

# **EU-Caspian Gas Relations: What about decarbonisation?**

*Claire Dupont*

*Institute for European Studies, Vrije Universiteit Brussel*

*Claire.dupont@vub.ac.be*

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## **Abstract**

Traditional energy security considerations emphasise the security of supply of fossil fuels from multiple sources, and this conception of external energy relations underlines EU ambitions to access natural gas from the Caspian Sea Region. Many political and financial resources have been expended to fulfil ambitions to secure gas supplies for the Southern Gas Corridor – a priority infrastructure project that aims to connect the EU to the Caspian region's vast reserves of natural gas. This paper aims to question the necessity of this new gas infrastructure under the context of the EU's ambition to decarbonise by 2050, and discusses the potential consequences of EU decarbonisation for EU-Caspian energy relations. If the EU is serious about a transition to a low-carbon economy, are relations that promote new gas infrastructure coherent with these ambitions? To answer this question, I first discuss decarbonisation and the role of natural gas in the EU. I present an assessment of the need for natural gas infrastructure into the future. Next I discuss the Caspian Sea region with a focus on Azerbaijan and Turkmenistan as two major players for EU-Caspian gas relations. In the following section, I expand on these reflections to consider potential opportunities and challenges for EU external energy relations in the light of decarbonisation. With both Azerbaijan and Turkmenistan as states with poor freedom and human rights records, EU relations with them can be problematic considering the EU's own values. In conclusion, I argue that the long-term

decarbonisation objectives to 2050 are not seriously considered in the development of EU relations with the Caspian Sea region.

## **Introduction**

Climate change is a problem that requires long-term, cross-sectoral and cross-border action. The European Union (EU) has described itself as an international leader in the fight against climate change, and aims to demonstrate “leadership by example” in the development of its own ambitious domestic policies (Oberthür & Pallemmaerts, 2010; Oberthür & Roche Kelly, 2008; Schreurs & Tiberghien, 2007; Wurzel & Connelly, 2011). Among these domestic policies are a series of measures aimed to achieve a legally-binding 20 per cent reduction in greenhouse gas (GHG) emissions by 2020 compared to 1990 levels, and an overall 20 per share of renewable energy in the EU’s final energy consumption by 2020. A non-binding target to save 20 per cent of the EU’s energy compared to business-as-usual (BAU) by 2020 was also agreed as part of these 2020 targets (European Council, 2007). But the EU has also expressed ambition over the longer term.

In October 2009, the European Council of heads of state and government agreed on a long-term commitment to reduce GHG emissions in the EU by between 80 and 95 per cent by 2050 (European Council, 2009). This commitment, although not binding, is a long-term political ambition to ensure that the EU plays its part in the fight against climate change – and to achieve the goal of ensuring global temperature increase does not exceed two degrees Celsius. The target follows on from the scientific work of the Intergovernmental Panel on Climate Change that outlined differentiated efforts for developed and developing countries (IPCC, 2007). In practice, this goal requires an almost complete “decarbonisation” of the EU’s economy, and especially of its energy sector.<sup>1</sup> Decarbonisation, however, is not the only objective of EU energy policy. Great emphasis is also laid on the security of energy supplies into the EU.

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<sup>1</sup> Decarbonisation is a term that is used especially in policy circles to describe the change required to combat climate change and to move to what has also been called a “low-carbon economy” (European Commission, 2011d). “Decarbonisation” refers more particularly to the energy sector, which will be required to function without emissions of GHGs by 2050 if there is to be a chance to meet the 2050 target (European Commission, 2011a). Other sectors of the economy (such as agriculture) represent more challenging cases for achieving decarbonisation. I also use the term “decarbonisation” throughout this paper.

