

Natural Gas Boom in the Middle East

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Abstract

The article tries to present the place and role played by the Middle East region on the international market of natural gas due to its high potential of production and export. Important gas reserves are not extracted due to poor infrastructure, difficult technical conditions and lack of needed investments. But the main problem which creates great obstacles for the capitalization of gas resources and impedes the countries' development and export is the conflictual situation persisting in the region for many decades. Instead of cooperation one can see a permanent confrontation which seriously harms the social and economic progress, and that is why democratic and responsible regimes are required, with a new vision upon international relations, but also it is needed the economic, financial and technological support of the great powers, in particular of USA and EU, that is essential and extremely beneficial for the future of this region.

Keywords: *reserve, potential, supply, demand, export, infrastructure.*

JEL Classification: *Q4, Q 5, L1.*

1. Introduction

Natural gas now accounts for 22 percent of the world's energy consumption and its demand is growing faster than oil demand. The proven reserves cover only 60 years of consumption (at 2012 level) and the potential reserves may cover more than 100 years of consumption. While Middle East region has the large reserves of natural gas (and almost 2/3 of oil reserves), its production and exports are still at modest levels, not comparable to its reserves and not comparable to oil industry. Two striking developments have occurred in this area: the first is that Qatar has become the largest producer of LNG in the world and the second would be the discovery of significant resources in the Eastern Mediterranean Sea. Middle East may become an alternative to Russia and to shale gas for EU if important investments will be made by oil international companies associated with local (state) companies for turning into good account its reserves and for building pipelines provided it will end the religious and territorial conflicts and tensions between Israel and its opponents if US and EU will involve much more in tempering the tensely situation existing now. Iraq is an example of a country

with significant gas reserves which was not able to exploit and use them so far due to complicated internal situation and to difficult geopolitical context of the region.

2. Brief presentation of natural gas market

2.1. Gas Reserves

CEDIGAZ-The International Association for Natural Gas-estimated worldwide proved natural gas reserves on January 1, 2013 at 199 857 bcm, compared to 199 836 bcm one year before. The highest increase of reserves in absolute terms was recorded in the Middle East with a growth of 203 bcm representing only a 0.3% gain over last year's estimate, while the highest decrease was recorded in North America (-314 bcm or -2.7%), because of downward revisions due to low gas prices. OPEC countries control about half of the world's gas reserves (48%) and CIS countries(12) account for almost another third (32%) and only three countries -Russia, Iran and Qatar- hold more than half (54%) of all recorded gas reserves while the top ten reserves holders own almost 80% of the total. Middle East has a share of 40.1% of total proved reserves (see table no.1), Iran being on the first place with 33 600 bcm, followed by Qatar with 25 100 bcm, Saudi Arabia with 8200 bcm, United Arab Emirates with 6100 bcm, Iraq with 3 600 bcm, Kuwait with 1 800 bcm (according to the estimates made by British Petroleum for 2012). There are some differences between the recent estimations made by British Petroleum and the older data published by Wikipedia and also huge differences between proven reserves and potential reserves, the last ones are usually at least two times higher. Around 45% of the world's recoverable natural-gas reserves are "unconventional", comprising mainly shale gas, and also tight gas and coal-bed methane, and are spread across the world, but extracting them is more expensive and harmful to the environment than the methods used to produce conventional gas, which badly affects the cost level and economic efficiency.

Table no.1 Natural Gas Reserves in Middle East (in billion cubic meters)

Country	Date/Year	Quantity (Wikipedia)	BP (2012)
Iran	12.06.2013	33600	33600
Qatar	12.06.2013	21000	25100
Saudi Arabia	1.01.2012	8200	8200
Iraq	1.01.2012	3600	3600
United Arab Emirates	1.01.2010	2250	6100
Kuwait	1.01.2010	1798	1800
Egypt	1.01.2010	1656	2000
Oman	1.01.2010	849.5	900
Lebanon	1.01. 2010	750.4
Yemen	1.01.2010	478.5
Israel	1.01.2013	271.0
Syria	1.01.2010	240.7	300
Bahrain	1.01.2010	92.0	200
Jordan	1.01.2010	6.0
Turkey	1.01.2010	6.1

