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The Southern Gas Corridor: Needs, Opportunities and Constraints

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Abstract

In the last decade international political events and long-term economic trends have raised increasing concerns about Europe's energy security, particularly in the gas sector. The European Union, and Italy in particular, depend heavily on natural gas imported from few producing countries. Rising concerns about the security of these supplies urged the European Union and its Member States to intensify their diversification efforts, by opening new routes of transit and relying on new sources of supply. In this context, the Southern Gas Corridor is probably the most promising initiative. This paper analyses the opportunities and constraints of the Southern Corridor, its uncertain progress and the limited resources available to be exported to the EU markets. It focuses, in particular, on Italy's energy outlook and how the development of the Southern Corridor may change it.

Keywords: *Italy / European Union / Energy Security / Natural Gas / Pipelines / Southern Gas Corridor / Caspian Basin / European Commission*

The Southern Gas Corridor: Needs, Opportunities and Constraints

by Nicolò Sartori*

Introduction

Since the beginning of the last decade, energy security has reemerged as a major concern for European governments and citizens. After a relatively long period of stable energy prices and limited market volatility, the 2000s have been characterized by international political events (i.e. the recurring energy disputes between Russia and Ukraine, and the war between Russia and Georgia) and long-term economic trends (i.e. the rise of global consumption dragged by China's and India's economic growth, the OPEC's decreasing spare capacity and global warming concerns) which have raised increasing concerns about energy security, in particular in the gas sector.

National governments and international organizations have increasingly intervened in the energy domain setting priorities and defining political strategies, while energy companies have taken the opportunity to invest abundantly in the sector, introducing innovative upstream technologies (i.e. shale gas production; deep-water drilling) and proposing new ambitious downstream projects.

Recent international events, such as the uprisings in North Africa and Middle East, and the disaster at the Fukushima nuclear plant in Japan, have impacted on the European energy picture, which was partly stabilized as an effect of the 2008 international financial crisis.[1]

First, the upheavals in North Africa and Middle East are affecting the security of energy supplies from producing countries in the region. On the one hand, events such as the suspension of the Greenstream activities in Libya have directly threatened natural gas supplies. On the other hand, political instability has driven global oil prices to peak values, fostering rapid demand of cheaper energy sources such as natural gas (which is still a regional commodity and therefore less affected by market volatility).

Second, the Fukushima disaster has had a twofold effect. On the one side, Japan needs to get hold of additional energy resources to compensate for the loss of nuclear-produced electricity; on the other side, in key EU energy consumers such as Germany, growing public distrust towards nuclear power is forcing governments to reconsider their countries' energy mix in favour of less dangerous energy sources such as natural gas.

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[1] The economic downturn which followed the crisis led to a considerable reduction of the overall natural gas consumption in the EU and caused a general glut in the global markets.

In conclusion, after the post-2008 break, security considerations (regarding both the reliability of secure supplies from instable regions and the safety of nuclear technologies) and economic concerns (relating to skyrocketing costs of oil), alongside traditional environmental pressures[2], are driving a new rise in natural gas demand and, along with it, are renewing the competition to access available resources worldwide.

In order to identify risks and opportunities for Europe's, and particularly Italy's, energy security, it is necessary to map the situation and examine current trends in natural gas demand and supply. Diversification of energy sources is identified as one of the key solutions to strengthen Europe's energy security: in this sense, the Southern Gas Corridor initiative meets the European need to receive new energy flows from the Caspian and the Middle East.

This paper analyses the relevance of this initiative considering the different options currently on the table, and taking into consideration opportunities and constraints to the development of a reliable energy corridor for the European markets. This analysis aims to provide a clear background and some food-for-thought both to policy-makers and companies, that aims at maximising the Italian energy posture as well as investors' economic results.

1. Italy's gas demand in the European context

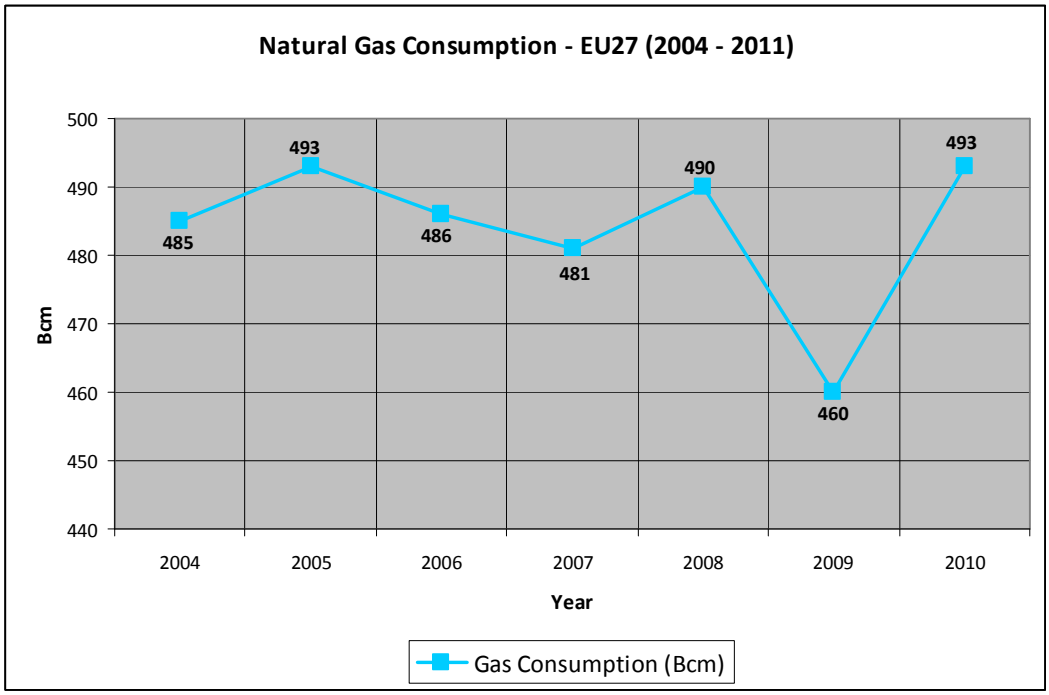
In 2010 the European Union's (EU) natural gas demand rapidly recovered after the setback caused by the global economic and financial crisis started in 2008. According to the figures provided by the *BP Statistical Review of World Energy*[3], in 2010 the EU consumption reached 493 Billion cubic meters (Bcm), a 7.4% increase compared to 2009. Gas demand, rapidly returned to pre-crisis levels, is projected to grow further in the years to come. The 2009 consumption slump was therefore a transitory phenomenon.[4]

