy its energy security needs, meet future internal demand and reduce dependence on Russian gas. Fourth, the United States is seeking to enhance its political and economic influence to counterbalance Russia and China. Lastly, China is in the midst of developing long term relationships for its energy security.

The focus of this game is primarily on oil and gas pipelines, the most economical method for long-distance overland transportation. While Russia views control over pipelines as a means to maintain its political and economic hegemony, China, the EU and the US view new pipelines as a means to break Russia's dominance and at the same time, help the countries of the region diversify economically and politically. However, the US non-conventional (shale) gas revolution has also made Europe much more attractive for incoming LNG shipments, providing yet another avenue for European diversification of natural gas supplies.

### *2.2.1 Europe's Oil Import Dependency and the Changing Landscape in Central Asia*

Surplus oil production in Azerbaijan and Kazakhstan enables substantial export to western and eastern markets. In Azerbaijan, oil production at present is about 1 million barrels per day (bpd), with peak production estimated at 1.3 million bpd by 2018. Of this production, roughly 900,000 bpd are available for export. In Kazakhstan, oil production is currently at about 1.5 million bpd with a peak estimate of 2.7 million bpd in 2025. Of this production, roughly 1.2 million bpd are available for export, of which 60 percent go through Russia, 20 percent to China, 15 percent to the west, and 5 percent elsewhere.

In the game for oil resources in the region, Russia's monopoly on supply has seen five "cracks":

- The first crack occurred when Azerbaijan opened its oil sector to western oil companies, who subsequently revived old pipeline and rail routes from Baku to Supsa and Batumi on the Georgian Black Sea coast.
- The second crack occurred when Kazakhstan opened its oil sector with the Tengiz field, which was developed by Chevron, ExxonMobil and other western companies. In order to move the Tengiz oil 1500 kilometers to the Black Sea, the Caspian Pipeline Consortium (CPC) pipeline opened in October 2001. While the CPC pipeline traverses Russia, it is only a trunk oil pipeline and is not operated by Russia's state-owned Transneft.
- The third crack came with the development of the 1,100 mile, 1 million bpd Baku-Tbilisi-Ceyhan pipeline (BTC) from Baku via Georgia to Turkey's Mediterranean Coast in July 2006. The pipeline links the Caspian Sea and Central Asia to western markets while bypassing Russia.
- The fourth crack was the Kazakhstan-China pipeline, which opened in July 2006 and carries Kazakh crude from eastern Kazakhstan to China. In July 2009, the pipeline was completed from Atyrau across Kazakhstan to China.
- The fifth crack in the Russian monopoly occurred with the barging of oil across the Caspian Sea through the Trans-Caspian barge system, which ships oil from Kazakhstan's Aktau port to Baku and the BTC pipeline in the amount of 200,000 bpd. Shipments are expected to increase when the Kashagan field opens.

This combination of Russia's receding oil dominance through Chinese penetration into Kazakhstan and Turkmenistan, as well as Azerbaijan's, Kazakhstan's and Turkmenistan's market diversification provides an opportunity to Europe to diversify its oil imports.

### *2.2.2 Natural Gas and Pipelines*

During the past two decades Central Asia, specifically the Caucasus Region, has emerged as one of the most promising regions for energy sector investments, both with regards to oil and, even more significantly, gas. Major western consuming nations –

notably Europe and the United States – have taken an active interest in the region and are actively pursuing upstream opportunities, particularly in the “Stans.” Russia targets the region as an integral part of Gazprom's long-term supply strategy for European markets; and China has recently come to be engaged in several multi-billion energy projects, including pipelines linking the region with the Chinese market.

Gas reserves throughout the Central Asian region are substantial, with the exception of Turkmenistan where the potential is extremely large. Today, Turkmenistan has the fourth largest gas reserves in the world, with new potential to more than triple current reserves. Azerbaijan, Kazakhstan, Uzbekistan, and Turkmenistan all satisfy their own needs and leave significant volumes for export.

Russian regional dominance complicates the picture. Gazprom is the dominant purchaser of Central Asian gas and cheap gas from Kazakhstan, Uzbekistan and Turkmenistan is used by Russia to augment the monopoly of Russian gas production while increasing its share of European export markets. Russia has monopolized Central Asian gas production and transportation through long-term contracts for the capacity of the Central Asia Center Pipeline (CAC), which connects Kazakhstan, Turkmenistan and Uzbekistan.

However, a number of developments are undermining the Russian stranglehold over Central Asian gas. In Azerbaijan, the South Caucasus Pipeline (otherwise known as the Baku-Tblisi-Ezerum (BTE) pipeline) from Shah Deniz Caspian Sea field to Turkey (via Georgia) provides Azerbaijan with the ability to become a gas exporter and eliminate Russian gas from its market. In Turkmenistan, the new President is intent on diversifying Turkmen gas development and exports away from Russia to China and possibly to the west. In this respect, Chinese penetration of Central Asia is an important component for breaking Russia's domination.

In the EU, there have been strong political and economic efforts to build the Nabucco pipeline through Turkey to EU markets and source some of the gas for Nabucco in Central Asia (with Iraq as another potential source of gas). On 13 July 2009, Nabucco and its partners signed transit agreements with Turkey, Bulgaria, Romania, Hungary and Austria to permit the Nabucco pipeline to carry gas across each country's territory. Regarding supply to the pipeline, Turkmenistan President Gurbanguly Berdymukhamedov indicated that the Southern Yoloten field has enough gas to supply Europe through Nabucco.