2.2. World Gas Production

According to CEDIGAZ' estimations, world gross gas production increased by only 1.8% in 2012 to 4186 bcm (1.9% estimated by BP), the main factors influencing the production level were: a) quantities of reinjected gas diminished strongly and accounted for 10% of gross production; b) the recent increase in natural gas flaring partly driven by some OPEC countries like Iraq and Venezuela; c) LNG supply-side issues in Southeast Asia and domestic and political challenges in the Middle East and North Africa (MENA) region d) important increase of production in Middle East by 5.4%, in USA by 4.7%, in Norway by 12.6%, in China by 4.1%, in Latin American by 3.1% and in Africa by 2.1% ; e) decrease of production in Canada by 2.3%, Argentina by 3.0%, United Kingdom by 14.1%, in Russia by 2.7%, in Indonesia by 6.6%, in India by 13.1%. As a result of these developments, world marketed production, which accounted for 80% of gross production, increased quite significantly by 2.3% reaching a new record level of 3350 bcm (3363 bcm according to BP), but this growth was slower than the last ten-year average (2.7%/year) in a less favourable economic environment. According to CEDIGAZ, the growth in world gas supply was going to slow in 2013 and 2014 mainly due some financial difficulties encountered by important producers like Russia, Iran, African and Middle East producers. In the year 2012 Middle East region had a share of 17.9% in the world total production (Egypt included), the most important producers being Iran, Qatar, Saudi Arabia, United Arab Emirates, Egypt (see the table no.2). It is noteworthy that the main gas producers in the Middle East are also major gas consumers with the exception of Qatar who became the most important LNG producer and exporter in the world. The ratio between proven reserves on one side and production/consumption on the other side is favourable only for countries like Iran, Qatar, Saudi Arabia, Irak, United Arab Emirates, Kuwait, Oman. These countries could become major exporters of natural gas in the future, provided they will be able to invest more in production and transport infrastructure (pipelines), following the successful example of Qatar who detained one third (32.6%) of LNG global supply in 2012.

Table no.2 Natural Gas Production/Consumption in the Middle East (in billion cubic meters)

Country/Quantity	Production			Consumption
	Year	Quantity (Wikipedia BP-2012)		Quantity (BP-2012)
Iran	2011	151.8	160.5	156.1
Qatar	2011	133.2	157.0	26.2
Saudi Arabia	2012	103.2	102.8	102.8
Iraq	2013	23.2*	0.8	-
United Arab Emirates	2011	52.31	51.7	62.9
Kuwait	2011	13.53	14.5	17.2
Oman	2012	35.94	29.0	-
Lebanon	2011	-	-	-
Yemen	2011	9.62	7.6	-
Israel	2011	2.6	-	2.6
Syria	2011	7.87	7.6	-

Bahrain	2011	12.62	14.2	-
Jordan	2011	0.23	-	-
Turkey	2012	0.63	-	46.3
Egypt	2011	61.26	60.9	52.6

* for Iraq an estimation based on January daily production

Source: Wikipedia, 2013, British Petroleum Review on World Energy, June 2013

Natural gas consumption is dominated by EU, USA, Canada, Iran, China, Japan, Saudi Arabia, Mexico, UAE, Egypt. The regions mostly in deficit, in which consumption depends much on imports, are the EU and Eastern Asia while the surplus countries are Russia, Canada, Norway, Algeria, Qatar, Indonesia, Malaysia and Australia. International Energy Agency (IEA) reckons global gas demand will increase by more than half between 2010 and 2035, as natural gas will replace a part of coal consumption and also of nuclear energy in countries which would phase out nuclear power due to public concerns.

2.3. International Trade

In 2012, the international gas trade including LNG reloads reached 1026 bcm, a 0.6% decrease from 2011. The international gas trade was affected by the exceptional drop in global LNG supply, resulting in global market tightness. The tightness of the LNG market, which is exacerbated by increased demand in Asia Oceania and South America, is likely to last the next three years, according to CEDIGAZ. The inter-regional trade declined by 3.4% in 2012, a reflection of the drop of the European gas needs due to rapid development of green energies, which strongly impacted Russia's exports. The dramatic drop in European's imports from extra-regional sources failed to compensate for the continuous growth of long-distance LNG deliveries from the Middle East to the fast-growing Asian market.

Major natural gas exporters by pipeline were in 2012: Russia (130 bcm to EU and 56 bcm to other countries), Norway (106.6 bcm to EU), Canada (83.8 bcm to USA), Netherlands (54.5 bcm to EU) and Algeria (32.8 bcm to Italy and Spain) while the main importers were: EU (377.2 bcm), followed by North America (128.9 bcm), CIS countries (91.9 bcm), China (21.4 bcm).