Natural gas is expected to be the fastest growing fossil fuel at the global level from now to 2030, and the EU is no exception. The largest part of the global gas consumption growth will concentrate in China, the Middle East, India and Brazil.[5] Despite some optimistic views, such as the European Commissions' (EC) *Baseline 2009* scenario, which projects an overall consumption of 495 Bcm/y in 2030, or the EC's *Reference* scenario, which even foresees the EU demand to reduce down to 444 Bcm/y (back to

[2] Environmental policies aimed at reducing global CO_2 emissions are providing incentives to shift from CO_2-intensive oil to more environmental-friendly natural gas.
[3] BP, *Statistical Review of World Energy 2011*, http://www.bp.com/sectionbodycopy.do?categoryId=7500&contentId=7068481.
[4] In 2009 total natural gas consumption in the EU registered a remarkable collapse to 460 Bcm, decreasing by 6% in comparison to the 2008 levels.
[5] BP, *Energy Outlook Booklet 2030*, January 2011, http://www.bp.com/sectiongenericarticle800.do?categoryId=9037134&contentId=7068677. According to BP data, non-OECD countries account for 80% of the global rise in gas consumption.

the 2000s levels) in the same period, natural gas demand is likely to increase (though at a lower pace compared to developing countries) also in the EU.[6]

Figure 1: Natural Gas Consumption - EU27 (2004-2010)



Source: BP Statistical Review of World Energy (Years 2005 - 2011)

More realistic forecasts expect EU natural gas demand to grow. As projected by Eurogas' *Base Case* and *Environmental* scenarios demand will grow, respectively, by 14% and 23% until 2030 (from a minimum of 595 Bcm/y to a maximum of 637 Bcm/y). Indeed, the abovementioned economic, security and environmental considerations are likely to drive EU demand up to these levels.

Moreover, an aspect that seems to be extremely relevant is the role that natural gas is going to play in the EU's future energy mix. In 2010 natural gas accounted for 25% of the EU's primary energy consumption, and this figure is expected to reach 27% by 2030. This growth will be driven, in particular, by the increasing recourse to gas for power generation. According to the last data provided by Eurogas, in 2030 more than 210 Bcm will be used for power generation, compared to roughly 150 Bcm in 2007.[7]

The dependence on natural gas is even clearer in the Italian case. Italy has a historical involvement in natural gas activities (exploration, production and consumption) which dates back to the process of *metanizzazione* of the country undertaken by ENI since the post-World War II. Today Italy is the third European country in terms of gas

[6] European Commission, *EU Energy Trends to 2030. Update 2009*, http://ec.europa.eu/energy/observatory/trends_2030/.
[7] Eurogas, *Long Term Outlook for Gas Demand and Supply 2007-2030*. Report available at http://www.europeanenergyreview.eu/data/docs/Viewpoints/final_eurogas_brochure_outlook_lr_060510.pdf.

consumption, just behind the United Kingdom and Germany, with domestic demand that is almost double compared to countries such as France and Spain.

In line with the rest of Europe, in 2010 the country experienced a rapid recovery of its gas demand, which at the end of the year reached 83 Bcm, with a growth of 6.4% compared to 2009, returning close to the pre-crisis levels.[8] Moreover, in 2009 natural gas accounted for more than 35% of the total energy gross consumption[9] mix, a figure sensibly higher than the EU average. Such dependency on gas is even clearer when considering electric power generation, as roughly 50% of the total national electricity production is usually generated through natural gas.[10]

Although the share of renewables is expected to increase, it seems unlikely that this will result in a reduction of the share of natural gas in Italy's energy mix. In addition, public opinion's hostility towards nuclear power confirmed by the results of the 12-13 June 2011 referendum, suggests that the current energy mix is unlikely to dramatically change in the years to come. For all these reasons, it is extremely likely that gas will continue to play a key, in fact growing, role in the country's energy mix.

