

The New Emerging Energy Landscape: the European Union and North Africa

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In late 2014, oil prices dropped by approximately 50%. This sharp decline is particularly significant given political instability in a number of oil producing countries such as Libya and Iraq and the sanctions on the Iranian oil sector. Several years ago these geopolitical factors would have pushed prices higher. In 2014 they had little, if any, impact due to the steady improvement in energy efficiency, which leads to lower consumption and rising production, particularly in the United States.

Energy efficiency can be defined as the delivery of more services for the same energy input or the same services for less energy input. For a long time the contribution of energy efficiency to energy security was not fully appreciated and was identified as “the hidden fuel.” In recent years, efficiency has attracted more attention and has been labelled by International Energy Agency (IEA) analysts as “the first fuel.” A recent report by the IEA stated that investment in efficiency has helped to lower energy consumption in the 18 member states by 60%. Stated differently, efficiency helped to avoid over 1.7 billion tonnes of oil equivalent from being consumed.¹ Thus, in addition to improving energy security, efficiency offers high returns on investments, increases the sustainability of energy sources and reduces pollution.

To further appreciate the significance of improving efficiency and reducing consumption, it is important to note that the 2002-2012 decade recorded

the largest ever growth of energy consumption in terms of volume over any 10-year period. Both the IEA and British Petroleum (BP), among others, project a steady increase in global energy consumption. However, this rise in consumption varies by region and by fuel. Energy demand in the most developed countries (mostly member states of the Organization for Economic Cooperation and Development, OECD) has peaked and in some countries has started a steady decline. The European Union’s energy consumption in 2013 was the same as in 1990. On the other hand, global demand for energy is led by Asian emerging markets (China, India, South Korea, and Japan) and the Middle East. Indeed, these two regions account for nearly all of the net global increase in consumption. According to the IEA, for each barrel of oil no longer used in OECD countries, two barrels more are used in non-OECD countries.² China has already surpassed the United States as the world’s largest oil importer and the Middle East is projected to overtake the US to become the largest per capita consumer of oil in 2033.

Similarly, there is a variation in the demand for different fuels. Fossil fuels maintain their dominance over the different forms of energy, while natural gas becomes the fastest growing. In addition, technological advances and lower costs regarding setting up liquefied natural gas (LNG) facilities are slowly helping to reduce the risk of supply disruptions and lower export costs. Oil consumption will grow but its share will decline and coal will grow faster than oil but slower than gas.

Growing concern about greenhouse gas (GHG) emissions, particularly carbon dioxide from the com-

¹ INTERNATIONAL ENERGY AGENCY, *Energy Efficiency market Report 2014*, Paris, 2014, p. 18.

² INTERNATIONAL ENERGY AGENCY, *World Energy Outlook*, Paris, 2014, p. 2.

bustion of fossil fuels, has created renewed interest in, virtually carbon-free, nuclear power. For decades nuclear power has been seen as a non-intermittent and readily expandable source of energy. However, the industry continues to face daunting challenges and risks that need to be addressed. The list includes high construction costs, safety, waste, and the close connection between civilian nuclear power and military applications. Thus, despite the Fukushima disaster, nuclear power capacity is projected to substantially increase. This increase, however, adds little to its share of global electricity generation due to the impressive rise of renewable energy.

Despite intensive efforts, Europe is likely to remain dependent on oil and gas supplies from North Africa (and elsewhere). More work is needed to enhance political stability and economic development in the southern Mediterranean states

Like nuclear power, renewable energy sources have been the topic of continued interest in both developed and developing countries. This interest is driven mainly by concern over energy security and climate change. Renewable energy is any form of energy that is replenished by natural processes at a rate that equals or exceeds its rate of use. Some renewable energy resources such as hydropower are technically mature and are deployed on a significant scale. Others, such as wind, solar and geothermal, are in a nascent phase of technical maturity and commercial production and deployment. The strong interest in renewable energy in many countries is projected to raise its share in global power generation to one-third by 2040. Low natural gas prices (due to shale revolution), however, might reduce incentives to invest in and develop renewable energy. This variation in the current and projected consumption of fossil fuels, nuclear power and renewable energy has had a significant impact on trading relationships. Generally North America is emerging as a net exporter, rather than a net importer, while Europe and

Asia's already heavy dependency on foreign supplies will further deepen. Against this background, this essay will examine the impact the political instability in the southern Mediterranean countries has had on their energy sectors and its implications on Europe's energy security. Despite intensive efforts, Europe is likely to remain dependent on oil and gas supplies from North Africa (and elsewhere). More work is needed to enhance political stability and economic development in the southern Mediterranean states.