In this paper, I explore the potential consequences and opportunities presented by the commitment to decarbonise the energy sector for the EU's natural gas relations with the Caspian Sea region. The paper is structured as follows. First, I describe the role of natural gas in the EU's energy sector, and the expected role for gas into the future. In this section, I also discuss the infrastructure requirements for transporting gas into the EU into the future, under the assumption that decarbonisation objectives are taken seriously by EU policymakers. Second, I discuss the EU-Caspian natural gas relations with reference to two Caspian countries: Azerbaijan and Turkmenistan. This includes a focus on EU policy preferences for the so-called "Southern Gas Corridor" and an overview of some of the institutionalised relations between the EU and the Caspian region. Third, I discuss the implications that a serious strategic consideration of the move to decarbonisation in the EU could have on EU-Caspian relations. This includes some opportunities and some challenges, but highlights the importance for strategic long-term thinking. In conclusion I highlight some of the lessons from the case examined here, including that decarbonisation does not to be taken seriously by policymakers in external energy relations; that these policymakers may not recognise the functional interrelations between their security policy objectives and the long-term climate policy objective to decarbonise by 2050; and that strategic thinking in the EU-Caspian gas relations in the long-term may reveal some new opportunities and challenges in the relationship that could be considered.

## **1. The EU, natural gas and decarbonisation**

Natural gas is used in the EU mainly for heating, for some industrial processes, transport, and, increasingly, for electricity generation (European Commission, 2010a; IEA, 2011). It is often promoted as the "cleanest" fossil fuel, with about half the GHG emissions of coal (the fossil fuel that emits most GHGs), although there has been some questioning of the "green credentials" of natural gas (Harvey, 2012; Lustgarten, 2011). Its relative abundance globally, with proven reserves in 2013 estimated to last about 56 years in view of production rates (BP, 2013, p. 20), and the already in-place technology to exploit and transport it, make gas an attractive option for a short-term transition away from coal. However, before long, natural gas becomes part of the climate problem, as it continues to emit GHGs. For decarbonisation to be achieved, either natural gas must be eliminated from the energy sector, or used only in

combination with the – as yet commercially unviable – carbon capture and storage technology (CCS) (Reichardt, Pfluger, Schleich, & Marth, 2012).<sup>2</sup>

The energy security dimension of natural gas supply is particularly important for the EU. The EU as a whole is dependent on a limited number of suppliers for natural gas, and on the Russian Federation most predominantly. Domestic production of natural gas has been steadily declining in the EU. In 2012, the EU produced nearly 150 billion cubic metres (bcm) of natural gas – down from 158bcm in 2011, and from 228bcm in 2002 (BP, 2013, p. 22). Over the course of the same decade, natural gas consumption in the EU remained rather steady. In 2000, the EU27 consumed 440bcm of natural gas (BP, 2011). Highs of 496bcm and 503bcm of consumption of natural gas in the EU were recorded for 2005 and 2010 (BP, 2013), and latest figures for 2012 show the lowest levels of consumption over the previous ten years, at 444bcm (ibid.). While it is difficult to describe a trend in EU gas consumption, it is clear that sky-rocketing levels of consumption, as expected in earlier years of the twenty-first century (REF?), has not occurred. However, with the levels of EU production continuing to decline, even steady gas consumption requires considerations of increasing imports, at least in the short-term.

Additionally, the EU has experienced two gas supply disruptions that have placed more emphasis on the security of supply dimension in natural gas relations. These disruptions took place in 2006 and in 2009, when Russia interrupted supplies to the Ukraine, affecting EU member states downstream. The 2006 crisis was short and no major repercussions were experienced by EU member countries – supplies were restored after 36 hours (European Commission, 2008). This did effect greater consideration of security of supply concerns. The ensuing 2009 crisis was labelled “unprecedented” (European Commission, 2009) and lasted several weeks. The disruption in supplies of gas to the Ukraine meant that several EU member states were left without adequate supplies of gas for an extended period in 2009. These two crises compounded the reality that the EU’s reliance on Russia for supplies of gas meant it was vulnerable to interruptions in supply.

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<sup>2</sup> CCS technology aims to capture carbon dioxide that is usually emitted through the burning of fossil fuels and store it in underground geological formations.