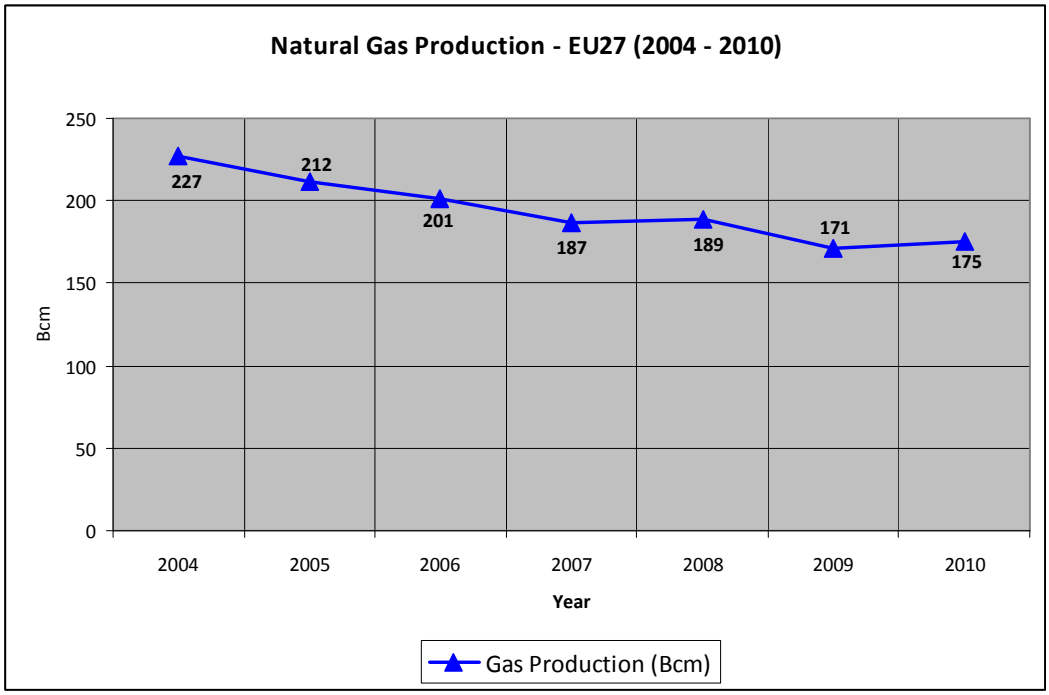
2. Italy's gas supply in the European context

The EU gas market has two main features that distinguish it from the oil one: the domestic production is still relevant; the bulk of imports come from only three countries: Russia, Norway and Algeria.

In 2010 the EU's domestic proved reserves amounted to 2.42 Trillion Cubic Meters (Tcm), roughly 1.3% of the world's total. They are concentrated in the Netherlands, the United Kingdom and Romania. The first two countries currently provide the bulk of gas supply coming from EU countries; Romanian production rates, despite good potentialities, are still sensibly lower. A peak in indigenous production was reached in the last decade. In 2001 the EU output totalled roughly 230 Bcm; there has since been a steady decline. In 2010 EU countries produced a total of 175 Bmc (5.5% of the world gas output): although production recorded a slight growth (+ 2%) thanks to the economic recovery in Europe, the decline of the EU domestic supply is clearly showed by Fig. 2.

[8] From 2006 to 2008 Italy's gas consumption has been stable around 84 Bcm/y. Source: Italian Ministry of Economic Development, Energy Department.
[9] Italian Ministry of Economic Development, Department of Energy, *Bilancio energetico nazionale 2009* [National Energy Balance 2009]. Available at http://dgerm.sviluppoeconomico.gov.it/dgerm/ben/ben_2009.pdf.
[10] In 2010 45% of Italy's gross electricity production came from thermoelectric gas plants. Source: Terna, *Dati statistici sull'energia elettrica in Italia. Quadro di sintesi al 11 marzo 2011* [Provisional Balance of Electric Energy in Italy]. Available at http://www.terna.it/LinkClick.aspx?fileticket=zuvz3fV0FiQ%3d&tabid=649.

Figure 2: Natural Gas Production - EU27 (2004-2010)



Source: BP Statistical Review of World Energy (Years 2005 - 2011)

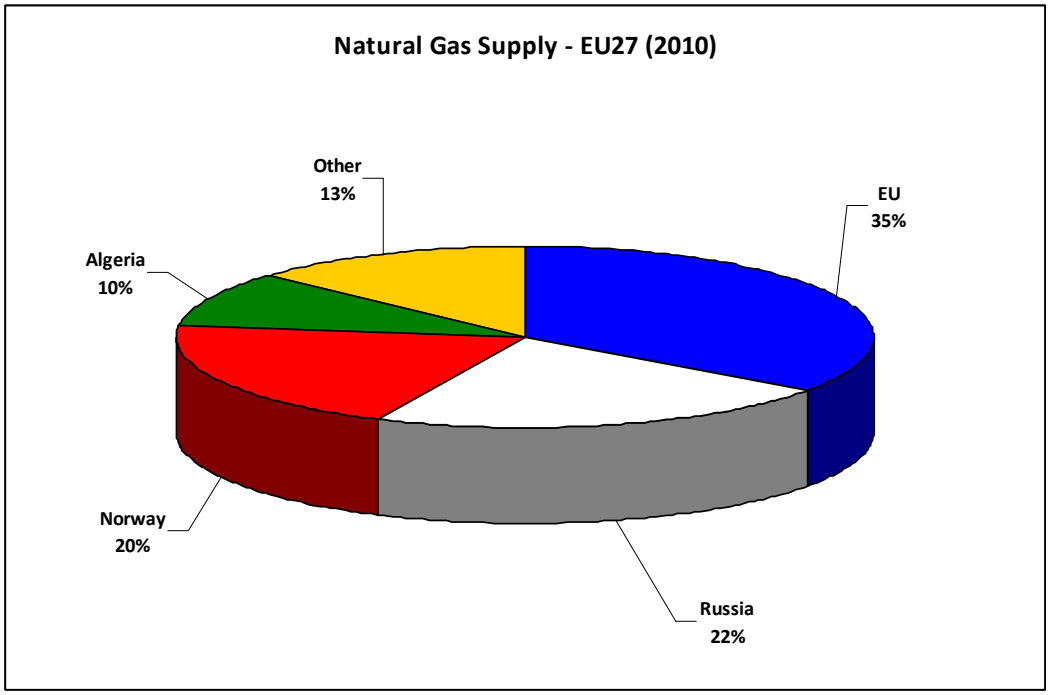
At present, indigenous production still represents the main source of supply for the EU gas market: in 2010 it accounted for more than one third (35.5%) of the total EU consumption. However, the EU production is projected to experience a substantial decline in the next two decades. As reliable studies forecast, due to the quick depletion of Dutch and British reserves, the total EU output will amount to 119-150 Bcm in 2020 and to 66-110 in 2030.