On the other hand, the private venture White Stream, which shows up in the EU's strategy for a Southern Corridor for natural gas to Europe, would provide an opportunity to carry Azeri gas directly to Europe, bypassing Turkey. The private companies would transport gas across Georgia (relying on a 100 mile pipeline from the South Caucasus Pipeline to the port Supsa in Georgia), under the Black Sea for 1,100 kilometers to the Romanian coast near Constanta, and then use Romania's gas transmission system to supply EU markets.

Overall, the EU's Southern Corridor gas strategy includes Nabucco, White Stream and the Turkey-Greece-Italy Interconnector with potential capacity ranging from 60 bcm to 120 bcm, considerably larger than Nabucco's 31 bcm capacity. In this respect, adding White Stream to the Southern Corridor strategy removes competition between Nabucco and White Stream and it also sends a message to Turkey to stop trying to monopolize gas transit from the Caspian to Europe.

### **2.3 Conclusion**

Participants stressed that EU member states have different needs with respect to gas imports. Thus, the Lisbon Treaty by itself is unlikely to create a single, unified voice. The European market for natural gas is much different from that of oil, which has a functioning OECD-wide governance structure in the form of the International Energy Agency. In many respects, Europe has 27 different experiences regarding gas and formulating a common voice on gas policy thus becomes exceedingly difficult. For example, if there are disruptions in gas delivery to Western Europe through Ukraine, neither Spain nor the United Kingdom, for example, will be significantly affected. In this respect, there are generally three separate groups of countries in the EU: those that rely heavily on Russia for supply; those that rely on Russia but have alternate energy supply possibility; and those that have their own energy reserves. Thus, some participants argued that a single voice is not possible and what must be striven for is rather a harmonious choir of voices.

Europe's external energy policy role up until now has been exporting market liberalization rules in order to prevent market distorting behavior and to tie others to rule-based competition. Competition and regulation are, in essence, the strength of the EU. However, a one-size-fits-all solution will not work, for example, the EU cannot treat Russia the same as it treats, say, Azerbaijan and thus tailored solutions are needed.

While some participants stressed that the issue of gas supplies can be settled commercially, others emphasized the point that gas supplies are not just a private issue because the heating of homes is also a domestic policy issue. Furthermore, as import needs to different EU countries vary – for example Germany is relatively well-balanced in its gas supply while Bulgaria imports 98 percent of its gas from Russia - participants stressed that solidarity is needed among EU member states, especially in cross-border issues.

There was a general consensus among participants that, while possible, another gas crisis this winter is unlikely due to economic reasons. Russia wants to avoid another political disaster because a shutoff would affect prices and thus demand of Russian gas. Participants also noted, however, that the Ukraine crisis proved to be an example of the European common voice being utilized vis-à-vis energy.

Some argued that the European Union needs to speak in a language the world understands. In other words, a single European voice on energy must have a clear geopolitical and security dimension. However, others emphasized that in a world where consumers become ever more import-dependent, the uncomfortable truth is that more

consumers are competing for the same resources and it has become increasingly necessary to speak the language of producers as well. Some even argued that the EU doesn't need a single voice in energy policy, but rather an EU-Russia policy. For example, the issue of NATO expansion is creating tensions with Russia, has an impact on energy relations and is just one area in which a solution should be found.

Moreover, in order for the EU to ensure that it has a credible voice abroad, it needs to get things in order at home in the energy field, for example, by both following through with its push for a single European gas market - which harmonizes market conditions, creates competitive markets for power and gas and promotes liquid hubs and interconnections - as well as reaching its 20-20-20 goals.

In addition, it was commonly agreed that the EU must continue with its strategy of diversifying its supply routes and sources. In this context, the EU's Southern Corridor strategy, including Nabucco, White Stream, the Interconnector between Turkey, Greece and Italy (ITGI) provide plausible options for Central Asia. In the medium-term, the Ukrainian corridor is indispensable and cost-competitive, while a "Fourth Corridor" could bring gas from the Caspian region. Moreover, new infrastructure and LNG supply contracts could enable flexible supply from new regions. Although Nabucco provides some competition with China's efforts to develop secure sources of energy, as long as China believes there are ample resources for both its needs and for Nabucco, confrontation is not likely. The mutual goals of the EU and China for energy security provide an opportunity to work together, while their mutual problem is Russia's continuing efforts at economic and political hegemony.

In order to directly address the Russian issue, participants stressed the need to continue addressing the redesign the Energy Charter Treaty to represent new realities and, in doing so, bring Russia to the table rather than shutting them out.

Regarding LNG, projections anticipate a tight market in the future due to underinvestment and a more favorable economic climate. While the non-conventional gas revolution in the US has significantly changed the LNG market and has made Europe a more attractive destination for LNG supplies, an increase in imports would necessitate the construction of additional LNG capacity.

Lastly, the EU's climate change ambitions are arguably the one key area where Europe is making a leading contribution to global energy governance efforts. Unlike energy, where it is difficult to agree on a common position among member states, the climate problem is relatively well-defined. The challenge in this context is the security of the transition to a low-carbon society and bringing together all parties to discuss how to govern a global climate mitigation system and what international rules are needed. Europe's role in global climate governance is discussed in the next section.