Responding to such vulnerabilities – increasing dependence on a single main supplier (Russia); increasing import dependence; and vulnerability to supply interruptions – can follow a number of strategic steps. First, one option would be to increase domestic production of natural gas. With EU reserves of natural gas expected to last only eleven years under current production rates (BP, 2013), this is not a feasible option for the EU. Second, the EU could diversify its sources of natural gas, thus limiting its dependence on one supplier. This particularly strategy is one of the main motivations for increased EU-Caspian gas relations. Third, the EU could reduce its consumption of natural gas (by moving to other energy sources, improving energy efficiency). This third option follows a “decarbonisation” logic, as long as the alternative energy sources are non-fossil fuel sources.

Several scenarios and forecasts on decarbonisation in the EU suggest that very little amounts of natural gas would in fact be required by 2050. Very small amounts may still be required for certain industrial processes, but these would amount to a maximum of about 50bcm (Heaps, Erickson, Kartha, & Kemp-Benedict, 2009). Other scenarios indicate greatly reduced levels of consumption of natural gas in the EU by 2050 (EREC, 2010; European Commission, 2011a).<sup>3</sup> With CCS technology (a requirement for any continued use of fossil fuel in the energy system under decarbonisation) developing slower than expected and with limited interest from energy companies (Odenberger & Johnsson, 2010; Reichardt et al., 2012), any serious commitment to decarbonisation suggests that natural gas consumption in the EU must be drastically reduced by 2050.

### **1.1 EU natural gas importing infrastructure**

Natural gas imports into the EU require infrastructure. While decarbonisation requires a dramatic reduction in natural gas consumption in the EU, the infrastructure in place to receive imports of natural gas into the EU continues to expand. Natural gas pipelines and liquefied natural gas (LNG) terminals have lifetimes of up to fifty years – any new infrastructure planned or constructed since 2000, therefore, is likely to still be operational by 2050 (European Commission, 2010a; European Parliament, 2009). In this section, I present the capacity of the EU’s natural gas infrastructure and

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<sup>3</sup> One exception is Eurogas, which argues for long-term continued use of gas – in combination with CCS technology (Eurogas, 2011).

pipelines and discuss the necessity of this infrastructure under decarbonisation commitments.

According to the European Commission's Energy Market Observatory data, EU import pipeline capacity totalled about 441bcm in 2010/2011. This includes pipelines from Libya, Algeria, Russia and Norway, and transit pipelines through Ukraine and Turkey (European Commission, 2010b, 2010c, 2010d, 2011b, 2011c, 2012). There are also a number of pipeline projects under construction, just constructed or planned. These include a 10bcm capacity pipeline from Norway, the Trans-Adriatic pipeline (TAP) in the Southern gas corridor with a capacity of 10bcm, and the second Nord Stream pipeline from Germany (27.5bcm). Including these pipelines (but excluding *proposed* pipelines such as Russia's South Stream) would increase pipeline capacity for imports of natural gas into the EU to nearly 489bcm before 2020.

Infrastructure for receiving imports of natural gas also includes the LNG terminals in the EU. LNG terminals exist in Belgium, France, Greece, Italy, the Netherlands, Portugal, Spain and the United Kingdom, with a combined capacity of about 187bcm per year in 2011 (Gas LNG Europe, 2011; IEA, 2012). This LNG capacity is planned for expansion, with several existing LNG terminals due to expand their capacity, and new terminals under construction in Spain, Italy, France and Poland. Total capacity for LNG imports should therefore increase to about 274bcm by 2020 (Gas LNG Europe, 2011).

Total natural gas infrastructure in the EU is therefore *increasing*, and with long operational lifetimes, much of this infrastructure will likely remain in place to 2050. By 2020, natural gas importing infrastructure (pipelines and LNG terminals) should reach about 763bcm. With natural gas consumption in the EU at about 444bcm in 2012 (lower than levels in 2002 and including consumption of EU-produced gas), questions must naturally be raised about the real *necessity* for such overcapacity in infrastructure. Is natural gas compatible with decarbonisation?

## **1.2 Natural gas and decarbonisation**

To conclude this section on natural gas consumption, production, imports and infrastructure in the EU, I will explore some connections between natural gas importing infrastructure, decarbonisation and the link to EU-Caspian gas relations.