EU countries will have to increase their shares of gas imports from non-EU countries. According to EU forecasts, dependency on gas imports will reach an estimate 73-79% of consumption by 2020, and 81-89% by 2030. As said, Russia, Norway and Algeria are currently the main external suppliers of the EU market. They provide about 53% of the total EU consumption (See Fig. 3), and account for about 82% of total imports.[11]

In 2010 Russia exported to the EU market roughly 110 Bcm (22.3% of consumption and 34.6% of imports), Norway 99 Bcm (20% and 31% respectively) and Algeria 50 Bcm (10% and 15% respectively). The remaining 59 Bcm (13% and 18% respectively) are provided by a group of countries which include Qatar, Libya, Nigeria, Egypt and Trinidad & Tobago.

[11] BP, *Statistical Review of World Energy 2011*, *cit*.

Figure 3: Natural Gas Supply - EU27 (2010)



Source: BP Statistical Review of World Energy (Years 2005 - 2011)

The supply situation in Italy is very similar to the EU's one, with imports from non-EU countries extremely concentrated. However, the Italian case presents two distinguishing features. First, Italy's domestic production is very limited. In 2010 it amounted to 8 Bcm (less than 10% of total consumption), rapidly declining in the last decade (in 2004 it reached about 13 Bcm). Second, Libya is - or at least it was before the 2011 crisis, one of the three main gas suppliers replacing Norway. Algeria is Italy's major supplier, providing in 2009 22,6 Bcm (32,7% of consumption), followed by Russia (20 Bcm, 29%) and Libya (9 Bcm, 13%). These supplies correspond to 75% of total consumption and 88% of total imports, which highlights overdependence on a limited group of producing countries.[12]

At present there are four main sources of supply both at the European and at the Italian level; the EU Corridor (which includes Netherlands and UK), the Northern Corridor (Norway), the Eastern Corridor (Russia) and the Mediterranean Corridor (Algeria and Libya). Each of them presents some peculiarities, either geologically or politically, which raise policy-makers and operating companies' concerns about energy security. As previously described, the EU domestic output is rapidly declining and the Norwegian production is expected to decline, though at slower pace than EU's.

The recent crises in North Africa and Middle East may put at risk the stability of gas flows from the region. Libya's exports to Italy through the pipeline Greenstream have been suspended and, presumably, they will not be resumed before the end of military

[12] Italian Ministry of Economic Development, Department of Energy, *Bilancio gas naturale* [Natural Gas Balance], http://dgerm.sviluppoeconomico.gov.it/dgerm/bilanciogas.asp

activities, whose outcome is still uncertain. Moreover, should this crisis spread to a key supplier such as Algeria, the whole European gas balance would be jeopardized.

Finally Russia, plays a key role as it is the main gas supplier of the EU. However, despite well-established energy relations, the recurring disputes with Ukraine over gas transit and payments, have led European policy-makers and public opinion to question the reliability of Russia as an energy partner and to consider an overdependence on Russian supplies as an energy threat.

In this complex and challenging scenario, European institutions and national governments have identified, and partly undertaken, some initiatives to improve energy efficiency and have invested new energy sources (i.e. renewables, shale gas[13]). However, in order to enhance its security of supply, the EU will have to intensify its diversification efforts, opening new routes of transit and relying on new sources of supply. The development of the Southern Gas Corridor, together with the strengthening of LNG[14] capabilities, represents the most promising initiative.

3. The Southern Gas Corridor: the initiative

The EU's scarcity of indigenous gas resources is partly balanced by a favourable geographical position which allows EU countries to be the centre of gravity of some of the most important gas axes. Indeed, natural gas is still mainly a regional commodity whose supply depends on fixed pipeline infrastructure. At present, the EU is linked with major gas producing and exporting countries through an extended network of pipelines. However, even a cursory glance at a map of Europe's natural gas system makes evident the lack of pipeline infrastructures in its south-eastern part. The need to develop gas transport infrastructures in the region officially emerged in 2003[15] (and was then reiterated in 2006), when the European Parliament and the Council supported the construction of a corridor in South-East Europe across Greece, FYROM, Serbia and Montenegro, Bosnia Herzegovina, Croatia, Slovenia and Austria and between Austria and Turkey through Hungary, Romania and Bulgaria, with the goal of meeting the needs of the internal market and strengthening the security of supply.[16]

In 2006 the Commission published a Communication *laying down guidelines for trans-European energy networks*, which established that the NG3 (Natural Gas route 3) should connect the EU to the Caspian Sea and Middle East countries. Moreover, it

[13] Although reliable statistics on European shale gas reserves are not available and extraction activities are not yet started, expectations over the development of these new resources are rapidly raising. According to the US Energy Information Administration report, *World Shale Gas Resources*, the EU technically recoverable resources would amount to 13 Tcm. Source: http://www.eia.gov/analysis/studies/worldshalegas/.