### **3. Engaging China in Global Climate Governance**

China's ascent to becoming the most prolific emitter of greenhouse gases (GHG) in 2006 has prompted the EU nations to focus their global emission reduction ambitions not only at home but in the developing world as well. China's emissions in 2006 amounted to 5.7 billion tons with projections showing this number doubling by 2050 (a roughly 2 percent increase each year). On the grounds that the developed nations have developed with the freedom to emit GHG without restriction, however, China's leadership persistently refuses to commit to any binding reduction agreements. Despite this, the dynamics in China have gradually been shifting in favor of action and increased participation in climate governance. The challenge for the EU, then, is to strengthen bilateral cooperation with China and engage them towards further action. This could be achieved in several ways, including (1) understanding the internal dynamics of China's climate policies, (2) working together to develop low-carbon technologies in China such as CCS, and (3) establishing effective financial policy mechanisms to strengthen these ties.

While Copenhagen was expected to set the direction and framework for change, bilateral relationships will remain critical to delivery. In this respect, the EU-China relationship is extremely important and, in fact, already quite vast. Most prominently, the EU is China's largest trading partner and China is the EU's second largest trading partner. Second, The EU is the dominant technology supplier in China, supplying over 50 percent of technological imports, 17.5 percent of services imports and 7.5 percent of foreign direct investments.

The EU, as the largest common market and China, as the world's fastest growing economy, have a combined market power to generate benefits of scale in the diffusion of low-carbon goods, services and technologies. Moreover, foreign enterprises are driving much of China's economy and multinational corporations are key contributors to China's expanding trade capacities.

In order to help shape China's emerging role in global climate governance, the EU will have to first come to terms with its own plurality of interests and priorities vis-à-vis China and climate change. In turn then, the EU should develop a deeper understanding of the internal dynamics, the actors, and their respective interests driving the domestic debate within China. While concerns over economic development targets still firmly dominate China's energy and climate change policy, the domestic debate has become much more incongruent, with a plurality of actors taking on varied positions on these issues.

This understanding of China's internal politics will help the EU to better identify potential tipping points to drive the Chinese towards emissions mitigation as well as to identify potential allies within China to facilitate the transition. In addition, as China increasingly engages with Central Asia to secure energy supplies, it is essential to determine to what extent this impacts European energy security strategy and how the EU and China can effectively cooperate in bringing these resources to the market.

### **3.1 China's Emerging Role in Climate Change Governance**

While many call for China to take a larger role in global climate governance, the challenges for Chinese leadership are many, including poverty eradication (over 200 million people are living under the poverty line of 1 US dollar per day); air and water pollution (with 400,000 associated deaths annually); and the country's heavy dependence on coal.

However, over the last 20 years the Chinese position on climate change has evolved considerably. Although China maintains its general position of refusing to accept a binding reduction in GHG emissions, their willingness to address climate issues voluntarily has changed. First, China's view on the three flexible mechanisms of the Kyoto Protocol, especially the CDM, has changed from suspicion to support. Second, in respect to financing and technology, China is more willing to pursue a win-win technology transfer mechanism and reciprocal technological cooperation. Third, having concentrated on the UNFCCC and the Kyoto Protocol in the past, China now holds a more open attitude towards other means of international climate change cooperation. Fourth, China has shifted from relying on voluntary mitigation activities at home to measurable, reportable and verifiable nationally appropriate mitigation commitments or actions. Fifth, China has shown increasing willingness to help developing countries with adaptation to climate change.

China understands the threat of climate change and has made a number of high-level commitments to move China towards a low carbon economy and a greener society. In June 2008, President Hu spoke of the need for China to "...accelerate the shift of economic development mode, enhance the conservation and high-efficiency use of energy, actively develop a circular economy and a low-carbon economy..." At the National People's Congress in March 2009, Premier Wen underlined China's commitment to make green investment a key part of fiscal stimulus. The National People's Congress also endorsed the long-term vision of moving to a low carbon economy that was confirmed in President Hu's speech to UN Climate Summit in September 2009. Furthermore, in November 2009, China announced a target to reduce carbon intensity by 40-45 percent by 2020 from 2005 levels.

To implement these changes, China also has developed ambitious policy commitments, including the 11th Five Year Plan (2006-2010), the National Climate Change Programme (2007) and the "Circular Economy" Law (2008). Furthermore, policies are being developed to reduce energy consumption intensity by 20 percent in 5 years to 2010, which would save over 1.5 billion tonnes of CO<sub>2</sub>-equivalent—four times that of the EU-15 Kyoto commitment. Moreover, China is on track to reach 15 percent of total energy supply through renewables by 2020 and is a world leader in solar and wind capacity.

So what domestic efforts is China currently undertaking to fight climate change? China plans to reduce energy intensity by 20 percent in 2010 from 2005 levels; the share of renewable energy will be raised to 10 percent; and coverage of forest will be raised to 20 percent. Prior to the Copenhagen climate summit, China announced it would reduce the

intensity of carbon dioxide emissions in 2020 by 40 to 45 percent of 2005 levels, increase the share of clean energy in its energy mix from current 9 percent to 15 percent by the year 2020, and increase forest coverage by another 3 percent from 2010 to 2020.

Moreover, China is aiming to strengthen its research as well as its capability of climate change adaptation by establishing climate monitoring, early warning and disaster prevention systems. At the same time, in order to further enhance leadership of the work on climate change, the National Leading Group to Address Climate Change, headed by the Chinese premier, was set up in 2007 to draw up important strategies, policies and measures related to climate change, and coordinate the resolution of major problems in this regard.

China has also revised its “Law of renewable energy” by providing subsidies for solar and wind, developing energy consumption standards for products and providing incentives for import of new energy technologies. Albeit from a relatively low baseline, the production of new and renewable energy has increased by 60 percent from 2005 to 2008, the installed capacity of wind power has doubled in year 2007 and year 2008 and the share of new and renewable energy in primary energy has increased from 7 percent to 8.9 percent.

