The Southern Gas Corridor and the Challenge of Turkish Stream

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In an ideal world, Russia and the European Union would be partners in achieving mutual energy security. But this is not an ideal world and, as a result, energy integration in the Black Sea region is taking a particularly strained form: one set of new pipelines designed to connect Europe with a new supply source outside Russia, notably the Caspian; and another to enable Russia to bypass Ukraine by way of Turkey.

That these two systems will co-exist is not to be doubted, but in a world in which Cold War imagery is becoming ever more prominent, whether that existence will be peaceful or antagonistic remains unclear.

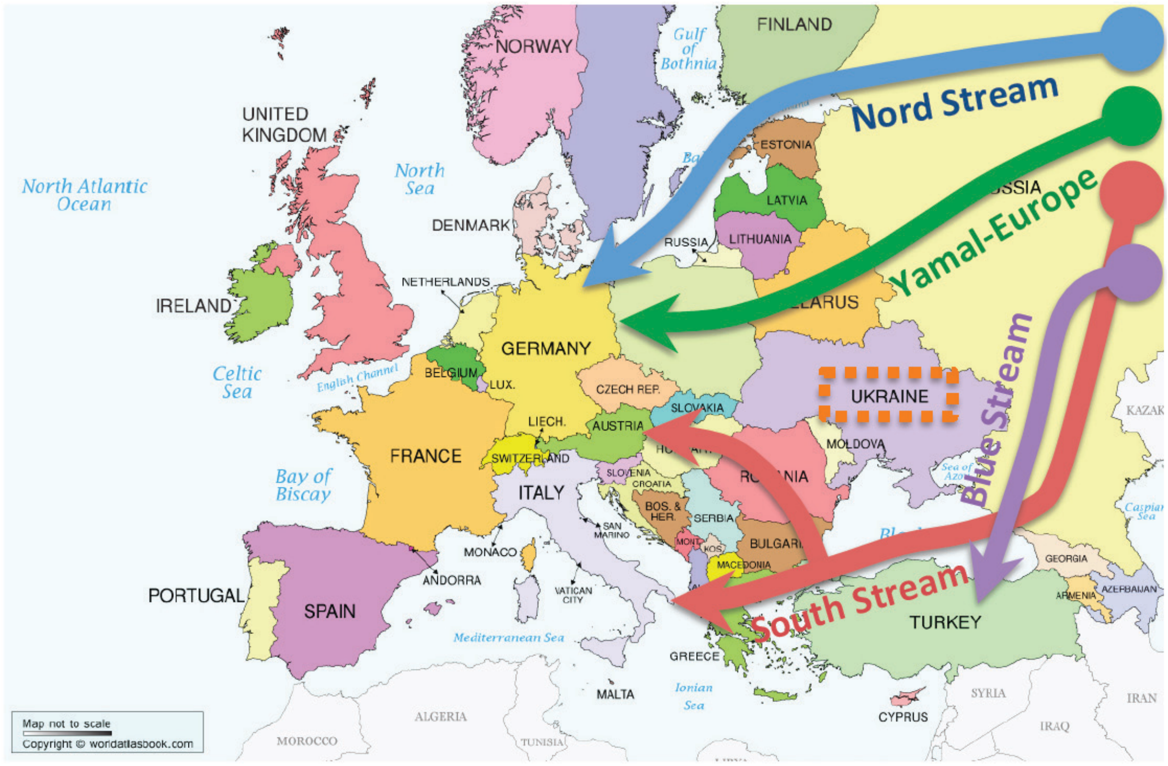
The pipelines under consideration are those being developed to ship gas. They constitute the sole focus of this paper because gas is currently the most politically contentious fuel in regional energy – and because both Russia and Russia's competitors are spending massive sums to develop these systems at a time when the balance of gas supply and demand in the Black Sea region is undergoing considerable change.

This is not to say that the provision of oil or the integration of regional electricity networks is not important; it is. But in terms of regional energy security, whether defined in the context of the Black Sea region alone or in the broader context of relations between Russia and the European Union, there is no more pressing issue, and no greater uncertainty, than gas.