[14] Another important aspect that has to be taken into account when dealing with Europe's gas supply is the increasing role of LNG. In 2009 European countries imported 59 Bcm of LNG, 12% of total consumption. In 2004 it amounted to 36 Bcm, 7% of total consumption. Elaboration on BP data.

[15] However, the EU's attention to the development of trans-European energy networks (TEN-E) dates back in 1996, with the *Decision 1254/96/EC* of 5 June 1996, http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31996D1254:EN:HTML.

[16] *Decision 1229/2003/EC* of 26 June 2003, http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2003:176:0011:0028:EN:PDF.

contemplated new natural gas pipeline networks to the EU along, in particular, the following routes: Turkey-Greece, Greece-Italy, Turkey-Austria, and Greece-Slovenia-Austria (via the western Balkans).[17]

In 2007 the Commission's *Energy Policy for Europe* expressly supported Nabucco as the key project to enhance Europe's energy security. It appointed a European Co-coordinator for the pipeline and promoted improved conditions for investment, by defining a clear and transparent legal framework for the projects.[18] In the document, the Nabucco pipeline was specifically identified as the key project to connect the Caspian basin to EU markets, while no mention was made of other ongoing pipeline projects.

In its 2008 *Second Energy Strategic Review - An EU Energy Security and Solidarity Action Plan*, the EC used, for the first time, the term *Southern Gas Corridor* to describe infrastructure projects to bring gas from the Caspian and Middle Eastern sources to the EU in view of improving its security of supply. In the document, the EC preserved the development of the corridor as one of the EU's highest energy security priorities, without identifying it with any of the projects then on the table.[19]

The fluidity of the corridor's situation has been emphasized by Jozias Van Aartsen, the *European coordinator for the project of European interest n° NG 3*.[20] According to his 2009 report, NG 3 (Natural gas route 3) includes not only Nabucco, but all those projects aimed at linking the EU to new sources of gas in the Caspian region and Middle East, such as ITGI, TAP and White Stream. The list of major pipelines being planned for the Southern Gas Corridor does not include South Stream but Van Aartsen considers it as part of a larger picture which aims at transporting the resources available from the Azeri gas field Shah Deniz II to the European markets.

In its Communication *Energy 2020: A strategy for competitive, sustainable and secure energy* published in 2010 the Commission reiterated the need to ensure the EU's stability and security of supply, particularly through the development of the Southern Gas Corridor and the effective start of projects of European interest, such as Nabucco and ITGI.[21] Again, in its communication *Energy infrastructure priorities for 2020 and beyond*" the Commission underscored the importance of the development of the Southern Gas Corridor. Placing the emphasis on competition and market forces, two cornerstones of any EU's initiative, the document identified the key role of energy

[17] *Decision 1364/2006/EC* of 6 September 2006, http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2006:262:0001:0023:EN:PDF.
[18] European Commission, *An Energy Policy For Europe* (COM(2007) 1 final), Brussels, 10 January 2007, http://ec.europa.eu/energy/energy_policy/doc/01_energy_policy_for_europe_en.pdf.
[19] European Commission, *Second Strategic Energy Review - An EU Energy Security and Solidarity Action Plan*, (COM(2008) 781 final), Brussels, 13 October 2008, http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2008:0781:FIN:EN:PDF.
[20] Jozias van Aartsen, *Activity Report September 2007-February 2009: Project of European interest n° NG 3*, 4 February 2009, http://ec.europa.eu/energy/infrastructure/tent_e/doc/axis/2009_axis_linking_activity_report_2007_2009.pdf.
[21] European Commission, *Energy 2020. A strategy for competitive, sustainable and secure energy*, (COM(2010) 639 final), Brussels, 10 November 2010, http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2010:0639:FIN:EN:PDF.

companies (in synergy with Member States) in making any diversification process successful and reliable.

Although the Commission recognizes the great efforts made by companies in planning pipelines such as Nabucco, ITGI, TAP and White Stream, the prospect of the corridor is still uncertain. Only two projects (Nabucco and Poseidon, which is part of ITGI) have received support from national energy regulators, which hs granted partial exemption from Third Party Access (so called "Article 22 exemption")[22], and the EU financial assistance in the European Energy Programme for Recovery framework (200 and 100 million euro respectively).[23] Only Nabucco, finally, can count on a stable legal framework for transit and tariffs as laid out by the Intergovernmental Agreement, signed in July 2009.

In conclusion, much uncertainty surrounds the future of the corridor. Expectations behind the efforts of European institutions, national governments and energy companies have to cope with a series of geographical, commercial, political and legal challenges which are to be analysed in order to evaluate the chances of success of the various European activities.