Despite these actions, China still faces significant challenges. First and foremost is the imperative of economic growth. At present, the per capita GDP is about USD 2,500 in nominal terms, which is less than 10 percent of the EU average. Second, China currently has an extremely energy and carbon intensive economy, with 48 percent of the world’s cement, 35 percent of its steel and 28 percent of its aluminum produced in China.

Thus, the main challenge is to juggle rapid urbanization, industrialization, and poverty reduction with the transition to a low carbon economy—a monumental task that no country has ever managed at this stage of development. In order to commit to accelerated domestic de-carbonization, China would like to see strong emission reductions in developed countries; to believe that committing to peak domestic emissions between 2020-2030 is consistent with political stability; to believe it has a fair opportunity to gain a significant share of global low carbon markets and not face protectionism; to see low carbon transformation aligned with its industrial modernization, energy security and poverty reduction goals; and to see transitional international finance streams to drive innovation.

### **3.2 The Role of the European Union in Engaging China**

The EU can have a significant role to play in China’s mitigation and adaptation efforts. At the EU-China Summit on 30 November 2009, both the EU and China reaffirmed the aim to develop and demonstrate, in China and in the EU Member States, advanced near-zero emission power generation technology through carbon dioxide capture and storage (CCS). Furthermore, the two sides “agreed to enhance coordination and cooperation to further implement the EU-China Joint Declaration on Climate Change, and agreed to upgrade the current Partnership on Climate Change. They will under the framework of the Partnership, intensify policy dialogues and practical cooperation on climate change,

including but not limited to renewable energy, energy efficiency, joint development, demonstration and transfer of climate-friendly technologies, sustainable urban development, capacity building and regional cooperation...”

However, a number of challenges exist, including the role of the EU External Action Service and the development of a strategic approach to energy and climate cooperation; a commercial decision on CCS (NZEK) by end of 2010; joint RD&D on other technologies; finance and capacity building, including “quick start” funding; reaching an agreement on monitoring, reporting and verification (MRV); and managing trade disputes and the Chinese backlash against EU border adjustments.

Moreover, participants stressed that the way the EU is perceived in China is a mess. There are 27 embassies some with climate/energy offices as well as numerous foundations and development agencies, thus making it difficult to understand who is dealing with what.

### *3.2.1 Carbon Capture and Storage*

China is still tactically resisting commitment to CCS until the developed world first has taken action. There are ongoing perceptions that CCS is an unproven technology, has thus far not been commercialized, is overly expensive and may lead to potential health and safety hazards. However, interest is growing from industry, and Chinese energy companies are developing market stake and the technology potential.

The internal dynamics in China also bear witness to a variance of provincial interests that are at odds with the central government. As a consequence, Beijing has set only broad regulations on CCS. Furthermore, while government and corporate interests largely coincide, Chinese energy companies are subject to internal as well as international competition and best practices. In this respect, the government is lagging behind in capacity and know-how of the market, and thus relies on companies to shape policies.

The rationale for the EU to push CCS in China is quite straight-forward. While many argue that China is the key to a global solution on climate change, coal is absolutely crucial to meeting both China’s economic and energy goals as well as establishing its energy security. Initially, making cost-intensive and experimental CCS technology a primary area of EU-China cooperation on climate change was highly contested among member states. Eventually, the proponents of CCS prevailed and has since become a cornerstone of EU climate change efforts in China. CCS exemplifies many of the struggles and promises of current EU-China relations, as questions of financing, technology transfer and prioritization of issues are critical to the debate.

This example raises the question of how the prioritization of EU-China climate change initiatives is being decided within the EU: Is the prioritization of initiatives ultimately guided by a certain consistency of objectives and an internal agreement on the EU's long-term strategy or are crucial decisions on these initiatives made on the grounds of short-term political considerations and special economic interests?

The EU and China have two different approaches to implementing CCS. European governments worked towards setting up a CCS framework for industry while industry is waiting for incentives. Furthermore, the European approach is for full CO<sub>2</sub> mitigation. The Chinese industry-led approach focuses on developing technology ownership and market share while, at the same time, promoting energy security through Enhanced Oil/Gas Recovery. In addition, expectations from the EU are for top-down implementation while in China the process is being pursued, for the most part, from the bottom-up.

As the EU makes CCS a primary battleground in its fight against climate change, four legislative texts have included directives on a legal framework for CCS and EU leaders have committed to establishing 12 CCS demonstration plants in the EU by 2015 that will be incentivized through EU-ETS permit auctioning revenues.

One of the primary collaborations between the EU and China to build CCS capacity has been through the Near Zero Emissions from Coal (NZEC) Initiative. The Initiative is a multiphase project that aims to assess options for CO<sub>2</sub> capture, transport, and geological storage as well as examine the potential for the development, demonstration and future deployment of CCS technologies in China. Phase I of the project focused on exploring options for CCS with coal fired power in China and assessing these options by the autumn of 2009. Phase II included detailed designs of the identified project while Phase III will be to construct and operate a demonstration project.

The key findings of Phase I were that CCS in China could provide a key low carbon option for coal-based energy supply and industry. On the basis of cost, there is no technology winner. Second, CCS deployment cost in China could be as low as €28 per ton of CO<sub>2</sub> stored due to lower labor and construction costs. Third, there is a potential storage capacity for over 1,400 million tons of CO<sub>2</sub> in saline aquifers and oilfields in North Eastern China alone. Lastly, regulation and standards on liability and safety were reviewed and recommendations for the adjustment of China's legal framework were issued. Phase II is planned to commence in early 2010 and will include a detailed consideration of a small number of options for the demonstration plant.

