CIDOB • Barcelona Centre for International Affairs

ISSN: 2013-4428

notes internacionals CIDOB

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FEBRUARY 2013

Algerian Gas' Challenges After the Attack on in Amenas

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The attack on the In Amenas gas field was spectacular: nothing of its kind had ever happened in the history of the oil and gas sector of Algeria. Attacks on the energy infrastructure were rare during the civil war of the 1990s and were generally confined to minor pipeline bombings – only once the throughput of gas was interrupted on the Trans-Mediterranean pipeline which has carried Algerian gas to Italy via Tunisia and under the Strait of Sicily since 1983. An estimated 2.6bn cfd flows through the pipeline, which was only slightly affected by the attack on In Amenas. The gas from this area, which comprises a number of fields, is not used directly for exports but piped to the giant Hassi R'Mel gas field further north and re-injected to maintain levels of production there steady. Today Algeria faces three challenges, of which terrorism is not the most important: a regulatory environment which has led to little foreign investment in development of new oil and gas resources; runaway domestic demand for oil and particularly gas, which threaten to push local consumption higher than external sales by the middle of next decade; and the need to improve security of its major oil and gas fields.

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The attack on In Amenas and the conflict in Mali increase the risk profile of Algeria and the broader North African region which includes Libya, Tunisia and Egypt. In 2011 this region produced 4.4mn b/d of liquids including crude oil, condensates and NGLs, nearly half of which were exported. It exported 6.2 bcf/day of liquefied natural gas (LNG) and pipeline gas, essentially to Europe.

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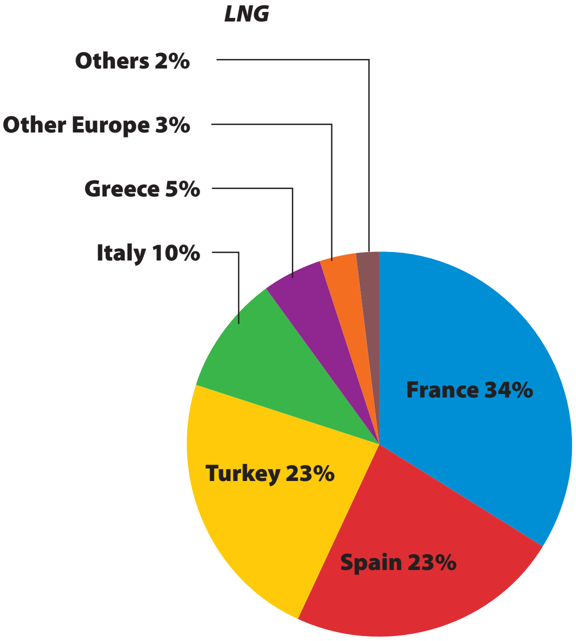
Unless the current decline in oil and gas production is halted by important new discoveries, Algeria might, according to one pessimistic scenario be exporting only half its current volume of oil and gas by 2030. That suggests the decline will average 2% a year between 2015 and 4% between 2020 and 2025, accelerating to 7% thereafter. Other scenarios are less pessimistic but all point to the need to develop solar energy and conserve gas resources.

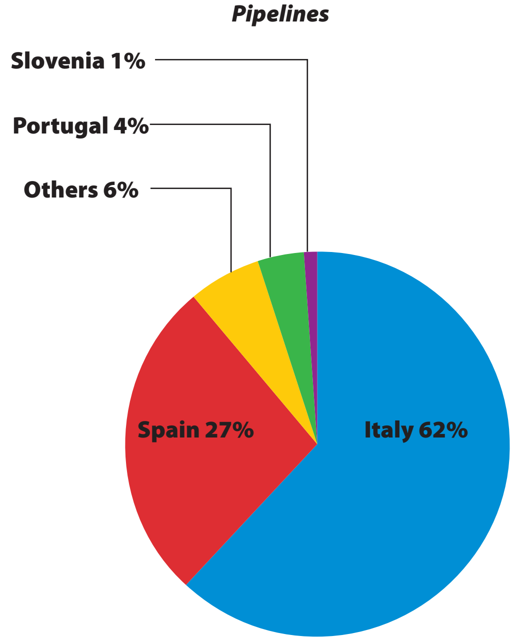
Whether the recent attack, and the broader deterioration of security in neighboring countries prompts any wider public debate of these issues is anybody's guess. Algeria may be failing to engage in a more open debate on these complex issues, but think-tanks and multinational companies elsewhere in the world are hard at work as they recognize its importance in north-west Africa.