LNG trade fell in 2012 after 30 years of consecutive growth. Global flows fell by 1.6% from 241.5 MT in 2011 to 237.7 MT in 2012. Qatar supplied 77.4 MT (105.4 bcm) of LNG to the international market, other major LNG exporters (and also producers) in the world in 2012 were Malaysia with 23.1 MT (-1.9%), Australia with 20.8 MT (+1.6%), Nigeria with 20 MT (+1.2%), Indonesia with 18.1 MT (-3.3%) Trinidad with 14.4 MT (+0.5%), Algeria with 11 MT (-1.6%), Russia with 10.9 MT (+0.4%), Oman with 8.1 MT (+0.2%), Brunei 6.8 with MT(+0,1%), UAE with 5.6 MT (-0.3%), Egypt with 5.1 MT (-1.3%), Yemen with 5.1 MT (-1.5%). The main LNG importers were in 2012: Japan (118.8bcm from Qatar, Australia, Malaysia), South Korea (49.7bcm from Qatar, Indonesia, Malaysia), India (20.5bcm from Qatar and Nigeria), China (20 bcm from Qatar, Australia, Indonesia, Malaysia), Spain (20.4bcm from Nigeria, Qatar, Algeria), United Kindgom (13.7bcm from Qatar), France(10.3bcm from Algeria, Nigeria, Qatar).

3. Middle East Situation

3.1. Great but untapped potential

Middle East region is in a paradoxical situation, on one hand it has huge reserves of natural gas but only a single major exporter (Qatar) and is facing shortages of natural gas supply on medium term if important projects will not start on short term and large investments will not be made on medium term because of the continued rise of the population and the increasing demographic urbanization specific to rapid growing markets. The two mentioned factors are significant drivers for a sustained increase in energy demand and for beginning many projects for covering the growth in energy generation and consumption based mainly on fossil fuels, especially natural gas, despite the increasing attractiveness of renewable energy.

On the other hand in this important and troubled region attention is still focused on oil production and export with some disregard of other classical and renewable energy resources that is why the evolution of the region's gas industry has lagged behind that of the oil sector, despite significant gas deposits. The delayed supply response to increasing demand is explained not only through the lack of productive investments but also by limited regional pipeline cooperation and also by below-market pricing. This unjustifiable delay associated with a lack of realistic vision on resource potential seriously affected the security of gas supply and determined some governments in the region to look beyond natural gas for energy solutions, including more oil-fired and coal-fired power plants in the short term (despite their less-environmentally friendly reputations) and towards nuclear and solar power over the long term. Nuclear energy is considered a feasible option by Iran and UAE, and solar energy by UAE, Kuwait and other countries. Although there is not enough gas in the area for covering the consumption needs of industry and population, a lot of gas is burned at flare in many oil producing countries and this seriously generates a lot of pollution in the atmosphere.

Middle East is a gas rich region, but only some countries, like Qatar, Iran, Egypt and Saudi Arabia have significant gas reserves while other countries have poor reserves. In some countries, like Oman and Yemen, export is done at the expense of future domestic gas demand, which is not a viable economic option. Other countries have plenty of sour gas that is more expensive to extract and process. Iraq provides an example of how a rich gas resource country may be affected or limited in successfully developing its natural resources: lack of legal framework, absence of physical security, neglecting gas investments and focusing on oil infrastructure to achieve immediate cashflow. A major obstacle for the development of gas industry in the region is the fact that much of the region's gas supply is based on associated gas rather than non-associated gas, so gas reserves cannot be exploited for supplying domestic markets or export markets because re-injection is critical to maintain the levels of crude oil production (Philip Weems&Farida Midani, 2009).

Qatar is a major gas supplier (exporter) in the region, for countries like UAE and Kuwait, which built new power and desalination plants and are trying to provide adequate feedstock for the new petrochemical industries. Iran was not able to supply gas to the neighboring countries due to its insufficient production, divergent price options and maybe to religious and political disputes. Many projects in energy intensive industries, like petrochemical industry, were cancelled or postponed in the region due to the lack of gas resources. Investments needed in gas extraction were discouraged by artificially low regional prices, in fact this represented a sort of high subsidy granted to consuming industries, that is why natural gas suppliers (non-LNG) were not stimulated to increase their production for domestic market but only for exports. Moreover until recently, foreign investments made by international oil and gas companies were restricted in many countries.

