Revisiting Energy Security

Paul Isbell *

Theme: This article[1] revisits the multifaceted issue of energy security and analyses its various permutations, degrees of risk and political and economic implications in the short, medium and long run.

Summary: Oil prices are now surging towards US$100/bbl and the world economy is poised delicately on the edge of a new slowdown, perhaps (or not) as a partial result of record prices. With consumer nations increasingly uneasy in the face of a new wave of energy nationalism, and with the world plunged into an orgy of drama over global warming, the debate on energy security is raging once again.

Analysis: Energy security is a concept notorious for its vague and slippery nature, no less so because it is bound to mean different things at different times to different actors within the international energy system. Perhaps it would be convenient to analyse some of the most basic sources of 'energy insecurity', dividing them into short-term, mid-term and long-term energy security issues.

Short-term Security of Supply

At the top of the list comes the threat to short-term security of supply often perceived in energy importing economies. This perceived threat has caused increasing anxiety in EU countries –particularly in Central and Eastern Europe– ever since the brief disruption of Russian gas to the Ukraine in January 2006 and oil to Belarus at the beginning of 2007. This fear has been rekindled anew by Gazprom's recent ultimatum to halt flows to the Ukraine if debts were not promptly paid. All three crises were diplomatically resolved in quick order, but the concern over security of supply from Russia remains alive in Europe.

This is not a new concern: the world's first contemporary energy crisis occurred simultaneously with the 1973 Arab embargo on oil to the US and Holland. Other former Republics of the defunct Soviet Union (in the Baltic and the Caucasus) have also complained of politically-motivated disruptions, however minor or short-lived, in the supply of Russian energy.

In theory, a supply cut could cause severe and even lasting damage to an importing economy. In certain cases, particularly involving economies highly dependent on a single source of imported gas arriving by pipeline, a sustained cut-off (of a month or more, especially during the winter) could even provoke social panic and political chaos. But so would an aggressive act of war. The important questions to ask, therefore, are: (1) is there any real likelihood this might happen, short of the outbreak of war?; (2) are we certain that

* *Senior Analyst for International Economy and Trade, Elcano Royal Institute*

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we are correctly reading the motives and capacities of those countries we fear are inclined to behave in such a manner?; and (3) what is the most appropriate policy stance of an importing country in the face of short-term supply cuts, however unlikely?

Almost all major producers are highly dependent on energy. This dependence typically entails a very large contribution of the energy sector to the GDP, a high percentage of energy exports in total export earnings and a large percentage share for energy income in total government revenue. In the case of Russia, for example, hydrocarbons account for over 20% of GDP, 65% of export earnings and approximately 30% (if not more) of the federal government's revenues (Gazprom alone accounts for 25%). In most relevant cases, this dependence is high enough to create a mutual dependence between energy exporters and importers. This is true for Russia and Europe, and it is true for Venezuela and the US. It is also true for Algeria and Spain, as it is for the Persian Gulf exporters and East Asia. The highly interdependent nature of the world energy system goes a long way towards eliminating the real likelihood that premeditated supply cuts will be used to damage importing economies during peacetime. Commercial and state diplomacy can, and always have, taken care of the relevant residual risk.

Still, a number of potential situations might lead to supply cuts, despite the interlocking realities of mutual dependencies. It is essential, however, to understand the true nature of such disruptions, and the motivations –if any– behind them. Indeed, most oil flow disruptions have not been premeditated, at least not by any state or company officials in charge of flows. Rather they have been the result of refinery accidents, pipeline problems (BP in the US) or weather events (hurricane Katrina). The rest have typically been the result of local unrest (in the Niger Delta or the 'great strike' at PDVSA) or geopolitical instabilities (Iran and Irak). Even the risk of terrorist action against critical energy infrastructure (like the failed attempt to blow up the massive Abqaiq facility in Saudi Arabia) is higher than those stemming from the geopolitical use of supply cut-offs. Given the technical complexity of the world energy system and instability of international geopolitics, these are real risks, unlikely to go away easily or quickly.