Europe's Energy Outlook

With more than half a billion people and a mostly high standard of living, the European Union has one of the largest energy markets in the world. A large population and economic prosperity lead to high energy consumption, while the EU suffers from a severe shortage of indigenous deposits. Recent statistics show a large and, potentially growing, gap between production and demand, with imported supplies making up the difference.

The EU's share of global energy production is approximately 6.1%, while its share of consumption is 12.9%.³ In other words, the bloc produces less than half of the energy it consumes. Accordingly, in 2012 the EU imported 53.4% of its energy needs. In 1995 the import dependency rate was 43%, meaning that despite tremendous efforts to lower vulnerability to foreign supplies, the EU is becoming more dependent on imported fuels. The EU's external energy bill accounts for more than one billion euros per day (around 400 billion euros in 2013) and more than a fifth of total EU imports. Certainly import dependency varies across the bloc, with countries such as Malta, Cyprus and Luxembourg heavily dependent on foreign supplies and Estonia, Romania and the Czech Republic less so. This dependency also varies from one fuel to another. Russia, Norway, Saudi Arabia, Nigeria, Libya, Algeria and Qatar are the major energy exporters to the EU.

In the last few years, several emerging regional and global geopolitical trends have had a significant im-

³ All figures in this section are from the European Commission, *EU Energy in Figures – Statistical Pocketbook 2014*, available at http://eu.europa.eu/energy/publications/doc/2014_pocketbook.pdf. Accessed December 28, 2014.

impact on the European energy outlook. These include the surge in unconventional oil and natural gas in Canada and the United States, the rising demand in Asian emerging markets, particularly China and India, political and security upheavals in the Middle East and North Africa, the sharp drop in oil prices and the nuclear accident in Fukushima Daiichi. It is too soon to fully assess the impact of these emerging dynamics. Still, the combination of these trends underscores the growing uncertainties in the global energy markets.

Within this context, the EU has set three targets: a 20% reduction of greenhouse gas emissions, a 20% share of renewable energy and a 20% improvement in energy efficiency, all to be attained by 2020. The European Commission has recently reported substantial progress towards these 20/20/20 targets. Building on this success, the European Council has set out new ambitious targets for the period leading up to 2030. These are: a 40% reduction in greenhouse gas emissions (from 1990 levels), a 27% share of renewable energies and a 27% improvement in energy efficiency, with no specific or binding objectives for individual Member States for the last two targets.

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In addition to these broad targets and achievements it is important to highlight the EU's efforts to curb energy consumption and diversify the energy mix. The EU has taken several initiatives to improve efficiency and reduce consumption. These include enhancing the energy performance of buildings (both private and public) and energy labelling for domestic appliances. The European Commission considers that an additional 1% in energy savings can reduce EU gas imports by 2.6%.

The share of petroleum and petroleum products in the EU's overall energy consumption is 33.8%, natural gas 23.3%, solid fuels (mainly coal) 17.5%, nuclear power 13.5% and renewables 11%. The large

(but declining) oil share underscores Europe's energy vulnerability. In 1995 the Union imported 74% of its oil needs, by 2012 this oil import dependency rate jumped to 84.6%. Three trends further contribute to this vulnerability: indigenous crude oil production has been rapidly falling, refining capacity has sharply declined and Russia provides about one third of imports.

The Union is also dangerously vulnerable to interruptions in gas supplies. In 1995, the EU imported 43.4% of its gas consumption and by 2012 the figure rose to 65.8%. This vulnerability has been particularly heightened in recent years due to the Russia-Ukraine crises, given that roughly 15% of EU gas imports transit Ukraine. The efforts made in the aftermath of the 2009 Ukraine crisis have proven helpful in reducing the impact of the recent crisis. These include new gas pipelines, reverse flows, higher LNG import and improved storage capacity. However, in the long run more work is needed. The inadequate investment in LNG facilities, turmoil in North Africa, high Asian demand and falling indigenous production all underscore Europe's vulnerability to interruptions in gas supplies. In order to counter these challenges and to reduce its heavy dependency on Russia the EU needs to boost its engagement with current and potential suppliers and transit countries. Political stability can make significant contributions to improving the Union's energy security.

The Southern Mediterranean States' Energy Outlook

The political and security upheavals that have swept the Arab world since early 2011 are unprecedented. It will take some time to fully assess the long-term implications. Still, given the crucial role oil revenues play in both providing a large share of the national income and in cementing strategic relations with European consuming countries, the energy sector has witnessed key changes.

