Algeria is one of Africa's oldest oil producers. It is the continent's largest exporter of natural gas to Europe and the third largest exporter of oil. In North Africa, the country remains relatively stable among energy producers in this troubled neighborhood. This observation is made in spite of the terrorist attack at In Amenas in January 2013 that left nearly 40 employees of the facility dead and reportedly hundreds wounded. Expectedly, this unprecedented attack in both size and scale, against the remote Algerian natural gas facility raised numerous questions about Algeria as a safe place to do business and as a reliable gas supplier to Europe. However, beyond the bloodshed and fear that the incident instilled in all concerned, the country is trying to come to grips with yet another - and in many ways more significant - challenge to its peace and prosperity. The challenge or more appropriately challenges come in the form of dramatic changes in global energy markets. For the hamstrung Algerian economy, the challenges are formidable. With the advent of spot-market LNG, European gas producers shuttering their doors in their turn to cheap coal, a push for de-coupling natural gas and oil prices, continued low economic growth in Europe - Algeria's most important export market, and as will be discussed, a heretofore inability to tap into its own unconventional natural gas and renewable energy resources, the country has some tough decisions to make.

Background

Hydrocarbons account for 70% of Algeria's national budget revenue, and 98% of all the country's export earnings with nearly 98% of all natural gas exports channeled to Europe. The percentage of Algerian gas in Europe's gas import mix has been nearly halved over the last decade falling from some 23% of all European gas imports to approximately 13% today. And it is not simply that Europe is importing less Algerian gas that is at issue but moreover that Algerians themselves are consuming more of the blue fuel. The US EIA estimates that domestic power demand (99% which comes from burning hydrocarbons) in Algeria will double by 2030 with the domestic economy demanding some 50 bcm already by 2020 for the production of electricity (in 2012 it consumed 31 bcm for this purpose). With the domestic price of gas in Algeria priced at nearly one-tenth its export price, the economy is plagued by the litany of bad practices replicated elsewhere when subsidized energy prices skew the market in terms of waste and inefficiencies, the disincentive to move to other sources of power, etc. However, it is worth taking a step back, as Sonatrach the country's national energy champion is doing, to see what is working and what isn't in turning the Algerian ship around so that it heads in the right direction.

The positives

When it comes to conventional oil and gas production, the Algerian workforce is relatively well trained and experienced since the launch of its oil industry back in 1958. The Algerian natural gas industry is even older launched in 1956 with the discovery of its super-giant Hassi R'Mel field. A second positive is that the country has well developed and rather sophisticated pipeline infrastructure that can take its oil and gas from its inland sources and get it to domestic

refineries or to the coastal regions where it can be exported. Algeria's pipeline infrastructure at present is only functioning at 50% capacity. As a positive this means there is an asset ready to be utilized but as a negative this unused capacity is costing someone money namely Sonatrach and the national government. A third positive is that the country is thought to contain at least double the amount of unconventional gas resources that it counts in proven conventional reserves today.

A few negatives

The country's reserve:production ratio for both oil and gas began a slow decline back in 2005. According to one source , of the world's big oil producing regions no region other than the North Sea has seen a steeper decline in oil output over recent years than has Algeria. Not unlike elsewhere, as in Saudi Arabia or the Russian Federation, the country's oil profile continues to draw on it major-but maturing giant fields in Hassi Messaoud, Ourhoud, and Hassi Berkine, which contributed to about half of total crude oil production (1.25 million bbl/d) in 2012. The same can be said for gas. Its 2012 production of some 79 bcm was 10 bcm less than it was five years earlier. Indeed, there have been a slew of new gas projects slated but relatively few have taken off in recent years (more on the causes for this later). While decline rates in the reserve:production ratio are largely predicated as negative, according to a Sonatrach representative to Algeria's Energy Minister in 2013 24 new fields (oil and gas combined) have been discovered which should result in the first net positive improvement in the ratio for the first time in years.

As cited earlier, another challenge to the country's energy sector is in soaring domestic demand driven by both demographics as well as by largely sustained economic activity over the past five years since the onset of global economic malaise. Were more liberal economic dynamics at play where the domestic price for gas were more reflective of the relatively higher regional European import gas price, this could have been a positive for the industry but this hasn't been the case. This vast country's population has more than quadrupled from approximately 10 million in 1960 to nearly 40 million today and added 10 million people over the past 10 years alone. Holding gas for re-injection aside, some predict that domestic gas consumption will exceed exports by 2025 if other energy sources, such as solar or unconventional shale gas, and potentially offshore exploration and production fail to come online.

As mentioned, economic growth measured by GDP over the 2008-2012 period has been sustained (a good thing) peaking at 4% in 2011 and falling back to 2.6% in 2012 for the period. The rule of economic growth and rising standards of living applies in Algeria as elsewhere around the world; rising standards of living increase as a function of energy (power) availability and its use. However if one scrapes beneath the surface, the country's percentage of GDP coming from the non-oil and gas industrial sector continues to decline shifting an even greater economic burden to the energy sector. Whether the standard resource curse explanation for

this (i.e. that energy dominance crowds out other economic activities and generally leads to a price rise for other goods and services) or a lack of meaningful investment in other sectors of the economy is responsible for Algeria's deindustrialization is anyone's guess but the fact is the country needs more not less diversification if it is going to meet the future needs of its citizens in all domains.