The low oil and gas prices in the 1990-2006 period and recent global financial and economic crisis had a negative impact on gas sector investments, after the crisis one could see a slow economic growth in major consuming areas associated with a decrease of government funding everywhere and also an overall credit squeeze, which may affect private and public investments in gas extraction and will stress the uncertainties over gas supply shortages in the future. Gas deficit in the Middle East and also in the major importing areas may significantly worsen as a direct result of investment gap. If key infrastructure investments are carried out, then Middle East region may not lose the opportunity to become the major gas supplier in the world, especially as there is the suspicion that its gas reserves are much undervalued.

3.2. Important new discoveries in the Eastern Mediterranean sea

Recent natural gas discoveries in the offshore Levant Basin (Eastern Mediterranean sea) have significantly altered the energy outlook in the Middle East and may bring more prosperity to Cyprus, Turkey, Israel, Syria, Lebanon and Palestinian Territories. The natural gas reserves discovered after 2000 off the coast of Israel and Cyprus are estimated at 1100 bcm but further new discoveries depend on the fate of Syrian conflict, territorial disputes, tensions between Cyprus and Turkey and troubles and strains facing the economies of the countries in the region, which may influence the scale and success of exploration activities. Almost all important discoveries made in the Levant Basin were located in Israel's territorial waters and also in the sea areas belonging to Cyprus and to the Palestinian Territories while exploration activities in Lebanon territorial waters continues due to initial poor results.

Table no.3. Gas reserves, production and consumption of Levant Basin countries (bcm)

Country	-Offshore gas reserves			Production-2012	Consumption-2012
	Possible	Potential	Proven		
Cyprus	200	1400	-	-	-
Israel	492	940	270	-	-2.6
Syria	-	-	243	-7.6	-8.2 (2011)
Lebanon	-	700	-	-	-
Jordan	-	-	6	-	-1.07 (2011)
Palestinian Territories	28.57	-	-	-	-

* estimates made by companies involved in exploration activities.

Source: EIA estimates, IHS, Oxford Institute for Energy Studies, Oil & Gas Journal, company reports, trade

While Israel started the offshore gas production with Tamar field in 2013, Lebanon is with its explorations in the early stages of licensing, and Syria postponed the explorations indefinitely due to the civil war. The exploration successes in Cyprus and Israel, and to a lesser degree in the Palestinian Territories may lead to fierce race for investments in exploration and exploitation of offshore gas resources. The high potential of Levant Basin is mirrored by what happened in the case of Israel who has been an importer of natural gas in the past, mostly through the Arish-Ashkelon pipeline from Egypt and a small portion through a newly installed floating and regasification terminal, but the

recent discoveries of the Tamar and Leviathan fields (among several others) will allow the country to become a significant exporter of natural gas in the next decade. The most notable natural gas discovery in Cypriot waters was the Aphrodite field made by Noble Energy in 2011. The Aphrodite-2 natural gas field is on the Israeli side of the maritime boundary with Cyprus and the two countries will need to conclude an agreement before production begins. The Gaza Marine field holds some significant recoverable resources, and in September 2012 the Palestinian Authority and Israel government discussed on developing the offshore Gaza territory, although no firm agreements are in place. The government of Lebanon completed a pre-qualification bid for exploration in the country's territorial waters in April 2013 and 46 foreign and local companies were accepted with their applications.

To exploit and export the new gas reserves from the Eastern Mediterranean in an economic profitable way, the best option would be to build a pipeline from Israel's Leviathan field via Cyprus, where it would take additional gas, to Turkey (Friedbert Pflüger, 2013). A twin pipeline with an annual capacity of 16 bcm would cost about 2.5 billion dollars, and it would start in the Israeli Leviathan field and traverse 470 km through the Mediterranean Sea and come ashore in southern Turkey. Such a pipeline is less costly than an LNG terminal in Cyprus and it could serve as an instrument to improve relations between (Greek) Cyprus and Turkey. Turkey's annual gas demand is projected to increase from about 42bcm in 2012 to 62bcm in 2020 and Mediterranean gas would be significantly cheaper than imported gas from Russia or Iran. But Israel and Cyprus intend to construct LNG terminals for exports, which are very costly (a single LNG terminal for about 7 bcm of gas per year costs more than 6 billion dollars) and these projects are very difficult to finance, given the relatively limited financial reserves as well as regional risks.

