



# What energy security for the EU

by Iana Dreyer and Gerald Stang

Blackouts, crippled industries and frozen cities deprived of heat: these disturbing images often linger at the edges of discussions on energy security. While extreme, such scenarios point to what lies ahead if policies fail to ensure that energy systems work properly.

In Europe, the energy security discussion has largely been shaped by the 2006 and 2009 gas crises, when Russian gas stopped flowing through Ukrainian pipelines following rows between the two countries over gas prices and debts. Those crises occurred amidst rising fears of resource nationalism in energy exporters, and in the context of high oil prices. The major concern was that Europe's economies were vulnerable to political pressure from energy exporters and to strategic competition with resource-hungry China. Today, however, supply fears appear less salient.

Definitions of 'energy security' range from narrow issues of physical supply disruption to broader ones involving the economic, environmental, and political consequences of changes to energy markets. The simplest definition, used by the International Energy Agency (IEA), refers to energy security as 'the uninterrupted availability of energy sources at an affordable price'. Achieving this security requires efforts to reduce risks to energy systems, both internal and

external, and to build resilience in order to manage the risks that remain. Tools to achieve this include: ensuring markets function so that the forces of demand and supply correspond; developing adequate production and transport infrastructure; expanding risk management systems (reserves, emergency planning and alternative supply routes); maintaining a diversified portfolio of energy suppliers; and keeping demand under control (energy efficiency). But energy security considerations must also be balanced against competitiveness and environmental concerns – notably those related to climate change.

## The Union's recent approach

Europe's economic crisis, the maturity of its economy, its stagnant demographics and its efforts to reduce fossil fuel use are lowering expectations of future energy demand. Despite this, Europe's *import* dependency on fossil fuels is expected to rise. Imported gas is likely to make up 80% of consumption by 2030 due to declining domestic production in the UK and the Netherlands. Although the EU is believed to hold a significant amount of shale gas that could contribute to its supply security, prospects for development look bleak in many member states due to strong environmental opposition and uncertainty about the true extent of deposits. Despite ambitious

targets, the EU energy mix changed little between 1995 and 2011. The contribution of nuclear energy stayed constant at 14% of gross inland consumption, while increased use of renewables (from 5% to 10%) and gas (from 20% to 24%) came at the expense of petroleum products (from 39% to 35%) and coal (from 22% to 17%).

Each energy source has its own risk profile, with some more prone to external supply interruptions. Nuclear plants generally keep sufficient fuel on site to operate for more than two years. Coal is plentiful, cheap and fungible. Renewable energy development has been a largely domestic process to date. As a result, for these fuels at least, external supply interruptions are not perceived to pose a major risk. Since the first oil shocks of the 1970s, European states have taken steps – diversifying of oil suppliers, creating substantial oil storage facilities and reducing the importance of oil in their economies – to ensure that significant shortages of oil no longer pose the threat they once did. However, it is natural gas supply interruptions which have caused the most worries due to the transport mechanisms involved (long pipelines from Russia, Norway or Algeria) and disadvantageous contractual arrangements (long-term take-or-pay contracts indexed to oil prices).

The EU has sought to improve energy security by building a resilient, interconnected and open internal market, while pursuing a rules-based, multilateral approach internationally. The 1994 Energy Charter Treaty (ECT) outlined rules for energy transit, investment protection, dispute settlement, and cooperation on environmental issues. Although great hopes were placed in the ECT, Russia, despite signing, never ratified it. Moscow even pulled out of the agreement altogether in 2009, the same year that it cut off gas to Europe during its dispute with Ukraine.

The EU policy response to the gas crises of the last decade has been a reinforced drive to make gas markets more open by questioning anticompetitive clauses in long-term supply contracts signed with outside energy suppliers, launching antitrust cases against energy utilities (including multiple EU companies and a landmark case against Gazprom), setting standards and obligations for supply security (e.g. obligations to hold reserves) and promoting greater interconnectivity among isolated national markets in the new Central and Eastern European member states through pipeline ‘reverse flows’ and interconnector pipelines. This approach is also perfectly in tune with the 2009 ‘Third Energy Package’ which obliges vertically integrated energy companies to ‘unbundle’ their production, transmission, and distribution activities.

EU energy security policies also have an international dimension. The bloc has been expanding its energy rule-book – the *acquis* – to Balkan and Eastern Partnership states (Ukraine, Moldova and Georgia) via the Energy Community since the middle of the last decade. In return, these partners gain access to EU markets and various forms of assistance, including financial support for infrastructure development. Joining the Energy Community in 2010 has thus allowed Ukraine to benefit from the ‘reverse flow’ of gas, reducing its previous 100% reliance on Russian gas by importing from Germany. Another initiative has seen construction begin on a pipeline to connect Romania and Moldova.