Finally, there remain some serious structural problems with Algeria's recently amended 2005 hydrocarbon law that need to be addressed. The law, as interpreted by the foreign investment community, hasn't incentivized inward foreign investment and needs to be corrected. In fact during the last round of auctioning off tenders for new development blocks in 2011 only two were awarded and one of those was to Algerian state-run Sonatrach.

Next steps

Algeria is waiting for its next round of presidential elections scheduled for April 2014. In the interim, little can be anticipated in terms of rolling back natural gas subsidies that would antagonize consumers by having them pay higher energy prices. On amendments made to the 2005 hydrocarbon law in January 2013, the government is carrying out a jet-setting public relations campaign under the unofficial aegis that can be summed up as, "profitability for buyer and seller alike." The amendments to the law include incentives to develop offshore Algerian hydrocarbon resources (which would be a first), provide incentives to explore and ultimately develop its unconventional shale gas resources by linking the (expensive) upstream exploration costs to those who actually produce and develop these resources as an offset (deduction) from future revenue, and to undertake exploration activities in far-flung areas of the country that have seen little upstream activity to date. It has also recommitted itself to rolling out renewables, particularly solar, to help compensate for soaring domestic electricity demand. To this end, it issued a Renewable Energy and Energy Efficiency Program back in 2011, designed to produce 40% of its domestic electricity from renewable solar sources by 2030. However, the plan has lacked significant implementation to date and it is difficult to imagine how it is going to even approach this lofty projection without significant on the ground activity starting now.

Prioritizing problems

As noted, the early 2013 In Amenas gas facility attack was unprecedented in Algeria given its scope and magnitude. Even during the civil war in Algeria in the 1990s critical energy infrastructure was largely spared targeting other than relatively lower-order of magnitude attacks against pipeline infrastructure. Not to minimize the importance of pipeline attacks, but these (largely) above ground tubes are the white-elephants of critical infrastructure and the notion of their criticality varies. In the case of In Amenas, produced gas from the facility (fed by surrounding fields) was used for re-injection to maintain flow rates in the Hassi R'Mel gas field further north. No origin gas was destined for export which doesn't discount its impact along the supply chain but in terms of direct impact on Algerian gas exports it was negligible.

Another, and perhaps a more nuanced security threat, comes from the fact that operatives both foreign and domestic can move, group and regroup along Algeria's southeastern and southwestern border regions with Libya and Mali respectively. Movements such as AQIM (al Qaeda in the Maghreb), the Movement for Oneness and Jihad in West Africa an Al Qaeda offshoot known locally as Mujao, and others disenchanted with states in the region need to be dealt with one way or another. The more porous the borders the more regional the threats be they security incidents carried out in Algeria, Mali, Libya, Niger or Tunisia. All of these states are impacted and all are implicated, whether they like it or not, in putting down such violence.

The most significant and potentially devastating longer term impact of the In Amenas attack is slowing inward foreign investment into the country's energy sector. Investment in energy, up-mid-or downstream, is expensive. (Sonatrach alone estimates the sector will require 100 billion USD in investment over the mid-term future). Therefore once these investments are made oil and gas companies typically don't cut and run. It should be kept in mind that they are also accustomed to working in some of the most dangerous parts of the world as exemplified by IOCs who have been operating in the Niger Delta since the 1950s. For investments yet to be made security concerns do play a role not only in terms of human security but also in the projected profitability of new, greenfield projects where higher insurance premiums, moving personnel in-and-out of a worksite and higher wages for technical personnel all have a role to play. As for the Algerian government, new costs are also being burdened by the deployment of military personnel to key infrastructure sites around the country in an attempt to thwart any potential future attack and to add to the impression (real or perceived) that the country has and will continue to act to protect its most valuable set of economic assets.

In the end however, it all comes down to dollars and cents. For IOCs already on the ground in Algeria what they themselves can do is to budget for more short-and-medium term analysis of what is actually occurring in-country and call a final halt to its 'not my problem' syndrome. While safety is regularly budgeted for, security concerns are often addressed on an ad hoc basis and need to be more consistently integrated into overall operational plans in Algeria as well as elsewhere. Up until recent years, Chief Information Officers often had the same challenge as security advisors do today in justifying expenses for cyber-security. Obviously that is now changing in the cyber-field with the increasing onslaught of cyber attacks against critical infrastructure and hopefully this too will change in the security field driven by foresight and not by hindsight in the wake of yet another significant security incident.

As for the pending elections in Algeria slated for April 2014 whoever is president will have to address the deeper and decidedly more significant investment challenges inherent in Algeria's amended 2005 hydrocarbons law ranging from removing some of the fiscal disincentives from conventional oil and gas development (removing the windfall profit tax on oil above 30$/barrel would be a good start), and in moving more forthrightly in the direction of cost-competitive

renewable energy deployment for electricity generation.

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