Energy Security Forum

Quarterly Journal
Vol. 1, June 2011

Energy Security Center
under the Ministry of Foreign Affairs of the Republic of Lithuania

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Editorial

The Energy Security Forum is a new on-line platform for discussion and debate on the issue of energy security. The Forum will be published quarterly and each issue will feature at least one topic which is relevant to Lithuania and has a wider international appeal. A special focus will be given to EU and NATO policies on energy security. It is hoped that the Forum will become a useful tool to explore the rapidly evolving energy agenda where all views and opinions are welcome and comments encouraged. The Editor will invite scholars and experts to write short pieces on selected topics to offer for the reader their distinct views and arguments. Once the Forum is published anyone can make a comment to agree or disagree with the points raised by any of the authors. We believe that this kind of live public forum will encourage an interesting and stimulating debate so that energy security is better understood and appreciated.

The first volume of the Energy Security Forum addresses a highly controversial issue of the Gazprom domination over the Central Eastern European (CEE) states' gas market. We asked several experts to share their views on what could be the consequences of this long standing Gazprom monopoly in the CEE region. Should the CEE states worry about this, should they implement responsive measures or strive to mitigate negative consequences? Or maybe they better concentrate on the improvement of relations with Gazprom? Four authors approach the issue from very different perspectives and offer their distinct views and arguments.

Margarita M. Balmaceda, Professor at Seton Hall University and Harvard University (USA) underlines major problems related to Gazprom's monopoly role *in Russia*. According to her, Gazprom's internal domination (export monopoly) is potentially dangerous for CEE states as it increases Russian ability to use gas exports for political goals. Another challenge comes from the overlapping personal, corporate and state interests in the company: according to M. Balmaceda, this creates the preconditions for worrisome corruption opportunities, which may have negative impact for the security of supply.

Edward H. Christie from the Pan-European Institute (Finland) sheds the light on the price discrimination possibilities which may be employed if a consumer market is small and there are no options to diversify the supply. Therefore, according to E. H. Christie, it is crucial for importers to secure at least one reliable alternative in order to maintain the ability to (re-) negotiate import conditions with a greater bargaining power (such as Gazprom). On the other hand, consumers' bargaining power could be increased by consolidating the small gas markets and improving the transparency of the price formation.

Romans Baumanis, Regional advisor for the Baltic States to *Nord Stream AG* (Switzerland) attempts to explain preconditions which determine the Baltic States' dependence on natural gas supply from Russia. He thinks that as climate change goals prevail and demand for gas in Europe is rising, the best way to secure the reliable supply is to conclude the long term contracts with reliable partners. In other words, traditionally close cooperation with Gazprom should be assessed not as a threat but as an advantage for the Baltic States. On the other hand, he recognizes that the improved market flexibility (gas interconnections) would contribute to the Baltic States' energy security as well.

Alan Riley, Professor at the City Law School and City University in London (UK) thinks differently and invites the EU to develop "strategic approach to rolling back Gazprom's dominance". He proposes several basic measures which could form a framework of such a strategy: to complete the EU energy liberalization, support the LNG infrastructure development, establish tax regime favorable for the shale gas production, apply the EU competition rules towards trade in natural gas, etc. On the other hand, nobody can expect that the deployment of such EU wide strategy will be easy...

Margarita M. Balmaceda

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GAZPROM'S MONOPOLY: VISIBLE AND INVISIBLE EFFECTS

Most often, when we talk about Gazprom's monopoly role, we concentrate on the company' s situation as the single gas *supplier to* the energy-dependent Central and Eastern European (CEE) and post-Soviet states and on the effects of this situation on the physical supply of gas to these consumer states.

Such external aspects of Gazprom's monopoly role have been, undoubtedly, of great importance. They have meant, for example, that the CEE states were unable to tap alternative gas supply sources and that Gazprom could largely dictate to them any price it sought to impose, always having recourse to the ultimate threat in the form of its ability to cut gas supplies to the country, bringing it to an economic standstill. All this, of course, has allowed Russia to use energy for political purposes, a no less serious problem.