As it is, the world oil market –being relatively unified and fairly liquid in a fungible commodity– is the one energy sphere best prepared to absorb such shocks and spread out the risk, as all such cut-offs have been mediated –and broadly distributed– by the price mechanism. Even in the case of the Arab oil embargo, the global market performed its function of efficiently redistributing flows. Neither the US nor the Dutch economy experienced a significant lack of oil as a unique result of the embargo, as oil flowed in different directions and the market adjusted. The significant price increases that occurred simultaneously, on the other hand, reached around the globe and stemmed not from the embargo but rather from the coordinated production cuts implemented by OPEC exporters at the same time –an altogether different matter–.

With respect to a premeditated oil supply cut-off, a key question to ask is whether the event implies a lasting net loss of oil to the market, or whether it merely represents a diversion of flows to other destinations. In the former case, the result will be an increase in the world price of oil paid by all consumers, not just those in the supposedly 'targeted' country. In the latter case, while there might be a temporary price increase while the market readjusts the direction of flows, the ultimate impact will be ephemeral. The implication of this is that while Venezuela's plans to divert oil exports from US destinations to China, for example, might grab headlines, they will have little if any real

impact on US energy security. On the contrary, such projections are mere ideological posturing designed to send messages into various 'political marketplaces'.

Admittedly, the case of gas is different. More than 70% of the world's traded gas still flows within regional (not global) markets, in the context of bilateral long-term contracts, by way of inflexible pipeline networks with their fixed points of origin and destination. Therefore, even the unlikely event of an extended gas disruption –intended or not– does pose more concentrated risk to the relevant importer than an equivalent oil disruption. This unique characteristic of gas is unlikely to be transformed for several decades, and only if a dominant global market in liquefied natural gas (LNG) –a product traded globally today but still nearly exclusively within the context of bilateral long-term contracts– develops along lines similar to the current world market for oil. It should be noted, however, that even in such a future scenario, globally traded LNG will be at least as vulnerable to disruptions from local and regional instabilities as oil has always been.

With respect to a disruption in gas supplies from Russia, for example, to its former brother Republics of the defunct Soviet Union, there are different questions to ask. What is the nature of Russian motives for the disruption of supplies? How likely is a serious Russian gas cut-off, particularly given the country's dependence on European markets and its desire to see Gazprom penetrate the downstream?

There is undoubtedly a political element in many of the Kremlin's actions in the energy realm. The 're-nationalisation' of the hydrocarbons sector clearly has been pushed by the Kremlin-Gazprom tandem. For Russia, the energy sector is obviously perceived to be 'strategic', representing as it does not only much of its current geopolitical leverage but also its greatest source of export earnings and government revenue. But none of this necessarily represents a security of supply risk, particularly not for Europe. One could argue that Russia has used energy as a lever in its relations with the Balkans and the Caucasus, but such behaviour reflects a realignment of Russian influence in the former Republics after a long period of continual loss of relative power vis-à-vis the former periphery in the wake of the Soviet collapse. Such developments are to be expected. Trying to meddle in Russia's near abroad with the objective of blocking them will achieve little and ultimately only makes Europe's misguided security of supply fears all the more relevant, given the likely Russian reaction.

Curiously, the gas disruptions which have shattered European confidence in the reliability of Russian supply have not been the arguably political incidents of the Baltic Republics or the Caucasus, but rather the Ukraine and Belarus episodes. These cases, however, should be understood as commercial disputes (like the case of Bolivian export prices to Brazil and Argentina, or the recent Algerian-Spanish tug-of-war). As international price conditions have dramatically changed in recent years, some upward adjustment in export prices is only natural (as is a toughening of access and financial conditions in producer energy sectors). That Russian diplomacy has been heavy-handed is one thing (and the brinksmanship of the former Republics no less clumsy). To assume that Russia was also consciously sending a message to Europe is altogether another, and far less credible, claim.