Considering the levels of natural gas consumption and production in the EU, the amount of importing infrastructure may seem excessive. Without taking decarbonisation commitments into account, such infrastructure seems economically questionable. But decarbonisation commitments to 2050 point to a further absurdity and risk in the continued expansion of natural gas infrastructure – if decarbonisation is taken seriously, this expansion represents investment problems and stranded assets, but it also presents a real risk of “carbon lock-in”. The risk here is that the very existence of fossil fuel infrastructure may prevent a timely move away from fossil sources of energy and jeopardise the realisation of the decarbonisation aims (Dupont & Oberthür, 2012a).

EU-Caspian gas relations are based on the objective of the EU to diversify its supplies of natural gas away from dependence on Russia. However, such a strategy requires new infrastructure connections. With long-term visions for decarbonisation in mind, questions would be raised about the need for such infrastructure. Decarbonisation could present opportunities for the EU to move away from energy-based external relations and promote energy independence through more domestically-produced renewable energy (EREC, 2010). Alternatively, new energy partnerships could develop as the EU promotes imports of renewable energy instead of fossil fuels. Yet the long negotiations on access to gas in the Caspian region suggests such a long-term strategy may not be within the framing of the negotiators. A decarbonisation perspective on this relationship would suggest that, first, no new gas is required in the EU and no new infrastructure needs to be built. Second, this realisation may raise new issues on the agenda of EU-Caspian relations more broadly – freeing discussions from the energy domain.

## **2. The EU, the Caspian and decarbonisation**

The Caspian Sea is bordered by Russia, Kazakhstan, Turkmenistan, Iran and Azerbaijan (see Figure 1). It is considered a key future player for EU energy security, as natural gas reserves in this area represent an alternative to Russian gas supplies (Kalyuzhnova, 2005). In this section, I focus on Azerbaijan and Turkmenistan as two of the main partners for the EU in terms of gas relations. Azerbaijan is the first of the Caspian Sea countries to agree to provide natural gas to the EU, and Turkmenistan, which has large natural gas reserves, is considered to be a most likely partner for any

future supplies of gas from the region (Russia already being a partner of the EU, and political relations with Iran preventing further cooperation). I discuss the natural gas potential of each of these countries and the institutionalised relations already in existence between the EU and these partners.



Figure 1: Map of the Caspian Sea region.

Source: [http://www.crethiplethi.com/wp-content/uploads/caspian-sea-map\\_s1.jpg](http://www.crethiplethi.com/wp-content/uploads/caspian-sea-map_s1.jpg), accessed: 27 August 2013.

## 2.1 Azerbaijan

In June 2013, the Trans-Adriatic Pipeline (TAP) project was selected to transport gas from the Azeri Shah Deniz II gas field to Europe. This announcement concluded years of negotiations and delayed decisions about which project among those proposed in the so-called “Southern gas corridor” would be selected. The corridor represents a priority infrastructure project for the EU to transport gas from the Caspian region to the EU. Other proposed pipeline projects in the corridor included the ill-fated Nabucco pipeline (Erdogdu, 2010; Rowley, 2009). The final decision from the Azeris to favour the smaller TAP pipeline (10bcm) through Greece and onto

Italy came after long discussions, involving not only representatives of the various pipeline consortia, but also members of the EU institutions.<sup>4</sup>

In terms of natural gas, Azerbaijan has proven reserves of nearly one trillion cubic metres (tcm). It has gradually increased its natural gas production capacity to reach nearly 16bcm in 2012 (up from 4.7bcm in 2002, for example) (BP, 2013). For the EU, its Shah Deniz II gas field represents a stepping stone to accessing gas in the other Caspian Sea countries (political relations pending) (European Commission, 2010a). The TAP project will be designed to allow for expansion to 20bcm of capacity in future, if further supplies of gas become available.<sup>5</sup>

Azerbaijan was classified as “not free” in Freedom House’s 2013 “Freedom in the World” publication, and qualified the country as among the “world’s most repressive states” (Freedom House, 2013, p. 2). President Ilham Aliyev has been in power since October 2003, with the latest elections in 2010 considered unfair. Aliyev won 89 per cent of the vote, but several political parties boycotted the election because they perceived conditions to be unfair. The Organisation for Security and Cooperation in Europe (OSCE) characterised the elections as insufficient to “constitute meaningful progress in the democratic development of the country”.<sup>6</sup>