If Gazprom's role as a monopoly *supplier to* specific countries has most often caught our attention, Gazprom's monopoly role *in Russia* (i.e. its role as single gas exporter *from Russia,* longstanding de facto and codified as part of the Law on Gas Exports in 2006) deserves no less attention, as it can have significant implications in terms of Russian energy governance, as well as in terms of the company's domestic role in the CEE states themselves.

Gazprom's monopoly role inside Russia and its effects on the CEE/PS states

This domestic monopoly role is part the strange and potentially dangerous partial symbiosis between the company's interests and those of the state – an intermingling going on from well before the Kremlin's onslaught on private oil companies starting in 2003 or the state's reaching majority control over Gazprom's shares in October 2004. Yet this domestic monopoly role is, in turn, not simply an element that is totally unrelated to relations with Gazprom's energy-poor costumers. Rather, one crucial element of this symbiosis had to do with Gazprom providing (in addition to a number of domestic social and energy-subsidization "services") certain external services to the state (such as, for example, below-commercial price supplies to Belarus for much of the 1990s and 2000s), in exchange for certain domestic advantages, such as an export monopoly.

This domestic export monopoly has several direct and indirect effects on the CEE states. First and most crudely, through its effects on the state of gas supplies in Russia. With the domestic gas distribution system (USGS) controlled directly by Gazprom and Gazprom having the prerogative of not transporting other producers' gas, small non-Gazprom producers and oil companies also producing (associated) gas have had little choice but to sell this gas at the wellhead to Gazprom (or allied companies) at extremely low prices, seriously limiting the profitability of such production. This situation, in turn, has led up to c. 25% of the gas produced by oil companies being flared in the open air, a loss of c. 2.4 to 9.6% of Russia's total gas production.[1] In addition to the ecological costs of such flaring, this has led to a reduction in the volume of gas available for export and become a further factor pushing supply down and prices up. Last but not least, with Gazprom a gas export monopolist, the energy-dependent states find themselves at a great disadvantage, not being able to "play" different Russian producers against each other to compete on price and contractual concessions.

In addition, Gazprom's active role in hindering the role of other gas producers prevented them from becoming not only alternative suppliers, but also alternative voices to be reckoned with in the Russian energy policy-making process. Having a single gas exporter also increased the Russian state's potential ability to use these exports for political goals. But this domestic monopoly role also had other aspects and other consequences, also affecting Gazprom's role in the CEE/PS states. Even when recognizing the partial symbiosis between Gazprom's interests and those of the state discussed above, this should not obscure another important set of interests in the relationship: the existence of important managers' *personal interests within the corporation* coexisting with

[1] The lower number from Russian statistics, higher number from the International Energy Agency. Full citations for all information in this commentary are available in "Domestic Contradictions, Foreign Energy Policy Levers, and Trans-Border Rent-Seeking," chapter 3 of Margarita M. Balmaceda, *The Politics of Energy Dependency: Ukraine, Belarus and Lithuania Between Domestic Oligarchs and Russian Pressure, 1992-2010* (unpublished manuscript, 2011).

corporate and *state* interests within Gazprom. While these three sets of interests have often been at odds, lack of transparency often made them easier to conciliate. This is so because lack of transparency in the company has fulfilled two roles -- it both allowed Gazprom managers to use the corporation for the pursuit of their *personal interests* (often through corruption), *and* allowed the Kremlin to at times use the corporation as a little-regulated source of revenue (some would say a kind of parallel state budget) which could later be used by the Russian leadership with little if any independent control. This is important for our analysis as it tells us the Kremlin (and/or or the Russian "state") has had many reasons for condoning or even supporting lack of transparency and possible corruption within the company.

When put together with Gazprom's monopoly role, this created the preconditions for very worrisome corruption opportunities involving the CEE states themselves. Why so?