### Resource abundance vs. market volatility

The EU has sought to diversify supply routes and its supplier base as part of its nascent energy ‘diplomacy’. The Southern Corridor – a long-discussed pipeline route for transporting gas from Central Asia, the Caucasus and potentially the Middle East via Turkey – has been one of the most visible EU-led initiatives. However, the high costs and political uncertainties related to the flagship project (the Nabucco pipeline) have kept the project on hold indefinitely. A smaller-scale competitor project bringing gas to Italy via Greece and Albania – the TAP pipeline – has now been chosen instead.

The question is how dramatic this setback will be, given that gas markets are rapidly globalising and thereby easing pressure on import-dependent countries. The US shale gas ‘revolution’ – opening the prospect of North America exporting gas to the rest of the world – and the rise of liquefied natural gas (LNG) play a role. Shale gas is being developed around the world, though geological, regulatory and infrastructure limitations mean that replication of the US boom is unlikely to be repeated elsewhere on a similar scale.

Current developments are revolutionising gas prices, with an increasing role being played by ‘spot’ prices on short-term capacity markets. This makes the traditional model of pricing through oil-indexed, long-term contracts less attractive and may alter relationships with producers. This is particularly true in the EU, where greater interconnectivity between states is gradually reducing the isolation of markets and eroding barriers that allowed Russia to exert pressure on small markets through the use of different pricing strategies. Progress is slow, however, and Russian pressure on small energy-dependent states, both within and outside the EU, remains a stark reality. High and volatile oil and gas prices also remain a serious concern. Despite new conventional and

## Top external suppliers to the EU - 2011

Crude Oil ('000s of tonnes)	Gas (Terrajoules)	Hard coal ('000s of tonnes)
175,634 Russia	4,101,546 Russia	52,691 Russia
63,687 Norway	3,715,398 Norway	47,904 Colombia
41,108 Saudi Arabia	1,767,006 Algeria	36,307 United States
31,075 Nigeria	1,485,596 Qatar	17,851 Australia
29,495 Iran	589,290 Nigeria	15,902 South Africa
29,215 Kazakhstan	158,134 Egypt	10,281 Indonesia
24,615 Azerbaijan	140,996 Trinidad and Tobago	4,461 Canada
18,197 Iraq	92,597 Libya	4,590 Ukraine
14,223 Libya	29,662 Yemen	1,158 Norway
13,068 Algeria	27,405 Turkey	1,094 Venezuela

Source: Eurostat

unconventional oil development in the Americas and elsewhere, persistently high oil prices continue to weigh heavily on the economies of importers. And the increasing interconnection of formerly regional gas markets is also creating a situation in which regional problems can reverberate globally.

### Energy security vs. environmental sustainability

Today, the issue of oil and gas scarcity is no longer of primary concern. It is rather the continued abundance of fossil fuels – especially coal – that is the principle worry. Their ready availability makes it difficult to reduce fossil fuels consumption and CO<sub>2</sub> emissions.

The Union's climate policy is very ambitious – but faces setbacks. Landmark measures have been the introduction of a carbon emissions trading scheme (ETS) and of binding targets for renewable energies (to comprise 20% of the energy mix) and CO<sub>2</sub> emissions (a 20% reduction compared to 1990) by 2020. However, low carbon prices and the rejection of nuclear power in Germany have led to renewed reliance on coal. Hence, despite lower energy consumption during the economic crisis, the EU may not meet its own CO<sub>2</sub> emissions targets. The fact that the EU's own domestic climate strategy is showing its limitations may also reduce EU influence in the global climate policy arena, notably for negotiations on a successor to the 1997 Kyoto Protocol.

The implementation of current climate policies raises new energy security concerns. The biggest energy security challenge today is how to manage the necessary decarbonisation of the economy while avoiding

the disruption of electricity markets. Intermittent sources of renewable energy (wind and solar power) have been developing rapidly, for example, and transmission grids have experienced difficulties coping with the resulting irregular influxes of power. Conventional generation plants – gas, coal, nuclear – are being forced into 'back-up' roles with plants being left idle, new investments delayed, and utility firms placed under pressure by disjointed pricing indicators. Under these circumstances, major electricity blackouts cannot be ruled out.

