

## EUROPE AND ITS GAS SUPPLIERS: HOW CAN THE SECURITY OF EU SUPPLY BE IMPROVED?

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**H**ow much gas European Union members might require ten or twenty years from now is impossible to ascertain precisely. Indigenous supplies are certainly declining but demand for gas is also falling. It has dropped by 12.5% across the EU over the last decade according to the latest BP Statistical Review. What is not in doubt is that the EU will continue to depend on outside suppliers for much of its gas. Surging renewable supplies could push demand down further in the future but a global gas glut could allow European importers to sign long-term deals with suppliers from around the world. The EU's dependence will, in the view of other observers, keep growing and be greater in 2030 than it is today. That means that the policy framework within which the EU's gas policies, in particular its import policies, are framed is of interest, not just to its members but to current and future outside suppliers of gas.

Forecasts for future EU gas demand vary widely. Six key factors must be taken into consideration when trying to assess future growth. They include other sources of energy; the decommissioning of nuclear power plants; the future use of coal; the increasing market share of renewable energy; uncertainty about the growth in EU gas demand; slow economic growth in several European countries; energy efficiency and climate policies.

Since the financial crisis of 2008, demand for gas and energy in general has declined. That may have bottomed out in 2015. Demand began to pick up two years ago. Recent "business as usual" scenarios anticipate stagnant levels of gas demand until 2040.

Gas produced by EU member states has been declining since 1985. New gas discoveries have been small and getting smaller. They are also increasingly costly because of their size and proximity to urban settings. Production from the new fields has not kept pace with the decline of maturing ones. The majority of gas reserves in Europe are held in mature reservoirs located in the countries bordering the North Sea. Existing aging infrastructure has become a barrier to field development.

Overall, 70% of EU gas production is accounted for by two countries, the Netherlands and the UK. Continued restrictions by the Dutch government on production in the Groningen field and maturing production from other onshore and offshore fields suggest that future production will decline. In the UK, the decline in investment and drilling activity in the North Sea over the past decade has spelt fewer discoveries. Moreover, mature fields are facing significant decline, despite recent improvements in production efficiency.

### **Where will new imports of gas come from?**

EU domestic gas production will thus continue to decline sharply. Any unconventional gas resources, such as from shale, can – if and when they are developed – only lessen and not arrest this decline.

The EU's gas net imports in the future will grow, simply because the import requirement will mostly mimic the gas demand (growth) path. According to the Observatoire Méditerranéen de l'Énergie, the EU may have to look for 100 billion cubic metres (bcm) more new gas supply sources in 2030 than in 2015. Some will come from non-traditional sources. Half of this increased volume is the result of declining EU production, the other half is explained by the increase in demand.

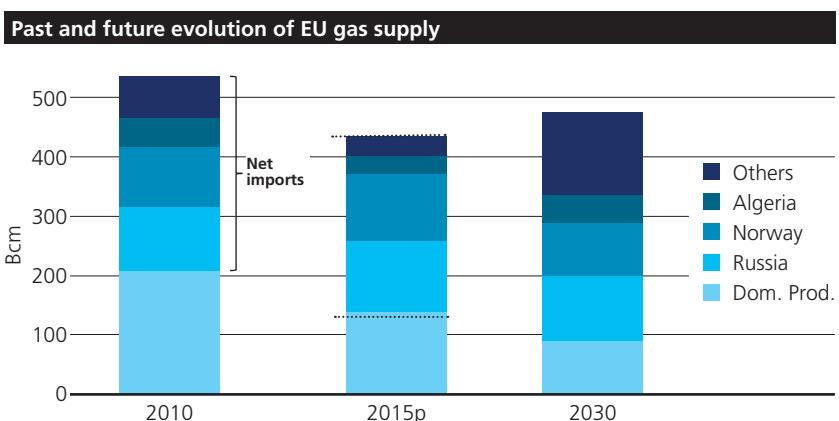
In 2015, the European Union was importing more than two-thirds of the gas it consumed. Russia supplied 34%, Norway a little more than 25%, and Algeria 7%. These three traditional suppliers currently account for two-thirds of EU gas supplies but almost 90% of its imports. The other sources of gas supply to the EU market include Libya, which has a long-standing pipeline under the Mediterranean Sea to Italy, Azerbaijan, which is sending gas to Greece through Turkey by pipeline (around 0.6 bcm/yr), and LNG sourced worldwide. The question then becomes – where will the additional gas imports needed by 2030 come from?