3.3. Natural Gas Situation in Iraq

There are different sources which have presented plenty of information referring to Iraq natural gas reserves and production. Among them one could mention the study made by Harvard University's Belfer Center and Rice University's Baker Institute Center for Energy Studies (Luay J. al-Khatteeb&others, 2013), outlooks, statistics, information published by International Energy Agency, US Energy Information Administration, CIA World Factbook, Oil&Gas Journal, Wikipedia, British Petroleum, Oxford Institute for Energy Studies.

Iraq's current proven gas reserves are estimated at 3560bcm, which represents 1.8% of total global gas reserves. Natural gas deposits in Iraq are predominantly found in an associated form with oil, representing 81% percent of the total reserves, while 2 % is cap gas and 17% is non-associated gas. The levels of overall gas production are and will be linked to the oil production, due to the large percentage of associated gas, some experts claiming that gas reserves in Iraq could be as high as double the current estimation. Iraq's proven gas reserves are concentrated in the south, mostly at the large associated gas reserves in the giant fields of Rumaila, West Qurna, Majnoon, Nahr Umr and Zubair. The gas from the Southern fields is richer in natural gas liquids (NGL) and is less contaminated with sulfur, compared to the reserves in the North of the country and thus it can find a good market in the petrochemical sector, bringing its contribution to the increase of national revenues and reducing the strong dependence on oil revenues.

In the Northern part of the country Ministry of Natural Resources of the Kurdistan Regional Government (MNR-KRG) is responsible for the development of natural resources in the region and assessed gas reserves above the official federal estimation. Under the estimations made by Ministry of Oil (MOO) the most promising gas deposits in the north are those of Khor Mor (51 bcm) and those of

Chemchemical (58.6bcm) while the estimates made by MNR-KRG of the reserves in these fields are almost ten times higher than the initial figures established by the Ministry of Oil, that anyhow are much higher than the estimates made by international organizations and companies.

Based on January monthly production one may estimate Iraq annual production at 23bcm for the year 2013, a very low level compared to its reserves. In the table no.4 one can see the evolution of Iraq natural gas production and consumption in 1989-2009 period, based on official Iraq statistical data. As it can be seen, a large quantity of gas was not recovered and was flared in the atmosphere, because of the lack of infrastructure and other persistent technical conditions. It is noteworthy the huge differences existing between the official data published by Iraqi authorities and those offered by British Petroleum and Wikipedia.

Table no. 4 Iraqi Natural Gas Production and Consumption in 1989-2009 period (mil.c.m.)

Year	Production	Consumption	Flared
1989	16309.81	9329.55	6980.13
1995	7794.56	6755.23	1039.33
2000	14539.64	10020.73	4518.91
2005	13723.00	7077.00	6611.00
2009	17521.00	10139.00	7381.00

Source: Annual Statistical Abstract 2010-2011, Ministry of Planning- Central Statistical Organization, Republic of Iraq.

Out of 23bcm produced in 2013 a share of 85% was achieved by Ministry of Oil, while the rest of 15% was free gas (non-associated gas) commercially produced by MNR-KRG controlled northern field of Khor Mor. The projections made by MOO for gas production are usually linked to the oil production, due to the fact the oil reserves are usually associated with gas reserves. Gas production is expected to reach 87.5bcm by 2020 both from associated gas producing fields and free gas fields, according with initial plans set by MOO, which were very optimistic concerning the level of oil production. During 2013 MOO revised the plans for oil production and these downward revisions will affect the initial forecasted gas production level, the target set initially for gas production is higher than that from scenario forecasts made by the International Energy Agency on Iraq Outlook 2012 and the INES(Integrated National Energy Strategy) scenario of gas projection, which suggest that the total gas production may reach only 72bcm in 2020 as a result of wide scale development of infrastructure required for local consumption and export options.

Before 2003, processing capacity stood at 21.4bcm of associated gas, 16bcm of dry gas, and 5.5 MT annually of LPG. In 2004 capacity had fallen to 13bcm and in 2013 production dropped to 5.15bcm and all new projects are related to the realization of Basra Gas Company projects and the end to flaring by 2015.The Kurdistan Regional Government also intends to export gas to Turkey by 2016 but there is no transport infrastructure to move the gas from Iraqi Kurdistan to Turkey, although there are pipelines inside the Kurdistan for transporting the gas from the Khor Mor Gas Field to power stations to the north. Before thinking to export opportunities Iraqi government will have to ensure the needs of power stations because there is a chronic shortage of electricity supply in the country.