Gazprom's domestic role in the CEE/PS states

Gazprom's monopoly role opened opportunities for the creation of "artificial scarcities" by corrupt actors in Russia, and for corrupt ways of "solving" them. We know this from the cases of EuralTransGas, RosUkrEnergo and other non-transparent intermediary companies that made large profits at the expense of the Russian, Gazprom and Ukrainian budgets[2] exactly by presenting themselves as sources of diversification. In the absence of a real competitive gas market, it was easier for actors within Gazprom – in coordination with actors in the energy-poor states themselves – to peddle alternative, poorly-regulated deals as the only possible means for "diversifying" contracts through their services in helping finance, transport, or simply arrange gas imports from Turkmenistan and other Central Asian states. Thus, paradoxical as this may seem at first, it was Gazprom's de facto monopolization of post-Soviet gas trade which set the stage for the important role played by such intermediary companies. This is so because it was exactly this monopoly role which gave Gazprom (or, more likely, influential players within it) the ability to sway actors in the energy-dependent states into accepting such intermediary companies. In other words, the monopoly and gate-keeping powers held by Gazprom as a corporation gave individual actors within it the perfect conditions to create artificial scarcities that could then be turned into rent-seeking opportunities. With those rent-seeking opportunities most often related to intermediary companies and their real role as vehicles for the corrupt sharing of rents between local and external (Russian) actors, the misuse of Gazprom's monopoly for the pursuit of specific managers' private interests also helped create a group of (often corrupt) actors in the energy-dependent states themselves having a vested interest in maintaining energy dependency and lack of transparency.

[2] See Margarita M. Balmaceda, *Energy Dependency, Politics and Corruption in the Former Soviet Union: Russia's Power, Oligarch's Profits and Ukraine's Missing Energy Policy, 1995-2006*. (London and New York: Routledge, 2008) and Global Witness, "It's a Gas – Funny Business in Turkmen-Ukraine Gas Trade" (April 2006), available at <http://www.globalwitness.org/reports/show.php/en.00088.html.

Edward H. Christie

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THE COST OF MONOPOLY PROVISION FOR NATURAL GAS IMPORTS

Readers from the Baltic States are well aware of the fact that the import price for Russian gas is much higher for their region than it is for example for Germany. This pattern of price differentiation shows that Gazprom's pricing strategy is demand-driven not cost-driven, otherwise one would observe lower prices in the Baltic States because they are geographically closer and are hence associated with lower transportation costs.
Monopolists seek to carry out what economists call price discrimination. Efficient price discrimination consists in setting the price for each customer (importer) as a function of that customer's demand function, i.e. its combination of ability and willingness to pay. The situation of European states as regards imports of natural gas from Russia is not essentially different.

Naturally, states that can diversify in favour of a second source of imports can achieve higher bargaining power with the initial supplier. Whether or not this translates into a lower import price depends on a number of factors. This is because efficient monopoly pricing also accounts for the volume sold. This can occur both at the margin (as a discount: a slightly higher volume for a slightly lower unit price) and more broadly: larger buyers are typically able to secure a lower unit price.

The relatively low import prices secured by German importers may in principle be due to both these factors. Germany's leading gas companies are comparatively large buyers on the European market, so some form of volume discount could be at work. In addition these large buyers have access to Dutch and Norwegian gas and would be likely to increase their demand for Russian gas only if it is available at a competitive price.

A third possible explanation is that buyers secure price discounts by providing assets or services to Gazprom or even directly to the Russian state. The depressing spectacle of Ukraine's foreign and defence policy "reset" during 2010 is a case in point. It is also fair to suspect that important EU Member States like Germany, Italy and France tend to put the short-run commercial interests of their national energy champions far ahead of any concerns for the sovereignty of small Eastern European states. In a less sinister vein those states can provide access to cutting-edge technologies ranging from energy exploration (e.g. offshore) to military equipment (e.g. amphibious assault capabilities as with France's proposed sale of Mistral-class warships).

