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### Middle Eastern oil and gas suppliers: vulnerability factors and future challenges

Given their huge oil reserves, Middle Eastern countries traditionally play the role of global energy suppliers, which allow them to meet a large share of the growing world oil demand of the most-developed economies. According to the US Energy Information Administration (EIA), the MENA region - the acronym which includes Middle East and North Africa countries - holds more than 60 % of the world's proven oil reserves and represents 1/3 of the world's oil production: in the gas sector, MENA region holds approximately 45% of the world's total known reserves, while its gas production represents 20% of the world's total output.<sup>1</sup> However, in the next decade this traditional dominant position in the global energy sector will be severely affected by a combination of both endogenous and external factors, such as a growing internal demand, potential disruptions of exports linked to the lack of diversification routes and instability, and the impact of the US shale revolution.

Currently Middle East countries are the top world's oil net exporter: with 8.3 million barrels of oil per day (bbl/d) exported in 2014, Saudi Arabia is the main global oil exporter, while United Arab Emirates (UAE), Kuwait and Iraq respectively rank third, fourth and fifth.<sup>2</sup> These countries also have a strategic role in the OPEC (Organization of Petroleum Exporting Countries), due to their huge oil reserves: as a matter of fact, Saudi Arabia holds the second largest oil reserves in the OPEC as well as in the world after Venezuela, followed by Iran, Iraq, Kuwait and the United Arab Emirates.<sup>3</sup> Moreover, the strategic relevance of the Middle Eastern countries in the international energy chessboard could also be explained by the control of the main arteries of energy exports, such as the Strait of Hormuz - located between Oman and Iran - and the Bab el-Mandeb Strait, located between Yemen, Djibouti, and Eritrea as a kind of bridge between the Horn of Africa and the Middle East. These arteries are strategic chokepoints for maritime transit of oil and gas<sup>4</sup> and represent a critical part of global energy security, considering that about half of the world's oil production moves on maritime routes.<sup>5</sup> In the natural gas sector, Iran and Qatar respectively hold

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1 U.S. Energy Information Administration, *Middle East and North Africa*, available online at <http://www.eia.gov/countries/mena/>

2 US Energy Information Administration, *Saudi Arabia*, September 10, 2014, available online at: <http://www.eia.gov/countries/cab.cfm?fips=SA>

3 OPEC, *OPEC share of oil crude reserves 2014*, OPEC Annual Statistical Bulletin 2014, available online at: [http://www.opec.org/opec\\_web/en/data\\_graphs/330.htm](http://www.opec.org/opec_web/en/data_graphs/330.htm)

4 Chokepoints are narrow channels widely used as global sea routes, some so narrow that restrictions are placed on the size of the vessel that can navigate through them. They are a critical part of global energy security due to the high volume of oil traded through their narrow straits.

5 U.S. Energy Information Administration, *World Oil Transit Chokepoints*, August 22, 2012, available online at:

the first and the third largest reserves in the world and Qatar is the first LNG exporter in the world, also benefiting from a dominant position: in 2015 Qatar exported 103.4 bcm of LNG to the world's markets while Malaysia – the second largest LNG exporter – exported 33.9 bcm, 1/3 of total Qatari exports.<sup>6</sup> Furthermore, the Middle Eastern countries also benefit from a huge renewable energy potential, thanks to their privileged geographic position which will allow them to exploit solar and wind in order to produce clean energy.<sup>7</sup>

Given this availability of huge conventional oil and gas reserves, the countries of the Middle East should be able to meet the expected growth of the global energy demand by 2040, and also preserve their role as energy suppliers. According to the International Energy Outlook 2014 reference scenario, world liquids consumption will increase by more than 1/3 (32 million bbl/d), from almost 87 million bbl/d in 2010 to 119 million bbl/d in 2040. Non-OECD Asia accounts for almost 70% of the increase in global liquids demand, rising by more than 23 million bbl/d from 2010 to 2040. Within non-OECD Asia, China will have the largest absolute growth in demand from 2010 to 2040 (10.7 million bbl/d), and India will have the second largest (6,8 million bbl/d).<sup>8</sup> In this scenario, the Middle Eastern OPEC member countries - which accounted for 68% of total OPEC crude and lease condensate production in 2010 – will increase their oil production by 12.8 million barrels of oil per day, accounting for 90% of the total growth in OPEC crude and lease condensate production from 2010 to 2040.<sup>9</sup> These projections and estimates will be necessarily revised in the forthcoming release of the IEO 2016, considering the current Chinese economic slowdown and the consequent potential reduction of the oil and gas demand.