Iraq has a national gas pipeline network extending from Basra in the South to Mosul in the North, which is 1775km long, connecting several power plants and industrial plants along the way and there is also a LPG pipeline extending over 1400km. Both networks are operated by the state-owned

Pipeline Company but they are not operational due to what happened in the last 10 year in Iraq. There are two main gas pipeline projects under construction, the first one is a new 24-inch pipeline running parallel to the damaged 18-inch pipeline from PS-1 in Basra to Haditha with a nameplate shipping capacity of 3.8bcm/year of gas and the second one is a new 42-inch pipeline from PS-1 in Basra to Baghdad, with an 8.75bcm/year of gas transport capacity.

Since 2005, Baghdad has signed a number of agreements to develop potential projects for the production, export and import of gas, but unfortunately nothing has been done so far to make these agreements operational.

Iraq wants to be connected to the rest of the Middle East region in a gas network and also to EU and maybe to other important importing areas, but in the second and third case it will need to develop liquefying facilities. Under Iraq Gas Master Plan, MOO commissioned Shell in 2005 to develop the blueprint plan and strategy for Iraqi gas and this plan began as an independent strategic plan for Iraqi gas, after which Shell entered into direct negotiations with Baghdad in 2008 to sign an exclusive heads of agreement (HOA) with the state-owned South Gas Company to develop all associated gas produced from the southern fields in Iraq. In 2011 this HOA became a twenty-five-year contract to valorize associated gas produced from three southern fields (Rumaila, West Qurna-1 and Zubair) only for meeting the local demand. The deal also includes an option to export LNG to Asia. The joint venture is known as the Basra Gas Company and is located in Basra being controlled by Shell, with a 44% stake, the state-owned South Gas Co. with 51%, and Japan's Mitsubishi Corp, which has the remaining 5%. This \$17 billion natural gas project run by Royal Dutch Shell could prove to be a 'milestone' in the country's post-war recovery.

In the last years Iraq signed a series of agreements to connect to neighboring countries through various energy trades. In January 2010, Baghdad also signed an MOU for Strategic Partnership between the European Union and Iraq to develop Iraqi gas for export to Europe. The MOU was based on an Energy Policy Action Plan adopted by the European Council in March 2007 and the focus of the MOU was put on the Euro-Arab Mashreq Gas Market Project and on the development of the Arab Gas Pipeline in a way that will make Iraq a key gas supplier to Europe Union. Iraqi gas and Iranian gas could be an alternative to Russian gas for European Union provided important investment will be made in transport infrastructure.

Iraq also signed, in 2011, a contract with the Iranian company ACG to extend the pipeline bringing gas from Iran to keep in operation Iraqi power stations producing electricity. In February 2013, the Iraqi cabinet authorized the MOO to sign a contract for a gas pipeline from Iran, through Iraq and Syria, and to Europe Union. However, many analysts believe that the plan will be hindered by various geopolitical challenges that make it impossible to realize it on the short to medium term. The religious conflicts in the region and also the great tension between Iran, Hezbollah and Palestinians on one side and Israel (supported by USA) on the other side adversely affect the development prospects of the natural gas trade but also the level of global oil production. USA and EU are the only strategic actors which can mediate and contribute to solving conflicts and tensions in the area, otherwise Russia's influence in the region may increase and tensions will persist on a long term.

There are two sets of projections taken into account by experts and policymakers: the Integrated National Energy Strategy, which was issued by the Iraqi government in June 2013, and the International Energy Agency's World Energy Outlook 2012, with a special section devoted to Iraqi resource development. The two projections differ as they refer to the timing and volume of potential gas exports. The INES outlook expects gas flaring to stop by 2015, resulting in surplus capacity and

this capacity will be sustained by additional gas production of 26-39bcm from new gas fields. The surplus gas could be exported or used as a feedstock for petrochemical projects aiming at generating high revenues on international markets. In the IEA's scenario, the gas exports may rise from 4.63bcm in 2020 to 20bcm by 2035, if new discoveries will be made; at the same time, the domestic demand may increase to 70bcm, with total production of 90bcm. The achievement of this scenario depends on major contributions and funds to the development of transport infrastructure, together with the development of non-associated gas fields across Iraq. This is specifically true for the development of gas resources in the Iraqi Kurdistan, as most of the associated gas in the South will be used to meet the local increasing demand.