Supplies from Russia are priced competitively but they are becoming a matter of geopolitical concern. Although Russia will remain the main source of European gas imports in the future, European countries will diversify their sources of non-EU supply as they seek to decrease their dependency on Russia. Countries such as Poland and other eastern European countries, former members of the Soviet bloc, remain overwhelmingly dependent on Russia for supplies of both gas and electricity provided by grids built in the Comecon era. They are not happy that Gazprom's dominance in the region has served to make European regulators, buyers and governments dependent on Russia and thus increasingly uneasy. They note the contradiction in German Chancellor Angela Merkel's position: on the one hand she is a driving force behind EU economic sanctions against Russia over its intervention in Ukraine, on the other she is a strong supporter of Nord Stream 2 and Germany is shepherding the project through the EU. When completed it will turn Germany into the main hub for gas imports into Europe. Russia has cemented its grip on supplies to Europe through cheap pricing and readily available supplies. But, in the words of the former Polish prime minister, Jerzy Buzek, now chair of the Industry Committee of the European Parliament, Nord Stream 2 and the Energy Union cannot coexist.

The present level of supplies from Norway is considered secure for another decade, but its future expansion will most likely be constrained because of the depletion of Norwegian gas reserves. A slight increase in imports from Algeria may compensate for the declining share of Norway, which would be welcomed in Algeria, which has lost market share in Italy and France in recent years. It would be an essential building block in a much needed strategic dialogue with Algeria, Africa's largest country, where stabilisation through economic development is essential. Algeria is, alongside Libya and Tunisia, a key partner in helping to halt the flow of refugees from Africa to Europe.

These factors strongly suggest that the EU should look for alternative suppliers and routes to meet its future gas demand. One of these is the gas route known as the Southern Gas Corridor.

The TANAP (Trans-Anatolian Pipeline) Project which will run through Turkey from the border of Georgia to Greece will have an initial annual capacity of 16 bcm. The pipeline will from 2019 transport 6 bcm of gas from Shah Deniz Phase 2 of Azerbaijan to Turkey and 10 bcm to European markets through the Trans-Adriatic Pipeline. Northern Iraq has significant gas reserves, and gas from there to European markets through Turkey could be another potential contribution. Gas from the eastern Mediterranean could also offer an important new source, though the dispute on the maritime border on the continental shelf between Israel and Lebanon is hardly a good omen.



Source: Observatoire Méditerranéen de l'Energie (OME).

East Mediterranean gas, like the Azeri gas, would improve the security of supply to the European gas market by way of diversification of the gas portfolio, increased flexibility and competitiveness. The region holds well documented and large hydrocarbon resources: the Tamar and Leviathan fields offshore Israel, Aphrodite off the southern coast of Cyprus, and the giant Zohr gas field in a deep offshore zone of the Mediterranean off the coast of Egypt. Two United States Geological Survey assessments in 2010 (one for the Levant Basin Province and the other for the Nile Delta Basin Province) confirm this potential – almost 10 trillion cubic metres (tcm), which is nearly one-third of current Russian proved reserves. Of course, this magnitude of resources must be confirmed by drilling. Only time will tell the true potential of the region.

The amount of discovered resources that are proven so far is rather small, some 3 tcm (two-thirds of which is in Egypt, one-third in Israel and Cyprus). And yet, the region remains one of the world's most underexplored areas and has good prospects for additional gas, and perhaps, oil reserves. Boundary disputes – notably around Cyprus – may however complicate further exploration and drilling.

These factors have understandably made the east Mediterranean region a rising favourite for international oil and gas companies. What also makes the region attractive is the fact that it is very close to Europe, a major gas consumer market. Only Norwegian and part of the North African gas resources are within this geographical proximity.

Overall, future east Mediterranean gas volumes available for exports will increase robustly in the future, even though eventual levels will largely depend on developments in Egypt. So, it is likely that the region could achieve annual gas export levels of 30 bcm between 2024 and 2038. There is however a caveat: much depends, on what additional reserves might be found and the level of Egyptian domestic demand.

However, except for Egypt, the absence of large export infrastructure in the region has been a major challenge for converting discovered resources into productive capacity. Today, no meaningful export infrastructures exist in Israel and Cyprus. There exists only a recently completed and small capacity pipeline to deliver Israeli gas to Jordan. If their gas resources are to find their way to international markets, several export options are envisaged whether through LNG or pipelines. All these options are complementary not mutually exclusive.

In order to encourage the flow of gas from the region into Europe it will be necessary to encourage and facilitate investment in developing resources and gas transport infrastructure in the region. Getting the countries in the region to collaborate and cooperate is a formidable diplomatic challenge to be overcome. There is much scepticism from the business community amid low gas prices and concerns over political risk.

## **Algeria's contribution**

Any contribution by Algeria to meeting the EU shortfall in gas will depend on EU willingness to buy more but also, crucially, on that country's capacity to develop new resources. Roughly one-half of all Algeria's conventional reserves of oil and gas have been used to date. Production dipped after 2007. Very tough exploration and development costs imposed by Algeria on foreign operators attracted only the most resolute to work in the country. Only one new barrel of reserves has been added over the past decade to every barrel produced. This ratio will only go up if more exploration is undertaken, which in turn requires a softening of conditions for international companies working in Algeria.