However, the ambition of Middle East countries to preserve this traditional role of energy suppliers could be hindered by several factors, which appear strong enough to modify their future energy strategies and policies. The expected huge growth of the oil demand in the Middle Eastern countries is one of the main issues which must be addressed in the domestic energy scenario and also will have an impact on the export sector. According to the IEO2014 Reference case, the Middle Eastern countries will need additional 4.4 million bbl/d from 2010 to 2040, pushing local governments to adopt tailored energy policies aimed to change the domestic energy mix: even if the oil production increases as expected, Middle Eastern governments should promote a rising use of alternative sources to produce electricity – such as cheaper natural gas or renewable sources (mainly

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<http://www.eia.gov/countries/regions-topics.cfm?fips=WOTC>

6 British Petroleum, *BP Statistical Review 2015*, June 2015, p. 28, available online at: <https://www.bp.com/content/dam/bp/pdf/energy-economics/statistical-review-2015/bp-statistical-review-of-world-energy-2015-full-report.pdf>

7 F. Indeo, *The geopolitics of Energy in Mediterranean region: regional needs, security, logistics and interdependency. A perspective view*. CeMiSS (The Italian Military Center for Strategic Studies) Research Project 2012, Rome, 2012, p.6

8 US Energy Information Administration, *International Energy Outlook 2014*, DOE/EIA-0484(2014), |September 2014, pp. 3-6, available online at: [http://www.eia.gov/forecasts/ieo/pdf/0484\(2014\).pdf](http://www.eia.gov/forecasts/ieo/pdf/0484(2014).pdf)

9 Ibidem

solar power) - allowing to allocate oil production to more lucrative exports.<sup>10</sup>

	Oil production 2014 (thousand barrel daily)	Change 2014 over 2013	Oil consumption 2014	Change 2014 over 2013
Saudi Arabia	11505	0.9 %	3185	7.3%
UAE	3712	0.9 %	873	8.6 %
Kuwait	3123	-0.5 %	505	-0.3 %
Iraq	3285	4.6%		
Qatar	1982	-0.9 %	307	8.5 %
Iran	3614	2 %	2024	-2 %

Table 1: An overview of the Middle East oil production and consumption.<sup>11</sup>

Another relevant issue which influences Middle East energy scenario is the unbalanced dependence on the energy exports transit through the Strait of Hormuz. As a matter of fact, Hormuz is the world's most important oil chokepoint due to its daily oil flow of about 17 million bbl/d in 2011 which represents 35 % of all seaborne traded oil or almost 20 % of oil traded worldwide. More than 85 % of these crude oil exports went to Asian markets, with Japan, India, South Korea, and China representing the largest destinations.<sup>12</sup> The main problem to solve is the lack of diversification, allowing to deliver exports through alternative routes in order to avoid disruptions linked to the potential blockage of Hormuz: this scenario could trigger a global energy crisis affecting the energy security condition of both consumers countries and suppliers.

Among the Middle Eastern exporters, only Saudi Arabia and United Arab Emirates have realized the existence of the alternative corridors of export bypassing Hormuz, while Kuwait, Iran and Qatar (for both oil and mainly LNG exports) are totally dependent on the energy export route crossing Hormuz strait. The case of Iraq is different, because this country is not able to export through Hormuz, benefiting from a northern route - North Iraq-Turkey or Kirkuk-Ceyhan - which is currently weakened by the internal instability condition linked to the Islamic State's activities in the area between Iraq and Syria. The Petroline, also known as the East-West Pipeline, allows Saudi

<sup>10</sup> Ibidem

<sup>11</sup> F.Indeo, *Energy security in MENA countries: vulnerability factors and future perspectives*, Power Point Presentation given at NATO Regional Cooperation Course, NATO Defense College, Middle East Faculty, Rome, March 21, 2016, slides no. 26. Source of data: *BP Statistical Review 2015*, June 2015.

<sup>12</sup> U.S. Energy Information Administration, *World Oil Transit Chokepoints*, 2012

Arabia to deliver 25% of its total oil exports to the Red Sea, bypassing Hormuz. Even if the total capacity of this pipeline is 4.8 million bbl/d, only 1-2,8 million bbl/d could be delivered through this route.