Egypt

Egypt holds considerable oil and natural gas deposits. It is the largest oil producer in Africa outside of the Organization of Petroleum Exporting Coun-

tries (OPEC), and the second-largest gas producer in the continent, behind Algeria. Despite this huge production, Cairo is not an exporting country, due to its large population (approximately 90 million) and heavy energy consumption. Still, the country plays a significant role in energy markets as a major transit route for oil and gas shipments from the Persian Gulf to Europe and the United States through the Suez Canal and the Suez-Mediterranean (SUMED) Pipeline.

The current political situation in Egypt provides a mixture of opportunities and challenges. Following the ouster of President Hosni Mubarak in 2011 the country has suffered from political, security and economic uncertainties. The long-term implications of the toppling of President Morsi and the Muslim Brotherhood and the ascendancy of President Al-Sisi are yet to be assessed. Since 2013, domestic security has seen relative improvement and, accordingly, the prospects for economic recovery have also improved. Still, much work is needed to accommodate political opposition, encourage foreign investment and implement comprehensive economic reform. Medium-term economic prospects hinge on both political stability and sustained reform.

Egypt's oil production peaked in the mid-1990s and then started declining. Consumption, meanwhile, has been on the rise. This growing imbalance between rising consumption and declining production has left Egypt with little crude oil to export, most of which is sent to the European Union. Furthermore, in recent years the country's large refinery capacity has declined and, as a result, the volume of imported petroleum products has grown.

Egypt holds the third largest natural gas deposits in Africa (after Nigeria and Algeria). Despite these massive reserves, production has failed to keep pace with consumption. In recent years production has been falling by 3% annually while consumption has been rising by 7%. As a result, the volume of exports has substantially declined, and political instability and repeated attacks on gas pipelines and facilities have made a bad situation worse. In 2012, Egypt halted gas exports to Israel, and in late 2014 it started importing liquefied natural gas (LNG). Traditionally, Europe had been the leading importer of Egypt's LNG, but these imports have significantly dropped in the last few years.

On the positive side, political and security upheavals had little impact, if any, on oil and gas transit flows through the Suez Canal. The Canal connects the Red Sea and Gulf of Suez with the Mediterranean Sea. In 2013, nearly 3.2 million barrels of oil a day (b/d) transited the Suez Canal, according to the Egyptian authorities. This is the largest amount ever shipped through the Suez Canal, with the majority of shipments destined for Europe and North America and the remainder going to Asian markets.

Libya

Unlike Egypt which has enjoyed relative stability in the last few years, Libya has descended into an unpredictable civil war. The country has never had a strong national identity. Following the toppling of the Gaddafi regime in 2011, tribal and regional rifts have taken a central stage in shaping the country's policies. A national government and parliament have obtained international recognition, but were forced to move to the eastern city of Tobruk and have appealed for external military intervention to restore order. Meanwhile an Islamist umbrella group known as Libya Dawn has taken charge of the capital Tripoli and another Islamist group, Ansar Al-Sharia has taken control of Benghazi. Regional powers like Egypt, Algeria and the United Arab Emirates have taken various steps, including military operations, to contain the Islamists. The United States and the European Union have been hesitant to intervene militarily and instead have called for mediation and dialogue. Several Western countries have evacuated their embassies and personnel from Libya. The ongoing political instability and lack of security have had a devastating impact on the country's energy sector and overall economy.

Libya enjoys three major advantages. First, the country holds the largest share of proven oil reserves in Africa and the fourth largest proven natural gas reserves (after Nigeria, Algeria, and Egypt). Second, most of the oil is of high quality (light and sweet). Third, Libya enjoys a strategic location across the Mediterranean from the energy-hungry European markets. This geographical proximity means it is easy and cheap to export oil and gas from Libya to Southern Europe. Despite these geo-economic and geo-political advantages, Libya

has had a hard time fulfilling its significant hydrocarbon potential. Under the Gaddafi regime the country was subject to international sanctions for a prolonged period of time. The lack of stability and security since 2011 has dealt a heavy blow to the oil and gas industry.

In 2011, hydrocarbon exports suffered a near-total paralysis. In response, the International Energy Agency (IEA) coordinated a release of 60 million barrels of oil from the emergency stocks of its member countries – the first such release since 2005. Since then the volume of production has reflected the level of stability in the country. Oil production and exports, which had recovered in 2012, collapsed again after 2014 due to militia attacks on the main oil terminals. It is important to point out that before the recent security upheavals the authorities developed an ambitious plan to increase oil production to approximately two million b/d. However, the escalating violence has put these plans on hold. Indeed production has drastically fallen since 2012, leading to a substantial reduction in Libyan oil exports, which historically were mostly destined for Europe.