The policy implications for small Eastern European states are easy to derive. With no cutting-edge technologies to offer and with small home markets it should really not be a surprise that prices and conditions for Russian gas imports are not as favourable as for some other European states. And yet the primary solution is the oldest principle of energy security: the diversification of sources.

States that, at the moment, can only rely on one source of imports (e.g. Gazprom) should strive towards acquiring new sources of imports, i.e. a diversification of sources of imports. The latter need not substitute for all or even most of the current import volumes. The key is to be able to exercise at least one outside option, preferably with some degree of flexibility, so as to be able to (re-) negotiate import volumes from a position of greater bargaining power. This simple insight is the primary reason for seeking new supply arrangements, for example a shared LNG terminal in the Eastern Baltic region.

The second set of measures for increasing bargaining power lies in consolidating the market power of small gas markets. Two main angles may be developed for this. The first, which is already under way notably thanks to EU co-financing is to interconnect the markets physically, with interconnectors, so as to enable arbitrage between markets. This is the main mechanism through which isolated markets can overcome market segmentation. The second possibility, which may be pursued in parallel, consists in setting up "alliances of buyers", e.g. a consortium of gas companies negotiating jointly for the total volume of gas imports at a single common import price.

But the reasons for price distortions go further still. So far it was implicitly assumed that the importing companies and the supplying company are fully independent from one another. The Baltic States are again a special case in this regard. While Gazprom does not hold an outright majority stake in either Lietuvos Dujos, Latvijas Gaze or Eesti Gaas, the Russian giant holds a substantial minority shareholding in each case. In addition one of the major German importers of Russian natural gas, E.ON Ruhrgas, also holds a large minority stake in each of these companies. It is easy to understand how these shareholdings could affect pricing, thus leading to further gains in profits for Gazprom and its regional associates at the expense of consumers in the region.

It is partly this angle which Lithuania is currently pursuing through legal channels and it is certainly a worthwhile attempt. The options for unbundling made available with the Third Energy Package can help to reduce the scope for conflicts of interest. In the broader analysis, anything that helps to increase transparency about price formation on the EU's gas markets should be welcomed. Ultimately, public policy in the Union should be oriented towards securing a fair deal for the Union's consumers.

The discussion so far does not even take into consideration any risks or threats to supply volumes, e.g. as could occur due to technical failures, natural disasters, terrorist attacks or deliberate cut-offs by the supplier. The experience of other Eastern European states have clearly shown that the greatest threat is the use of deliberate supply cut-offs by the Russian side. While bilateral relations between the Baltic States and Russia are very different from the bilateral relationship between Ukraine and Russia there is however no guarantee that gas supply disruptions cannot occur. Taking these elements into account gives even stronger arguments for diversification of sources.

Roman Baumanis

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SPEAKING WITH A COMMON VOICE?
ENERGY SECURITY CHALLENGES IN THE BALTIC STATES

„Public energy debate tends to be ill-informed and superficial", regrets Gertjan Lankhorst, CEO of Dutch gas trading company GasTerra and vice-President of industry association Eurogas in his interview of 19 May at the European Energy Review. "What you hear mostly are contradictory opinions on a host of different issues. What you rarely hear is a comprehensive, balanced vision of the energy problems we are faced with", he continues. "The level of the energy debate must be drastically improved, as the current situation leads to public resistance to new energy projects as well as inconsistent energy policies," he argues.

I couldn't agree more – 20 years after regaining independence and 7 years after joining the European Union the Baltic states still keep debating how to deal with their fundamental energy challenges. It will be difficult to find one single cause for such a state of affairs; I will try to contribute my reflections to the debate about the future of the natural gas in Europe, also from the Baltic states prospective.