The Abu Dhabi Crude Oil Pipeline to the Gulf of Oman is the alternative energy route promoted by the UAE, with a nominal capacity of 1.5 million bbl/d, which represents more than half of UAE's total net oil exports. However, this pipeline currently delivers only 500,000 bbl/d, 1/3 of its nominal capacity.<sup>13</sup> We can observe that these two alternative export routes circumventing Hormuz would not be adequate in the case of blockage of the strait: as a matter of fact, only ¼ of the Middle East oil exports (from 1,5 to 4,3 million bbl/d on 17 million bbl/d) could be available for the markets. Furthermore there are no alternative routes to export LNG, exposing Qatar to a dangerous threat aimed to fall down its energy sector. The spread of the "shale revolution" - based on the development of unconventional oil and gas resources – will represent a serious threat for the Middle East energy exports in the next years. As a matter of fact, a potential rising availability of tight oil as well as shale and tight gas could substantially modify the global energy balance. The ongoing success of the shale revolution in the United States should allow them to achieve a condition of energy security, meeting their internal energy needs and changing their energy status from net-importer to exporter:<sup>14</sup> following this scenario, the role of the Middle East countries as global energy suppliers will be heavily downplayed, because they would have to reduce their oil exports to the US and gas exports to the EU markets, which could be theoretically fueled with LNG coming from the United States.<sup>15</sup> Saudi Arabia and Kuwait will be the main "victims" of this energy competition with the US, considering that these countries deliver approximately 20% of their total oil exports to the American market. The current reduction of the oil prices is potentially dangerous for Middle Eastern producers, cutting their energy revenues and negatively affecting the state budget, while at the same time, a long-term situation of low oil prices will allow them to downplay the impact of the US shale revolution, making unconventional oil and gas exploration and production economically unprofitable.<sup>16</sup> In addition to energy concerns, there is also a geopolitical factor to be taken into account, because the Middle Eastern countries fear a progressive disengagement of the US from the region, which would lose its strategic relevance. In the gas sector, Qatar will progressively lose EU market which represents more than 20% of Qatari LNG

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13 Ibidem

14 L. Maugeri, *The Shale Oil Boom: A U.S. Phenomenon*, Belfer Center for Science and International Affairs | Harvard Kennedy School, June 2013, available online at:<http://belfercenter.ksg.harvard.edu/files/draft-2.pdf>; R.Kaplan, *The geopolitics of shale gas*, Stratfor, December 19, 2012, available at: <http://www.stratfor.com/weekly/geopolitics-shale>

15 A. Khalil, *Is shale oil revolution threatening Gulf exports?*, Middle East Online, September 24, 2013, available online at:<http://www.middle-east-online.com/english/?id=61563>

16 R. Dudau, A. Mihalache, *The Saudi Bet*, Energy Policy Group, November 30, 2014, pp. 3-4, available online at: [http://www.enpg.ro/shared/images/publicatii/119/Dudau-Mihalache\\_The%20Saudi%20Bet\\_full%20version.pdf](http://www.enpg.ro/shared/images/publicatii/119/Dudau-Mihalache_The%20Saudi%20Bet_full%20version.pdf); R. Bousso, J. Schneyer, *Exclusive: Privately, Saudis tell oil market- get used to lower prices*, Reuters, October 13, 2014, available online at:<http://www.reuters.com/article/2014/10/13/us-oil-saudi-policy-idUSKCN0I201Y20141013>

exports. Nevertheless, the Middle Eastern countries have a concrete opportunity to reorient their export to the East Asia markets, boosting energy deliveries to China, Japan, South Korea, India, which will need additional oil and gas supply to meet their expected rising domestic demand.

In conclusion, even if these factors could have an impact on the regional energy scenario, the Middle Eastern countries will be in the next decades able to preserve their strategic role. As a matter of fact, these countries are already working on the diversification of the national energy mix, developing solar and wind farms and natural gas reserves. The lack of diversification of the export routes remains an unsolved problem, even if the improved relations between Iran and the West should exclude the risk of the Hormuz's blockage. Concerning the impact of the shale revolution and the competition with the US - in the new role of energy supplier -, for the Middle Eastern producers markets of East Asia clearly represent a good option to pursue for its importance in economic terms (as lucrative markets) as well as for the reasons of diversification.