4. Opportunities and constraints

In 2010 the Commission set as a strategic objective the capacity of the corridor to supply roughly 10-20% of the EU's gas demand by 2020, equivalent roughly to 45-90 Bcm per year.

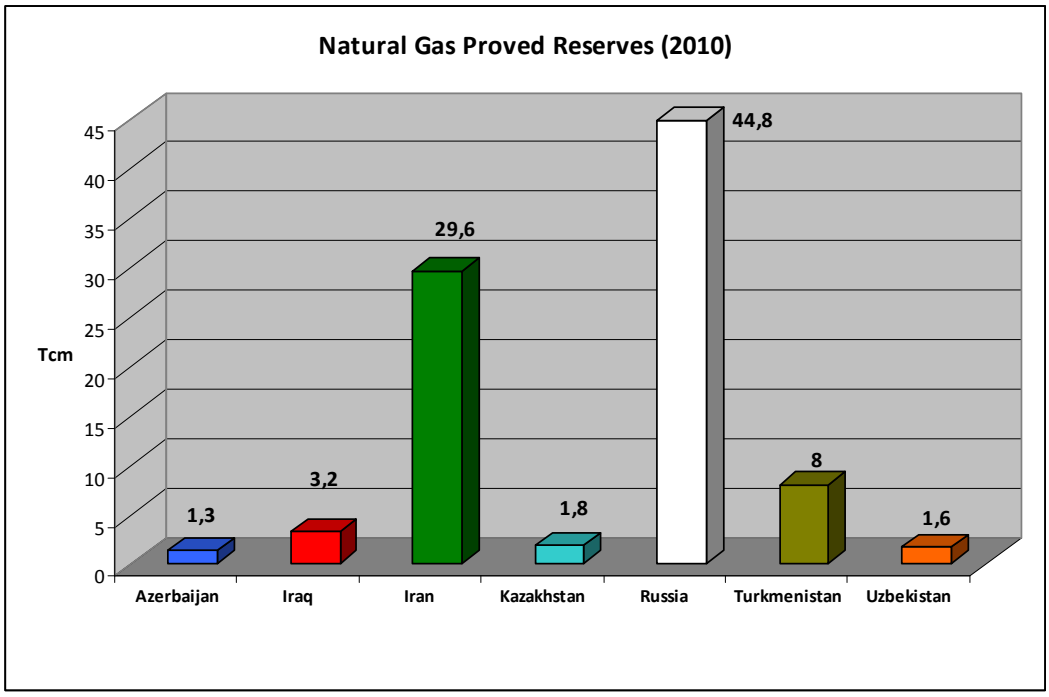
Such an ambitious target is based on estimates made by the EC, which gathered data on proved reserves of what it has defined as "the largest deposit of gas in the world, the Caspian - Middle East basin".[24] The Commission stressed that the Southern Gas Corridor can provide a direct link between these (estimated) 90.6 trillion cubic meters reserves and the EU gas market.

Although these data could be questioned, and despite the fact that the Commission does not clearly define all the potential suppliers to be reached by the corridor, it is undeniable that the resources available in the Caspian basin represent a great opportunity for the European energy diversification.

The corridor could ideally reach a market going from Russia to Iraq and Iran, including gas-rich Caspian and Central Asian states such as Azerbaijan, Kazakhstan, Turkmenistan and Uzbekistan. All together, these seven countries account for 50% of the world's proved reserves (roughly 90 Tcm out of a total of 187; see Fig. 4), with an aggregate production of 855 Bcm in 2010.

[22] Now Art 36 of the *Directive 2009/73/EC* of 13 July 2009, http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:211:0094:0136:en:PDF.
[23] *Regulation (EC) 663/2009* of 13 July 2009, http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:200:0031:0045:EN:PDF.
[24] European Commission, *Energy Infrastructure: Priorities for 2020 and Beyond - A Blueprint for an Integrated European Energy Network* (COM(2010) 677/4), 17 November 2010, http://www.energy.eu/directives/com-2010-0677_en.pdf.

Figure 4: Natural Gas Proved Reserves (2010)



Source: BP Statistical Review of World Energy 2011

However, despite the great potential available, the real capacity of European governments and energy companies to access these huge resources and bring them to EU markets is currently limited by a series of geographical, political, commercial and legal obstacles which deserve particular attention.

1. Russia

Russia has the largest natural gas proved reserves in the world (44 Tcm, 23.7% of the total). It is also the second producer behind the US (589 Bcm in 2010, 18.4%). As stressed above (see par. 3), Russia already and largely contributes to satisfying the EU gas demand and it is likely that its role as supplier will continue to be as strong in the future. In this perspective, the Southern Gas Corridor could represent an important asset to realize a diversification of transit routes providing another path to Russian gas to reach European markets. However, diversifying gas transit routes is exactly the goal of South Stream; on the contrary, the declared objective of the corridor is to provide sources of gas diverse from those already reaching the EU gas market. Therefore, counting Russian resources as potential supply for the corridor's projects could only risk to reduce the effectiveness of the initiative itself.

2. Iran

Although it has the second larges gas proved reserves in the world (around 30 Tcm, 15% of the total), in 2010 Iran produced only 138 Bcm, an amount which barely satisfies its internal demand. In fact, starting from the 1979 Islamic Revolution, the political confrontation with the US and (partly) with its Western allies has slowed down

the development of the Iranian gas industry and constrained the establishment of an energy partnerships with the EU countries.