While the projects look promising, there are a number of challenges to NZEC in China. First and foremost, while the EU and member states have pledged funding commitments for Phase II and Phase III, nowhere near enough funding has been promised to see the NZEC project through.

Other projects currently underway in China include CSIRO (Australia cooperated with Huaneng on post combustion scrubbing for CO<sub>2</sub> capture), two large scale Greengen projects in Shanghai and Tianjin, PetroChina's CO<sub>2</sub> Enhanced Oil Recovery pilot projects, as well as the coal-to-liquid (CTL) Shenhua CCS project.

### *3.2.2 The Clean Development Mechanism (CDM) and Sectoral Crediting Mechanisms (SCM)*

By implementing the EU-ETS, the EU has demonstrated its firm commitment to market-based mechanisms for emission reductions. Although the overall effectiveness of the

Kyoto Protocol's Clean Development Mechanism (CDM) is now subject to much debate, the introduction of the CDM in China has succeeded in building local awareness of carbon reduction as a tradable good and potential source of income. However, the CDM itself remains a mechanism that is most suitable for harvesting low-hanging-fruits such as energy efficiency. The potential of the CDM in China in this respect is approaching exhaustion. While the establishment of a full-fledged ETS seems unfeasible for the time being, an intermediate system on the basis of China's experiences with the CDM might present a more achievable goal. Sectoral Crediting Mechanisms (SCM), for example, establish a less ambitious carbon crediting scheme for especially well-suited sectors and might be a way for the European Union to advance the establishment of carbon crediting in China.

Through the CDM, roughly 350 million Certified Emissions Reductions (CERs) have been issued, nearly 50 percent of which have been issued to China, a country which hosts roughly 35 percent of all CDM projects. About 80 percent of all projects are through EU buyers.

However, there are significant incentives to move beyond CDM, including scaling up to whole sectors as opposed to single projects and lowering transaction costs and red tape. Many advocates of sectoral crediting mechanisms see it as a stepping stone for introducing a more comprehensive and broader price signal, increasing environmental ambition, crediting against a benchmark for actual reductions and facilitating the move towards a comprehensive, multi-sectoral cap-and-trade system.

The key feature of sectoral crediting is an ambitious crediting threshold in which one earns credits against the threshold and, rather than being punished for emissions above the crediting threshold, are instead rewarded for achieving reductions below it. The threshold can either be based on emissions intensity or absolute emission reductions. A sectoral crediting mechanism would focus on high emissions intensity sectors as well as those exposed to carbon leakage in more advanced developing economies such as the power sector. These sectors will have the greatest potential for reductions.

### **3.3 Conclusion**

The EU's biggest influence on China in climate cooperation so far has been to help convince China to take a low-carbon economy path. However, there are numerous opportunities for further Sino-EU climate cooperation.

First, while the EU is still in a leadership position on climate governance and needs to continue this role, China has an opportune chance to take a more responsible and even leadership position on climate change issues. They have already begun to do so by implementing ambitious emissions and clean energy policies, however, the image China projects onto the foreign stage regarding its ambitious targets is rather meek because of the benefits China is set to receive from developed countries. However, in the coming decade, China should be a major player in the construction and leadership of a global climate governance regime. In this context, it is important to move beyond the guilt vs.

moral debt argument, as developing nations have also benefited from Western industrialization.

Second, through highly integrated economic development, China and the EU can both take advantage of the high trade and investment volume, economies of scale, and potential to deploy an entire new low-carbon industry, estimated at USD 500 billion annually by 2050, in both markets.

Third, although Copenhagen was an important forum to discuss paths to fight climate change, the focus now should be on global clean development. Opportunities for China to build new, clean cities and the EU and US to redesign old ones are massive. In this respect, China could provide valuable experience to the EU and the US in how to design, build and retool cities.

Fourth, the EU External Action service should be strengthened and reflect goals of 21<sup>st</sup> century, not the 20<sup>th</sup> century.

Fifth, the EU should focus not only on technology and mitigation, but also adaptation (also with Africa), as this is one of the primary issues affecting developing countries.

Lastly, sectoral crediting offers an attractive opportunity to take better advantage of carbon trading schemes to reduce emissions in the most emissions intensive sectors in developing nations. Sectoral crediting can enable easier linking of cap-and-trade systems across the globe but will require sufficiently ambitious reduction targets in the developed world.

## 4. Global Energy Governance: Recommendations for Europe

During the concluding discussion, conference participants focused on the role Europe, and particularly the European Union's institutions, can play in shaping future global energy governance. It was highlighted that for Europe thus far, external energy policy primarily meant the export of market liberalization rules in order to prevent market distorting behavior and the linking to rule-based competition. Competition and regulation are, in essence, the strength of the EU. In that context, the Union should continue its attempts to tie gas producers into the EU energy community.

At the same time, participants also highlighted the fact that the EU's liberalization agenda should not lead to a situation in which atomized European gas consumers are confronted by a few powerful producers outside the EU's jurisdictions. It was pointed out that the EU has already started various foreign policy forums and formats to reach out to producer and transit countries, particularly with regard to gas. Cases in point that were cited were the EU-Russian Dialogue and the EU Neighborhood Policy. In addition, the EU is experimenting with new formats such as the Caspian Development Corporation (CDG). Here, opinions of participants were divided on whether attempts to form such a 'consumer cartel' were likely going to be effective.