Proven gas reserves are estimated at 2745 bcm of gas as of December 2015; probable and possible estimated conventional reserves would add a further 1500 bcm. What is new is the growth of non-conventional resources. The recent decision of the Algerian government to relaunch

the development of non-conventional oil and gas reserves, estimated at between 170-180bn barrels of oil equivalent, adds a new dimension to the story. Where gas alone is concerned, Algeria is estimated to be the country holding the third-largest recoverable reserves of non-conventional gas in the world after China and Argentina. They are estimated at more than 22,000 bcm. Production of gas could be steadily increased in the years ahead. Algeria could move back to the 60 bcm a year it was exporting during the mid-2000s. That however will require good management in Algiers – not an outstanding feature of the management of Sonatrach and the Ministry of Energy in recent years – and a certain willingness on the part of EU countries to consider Algeria as a more important strategic partner than hitherto. After all Sonatrach has never once interrupted supplies of gas to the EU since they started in 1964.

Algerian gas is transported to the Iberian peninsula via two separate underwater pipelines. The oldest is the Maghreb-Europe Gas Pipeline which transits through Morocco to carry gas to Spain and Portugal. It has operated since 1996. It has a capacity of 12 bcm. Medgaz, which carries Algerian gas directly across the Mediterranean to Almeria, has a capacity of 8 bcm. In 2015 these pipelines were operating at 60% capacity.

Europeans may care to remember that during the first Ukraine-Russia gas crisis in 2005, Algeria was able to increase its gas exports to the old continent at 24 hours notice. It is also worth considering that Sonatrach's long-term gas contracts with its EU partners expire between 2019 and 2021. So far the Europeans have not rushed to renegotiate them – which begs the question as to whether security of supply really concerns them that much. Contrary to reports, Algeria is in no way running short of gas.

Two of Europe's major gas players are not bereft of contradictions of their own which make devising an overall gas policy for the EU more difficult. France and Germany are key architects of sanctions against Russia following its annexation of Ukraine in 2014 but leading companies in both countries seem more interested in getting gas as cheaply as possible, a policy which at times undermines the foreign policy goals of their leaders.

The EU's policy of liberalising its gas market and improving the connection between pipelines has had a very positive outcome in Ukraine, depriving Russia of major leverage where gas supplies are concerned. Indeed the introduction of reverse gas flows to Ukraine from its western neighbours such as Poland, Slovakia and the Czech Republic have allowed Ukraine not only to escape from the embrace of Gazprom but to buy its gas more cheaply than hitherto. The reverse flow game has however penalised Poland which still has long-term take or pay contracts with Gazprom. Indeed, through Nord Stream 2 Gazprom and German companies can sell gas to Poland more cheaply than Poland buys it from Russia. As Gazprom knows the price Poland pays for the gas it sells to the country it can ensure that enough cheaper Russian gas pumped through Germany is offered to Poland which meantime is stuck with a take or pay clause. Increasing the debt burden of Poland's gas company is a perverse result of the liberalisation of gas policies in Europe

which is unlikely to be held up by the European Court of Justice, but Germany's complicity with Gazprom hardly speaks of a serious EU policy regarding gas security. Germany is effectively undermining EU energy security.

The official line in Berlin is that Nord Stream 2 is just another straightforward commercial venture with which neither the EU nor the US should interfere. The project cements the sensitive relationship between Germany and Russia and helps to establish Germany as an entrepôt in the European gas market, replacing the declining gas production from the Dutch and British sectors of the North Sea. But the US Senate has just voted 97-2 in favour of extending sanctions against Russia. Many Europeans dislike the Senate bill because it makes it harder for EU companies to do business with Russia, acting extraterritorially to constrain foreign firms while appearing to offer a helping hand to US energy exporters. But, as Professor Alan Riley, fellow of the Institute of Statecraft, points out, Nord Stream 2 has become the subject of "an effective multidimensional, multi state disinformation campaign in its own right." Russia remains very dependent on oil and gas revenue, which provided almost half its export revenue in 2016. It cannot control oil prices but Gazprom, which is a state company and a tool of Russian foreign policy, has every incentive to maximise its share of the European market by means fair and foul: completing Nord Stream would allow it to increase its share of EU imports from 34% to 40%. The project destroys the very concept of diversifying supplies.