Algeria's Gas Credentials

Algeria currently holds 159 trillion cubic feet (tcf) of proven natural gas reserves, the tenth largest in the world and the second largest in Africa after Nigeria. The country's gross production of natural gas in 2011 was 6.7tcf compared with 6.8tcf the year before. Of this total, 2.9tcf was marketed at home and abroad while the rest was re-injected to enhance oil recovery, flared or lost due to shrinkage. According to Paris-based gas association Cedigaz estimates, the country's total natural gas exports were 1.79tcf in 2011, just over two thirds of which were exported via pipelines which connect Algeria with Italy and Spain/Portugal via Tunisia and Morocco and the balance in the form of LNG. Algeria remains the

Algeria's 2011 Gas Exports By Destination





Source: OME based on Cedigaz data

third largest supplier to Europe after Russia and Norway. The share of Algerian gas in the domestic demand in several neighboring countries is significant: 30% in Italy, 40% in Spain and close to 50% in Tunisia.

Algerian crude oil production stood at 1.2mn b/d in 2012 with minimum spare capacity of 0.02mn b/d. Total oil production stands at 1.9mn b/d – apart from crude, it includes condensates and NGLs. Algeria produces essentially Saharan Blend crude, a light crude oil of high quality with very low sulfur and mineral content. Oil exports to the EU represent an estimated 17% of Algeria's total oil exports but less than 2% of the EU's total oil imports.

Algeria is still underexplored for oil and gas – offshore is, according to the Sohbet Karbuz at the Observatoire Méditerranéen de l'Energie, one of the few remaining deep water exploration frontiers in Africa. The In Amenas gas project, one of the largest wet gas development projects in Algeria lies 1,300km due south east of Algiers and involves the development and production of natural gas and NGLs from four wet gas fields in the Illizi basin as well as gas gathering and gas processing facilities. The project came on stream in 2006. BP and Statoil own and operate the project with Sonatrach: it produces 0.3tcf of natural gas and around 50,000 barrels of condensate. The gas is fed by pipeline to Hassi R'Mel where it is re-injected.

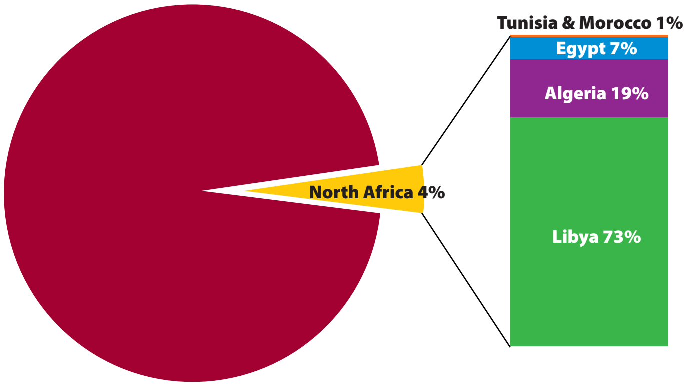
Fallout For North African Energy Markets

The attack on In Amenas and the conflict in Mali increase the risk profile of Algeria and the broader North African region which includes Libya, Tunisia and Egypt. In 2011 this region produced 4.4mn b/d of liquids including crude oil, condensates and NGLs, nearly half of which were exported. It exported 6.2 bcf/day of liquefied natural gas (LNG) and pipeline gas, essentially to Europe. Recent political upheavals in Tunisia, Libya and Egypt have weakened central governments and their capacity to project power. They have made borders very porous which in turn has encouraged throngs of young unemployed people to make a living from a mixture of trafficking and religious zealotry.