Moreover, participants stressed that it was imperative to further strengthen cooperation between the EU and China and to recognize the strategic importance of **energy and climate security** as a leading element in strengthened EU-China relations. They agreed that **EU-China bilateral relations** need a clear and stronger role in Europe's climate change diplomacy. The EU should use synergies and competitive advantages in green technology and progressively develop joint and aligned cooperation strategies that increase the impact and influence of **European investment** in China's low carbon transition. Pilot endeavors such as projects susceptible to accelerating CCS demonstration and deployment should enjoy **fast-track** priority in addition to experimenting with Investment Demonstration Zones. Finally, the EU should take the lead in convening **trilateral (EU-China-US) discussions** to resolve critical issues, starting with low carbon trade and technology cooperation in 2009.

## **Annex I: Conference Program**

### **DAY 1**

**01:00pm**      **Arrival, Registration and Light Lunch**

**02:00pm**      **Welcome and Introduction**

**Room: “Raum Hamburg”**

- *Jan Martin Witte, Associate Director, Global Public Policy Institute (GPPi)*
- *Jochen Weise, Member of the Executive Board, Gas Supply & Trading, E.ON Ruhrgas AG*
- *Dieter Feddersen, Member of the Board, Dräger Foundation*

**02:30pm**      **PANEL DISCUSSION I**

**Taking stock: Europe’s role in global energy relations**

**Room: “Raum Hamburg”**

In recent years, calls for a European “single voice” in external energy relations have been prevalent. With an increasingly liberalized internal energy market, it is often argued Europe also needs an effective joint external energy policy to deal effectively with its energy security challenges in the years ahead, especially with regard to gas. What are the prospects of a common external energy policy for Europe? What instruments does the EU have at its disposal? What is the potential and what are the limits and gaps? What are the main drivers and levers that determine the dynamics of Europe’s external energy policy? If a true “single voice” is not attainable, what are potential second-best options?

Introductory Speaker:

- *Albert Bressand, Executive Director, Center for Energy, Marine Transportation and Public Policy (CEMTPP), Professor of Practice in International and Public Affairs, Columbia University, SIPA*

Panelists:

- *Jochen Weise, Member of the Executive Board, Gas Supply & Trading, E.ON Ruhrgas AG*
- *Andreas Goldthau, Associate Professor, Central European University*

Moderated by *Jan Martin Witte, Associate Director, Global Public Policy Institute (GPPi), Berlin*

**Q&A**

**04:00pm**      **Coffee Break**

04:30pm

## WORKING GROUP SESSION (I)

### **Europe's energy: Prospects and challenges**

The first working group session will zoom in on some of the key trends that are affecting European energy security. The first working group will address issues regarding gas transit in Europe. The second group will focus on the role of LNG in Europe's gas supply mix and, finally, the third working group will assess Europe's dependency on oil.

## WORKING GROUP A

### *The future of gas transit in Europe: Learning from recent crises*

#### **Room: "Raum Hanseatic"**

The most recent Russian-Ukrainian gas crisis has once again focused the attention of policymakers on Europe's (growing) dependency on Russian gas. Early accusations of Russia as the main culprit behind the crisis – presumably engineering a gas shortage to accomplish political objectives – have given way to a somewhat more sophisticated discussion that has shed light on the complex and often murky structure of transit arrangements that govern gas trade. The key question in the future will be how to bring more transparency into the gas trade; how to cut out corrupt middle-men; and, most of all, how to achieve planning security for both sides. Do contractual relations work in practice? How can they be enforced? How can gas-to-gas competition be fostered?

Introduction: *Robert Klinke, Head of Division, International Energy Policy, German Foreign Office* and *Sebastian Groth, Policy Planning Staff, German Foreign Office*

Commentator: *Timo Vehrs, Deputy Head of Strategy, Gazprom Germania*

## WORKING GROUP B

### *Diversifying gas supplies: Is Europe competitive for LNG?*

#### **Room: "Raum Borkum"**

Despite speculative investments in European regasification capacity, Europe does not yet have significant LNG supplies lined up to utilize this extra capacity, nor is it particularly competitive vis-a-vis the Asian market where LNG attracts higher prices. While a glut of LNG coming online was expected to run out by 2015, the financial crisis changes this outlook to some degree. Is LNG still part of the EU's energy security equation? If so, what can the EU do to increase its competitiveness for LNG?

Introduction: *Coby van der Linde, Director, Clingendael International Energy Programme*

Commentator: *Dan Simmons, Gas and Oil Market Originator, EDF Trading*

## WORKING GROUP C

### *The forgotten link: Assessing Europe's dependency on oil*

#### **Room: "Raum München"**

Europe's dependency on gas imports has received much political attention in recent years. In contrast, Europe's reliance on oil to fuel its economy (and in particular its transportation sector) are often overlooked. Domestic supplies (in particular from the North Sea as well as Norway) are set to decline. Biofuels, at one point thought to be a viable alternative, have seen limited growth and also raise other thorny political issues. Further attempts to foster energy efficiency will reduce Europe's oil intensity, however, the Union will remain dependent on oil imports for the foreseeable future. Where will the supplies come from? What political issues does this raise?