4. Conclusions

1) It is quite difficult to answer to the question related to Middle East natural gas reserves, if this region has an abundance of natural gas supplies or they are not enough for meeting the fast growing domestic demand. Under CEDIGAZ estimations Middle East has a share of 2/5 of the total global proved reserves of natural gas but potential reserves could be much higher, the situation can be similar also for crude oil. However there are reputable specialists and institutions who believe that estimates of proven reserves for Middle East region are exaggerated and therefore neither potential reserves would be too high. But the pessimistic predictions concerning the rapid depletion of oil and gas reserves were dispelled by reality in the last four decades, because there are huge reserves in the oceans, seas and other areas still undiscovered or untapped.

For example, quite recently, important discoveries were made in the Eastern Mediterranean sea, in so-called Levant Basin, but the estimates of the reserves are different depending on the factors involved in the process of exploration and vary from 1000 bcm for proven reserves to 3000 bcm for potential reserves. Cyprus, Israel, Syria, Lebanon, Palestinian Territories and maybe Turkey are the main potential beneficiaries of these reserves.

2) The main gas producer in the region is Iran who has the largest gas reserves in the Middle East, followed by Qatar who is the biggest LNG producer in the world. Other important producers are Saudi Arabia, United Arab Emirates and Egypt. Iraq has important gas reserves but is a small producer. The major gas consumers are: Iran, Saudi Arabia, United Arab Emirates and Egypt. The only country that started the offshore gas production in the Levant Basin with Tamar field in 2013 is Israel, who intends to build a LNG terminal. In April 2014 Mohammad Reza Nematzadeh, Iranian Minister of Industry, has appreciated in an interview published by German newspaper Handelsblatt that Iran can be a reliable, safe and long term gas supplier to Europe because it wants to play an important role in the world gas market not competing with Russia but knowing that Europe's needs will grow in the next years. Iran intends to become a long term partner of EU due to its huge gas reserves and its existing plans for such a cooperation.

3) Middle East region is not a major gas exporter although is the biggest exporter of crude oil in the world due to the lack of proper infrastructure, insufficient productive investments, a large part of natural gas deposits are found in an associated form with oil, strong domestic demand growth in the last decade, obstacles encountered by foreign strategic investors. The major gas exporter (LNG) in the region and in the world is Qatar who sells a lot of gas to Eastern Asian countries and also to some EU countries.

4) Iraq has important gas reserves in the Southern part, in Basra region, in the form of associated gas, used only to meet the high domestic demand and also in the Northern part, in

Kurdistan, where the local government intends to export a part of it to Turkey, although no pipelines have been built so far. Iraq gas production was quite low due to the fact that a large quantity of gas was not recovered and was flared in the atmosphere, causing a lot of waste and pollution, and also due to the difficulties involved by the extraction of associated gas or by the use of gas with much sulfur content. Two main gas pipeline projects are under construction but only for meeting domestic needs and not for gas export. The joint venture known as the Basra Gas Company where Shell plays a leading role is a good example of how large oil companies may contribute to capitalizing of Iraq natural riches and to its fast economic development.

5) Middle East region may become an advantageous alternative for EU to Russian gas only if production will strongly increase in the region with foreign capital contribution and only if some important transport infrastructure will be built on medium term. But all gas pipelines to EU must cross Turkey that doesn't seem at all pleased about the new routes for gas on its territory. A pipeline with an annual capacity of 16 bcm and a length of 470 km for transporting gas from Levant Basin to Turkey would cost about 2.5 billion dollars, but it will meet only the Turkey's domestic demand. A pipeline project to transport gas from Iran through Iraq to Syria in order to further export it to EU was postponed or abandoned due to civil war from Syria. Due to cold or even tense relations between Turkey on one hand and Iran and Syria on the other hand any pipeline project across Turkey has no chance of success in the near future. Only by normalizing the political explosive situation from the Middle East, involving the termination of religious conflicts and establishment of an independent Palestinian state, ending of old adversities between Israel and the other states, dismantling of terrorist networks and activities, one may create proper conditions leading to the economic development and social prosperity, including the setting up of powerful regional energy networks based on a strong interstate cooperation, which may allow the increase of export of the local rich natural resources.

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