Today the Iranian energy sector is subjected to international sanctions, enacted by both the US and the EU, that limit the country's gas production capacity, and preventing it from becoming a potential supplier of the EU market through the Southern Gas Corridor. Until Iran settle the dispute with the West on its nuclear program, it is rather difficult to imagine Iranian gas flowing westward to Europe.

3. Iraq

Even though Iraq is widely seen as one of the leading players in the oil sector, with roughly 3 Tcm of natural gas, it is also the 11th country of the world in terms of proved reserves (reserves are estimated to be 8 Tcm). Most of Iraqi resources, around 70%, are in form of associated gas (gas produced in conjunction with oil) and is located in the southern part of the country.

However, a considerable amount of non-associated resources (0.12 Tcm) is located in the north-western Akkas field, close to the Syrian border.[25] Expectations over these resources led the EU to sign the 2010 *Memorandum of Understanding for a Strategic Energy Partnership* with Iraq, in an attempt to secure supplies for the Nabucco project.[26] At present, however, significant political and security concerns hinder the exploitation of these resources: on the one hand, administrative and bureaucratic rivalries between Iraqi local and central governments, as well as continuing violence in the region; on the other hand, instability in neighbouring countries such as Syria, which currently undermines the feasibility of a pipeline able to transport gas westward to Turkey. As the political and security situation remains volatile in the region, it is rather difficult to expect a rapid increase in the resources available on the markets.

4. Kazakhstan, Uzbekistan and Turkmenistan

The three "stans" are gas-rich countries. Together they total roughly 12 Tcm of natural gas proved reserves (6% of the world's total), with Turkmenistan clearly as the top-of-the-range, with reserves around 8 Tcm. The production potential of these countries is, therefore, very attractive for energy consumers. This is the reason why the competition for influencing relations in the region is so intense, with Russia trying to maintain its historical footprint on the countries' energy sector, and China struggling (with some success[27]) to establish strong bilateral partnerships with the governments on the basis

[25] The Akkas gasfield is currently operated by the Korean Gas Korporation (KOGAS) and by the Iraqi state-run North-Oil with stakes, respectively, of 75% and 25%. The Kazakh company KazMunaiGas recently withdrew from the projet because the local authority, where the field is located, and the central government of Iraq had different points of view on the development of the project.

[26] The MoU (http://ec.europa.eu/energy/international/bilateral_cooperation/doc/iraq/2010_01_18_iraq_mou_en.pdf) has been recently integrated by a *Joint Declaration* signed by the European Energy Commissioner Gunter Öttinger and the Iraqi Deputy Prime Minister Hussain al-Shahristani. Recalling the importance of Iraqi gas for the development of the Southern Corridor, the declaration solicits the parts to identify together available gas volumes to be exported through the corridor. See http://ec.europa.eu/energy/international/bilateral_cooperation/doc/iraq/20110527_iraq_joint_declaration.pdf.

[27] The Kazakhstan-China oil pipeline and the Turkmenistan-China gas pipeline are clear example of the Beijing's energy footprint in the region.

of money-for-energy agreements. The EU itself has tried to "join the game". Indeed, the Memorandum of Understanding signed in 2009 by the former Commissioner Ferrero-Waldner with the Turkmen president Berdimuhammedov raised a lot of expectations in the European public opinion.[28] However, more than political and economic competition from Russia and China, geography (currently) plays an insurmountable role in constraining the European initiatives. The three "stans" are landlocked by a "wall" composed by, from north to south, Russia, the Caspian Sea and Iran. In this situation, considering the Russia's and Iran's energy (and political) priorities, is rather difficult to imagine Central Asian gas flowing towards the European markets through their territories. At present, the only viable solution seems to be a trans-Caspian pipeline linking Turkmen shores with Azerbaijan's ones: however, considering the uncertain legal status of the basin[29], the feasibility of such a project is questionable, while it is much easier to imagine the Central Asian gas increasingly heading towards eastern markets.

5. Azerbaijan

At present Azerbaijan is the only country identified as a potential natural gas supplier for the Southern Gas Corridor. As a matter of fact, Azerbaijan is not a major player in the world's gas scene: its proved reserves amount to 1.31 Tcm (0.7% of the world's total) while its production, in 2010, reached 15 Bcm. However, considering the upcoming entrance into operations of the second phase of the Shah Deniz field, the Azeri production is expected to grow considerably in the next few years making available, potentially between 2016/2017, roughly 10 Bcm to export activities. On January 13th 2011 the President of the EC Barroso and the President of Azerbaijan Aliyev signed a *Joint Declaration on the Southern Corridor* committing the two parts to the development of the corridor, and engaging the Republic of Azerbaijan as a substantial contributor to - and enabler of - the initiative.[30]

Today, despite great expectations and the intense diplomatic efforts made by the EC in the region, a mix of factors limits the capacity to transport westward, via the Southern Gas Corridor, reliable gas supplies . Under these conditions, the strategic objective set by the Commission to obtain roughly to 45-90 Bcm for the corridor by 2020 seems highly unrealistic. Overcoming the competition of Russia, Turkey and Iran, and getting the 10 Bcm available from Shah Deniz II would already be a good result for the European energy policy, and should be the starting point for any decisions concerning infrastructure and investment of both the EU and energy companies.

[28] In May 2008 a *Memorandum of Understanding on cooperation in the field of energy between the EU and Turkmenistan* was signed establishing the basis for enhanced cooperation. The document is available at http://ec.europa.eu/energy/international/international_cooperation/doc/mou_turkmenistan.pdf.