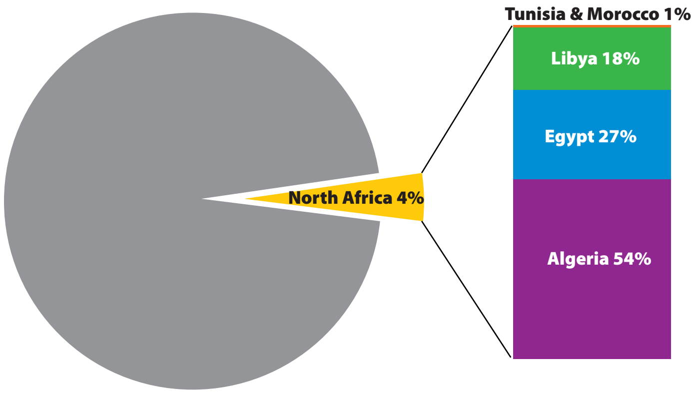
War and religion have become a sustainable way of life for them as for the battle-hardened fighters of various armed groups who are turning a handsome profit as hostage takers and smugglers of cigarettes, drugs and more recently weapons. The mastermind of the In Amenas operation, al-Qa'ida in the Islamic Maghreb's (AQIM) Mokhtar Benmokhtar, is nicknamed by many in the region as Mr Marlboro and his contemporary Abou Zeid is a Taliban zealot by day and a smuggler at night. These warlords have retired to the Sahara because they have no other place to go – they were forced out of Algeria in the early 2000s and have been unable to mount any serious operation in Europe since the 2044 Madrid bombings. They are a force in retreat, not a rising phenomenon. But they can still inflict serious damage on the region.

A single attack will not prompt international companies to withdraw from Algeria. In the wake of the attack, Sonatrach moved very quickly to reassure its key foreign partners – some important western companies feel another attack on the scale of In Amenas is highly unlikely. The inadequacy of current security arrangements will force a reappraisal of private security and the willingness of host governments to ensure the security of foreign workers. This will raise the cost of operations and could have a longer term impact if the situation deteriorates further. The increasing reliance on local staff in Libya has resulted in much needed maintenance being postponed to the detriment of field performance. Security concerns could deter future investment.