Security of supply – debate driven by political rather then energy concerns

Security of energy supply in the Baltic states in my view is more a political concern then a business issue. The current demand level in the Baltic countries in natural gas supply is fully met, even with excess, thus there is little if any incentive for businesses to make heavy investments in developing new gas transport capacities or develop new supply routes. The incentive to offer a more competitive pricing and turn customers away from the Russian gas doesn't seem to be sufficiently attractive for other energy companies, given how small and isolated the Baltic markets are.

Thus, there is only a political answer left possible - to play the security of supply card for justifying not-quite-commercial investments necessary for connecting these markets to the Western grids. The political drivers are twofold: (a) there is a historically routed mistrust or even fear of Russia, which also happens to be the sole natural gas supplier; (b) the current EU energy policy aims towards ending the "energy island" situation in the Baltics by linking the region with the Western energy grids, including in the natural gas sector (especially by its 3rd energy directive and BEMIP process) that has to be completed by 2015.

However, at the time of writing this article it still looks like a deadlock situation. Even though if EU is willing to co-fund the projects within BEMIP up to 50%, it nevertheless is required that the three Baltic countries agree among themselves as to what projects and where need to be built and what measures need to be undertaken to create a regional market in natural gas. Such approach by the EU requires countries to look beyond their national borders and devise joint solutions. Yet the national egoism so far looks like the most serious obstacle that is difficult to overcome. Will it be? Certainly yes, I believe, but when and how remains a very big open question, suffice to look at the current arguing about which location to choose for the LNG terminal in one of the Baltic countries, for example. Thus, in the Baltic region, a comprehensive and balanced vision of how to best face the current energy challenges in the best interest of all countries concerned is still missing.

EU context for the natural gas as a favored fuel

In the meantime, what developments are taking place in the rest of Europe? The share of renewable energies in the European energy mix currently is about 10%. By the year 2020 it has to be doubled and reach 20% with some big members such as Germany seeking to further increase it to 50% till 2050. Such politically decided way on climate change is ambitious and correct. But it is also useful to reverse the prosepective – it also means that even in 2050 at least 50 percent of energy in Europe will still come from conventional sources. And this figure may even be higher if one takes into accout the latest decision of Germany to phase out all 17 nuclear reactors.

Natural gas plays a decisive role. "Natural gas is the only energy source that deserves the name of a bridge to the renewable energies," concludes a study commissioned by Greenpeace in August 2010. What else? The nuclear power can indeed produce low CO2 power, but the current policy trends and societal pressures call for reduction of nuclear power generation rather then further increase.

Modern gas-turbine power plants have an efficiency rate of over 60 percent. Coal fired power plants efficiency is only about 45 percent. Carbon dioxide emissions from electricity generation with gas is lower than for coal by 50 percent. The operators can power up gas-fired power plants in minutes, when the sun and wind don't provide enough energy. Other types of power plants require days or weeks for launching or stopping. In light of what happened in Japan Prof. Claudia Kemfert of German Institute for Economic Research concludes: "Gas power plants - unlike nuclear power – are real bridge technologies, as they can be efficiently and easily combined with renewable energy sources."

Demand for gas in Europe is steadily increasing for heating, climate-friendly electricity generation, for industrial use and as a fuel. The International Energy Agency (IEA) provides a background of European environmental and climate policy, that natural gas will replace oil in 20 years as the main carrier in the energy mix. The U.S. also turn to natural gas - 62 percent of new generating capacity in the coming 25 years will there be gas-fired power plants. A similar outlok is also in China and India.

The good news is that there is enough gas for all present. According to conservative estimates global reserves of natural gas will last for about 130 years, and that doesn't include unconventional gas, found for example in shale. Nevertheless, security of supply needs to be addressed, of course, because the output from traditional sources in Europe will decrease in half by the year 2030. This means that the EU must diversify sources of gas supply as well as the transport routes.