Libya's natural gas production and exports are far less significant than its oil production and exports. In recent decades, the authorities have paid more attention to the gas sector and production more than tripled in the 2000s. The Italian oil company Eni, in partnership with the National Oil Company (NOC), led the development of the gas sector, particularly the Western Libya Gas Project. Most of this gas is exported to Italy via the Green Stream Pipeline (operated jointly by Eni and NOC). In addition, Libya exported a small amount of LNG to Spain. In 2011, the LNG plant was damaged and LNG exports have since been suspended.

Algeria

Unlike Egypt, Libya and Tunisia, the regime in Algiers has survived the key changes that have swept the Arab world since 2011. There were sporadic street demonstrations calling for political change, but they quickly petered out due to a lack of popular support. At least two forces have contributed to this relative stability. First, for most of the 1990s the country had experienced steady fighting between a largely Islamist opposition and the government. The

relative stability in recent years has been seen as a welcome development by the majority of Algerians. Simply stated, people do not want to go back to street fighting and bloody confrontations between opposition groups and the authorities. Second, due to oil and gas revenues Algeria is wealthier than most of its neighbours and in a better position to respond to popular demands for jobs and higher standards of living. Finally, the Algerian authorities' ability to survive the regional political and security upheavals should not be taken for granted and does not rule out popular uprisings in the future. The economy remains highly dependent on the hydrocarbon sector which, despite declining production since 2006, still accounts for a large share of its GDP. In addition, President Bouteflika's fragile health casts a degree of uncertainty over the next few years.

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Algeria holds massive oil and natural gas deposits. It holds the fourth largest proven oil reserves in Africa (after Libya, Nigeria and Angola) and the second largest gas reserves (after Nigeria). Like other major oil and gas producers, the country is heavily dependent on hydrocarbon revenues. Furthermore, the energy sector suffers from three characteristics common to other countries. First, petroleum and gas products are heavily subsidised. These subsidies are a big burden on the state budget and encourage high consumption and waste. Second, the January 2013 militant attack on the In Amenas gas facility prompted security concerns about operating in Algeria's remote areas. The attack resulted in several casualties and a temporary suspension of gas production at the facility. In recent years, terrorism and cyber-attacks have been a major concern for oil and gas producers. Third, traditionally the Algerian authorities have not provided attractive incentives for foreign investment. As a result, production has stalled and the infrastructure needs major updates and modernisation. In

recent years, the Algerian government has enacted new contractual and fiscal provisions, which are particularly important in exploring and developing the country's reportedly massive shale gas and tight oil reserves.

Algeria has been producing and exporting oil and petroleum products for several decades. Some of the main fields are mature, raising concerns over production and export volumes and the authorities have utilised enhanced oil recovery techniques to keep the old fields producing. This suggests that production is likely to gradually decline in the coming years. This decline has raised serious concerns in Washington and Brussels – Algeria's main export markets. In recent years, the United States' oil production has substantially increased and, as a result, imports from Algeria and elsewhere have declined and Europe has emerged as a major importer.

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Algeria holds both large proven conventional gas reserves and vast untapped shale gas resources. However, production from mature fields has declined. Efforts to increase production have achieved

modest success mostly due to bureaucratic obstacles, difficulties attracting foreign investment, old infrastructure and technical problems. However, the country is still the second largest external gas exporter to the European Union after Russia, with exports reaching Europe either by pipelines or as LNG. The country is under pressure to boost gas output to meet growing domestic demand and to fulfil long-term contractual obligations.

Europe and North Africa – the Way Forward

Europe is projected to remain dependent on foreign energy supplies. Despite serious efforts to curb production, invest in alternative energy and diversify the energy mix, the EU lacks the necessary deposits to meet consumption. For decades, geographical proximity and historical ties have consolidated energy interdependency between North African oil and gas producers and Europe. Political instability in recent years has raised concerns about this mutual energy security. Political stability and economic prosperity serve the two sides' national interests. The experience of the last few years suggests that stability cannot be sustained without addressing popular (economic, political and social) grievances. Political and economic reforms are not silver bullets and can actually further destabilise the region in the short term. But in the long term, poor governance and dysfunctional economies breed religious extremism and violence. In order to enhance its energy security, Europe needs to maintain an active role in promoting the necessary reforms in the southern Mediterranean states.