Share of Notrh Africa in World Proved Oil Reserves, 1 January 2013

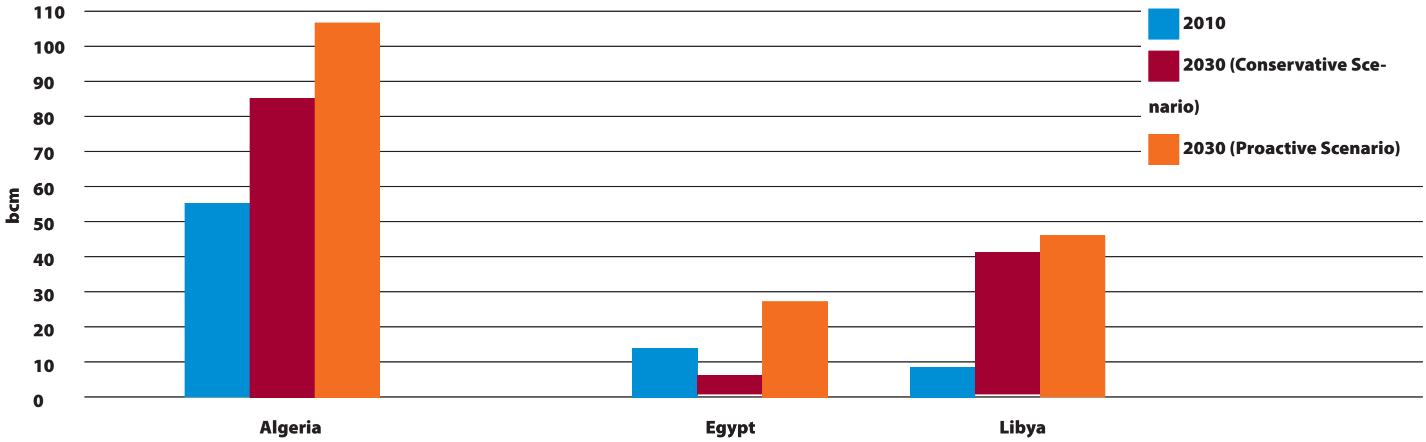


Share of Notrh Africa in World Proved Natural Gas Reserves, 1 January 2013



Source:OME, based on Oil and Gas Journal data

Natural Gas Export Potential



Whereas Egypt and Libya have entered a structural decline where LNG is involved – Egypt might have to import LNG in the near future – Algeria is planning two new liquefaction plants. The LNG plant at Skikda was partly destroyed by an explosion in 2004: three of the six existing trains have been repaired, and the other three are being replaced by one new train due to open this year. A new plant is being built at Gassi Touil. All these projects have been delayed by regulatory and technical problems. Security concerns could push the projects back further. A new hydrocarbons law has just been approved by the Algerian Senate but only the future will tell whether it makes the country more attractive to foreign companies wishing to invest in exploration projects. The frequent delays in Algerian projects, stringent financial terms and a windfall tax on foreign oil producers whenever the price of oil exceeds $30/B have dampened international companies' interest in bidding rounds. Algeria awarded two out of ten oil and gas permits on offer in its latest licensing round in March 2011 – the winning bidders were Sonatrach and Cepsa. This was the third bidding round in a row to attract lackluster interest from foreign firms.

Meanwhile the Galsi pipeline which was due to be built to carry gas directly to north western Italy is on hold – it was planned to be operational in 2014 but its financing is not yet decided. The decline in European need for more gas and the ample room for more throughput in the two pipelines which carry Algerian gas to Spain, one directly and the other to the Iberian peninsula via Morocco, strongly suggest there is no need at present for a new pipeline linking Algeria to Europe.

The Algerian Dimension

Jihadists in Algeria have traditionally acted opportunistically for ransom rather than destruction but tactics appear to have altered. Homegrown tribesmen, transnational terrorist groups such as al-Qa'ida and its regional franchise AQIM, and local militants have no high value Western military targets, so they seem to have targeted the oil and gas sector which is the mainstay of the Algerian and Libyan economies. The real goal of the terrorists who attacked the In Amenas area appears to have been to turn this particular gas field and plant into a giant fireball. The immediate question for international oil and gas companies working in Algeria is whether the throughput of gas to Italy will be affected if expatriate workers do not return to In Amenas in the next few weeks and Algerian workers and engineers are not able on their own to bring back gas production to the level it was at the time of the attack (see Px). The drop in throughput in the hours following the attack is estimated at around 11-13% but normal levels were soon restored. The extreme reluctance of the Algerian authorities to brief foreign companies – let alone the contradictory statements made by different officials during the crisis – makes that question all the harder to answer. Communicating has never been the forte of the Algerian authorities, but they can hardly complain today if rumors circulate and gain ground among foreign hydrocarbon companies working in the country or the international media.

The most obvious and immediate consequence is that operating in Algeria is set to become more expensive: insurance rates, deployments costs and the cost of moving expatriate personnel in and out of the country will rise. The second consequence is that BP and Statoil, who operated the field with Sonatrach, are unlikely to further expand their operations in Algeria at present. Indeed the attack has prompted wider soul searching in Norway as to the advisability of a company like Statoil, which is state owned, to operate in countries where serious terrorist threats exist. Another spillover effect is occurring in Libya, where BP might put off its drilling plan beyond September. This is part of a contract signed with the country's National Oil Corporation in 2007.