Yet Europe has the good fortune to be at a "pipeline distance" from the major gas reserves in the world in the North Sea, North Africa, the Middle East and the Russian Federation. Long-term supply contracts with reliable partners are the best way to secure the natural gas supply for decades. The construction of the pipeline through the Baltic Sea shows that large infrastructure projects can still be carried out in an economically and ecologically sane way, with intensive involvement of politicians and citizens of several countries.

In the light of current economic and political developments in the Middle East and Africa, we should remind ourselves of these three key issues:

1. Strategic partnerships are the condition *sine qua non* of energy security. Diversification is necessary, but 40 years of successful cooperation with Russia on a European level is a strategic advantage. If a buyer wants stable and secure supplies, he must also respect the desire of suppliers to also have reliable supply markets, and long-term supply contracts are a cornerstone of it.

2. Liquefied natural gas and unconventional gas supplies face the economic and ecological competition. LNG deliveries will ultimately land where the highest price can be reached. Production from unconventional gas deposits in densely populated Europe has to overcome cost limitations and gain acceptance of the neighborhood. Pipelines, one the contrary are a well-known technology and are fixed for decades to supply.

3. The funding during the financial crisis did not become easier. Stable and secure return on investment is stronger than ever prerequisite for the willingness to tackle such major projects. If there is an uncertainty about regulations or lack of purchase guarantees, there will be no proven financing models available for the banks and investors, which would ultimately stall new projects. That cannot be desired neither politically and nor economically.

Energy policy development is an extremely long cycle. Today, decisions as defined by current political and social context must also reflect potential challenges in 20 years to serve one purpose: to achieve the set energy and climate goals. Natural gas will be a core factor in achieving it.

What is the key energy security problem in the Baltics?

I believe it is more of a question how the Baltic energy policies correlate with the current EU and global trends. If one would look at the facts about natural gas advantages as described above in a totally non-partisan way, it might become quite clear that the natural gas for energy and heat generation is the best way forward for most European countries, Baltics included. The true problem to be resolved is the current lack of any market flexibility in the Baltics. But if Poland is connected with Germany and Lithuania with Poland in south, and the Latvian – Estonian connection is upgraded and some natural gas link with Finland in the north is created, the infrastructure problem would in fact be resolved, and that, without heavy investments in building new expensive infrastructure elements, such as LNG terminals, for example. In such way the flexibility of supply would be introduced on the Baltic markets, by connecting them with the EU grid on south and closing the loop with Finland on the North, even though as it could very well be partially the Russian natural gas from European grids flowing in all of those directions. But so what?

Why, by using an old expression, the Balts need to be more catholic then the Pope? The energy security arrangements that are in essence political have to make also economic sense and correspond to the same EU external energy policy goals – provide reliable, competitive and sustainable flow of energy.

Alan Riley

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GAZPROM, ENERGY SECURITY AND THE CEE REGION: ITS MORE SERIOUS THAN YOU THINK

Too many Europeans in Central and Eastern Europe think that the Gazprom dominance is now on its way out. Well it may be but not without a struggle. There are a number of factors which threaten to reinforce Gazprom's market dominance which need to be faced before CEE energy security is achieved. In particular, the Fukishima disaster and the German overeaction to it of deciding close its nuclear power stations by 2022 threatens to reinforce dependence on Gazprom across the CEE states. Equally the onward development of Nordstream and Southstream is likely to increase CEE vulnerability. This view does not amount to a counsel of dispair. What is required of EU states now is a clear eyed strategic approach to rolling back Gazprom dominance to ensure effective supply security.

Until the January 2009 Ukraine/Gazprom dispute most West Europeans could not see what the fuss was about. Russia had proved a reliable supplier of gas to Europe even at the height of cold war tensions in the 1980s. This concept however of Russia as a reliable supplier was always a myth. It depended on which 'Europe' you were talking about. The Europe of the 15 or the Europe of the 27? From an all Europe perspective Russia was far from a reliable supplier. A Swedish Defence Research Agency paper in 2006 identified in some detail over 40 politically motivated energy cut offs between 1991 and 2004 (mostly gas, some oil).