The Kremlin is no doubt delighted at the security-of-supply hysteria that has engulfed Europe in the wake of these incidents. European fears have given an unexpected boost to perceived Russian influence, but this was not a central concern of Gazprom's diplomacy. Furthermore, it does not suggest that Russia will seriously contemplate using the supply

weapon against Europe in the future. If anything, the tussles with the former Republics explain Russia's desire to diversify gas transport routes to Europe, with projects like the Nord Stream pipeline designed to side-step transit countries whose prickly relations with Russia might continue to affect flows, however fleetingly, to an increasingly sensitive Europe.

In light of the above, what policies are appropriate for import-dependent countries? First, sufficient stockpiles (both strategic and commercial) should be maintained. This is an obvious policy that is theoretically pursued, at least for oil, in most consuming countries. Gas stockpiles are a trickier issue, given the geological requirements (which some countries lack) and the significant capital costs involved (that someone must front). In the case of the EU, adequate gas stockpiles are theoretically possible, given sufficient planning for inter-country solidarity in the case of disruptions and adequate pipeline interconnections. Consumers also need to be made aware of the real issues involved, within the context of emergency planning and demand management, as opposed to simply being led to believe there is a foreign demon on the horizon. Perhaps there is also a role for NATO and other international security structures to play in the protection of vital energy infrastructures and maritime energy transport.

The appropriate response then is infrastructure investment, emergency planning, credible solidarity mechanisms, demand-management and consciousness raising, not diplomatic brow-beating of producer countries, or panic and reaction politics among consumers. Perhaps one day Russia and Algeria will conduct business in a manner more amenable to EU standards, but that possibility is much more likely if such countries are dealt with today as they are, as opposed to how one wishes they might be. It might even make sense to consider downstream access for NOCs. This tighter (if not yet reciprocal) mutual dependency will only make the EU more secure in energy terms and will likewise have a positive impact on the economic stability of producer countries, something that might actually bring forward the day when their energy sectors begin to open up to third-party access within the context of more open and competitive domestic economies.

Mid-term Security of Production

A much greater risk is the threat looming in the middle run that the rhythm of energy investment falls short of that needed to continue to produce and deliver to markets sufficient hydrocarbons to meet projected demand. This midterm security of production risk stems from the politics of so-called 'energy nationalism'. Indeed, one of the paradoxes of the current energy debate is the likelihood that supply bottlenecks with political origins will impinge upon markets long before any geological limits impose themselves, making the admittedly fascinating debate on 'peak oil' all but irrelevant.

Baseline projections for total world energy demand foresee a 50% increase between 2005 and 2030, with oil demand reaching 115mbd. The IEA has projected that more than US$22 trillion in investment will be needed across the world's energy sectors to satisfy such demand (and US$4 trillion alone in the oil sector). What is more, this estimate rose from US$17 trillion just two years earlier. Fatih Birol, the IEA's chief economist, has also claimed that since 2004 the world has fallen 20% short of the necessary annual rhythm to meet such a target.

We might assume that the task could be managed by the international energy industry. However, given recent developments, this seems optimistic. The IOCs have full access to

something less than 15% of the world's hydrocarbon reserves and potential partial access to something more, while NOCs arguably control more than 75%. Against this backdrop, the future investment climate has been clouded further by what one might call the 'internal' aspect of 'energy nationalism' (as opposed the to 'external' use of energy exports as a geopolitical tool), including unilateral tightening of access conditions (ie, for Shell in Sakhalin and BP in Kovytka) and the imposition of more restrictive fiscal and royalty conditions on IOCs (ie, for companies operating in Algeria and the Andean zone, to say nothing of those operating in Canada's Alberta tar sands).

That leaves much of the future supply question in the hands of NOCs. But will they be allowed to invest enough of their profits in sufficient exploration and production, given the competing budgetary priorities of many of their governments? And will they be capable of wielding enough technological and managerial capacity to bring enough oil and gas to markets over the middle run to meet demand without prices rising exorbitantly? Given the track record of most NOCs and producer governments, one has many reasons to be sceptical. The IOCs, on the other hand, may be successful with their technological gamble on more difficult and expensive hydrocarbons in ultra deep waters, arctic zones and unconventional resources, but at the moment the balance of risks is still tilted toward the likelihood that world petroleum and gas production will increasingly struggle to meet demand.