Were there to be another serious incident, these companies and others might consider scaling back their activities as they would find it more difficult to send expatriate personnel to Algeria. The killing of two armed civilian guards protecting a gas pipeline at Djebalia, near Bouira, 125km due south east of Algiers, a week after the end of the hostage crisis occurred in a region where terrorists still operate and is not likely to register too highly on the Richter scale. Another more serious incident, especially if it occurs near the giant Hassi Messaoud or Hassi R'Mel fields, will.

Sonatrach's reputation has been tarnished, as has that of the country's security forces. The famous ring of steel, as security specialists like to call it, around In Amenas failed. The area lies 100km from Algeria's south east frontier with Libya, which abuts a region in the latter where arms groups proliferate and the blood-letting since the fall of Mu'ammar Qadhafi has not stopped. The leader of the terrorist group which attacked In Amenas might have misled the Algerian army into believing he was going to attack a target in Algeria further north and got his men to make a dash across the less mountainous and more open ground around In Amenas. Whatever the exact explanation, the attack was a major humiliation for Algerian security.

Attacks by Islamic armed groups against the gendarmerie headquarters of Ouargla, 50km from Hassi Messaoud, occurred last June and against the gendarmerie headquarters of Tamanrasset, 1,000km to the south, a few weeks later. The growing turmoil in Mali, the bitter infighting between different AQMI franchised groups and the French intervention in Mali might have played a role. More important was the increasingly lax and routine methods of control practiced by the Algerian army, gendarmerie and privately run militias, usually set up by retired Algerian army officers which a number of western oil and gas companies had noted over the past few years.

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Reputation As Reliable Gas Supplier Cherished

Conspiracies theories suggesting the attack against In Amenas might have been organized by the secretive head of the powerful Direction du Renseignement et de la Sécurité (DRS) general Tewfik Mediène, as he battles with Algerian President Abdelaziz Bouteflika also rests on the fact that, in the civil war of the 1990s, the DRS infiltrated armed Islamic groups battling the Algerian government and was accused of committing massacres to discredit its enemies, some of whom later became AQIM. General Mediène was trained by the KGB which means according to this line of argument that he was likely to muddy the waters. As ruthless as he is, the idea that General Mediène is the puppet master of the whole region does seem a bit farfetched – and it makes the DRS appear cleverer than it actually is. The fact is that there is no evidence to suggest that In Amenas was not a genuine terrorist incident – scoring an own goal of this magnitude beggars belief.

Algerian leaders prize their country's hard won reputation as a reliable supplier of gas to its many foreign customers, one which has never failed to honor its contracts, be it for reasons of commercial dispute, terrorism or accident, since LNG was first shipped from Arzew to Canvey Island in the Thames estuary in 1964. A near faultless track record is key to Algeria's standing as the third largest supplier of gas to Europe after Russia and Norway. It is worth noting that exports of hydrocarbons were worth $71bn in 2011. They account for 35% of the country's GDP, 60% of government income and 95% of foreign income. It is a backhanded compliment to General Mediene's formidable reputation that some have suggested that the In Amenas attack was yet another DRS dirty trick.

Two things are certain: this attack was planned months in advance and among the attackers some knew the gas field and treatment plant well. The extent of possible complicity within the field or of prior knowledge by former employees of the foreign companies or Sonatrach now working with terrorist groups raises serious questions which will have to be addressed but are best left to specialists in the field.

Unless the current decline in oil and gas production is halted by important new discoveries, Algeria might, according to one pessimistic scenario be exporting only half its current volume of oil and gas by 2030. That suggests the decline will average 2% a year between 2015 and 4% between 2020 and 2025, accelerating to 7% thereafter. Other scenarios are less pessimistic but all point to the need to develop solar energy and conserve gas resources.