Gazprom's market dominance underpins its ability to cut off states from gas supplies across the CEE states. From the Baltic States which remain gas islands, to states in the rest of Central and Eastern Europe who depend heavily on gas. The Baltic States take 100% of their gas from Gazprom; Slovakia and Bulgaria over 90%; Czech Republic over 70%; Hungary and Slovenia respectively 60 and 50% and Poland around 45%. Theoretically states could switch to an alternative source of gas. However this solution is very problematic. Most of the gas tranmission networks are East-West. There were no means at all (until recently) to move gas West-East or North-South across the Union. What is more there were very few alternative sources of gas to Gazprom in the CEE states.

The other alternative was to switch fuel. The cheapest option is coal. However, that has significant C02 emission costs and woud make it impossible to reach any EU imposed C02 targets. Nuclear is very expensive and takes a long time to bring on stream. Renewable energy can only provide marginal supply, cannot provide base load and in respect of wind power needs gas as a back up. These realties give Gazprom significant market and political power across the region which far too many Western European policymakers do not appreciate.

Although there is a lot of discussion about market liberalisation and shale gas as factors to reduce Gazprom's market dominance a number of recent developments tend to reinforce Gazprom's dominace not undermine it. Most notably is the German reaction to the Fukishima disaster.The recent decision of the German government to close all nuclear power stations by 2022 is likely to reinforce German energy dependence on Russia and reduce German willingness to support steps to greater energy security across the whole CEE region. It is also likely to result in the full completion of Nordstream with all 55bcm coming on stream by 2013 and also give life to Southstream as Gazprom seeks to tie in their principal customer in the run up to the final closure of German nuclear power stations. Whilst the German overreaction to Fukishima undermines European energy security, the CEE states and their Western allies together with the United States can deploy an effective counter strategy to threat posed by Gazprom.

The first part of the strategy is to complete EU energy liberalisation. This is not just about the EU rules and 'ownership unbundling' but also about physical interconnection. Physical interconnection West-East and North-South allows gas to flow to provide alternative sources of supply and make liberalisation a reality. The E1300 spent under the European Recovery Programme on interconnectors has been well spent connecting under a significant part of the European network. The current programme needs to be rapidly completed and a case made to Brussels for a second programme focussing on removing the 'gas island' problem of the Baltic States.

Second, while LNG can provide a significant alternative source of supply, especially given the more liquid LNG markets that now exist, the major barrier to accessing this supply are LNG gasification terminals. One option for CEE states is to seek to employ regasification LNG ships which have the technology on the ships. This massively reduces the cost of accessing the gas. Seeking regas vessels is a real way forward for CEE states with good port facilities.

Third, develop shale gas. Poland is clearly the leader here. However, it is clear from the US Energy Information Agency that there is shale gas across the CEE states. It is really vital to ensure that an attractive tax regime, which will attract energy companies in is in place, but also a robust regulatory regime is also in place to protect the environment and reassure the population. As it becomes clear that there is a vast amount of shale gas available across the planet then CEE states must really ensure that their local regime is attractive to inward energy investors.

Fourth, application of the EU competition and liberalisation rules. Gazprom as a dominant supplier has 'special responsibilities' under EU competition law in the way it behaves in the market. CEE states should not be shy of requiring full compliance with EU competition rules across the region by Gazprom.

By a determined application of this four prong strategy-complete liberalisation, accessing LNG, encouraging shale and application of the EU competition rules all CEE states can move in the direction of enhancing their energy security. Legal and physical integration makes market access possible and alternative gas supplies from LNG and shale provide the real competition. EU competition rules will be able to ensure a level playing field for all energy companies and ensure dominant firms do not rig the market. No one should however be under any illusion that this strategy will deliver quickly or easily. Deployment will be neither easy nor quick. Significant political determination to see it through will be required.