EU-Azeri relations are institutionalised in the EU-Azerbaijan Partnership and Cooperation Agreement, which entered into force in 1999. It is a partner country under the European Neighbourhood and Partnership Instrument (ENPI). According to the Azerbaijan country strategy paper for 2007 to 2013 under the ENPI, Azerbaijan is regarded as playing a “pivotal role” in the EU’s energy security of supply (European Union, n.d., p. 5). Azerbaijan is also a part of the Baku Initiative, launched in 2004 and aiming to integrate energy markets in the Caspian and Black Sea regions. Internally in the EU, the trans-European network for energy guidelines and the new Connecting Europe Facility highlight the priority project status of natural gas

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<sup>4</sup> For example, in January 2011, European Commission President, Jose Manuel Barroso, promised visa-facilitation for Azeri nationals in exchange for promises of supplies of natural gas to the European Union (see: <http://www.euractiv.com/energy/barroso-tops-azeri-gas-deal-visa-news-501255>, accessed: 4 March 2013).

<sup>5</sup> See: [www.trans-adriatic-pipeline.com](http://www.trans-adriatic-pipeline.com) for more detail, accessed: 22 July 2013.

<sup>6</sup> See: <http://www.osce.org/odihr/elections/74100>, accessed: 22 August 2013.

interconnections between the EU and the Caspian region through the “Southern gas corridor”.

## **2.2 Turkmenistan**

Turkmenistan represents an important potential supplier of natural gas to the EU. It has reserves of 17.5tcm (in 2012) (BP, 2013, p. 20). It has been developing its production capacity and produced over 64bcm in 2012 (up from 48bcm in 2002) (ibid., p. 22). Turkmenistan already has gas pipeline connections with Russia and with China. In December 2009, China opened a new pipeline connection with Turkmenistan through Uzbekistan and Kazakhstan, and China became the largest importer of Turkmen gas by 2009 (Boonstra, 2010). At present, there are no gas infrastructure connections between the EU and Turkmenistan.

Turkmenistan was ranked as “not free” by Freedom House in 2013, and was among the nine lowest-rated countries for political rights and civil liberties (Freedom House, 2013, p. 6). Turkmenistan is under dictatorship rule with a very poor record for human rights. After the death of President Saparmurat Nyyazow in December 2006, Gurbanguly Berdimuhammedov was elected president in February 2007, and was reelected in 2012 with 97 per cent of the vote.<sup>7</sup> The OSCE considered the elections as lacking freedom. The government power resides within the one position of the president.

EU gas relations with Turkmenistan are institutionalised within an “Interim Trade Agreement” that was adopted in 1998. A Partnership and Cooperation Agreement with Turkmenistan has not been adopted. The European Parliament has blocked ratification of this agreement due to Turkmenistan’s poor human rights record (Boonstra, 2010). A specific memorandum of understanding in the field of energy was agreed in 2008, and Turkmenistan promised 10bcm of gas to the EU per year (ibid.). Turkmenistan is also one of the countries named under the EU’s Central Asia Strategy, agreed by the Council in 2007.

If the EU continues to pursue a security of supply strategy that promotes diversification of supply routes away from Russia, both Azerbaijan and Turkmenistan will be increasingly important partners. Turkmenistan holds particular potential as a

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<sup>7</sup> See: <https://www.cia.gov/library/publications/the-world-factbook/geos/tx.html>, accessed: 28 August 2013.

gas supplier with its large untapped reserves. Considering the democratic and human rights values of the EU, relations with these two countries have been criticised (Boonstra, 2010). In the next section I discuss the potential for linking the decarbonisation and security agendas for a new way forward on EU-Caspian relations.