Sonatrach's Recent History

In November 2011, Sonatrach's fourth chief executive in two years was appointed by the energy minister but until recently many senior cadres dared not take any initiatives of their own, thus slowing every operation in the field of exploration and development. This situation must be set in the broader context of the corruption investigation in 2010[1] which led to the dismissal of the company's chief executive and many of the senior management team and to the fall of the all-powerful minister of energy since 1999, Chakib Khelil.

The minister's attempt in 2005 to liberalize foreign investment rules in the hydrocarbon sector to enhance Sonatrach's exploration, production and export capacities met with a barrage of criticism within the Algerian establishment. Aggressive depletion policies were considered an anathema as they would have violated two broad rules which have always guided long term policy planning in Algeria's oil and gas sectors. Algeria would not enter into any new export commitment where oil and gas were concerned without an equivalent volume of proven reserves being found; when projections of future exports and domestic consumption were made, its authors had to ensure that 35 years' worth of domestic consumption were built into the model; and last but not least, great care should be made to avoid damaging existing wells by aggressive policies.

Domestic consumption of gas in Algeria is increasing at a rate which is unsustainable in the medium term. Of the almost 3tcf marketed gas produced in 2011, almost 40% was accounted for by domestic consumption. Domestic consumption could, according to pessimistic scenarios, overtake exports by 2025. As the interest of international oil companies in exploring and producing in Algeria declined in recent years, exploration and the discovery of new resources and production have all slowed. Algeria's long-term target is to maintain its crude oil production capacity at about its current level and increase its gas production capacity. But it is questionable whether Algeria will be able to meet the growing needs of its domestic markets and respect its exports commitments if its current policy towards international companies is not seriously liberalized. Today Algeria has a total refining capacity of 450,000 b/d but this must increase to meet rising demand for gasoline, which has resulted in rising imports of refined products. One way would be to cut subsidies on such products but, fearful this would upset social peace, the government is adamant it will not make a move in this direction. Most importantly, Algeria needs to use solar power, abundant in the Sahara, far more than it does today. This argues in favor of accelerating the building of hybrid power stations – 70% solar and 30% gas – to produce electricity. More than 90% of electricity in Algeria is produced from gas and this accounts for two thirds of the domestic gas consumption. Algeria's solar resources are vast and endlessly replenished.

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1. Francis Ghilès Ahead of the Spring in Algeria: Tough Energy and Economic Challenges Await. Notes Internacionals 32. CIDOB May 2011 http://www.cidob.org/en/publications/notes_internacionals/n1_32/ahead_of_spring_in_algeria_tough_energy_and_economic_challenges_await

Backdrop To The Three Challenges

As it attempts to increase exploration for, and production of, gas and unconventional gas, of which it has abundant reserves, and also oil, the three aforementioned challenges are pressing for Algeria. While the regulatory environment has deterred foreign interest in recent years, a recently voted in law on hydrocarbons might improve the situation. But that leaves domestic consumption which is growing at a rate unsustainable over the medium term, and the added cost of terrorist threats. These challenges must be set in a broader framework: the country has yet to devise a policy which halts the decline of the industrial sector's percentage share of GDP from 20% in 1985 to 6% in 2011 (it typically represents 25-35% in faster growing emergent countries). It therefore needs to encourage economic diversification away from the dominant energy sector, without which Algeria will continue to fail to create the jobs its young people need.

The threat of terrorism will add to the cost of exploring and developing new oil and gas resources. Should other attacks against oil and gas production or transport facilities occur, it will also test the country's reputation as a reliable supplier to Europe, a reputation which underpins its foreign policy and pride as a nation. Whether the recent attack, and the broader deterioration of security in neighboring countries prompts any wider public debate of these issues is anybody's guess. Algeria may be failing to engage in a more open debate on these complex issues, but think-tanks and multinational companies elsewhere in the world are hard at work as they recognize its importance in north-west Africa. Their findings will perforce influence the future course of the Algerian oil and gas industry.