[29] Sohbet Karbuz, "The Caspian's Unsettled Legal Framework: Energy Security Implications Positions of Russia and Iran", in *Journal of Energy Security*, May 2010, http://www.ensec.org/index.php?option=com_content&view=article&id=244:the-caspians-unsettled-legal-framework-energy-security-implications&catid=106:energysecuritycontent0510&Itemid=361.

[30] The text of the Joint Declaration is available at: http://ec.europa.eu/energy/infrastructure/strategy/doc/2011_01_13_joint_declaration_southern_corridor.pdf.

5. The Italian energy interests

In this context, the Italian interests in the Southern Gas Corridor are twofold. On the one hand, its development could be a key factor to meet Italy's growing gas needs. The country's energy mix is heavily reliant on natural gas, and such dependence it projected to increase in the years to come. The crisis in Libya, Italy's third gas supplier, and the definitive stop to nuclear energy programmes sanctioned by the popular referendum of June 12-13, require the Italian decision-makers to undertake an effort to enhance the security of supply. New gas supplies from the corridor would help meet Italy's rising demand and enhance diversification.

On the other hand, Italy could aspire to strengthen its role as gas hub for the EU, playing a key role in trading gas supplies coming from various producing countries. Italy is already a major player in this respect thanks to the extended network of pipelines which connects its transmission grid to major regional gas exporters. Today Italy is the key EU entry point for Algerian gas through the Transmed pipeline (and in the future through GALSI) and for Libyan supplies through Greenstream. Moreover, in case of extra piped capacity, it could reroute around 15 Bcm to EU markets reversing the Trans-Austria gas and the Transitgas pipelines' flows. The Southern Gas Corridor pipeline directly linking the Caspian/Middle Eastern gas resources to the Italian gas transmission grid, would be a necessary step to complete this enterprise.

Moreover, such initiative would be perfectly complementary with the South Stream project undertaken by the national energy champion ENI with the support of the Italian government. South Stream aims at diversifying the routes of transit, establishing a direct link between huge Russian reserves and the EU markets. The pipeline would provide Italy with further gas resources either to satisfy the growing internal demand or to increase the export capacity to central Europe.

As stressed by the International Energy Agency (IEA) in its last special report *Are we entering the Golden Age of gas?*[31], natural gas is rapidly becoming the key energy source of the future. Given Italy's structural features (high level of dependence on gas) and strategic ambitions (as gas hub), the development of the Southern Gas Corridor provides an opportunity that it cannot let slip away.

However, institutions and energy companies cannot overlook the commercial-economic logic behind such huge energy industrial projects. Furthermore, the current financial situation put severe constraints upon EU countries' public budgets. As stressed in the previous paragraph, the gas resources effectively available in the Caspian - Middle East region are probably not as huge as expected by the EC, and there will not be room for all the projects proposed for the development of the Southern Gas Corridor. Therefore, the only way for Italy to advance its energy interests is to support a transport solution with a strong industrial and commercial rationale, economically feasible and cost-efficient which may compete with other European projects that exclude Italy from the transit route and risk to jeopardize the country's energy security.

[31] Full report available at: http://www.iea.org/weo/docs/weo2011/WEO2011_GoldenAgeofGasReport.pdf.

Conclusions

The development of the Southern Gas Corridor is a strategic objective to enhance the EU's energy security. Recent international events, such as the uprisings in North Africa and Middle East, and the Fukushima disaster have confirmed the necessity to strengthen diversification in terms of both sources of supplies and transport routes.

The future EU gas demand is expected to rise again after the 2009 setback: the economic recovery, accompanied by the adoption of environmental policies aimed at reducing the level of CO2 emission, and the post-Fukushima anti-nuclear wave, which would probably reduce the nuclear share in the EU energy mix, suggest that in the next decades natural gas will be playing a key role in the EU energy mix.

At the same time, the supply side is undergoing major changes. On the one hand, the EU indigenous gas production (and to a minor extent the Norwegian one) is declining; on the other hand, political events in key production areas such as North Africa risk to jeopardize the suppliers' capacity to produce and deliver their natural gas to the markets.

Expected growing consumption, and dependence on a highly concentrated (and partly instable) supply side require policy-makers and energy companies to concretely look for new alternative resources for the European markets. In this sense, together with LNG , the development of the Southern Gas Corridor represents a reasonable choice which should become a key priority.

However, investment to be made and political choices to be taken so as to develop the corridor will necessarily have to take into account the specificities of the countries and the markets involved. Unfortunately, the ambitious targets set by the EC in its programmatic documents (from 46 to 90 Bcm by 2020) seem unrealistic as they overestimate the gas resources available on the market.

Miscalculations over the potential of the corridor could lead the EU, its Member States, and even energy companies to make choices driven more by wishful thinking than by a sound commercial-economic logic. The emphasis instead should be focused on competition and market forces. An approach based on politics would put at risk the effectiveness of the financial investment, eventually undermining the credibility of the EU as an energy actor.

Italy has strategic interests in the development of the Southern Gas Corridor. To satisfy its rising demand and to play a pivotal role in the EU gas market, it cannot be excluded from the corridor's main transit routes. Italy's reliability in this contest will be determined by its capacity to present and support a market-oriented transport solution with a strong industrial and commercial rationale, economically feasible and cost-efficient.

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