Such a scenario may well play –in the form of higher prices– into what many producers perceive narrowly as their own economic interests. But given the world's hydrocarbon-dominated energy mix, this implies energy insecurity for consumers in the form of future supply shortfalls and increasingly tight world energy markets. Furthermore, if higher prices eventually dent world demand in a significant way, or provoke a faster roll-out of alternatives, then the mid-run supply crunch brought on by a politically-induced dearth of investment may ultimately undermine the energy-based economic security of producers as well, particularly if the current impasse between producers and consumers continues to leave a vacuum of global governance in the international energy system. Finally, should energy prices collapse on the back of an international economic crisis, the finances of many producer countries, still overly-dependent of hydrocarbon exports, will come under pressure, as will their political and social stability.

Perhaps a balance could return to relations between NOCs and IOCs. Much of the investment problem stems from swings in the relative balance of power between these two groups, and the different masters both must serve. In the 1990s, with oil prices low and IOCs gaining access to reserves in producer countries (at the time in the throes of globalisation-induced liberalisation), the 'shareholder value culture' of ascendant financial markets held IOCs hostage, checking their rate of new investment. In the current decade of high oil prices and widespread rejection of economic liberalisation, NOCs have clawed back their reserves. But despite (or because of) record revenues, their governments have increased their takes at the expense of both IOCs and NOCs, channelling funds into a number of uses –ranging from energy subsidies to social and military spending– that directly compete with energy investment.

In the end, IOCs may be needed again in many producing countries now engulfed in 'energy nationalism', if for nothing more than their technological and managerial capacities, if not their capital. Therefore, a new *rapprochement* between NOCs/producers and IOCs/consumers, based on mutual trust and flexible contract arrangements, must be

constructed quickly if the looming investment shortfall and supply crunch is to be averted. This issue is far more important than the headline-grabbing concern for short-term security of supply.

Long-term Geopolitical and Environmental Security
But the gravest energy security threats await us in the long run, overshadowing any challenge the international community has ever had to face. The first is that 'energy nationalism' will continue to guide not only producers but also large consumer countries. This could lead to further zero-sum behaviour on the part of China and other Asian countries, as well as Western powers like the US, in a new nationalist competition for access to hydrocarbons. Despite the fact that internationally integrated energy markets, collectively regulated via international cooperation, would produce the most rational economic results and the most optimum international security, further nationalist competition could easily infect the already complicated geopolitical scenario, making military conflict more likely. It would not be the first time that nationalist competition, fuelled by resentments and misperceptions, ran roughshod over the more optimal and rational arrangements of markets and international collaboration. The solutions –demand management, incentives for a faster rollout of alternatives, and the reconstruction of a functioning framework for multilateral collaboration and global governance– are clear. One wonders whether that will make a difference.

This first threat stems from the poisonous notion that external dependence necessarily undermines national security. The second threat –which could easily interact with the first– derives from dependence not just on *external sources* of fossil fuels but on *fossil fuels themselves*. The spectre of climate change is the real energy security threat facing the world. It is also the only energy security threat over which we cannot fool ourselves: for it is clearly a collective security risk. In the end, so are all the other risks mentioned above, only we insist on dressing them in the trappings of 'national security'. As a result, they become misguided but self-fulfilling prophecies. But climate change dwarfs them all, and makes all 'nationalist' fears of Russian or Venezuelan or Chinese 'energy nationalism' pointless.

Conclusion: We need demand management, alternative energies, carbon-friendly technologies, market integration and true, sincere international cooperation. We can run from this conclusion if we insist –as indeed we have– but we cannot hide from it.

Paul Isbell
Senior Analyst for International Economy and Trade, Elcano Royal Institute