### **3. Decarbonisation and external energy relations**

Literature on the integration of climate policy objectives into other policy sectors has demonstrated an insufficient level of integration to achieve the long-term objectives of decarbonisation by 2050 (Adelle & Russel, 2013; Dupont & Oberthür, 2012). Among the explanations found for this insufficient level of climate policy integration are the lack of recognition by policymakers of the interconnections between long-term decarbonisation objectives and their own policy sector (Dupont & Oberthür, 2012). This lack of recognition seems to be particularly clear in the energy sector, where short-term security objectives trump long-term considerations of climate policy objectives. However, there are some arguments to be made in favour of considering decarbonisation more seriously in the development of EU-Caspian relations.

First, decarbonisation presents an opportunity for greater energy independence in the EU (European Commission, 2011a; WWF, 2007). Among the main strategies to achieve decarbonisation by 2050 are a dramatic increase in the share of renewable energy in the EU and an increase in energy efficiency (and hence, reduction in energy consumption) (Heaps et al., 2009). If the EU pursues such an agenda, natural gas will no longer play a major role in the EU's energy mix, and external relations can move from a framing of EU energy security vulnerability.

Second, decarbonisation represents an opportunity to develop relations with new partners on new terms. If the EU moves away from a fossil-fuel based economy, its dependent relations on oil and gas exporting countries (with whom political relations can be strained) may become less relevant. New partners may emerge who see in the EU's energy market an opportunity for increasing exports of renewable energy, or new environmentally friendly technologies. The EU could more aggressively promote democracy and human rights values abroad as it opens up to new partners eager to access its large market. Old partnerships may also change in dynamic.

Third, long-term consideration of the strategic implications of moving to decarbonisation also present some challenges. Chief among these is the potential to move away from “interdependence” as a way of promoting EU values abroad. If the EU moves away from Turkmenistan as an energy partner, for example, the EU may also lose influence in the country. Turkmenistan has increasing energy links with China and Iran – two countries uninterested in the human rights promotion associated with the EU (Boonstra, 2010).

Fourth, and linked to the above point, if the EU wishes to balance relations with Russia and China, it may need to consider carefully the implications of decarbonisation. China is a fast-growing solar technology leader, while also a massive consumer of coal, and relations with the EU are not always straightforward. Russia’s interdependent relationship with the EU is based largely on fossil-fuel trade. If the EU moves towards decarbonisation, will it lose any influence it may have in Russia? Will relations with China become more strained? Can the EU identify new opportunities within these relations?

## **Conclusions**

Considering the EU’s commitment to decarbonise its energy sector and move to a low-carbon economy by 2050, it may seem surprising that the energy security framing of EU-Caspian gas relations persists. As described above, the EU’s natural gas consumption has not risen dramatically over the past decade (although consumption levels have fluctuated). While production of natural gas in the EU continues to fall, the EU’s response to this reality has been to promote further natural gas interconnections and diversify its sources of natural gas. The Caspian region represents a source of natural gas with the potential to expand production and export into the future (BP, 2013).

The so-called Southern Gas Corridor is considered a “priority” infrastructure project by the EU (European Commission, 2010a). As of June 2010, agreement was reached between the Shah Deniz II consortium in Azerbaijan and the TAP consortium to supply 10bcm of gas to Europe per year. The TAP project has the potential to expand its transport capacity to 20bcm in future if required. This is just one of several planned and/or under construction projects for expanding the EU’s capacity to import natural gas. With lifetimes of about fifty years, this infrastructure could still be

operational in 2050, leading to risks of carbon lock-in to fossil-fuel infrastructure in the EU even beyond 2050.

This situation points to several conclusions. First, it seems that the long-term commitment to decarbonise by 2050 is not taken seriously by EU policymakers. In this case, emphasis on new infrastructure and increasing supply of natural gas seems counter to decarbonisation objectives – natural gas will become part of the climate problem. Second, it may be true that the long-term nature of the 2050 objective renders it less urgent for policymakers. The functional interrelations between EU-Caspian gas relations and the long-term climate policy objective may not be recognised by policymakers and negotiators. As such, external gas relations continue on a business-as-usual basis, without strategic long-term planning of the consequences and implications of EU decarbonisation for EU-Caspian gas relations. Third, the opportunities and challenges presented by EU decarbonisation are neither recognised nor exploited in this case. Some strategic thinking into the long-term about how decarbonisation links to energy security and corresponding external energy relations may prove fruitful.

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