Introduction: *John V. Mitchell, Associate Fellow, Energy, Environment and Development Programme, Chatham House*

Commentator: *Enno Harks, Policy Advisor, Deutsche BP AG and Fellow, Global Public Policy Institute, Berlin*

**05:45pm**

**Break**

**06:30pm**

**Dinner**

**08:00pm**

**Night Cap  
NABUCCO**

Speaker: *Mihály Bayer, Ambassador at Large for Nabucco, Ministry of Foreign Affairs of Hungary*

## DAY 2

**09:00am**

**PANEL DISCUSSION II**

**Global ambitions: A role for Europe in China's changing approach to climate change?**

**Room: "Raum Hamburg"**

One of the major obstacles to achieving the EU's global emission reduction ambitions has been the position and practice of China, which became the world's largest emitter of CO<sub>2</sub> in 2006. On the grounds of its entitlement to unhampered economic development as well as its view of developed nations as being the main climate change culprits, China's leadership persistently refuses to commit to any binding reduction agreements. However, recently the dynamics in China have gradually been shifting in favor of action. While concerns over economic development targets still firmly dominate China's energy and climate change policy, the domestic debate has become much more differentiated and controversial, now including a plurality of actors and interests in support of mitigation measures. This panel will provide an overview of

the potential role that the EU can play during this crucial phase in the evolution of China's approach to climate change.

Introductory Speaker: *Matthew Findlay, Programme Leader, Global Climate Deal, E3G*

Panelists:

- *ZHANG Haibin, Associate Professor, Peking University and Expert for the Ministry of Commerce*
- *LI Haidong, Associate Professor, Institute of International Relations at China Foreign Affairs University*
- *Sascha Müller-Kraenner, Senior policy adviser and European representative, The Nature Conservancy*

Moderated by *Björn Conrad, Research Associate, Global Public Policy Institute (GPPi), Berlin*

### **Q&A**

**10:30am Coffee Break**

**11:00am WORKING GROUP SESSION (II)  
Actors and interests: Opening channels of influence between the EU and China**

In order to play a relevant role in shaping China's emerging approach towards climate change, the EU will have to come to terms with the multitude of different motivations and interests that determine the EU's own objectives and priorities vis-à-vis China and climate change. Moreover, the EU should develop a deeper understanding of the internal dynamics, the actors and interests driving the domestic debate within China. In this respect, it is important for the EU to detect the potential tipping points where the balance of incentives for China can realistically be shifted towards climate change mitigation as well as to identify potential allies within China that can help to make these shifts happen. In addition, with China increasingly engaging with Central Asia with respect to energy supplies, it is essential to determine to what extent this impacts European energy security strategy and how the EU and China can effectively cooperate in bringing these resources to the market. Two working groups will focus on possible areas of EU-China cooperation in climate mitigation, while one working group will focus on Chinese strategy in Central Asia and potential Sino-European cooperation in the region.

## WORKING GROUP A

### *Probing the EU's "single voice": Carbon Capture and Storage technology*

#### **Room: "Raum München"**

The EU's extensive efforts to develop near-zero emission coal technology in China ("NZEC initiative") provides a particularly instructive case for exploring the diversity of interests and the intricate setup of actors that drive specific initiatives within the EU. Initially, making cost-intensive and experimental CCS technology a primary area of EU-China cooperation on climate change was highly contested among member states. Eventually, the proponents of CCS prevailed and CCS has since become the flagship of EU climate change efforts in China. This example raises the question of how the prioritization of EU-China climate change initiatives is being decided within the EU: Is the prioritization of initiatives ultimately guided by a certain consistency of objectives and an internal agreement on the EU's long-term strategy or are crucial decisions on these initiatives made on the grounds of short-term political considerations and special economic interests?

Introduction: *Richard Ridout, Energy Attache, UK Embassy Beijing*

Commentator: *DENG Liangchun, Policy Program Manager, China, the Climate Group*

## WORKING GROUP B

### *Between competition and cooperation: The evolving energy landscape in Central Asia*

#### **Room: "Raum Hanseatic"**

During the past two decades, Central Asia has emerged as one of the most promising regions for energy sector investments, both with regards to oil and, even more significantly, gas. Western major consuming nations – notably Europe and the United States – have taken an active interest in the region and are actively pursuing upstream opportunities particularly in the "Stans". Russia targets the region as an integral part of Gazprom's long-term supply strategy for European markets; and China has recently come to be engaged in several multi-billion energy projects, including pipelines linking the region with the Chinese market. What actual contribution can Central Asian resources make to regional and global energy supply? What does the growing political and investment-related Chinese engagement in Central Asia mean for Europe? What is the scope, what are the limits for Sino-European cooperation in the region?

Introduction: *Leonard Coburn, President, Coburn International Energy Consultants*

## WORKING GROUP C

### *Developing new incentives: From Clean Development to Sectoral Crediting*

#### **Room: “Raum Borkum”**

Through the implementation of the EU-ETS, the EU has demonstrated its firm commitment to market-based mechanisms for emission reductions. Facilitating the expansion of market-based systems of carbon crediting should therefore represent one of the EU's particular strong points. Although the overall effectiveness of the Kyoto Protocol's Clean Development Mechanism (CDM) is now subject to much debate, the introduction of the CDM in China has succeeded in building local awareness of carbon reduction as a tradable good and a potential source of income. However, the CDM itself remains a mechanism that is most suitable for harvesting low-hanging-fruits such as energy efficiency, but the potential of the CDM in China in this respect is approaching exhaustion. While the establishment of a full-fledged ETS seems unfeasible for the time being, an intermediate system on the basis of China's experiences with the CDM might present a more achievable goal. Sectoral Crediting Mechanisms (SCM), for example, establish a less ambitious carbon crediting scheme for especially well-suited sectors and might be a way for the European Union to advance the establishment of carbon crediting in China.