Promoting Nord Stream 2 divides the former Comecon members of Europe from those in Western Europe, especially Germany. Bringing more Russian gas to the heart of Europe will further increase Gazprom's market power in Germany and have a strong anti-liberalisation effect. Riley concludes that "the union's underlying principle is solidarity, and EU institutions – as well as Germany – will have demonstrated little solidarity with their eastern members. Nord Stream's successful development would do further damage to the EU's integrity. Post Brexit, one would have thought that the EU would make solidarity a priority, or at least avoid measures that would divide member states."

A further consideration is that Germany is already regarded as having too much power in Europe, notably in southern Europe, where its policies are blamed for unending austerity. As Nord Stream is very much the creation of the Social Democratic Party, the chancellor would lose little by allowing the project to stall and would win respect in those parts of the US administration and Congress which are looking for support against Russian behaviour in Ukraine and Syria. Alain Riley suggests that allowing the project to fall into the hands of European Commission lawyers who could find good reasons for not proceeding might be a way out of the present situation.

### **Can Spain and the western seaboard act as a secondary European gas hub?**

The same holds for France. Another question worth considering is whether Spain could play a significant role in enhancing the EU's security supply. It has Europe's largest gasification capacity at 60

bcm, 75% of which is not used. Two major pipelines connect it with Algeria, both of which are running well below capacity. The Chinese economic slowdown and the building of new LNG liquefaction capacity in North America suggests that the liquidity of the LNG export potential in the Atlantic basin will likely increase in the years to come, as the US starts exporting gas. That will put pressure on LNG prices. Potentially Spain could be a conduit for LNG resources making their way into the EU from different Atlantic sources. Together with resources from Algeria more natural gas could be fed into the rest of the European market.

The Iberian peninsula has significant LNG facilities with regulated access and is connected with pipeline gas to North Africa. If the capacity of the Midcat (now called STEP) pipeline was doubled to 15 bcm the extra gas which would flow into France and beyond from the Iberian peninsula would encourage higher market integration and price convergence with the rest of Europe and reinforce infrastructure connections within France and western Europe. That however is unlikely to happen, as French companies will defend their market share in the lucrative French market tooth and nail. With three gasification plants at Fos-Sur-Mer, Montoir-de-Bretagne and Dunkirk, they have no desire to allow new supplies into the market.

The French regulator, the Commission de régulation de l'énergie (CRE), made its position quite clear in June 2016, arguing that France would have to shoulder two-thirds of the \$3.36bn cost of boosting the Midcat pipeline's capacity. The CRE is doing no more than protecting the market share in France of French gas companies. France, like Germany, seems intent on protecting the market share and profits of its major gas companies rather than contributing to the architecture of greater EU energy security.

The issues of greater EU energy security are left to heads of government. In the Madrid Declaration of March 4th 2015 the EU Commission president, Jean-Claude Juncker, and the leaders of France, Spain and Portugal agreed that better connections between the Iberian peninsula and the rest of the EU would help develop an integrated European energy market. This project is deemed of common European interest but the words uttered in Madrid are wishful thinking. They pay lip service to a goal the French have no intention of delivering. Defence and security experts interested in broader geopolitical goals may wring their hands but narrow profit motives often trump broader policy goals. This episode offers yet another demonstration of the EU's difficulty – some would say incapacity – when building a long-term foreign policy.

Beyond the possible role of Spain, might the western seaboard of Europe contribute to Europe's energy security? The western seaboard boasts a very liquid and open LNG market, but one that cannot be fully used because of French and German policies. This point is underlined by the role that British gasification terminals played in the 2009 Ukraine-Russia energy cut-off. The UK has the second largest regasification capacity in the EU, at nearly 50 bcm. It also has a major pipeline exporting capacity across the Channel of 30 bcm. As a result, during the 2009 crisis the UK was able to switch the pipeline into full reverse flow and send additional LNG-sourced flows into France, Germany and the Netherlands.

This begs the question as to the potential for Spain and the UK to help supply the EU market and the greater contribution Algerian gas resources could play in such a scenario. The load factor of gas turbines in the EU is 45%. Were that increased to 75% the need to use coal and help Europe meet its proclaimed policy of reducing emissions of CO<sub>2</sub> would disappear.

Whether the EU ultimately gives the go ahead to Nord Stream 2 will determine the shape of the EU's gas import pattern for years to come as well as its security. If Nord Stream 2 is built, Russia will play an even more important role than hitherto, but Algerian gas supplies are unlikely to match the level they reached in 2010. That in turn will make any in-depth strategic dialogue between Algeria (and eventually Libya) and Europe less rewarding. It is not easy for the EU to balance strategic relations with countries which lie beyond between its eastern and southern borders. The challenges posed by large-scale immigration from Africa, climate change and terrorism, let alone the need to stabilise North Africa economically, suggests it would be well advised to pay more attention to Africa's largest country and its capacity to supply more gas to Europe.