



UK Energy Supply: Security or Independence? - Energy and Climate Change [Contents](#)

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Following the Evidence Session which was held by the Energy and Climate Change Committee of the House of Commons on 5 July 2011, I would like to submit the following answers to questions that were raised. In this brief overview I tried to summarize my responses during the Session as well as address those questions which were not covered in the allocated time.

Three revolutions in global energy. The latest World Energy Outlook published by the International Energy (IEA) in June 2011 is referring to the current era as the "golden age of gas". Over the recent years, the world has benefited from two major technological breakthroughs, and one more is just in the making. All three of them are revolutionizing the production and transportation of gas.

Liquefied natural gas. The first one is the growth of LNG production which has allowed to detach gas transportation from pipelines and consequentially ignited the process of delinking gas prices from oil prices. According to the IEA, trade in LNG between major regions will double to over 1 tcm by 2035 and overall gas liquefaction capacity will increase by 40%. Regasification capacity is expected to increase even faster.

Shale gas. The second one is the shale gas revolution which turned the US from an importer to an exporter of gas and is leading to the emergence of new and unexpected centers of gas production. Shale gas reserves are very large and widely distributed: US, China, Europe, Latin America, the Middle East etc. Other unconventional resources will play a role too: in Australia coal-bed methane is already being liquefied and exported to China.

Arctic gas. And the third revolution in hydrocarbon production is just starting. According to Wood Mackenzie, the Arctic's combined gas potential represents 29% of global gas resources, three quarters of which are in the Russian territory. The Russian Kara Sea alone accounts for 45 billion boe of yet-to-find oil and gas. For context, Wood Mackenzie estimates yet-to-find volumes in Brazil's Santos Basin—currently the world's hottest exploration play—at around 32 billion boe.

The "gasification" of global energy. All three breakthroughs are not simply influencing hydrocarbon production but redefining the entire energy landscape. The IEA predicts that by 2035 gas will cover one quarter of global energy demand. In Europe the trend of "gasification" is much more significant: gas already covers 40% of energy needs and over the next two decades its share may raise up to 90%. Given the leap in gas reserves due to the shale gas revolution (and the development of the Arctic in the future) and the increased flexibility of gas markets due to LNG, the prevalence of gas in the European energy mix increases the overall

energy security of Europe. For those policy-makers concerned with reducing CO₂ emissions, the "gasification" of Europe has the extra benefit of reducing the carbon-intensity of energy at no extra cost.

UK energy interests. The UK's energy landscape appears to be even more secure than that of Europe in general. On top of all the positive developments described above which make global energy more secure, more diverse and more affordable, the UK benefits from two major characteristics of its energy market. First of all, it has significant (by Western standards) remaining indigenous hydrocarbon resources. Over 80% of UK gas demand is met by domestic production. This makes the UK market less dependant on imports and more secure in terms of physical supply. Secondly, unlike most other European countries, the UK does not depend on long-term contracts as it has a developed gas market where prices are set by competing producers and consumers—not bilateral negotiations which is still mostly the case in continental Europe. In addition, the UK has a developed infrastructure of LNG terminals (in South Wales, Kent, Essex and Middlesbrough) which is expected to grow and therefore increase overall market flexibility by allowing to switch suppliers or change their shares of imported gas.

Policy implications of "gasification" for the UK. All in all, from that point of view energy supply the UK is in a very strong position. There are no major energy-related issues which would potentially undermine the country's security. Realistically, major disruptions of imported hydrocarbons are very unlikely. The main issue of concern for the UK appears to be the future price of each source of energy. Given the global dynamic described above, it is expected that gas will become even cheaper relative to oil as new gas reserves (unconventional and then Arctic) will come on stream. A major shift to gas as an alternative to other fossil fuels would therefore benefit the UK economy. Such a shift is already taking place and should be welcome by policy-makers. The only policy suggestion which could further strengthen UK's position would be to moderately invest in some additional gas storage capacity. That may help to mitigate potential short-term price hikes and also further secure physical supply.

Eastern Europe's energy situation. Like the rest of Europe, Eastern Europe will generally benefit from the emergence of new major sources of gas, as the increased supply is pushing the price down. The key difference between Eastern Europe and the rest of the continent is the former's strong reliance on imported gas from Russia. Bilateral long-term contracts between Gazprom and respective companies in Eastern Europe are mostly pegged to oil prices which means that as global gas prices continue to decrease relative to oil, Eastern Europe and all other major Gazprom customers will be paying a higher price. This is the major risk that Eastern Europe faces as risks of physical shortages or supply disruptions are minimal. Europe continues to be Gazprom's only external gas market and therefore any major disruptions in supply would seriously harm Russia's position. The two short episodes of the "gas war" between Russia and Ukraine are highly unlikely to repeat again.

Price risks mitigation. The real price risk could be mitigated by two key policies. First, European countries should continue to insist on the price peg to the gas spot price instead of oil in Gazprom's contracts. On average, about 15% of the price formula is already tied to spot prices. If Gazprom's customers manage to increase this share or replace the oil peg altogether that will be a major improvement for European consumers.

Gas interconnectors. The other major step forward is to build interconnectors (short and relatively inexpensive pipelines), which could bring gas from LNG regas terminals and various sources other than Gazprom's gas, into the pipeline system of Central and Eastern Europe. Projects such as ITGI and TAP are capable to achieve exactly that. Other projects, such as Nabucco or South Stream which were designed in the era before the "three gas revolutions", are not relevant and hardly affordable. Both of them continue to enjoy some support for purely political reasons (from European and Russian politicians respectively). Neither of them appears to be commercial and Nabucco is almost certainly out of the question as it does not have a major sponsor.

Russia's overreliance on the European market. Overall, Russia's position appears to be less secure than that of her customers. European countries have various sources of gas, and those which still mostly rely on Russia are likely to diversify fairly easily. Russia, to the contrary, depends on its only external customer—Europe. Overreliance on the European market turned out to be a short-sighted policy as the fastest growing gas importers are not in the West but in the East. Current infrastructure is designed to serve the European market and the gas pipeline from Russia to China is only at the earliest stages of development.

Russia's challenges. Even more importantly, Gazprom is visibly lagging in LNG which is expected to become the major means of gas transportation. In addition, despite the largest gas resources in the world, gas production in Russia is stagnant, as Gazprom has not sufficiently invested in the development of major deposits or is far behind schedule (Stockman, Yamal, Kovykta etc). And on top of that, as a the number one exporter of gas Russia is very concerned about the gradual gas price delinking from oil. All of that is a major challenge to Russia and its future economic development. However, it is unlikely to pose any major risk to Europe as Russia will continue to depend on the European market and therefore would not jeopardize its export obligations. In brief, Russia's economic dependence on Europe is greater than Europe's dependence on Russia.

September 2011