Introduction: *Peter Zapfel, DG Environment, EU Commission*

Commentator: *Björn Conrad, Research Associate, Global Public Policy Institute*

**12.15pm**

**Lunch**

**01:45pm**

**PANEL DISCUSSION (III)**

**Towards a European foreign energy policy?**

**Room: “Raum Hamburg”**

Internal energy market liberalization in the EU makes the formulation of a comprehensive and effective European foreign energy policy a *sine qua non*. This is most obvious with the case to gas, and the EU's evolving relationship with its main gas supplier, Russia. However, forging a single European voice in energy policy, specifically with regard to gas, is a daunting, and some would argue, unlikely, goal. What are the policy options that the EU could consider to balance its liberalized internal market with an oligopolistic external supply situation? What benefits, what drawbacks do the various policy scenarios entail? What are the key obstacles in implementing those scenarios? What role do the US and China play in this context?

Panelists:

- *Marjeta Jager, Director, General Policy in DG Energy and Transport, European Commission*
- *Joseph A. Stanislaw, The JAStanislaw Group, LLC*

Moderated by *Björn Conrad, Research Associate, Global Public Policy Institute, Berlin*

**Q&A**

**03:15pm**

**CONCLUDING DISCUSSION**

**Room: “Raum Hamburg”**

Moderated by *Jan Martin Witte, Associate Director, Global Public Policy Institute, Berlin*

**03:30pm**

**Farewell**

## **Annex II: List of Participants**

**Mr. Mihály BAYER**

Ambassador-at-Large of the Hungarian Government for the NABUCCO project

**Prof. Albert BRESSAND**

Executive Director, Center for Energy, Marine Transportation and Public Policy (CEMTPP) and Professor of Practice in International and Public Affairs, Columbia University, SIPA

**Mr. Leonard COBURN**

President, Coburn International Energy Consultants, LLC

**Mr. Björn CONRAD**

Research Associate, Global Public Policy Institute (GPPi), Berlin

**Mr. DENG Liangchun**

Policy Program Manager, China, the Climate Group

**Dr. Tomáš EHLER**

III Secretary, Political Section, Embassy of the Czech Republic, Germany

**Prof. Dr. Dieter FEDDERSEN**

Member of the Board, Dräger Foundation

**Mr. Matthew FINDLAY**

Programme Leader, Global Climate Deal, E3G

**Mr. Thomas GEISEL**

Senior Vice President and Director, Gas Supply Division West, E.ON Ruhrgas

**Dr. Andreas GOLDTHAU**

Associate Professor, Central European University and Fellow, Global Public Policy Institute

**Ms. Dagmar GRACZYK**

Manager for South Asia, Office for Global Energy Dialogue, International Energy Agency, Paris

**Mr. Sebastian GROTH**

Policy Planning Staff, German Ministry for Foreign Affairs

**Mr. Enno HARKS**

Political Adviser, BP Germany and Fellow, Global Public Policy Institute, Berlin

**Mr. Wade HOXTELL**

Research Associate, Global Public Policy Institute (GPPi), Berlin

**Ms. Marjeta JAGER**

Director, General Policy, DG Energy and Transport, European Commission

**Dr. Robert KLINKE**

Head of Division, International Energy Policy, German Federal Foreign Office

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Associate Professor, Institute of International Relations, China Foreign Affairs University

**Mr. Brian MARRS**

Climate and Energy Analyst, Vattenfall Europe AG

**Mr. John MITCHELL**

Associate Research fellow at Chatham House and Research Adviser at the Oxford Institute for Energy Studies

**Mr. Sascha MÜLLER-KRAENNER**

Managing Director and European Representative, The Nature Conservancy in Europe

**Mr. Cornelius OCHMANN**

Bertelsmann Foundation

**Dr. Sandeep PATEL**

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Director, Dräger Foundation

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Deputy Head of Division "International Energy Policy - International Oil and Gas Markets", German Federal Ministry of Economics and Technology (BMWi)

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Energy Attache & Low Carbon High Growth (LCHG) Programme, Climate Change & Energy Section, British Embassy in Beijing, China

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Research Associate, Global Public Policy Institute, Berlin

**Dr. Elena SHADRINA**

Visiting researcher, Norwegian Institute for Defence Studies

**Mr. Daniel SIMMONS**

Gas and Oil Market Originator, EDF Trading

**Dr. Joseph A. STANISLAW**

Founder, JAStanislaw Group, LLC and Independent Senior Advisor, Deloitte LLP Energy Resources practice

**Mr. Derrick SUTTER**

German Chancellor Fellow, Free University of Berlin

**Dr. Coby VAN DER LINDE**

Director, Clingendael International Energy Programme (CIEP)

**Mr. Timo VEHRS**

Deputy Head of Strategy, Gazprom Germania

**Dr. Jochen WEISE**

Member of the Executive Board, Gas Supply & Trading, E.ON Ruhrgas AG

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**Mr. Peter ZAPFEL**

Assistant to Deputy Director-General DG Environment, European Commission

**Prof. ZHANG Haibin**

Associate Professor, School of International Studies, Beijing University

## Organizer Information

### The Global Public Policy Institute

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#### **The Dräger Foundation**

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### **The German Marshall Fund of the United States**

The German Marshall Fund of the United States (GMF) is a nonpartisan American public policy and grant making institution dedicated to promoting greater cooperation and understanding between the United States and Europe.

GMF does this by supporting individuals and institutions working on transatlantic issues, by convening leaders to discuss the most pressing transatlantic themes, and by examining ways in which transatlantic cooperation can address a variety of global policy challenges. In addition, GMF supports a number of initiatives to strengthen democracies.

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For more information, please visit <http://www.gmfus.org>.

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