### Adapting arrangements to new realities

Competencies over energy issues are split across EU and national levels. As the Lisbon Treaty maintains energy supply strategies as the prerogative of member states, it is difficult to devise a coherent and comprehensive energy policy. However, the EU has competencies in trade, development and competition policy, with which it can complement national efforts to achieve energy security. After the 2009 gas crisis, elements of classic 'statecraft' were also introduced into EU policy: diplomacy, financial support for infrastructure, and involvement in negotiations over pipelines with partner governments and businesses. While the EU's fundamental goals of achieving stable, affordable, and secure sources of energy remain valid, a lot could be done to make policies more effective.

As part of its neighbourhood policy, the EU is promoting the development of renewable energy with its neighbours. High costs have slowed this work, however, and large scale electricity projects would be more likely if electricity markets were sufficiently integrated on either side of the Mediterranean.



Additionally, the imperative for the EU to finalise the interconnection and de-monopolisation of gas markets in Central and Eastern Europe (CEE) remains. The recent finalisation of the list of energy ‘Projects of Common Interest’ – featuring accelerated procedures and better financing conditions for reverse flow connections and gas pipelines in CEE – is a welcome step. Interconnecting southern and eastern European markets with the rest of the EU will be the new, urgent priority. The EU could further strengthen its global position as a net hydrocarbon importer through closer engagement with multilateral organisations. Joining the IEA, along with those EU member states currently outside the group, would be a step worth pursuing.

### Rethinking engagements with partners

The EU could also support any move by the IEA to engage more closely with China and India – regardless of whether they become OECD members (a current prerequisite). China and India will massively influence energy markets with their booming demand, but should be seen more as partners with shared interests rather than as competitors. This is especially important since the US could become less engaged in an IEA framework given its improved oil and gas import balance.

Although Russia possesses vast energy reserves, it also requires massive investments in its oil and gas sector as current fields progressively deplete. After having excluded foreign investors and renationalised its oil and gas sector in the last decade, there have been recent moves in Moscow to selectively open up exploration to international firms. Russia’s share of gas exports has been reduced in recent years, and it is worried about Europe’s stagnant demand. Given this moment of relative strength for Europe (it is a buyer’s market), it may be appropriate to restart a meaningful dialogue with Russia on investments in each other’s energy sectors (notably the protection of investment in exploration, infrastructure and distribution). Once the antitrust case against Gazprom is brought to a close, the EU could seek a ‘reset’ of energy relations while remaining firm in its commitments to help interconnect Central and Eastern European markets and prevent further anti-competitive actions by Gazprom in the region. This could include efforts to reach agreement on much of the content of the ECT.

The EU’s domestic choices regarding its gas markets are of crucial importance to relationships with oil and gas exporters. Bleak prospects for ambitious Southern Corridor pipeline projects and the aftermath of the Arab Spring provide a window to assess

EU engagements with these suppliers. Although multiple oil and gas producers are covered by the European Neighbourhood Policy (ENP), including Azerbaijan, Algeria, Libya, and Egypt, EU influence is limited by the lack of accession prospects and the existence of significant hydrocarbon rents. The Union, however, might seek to engage these countries on political terms and help them implement much needed economic, institutional, and political reforms without which long-term prosperity and stability are unlikely to materialise. Sparsely populated and richly endowed Libya and Algeria, in particular, represent opportunities where deep engagement can pay important energy dividends.

Further afield, and further away from the EU capacity to influence, the Persian Gulf remains the region with the most reserves and the most likely source of volatility in world energy prices. With potential normalisation of relations with the international community, Iran may join Qatar as a major LNG producer. Despite significant gas reserves, Iraq, Saudi Arabia and the UAE are likely to remain exporters of only oil, not gas. A key challenge for Europe will be the management of relations with the region, while Asian buyers – who often have different perspectives on regional politics – will wield increasing influence there.

The LNG market will play a growing role in EU gas supply, but remains expensive, and volumes are unlikely to replace gas piped in from Europe’s main suppliers. Even small LNG imports, however, can change the balance of power with gas producers. In this context, the EU may wish to re-think its approach to gas producers in the Caucasus and Central Asia as part of the Southern Corridor project. While Qatar will likely remain the global leader in LNG exports, many smaller exporters – from Australia to Trinidad to Nigeria – could become more important partners. Other exporters such as Tanzania, Mozambique and Israel may eventually join them. The EU may also choose to import more LNG from the Americas, with the Canada-Europe free trade agreement and US Transatlantic Trade and Investment Partnership (TTIP) negotiations providing key opportunities.

As the power balance shifts between importers and exporters, and countries struggle to develop more sustainable energy systems, it is likely that volatility and uncertainty will define global energy markets in the coming decade. Yet well-designed energy policies can help ensure that Europeans need fear neither roasting on an overheated planet nor freezing in unheated homes.

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