This paper therefore focusses on two main elements: the development of the EU-backed Southern Gas Corridor (SGC), which aims eventually to bring both Caspian and Middle Eastern gas to European Union member states, and Russia's programme to develop Turkish Stream, a pipeline across the Black Sea intended to serve European Union customers by way of a supply terminal to be built on the Turkish-Greek border. Both systems, of course, also intend to supply Turkey directly.

These major programmes – the former already cost $48 bn and the latter is expected to cost at least $33bn – do not exist in isolation. They both influence and will be influenced by such factors as the changing gas balance within the region, not least as Romania moves steadily towards meeting its own requirements through indigenous production and the development of regional gas interconnectors. But their completion in the next few years will radically change the pattern of European gas supply, with profound consequences for the states through which the two systems will pass, the states which stand to benefit from the construction of both systems, and the states that will be forced to change their gas supply arrangements as a result of Russia's Turkish Stream project.

In terms of regional integration, these projects have the potential to shape the gas distribution map of the Black Sea region in very different ways. The SGC is being developed to implement several complementary goals. Its initial goal is simply to convey some 10 bcm/y gas from Azerbaijan to the major consumer countries in the European Union by way of Italy, together with 6 bcm/y to be delivered to Turkey; but a supplementary goal in this initial stage is to start ending the isolation of the Balkan states from alternative suppliers to Russia. A longer term objective is to open the way, through expansion of the system, to gas from other Caspian and Middle Eastern sources and to start developing a proper distribution network throughout the Balkans for increased volumes of gas from



Russia's strategy to diversify its gas transit routes and bypass Ukraine. © Manfred Hafner and Simone Tagliapietra

new providers. However, this goal may be challenged as a result of Russia's move to develop Turkish Stream, since, somewhat ironically, this will give Gazprom at least an option to utilize the third element in the SGC pipeline system, the TAP line, to carry some 10-12 bcm/y of Russian gas to Italy.

This poses a particular challenge both to pipeline developers and to politicians concerned about European energy security. All the gas to be carried by the SGC will come from new providers, thus enhancing supply diversification for consumers and market diversification for producers. However, the gas to be piped through Turkish Stream essentially represents a re-routing of existing gas supplies. It does not bring new sources of gas to market. Indeed, were Russia to utilise the TAP line, this would hold back the supply of gas to Europe from new suppliers whilst redirecting 10-12 bcm/y of Russian supplies that currently reach Central Europe via Ukraine to southern Italy.

At first sight, such volumes do not appear to be particularly large, given that the European Union last year (2014) consumed some 409 bcm while Turkey consumed 47.5 bcm.[1] But with Europe's own production falling, and with climate change policies prompting ever greater attention to the use of gas as an alternative to coal, then even in an era of falling European gas demand such volumes are highly significant: those from the Caspian because they help diversify the source of supply; those from Russia because

1 *Eurogas*, 25 March 2015, http://www.eurogas.org/uploads/media/Eurogas_Press_Release_-_New_Eurogas_data_confirms_dynamic_EU_gas_market.pdf

they contribute to baseload provision. Overall, the development of these pipelines will impact on all the states of the Black Sea – Russia, Georgia, Turkey, Bulgaria, Romania and Ukraine. By extension, it will also impact on such Black Sea neighbours as Greece, Moldova and many other Balkan states. But the most important impact will be on European gas supplies as a whole. This really is a very peculiar situation in which Russia may well be placing itself in a position in which, by using the EU's own energy regulations, it can take commercial advantage of one section of the EU-backed Southern Gas Corridor, the TAP, and in doing so potentially undermine both the commerciality of other key sections of the SGC and delay the introduction of further non-Russian gas supplies to Europe.

The Southern Gas Corridor

In terms of project implementation, the SGC is far more advanced than Turkish Stream. Contracts worth some $10 bn have already been signed; physical work has started on one of the three pipelines that constitute its initial stage, the South Caucasus Pipeline expansion (SCP-X) in Azerbaijan and Georgia; pipe has been ordered for the second line, the Trans Anatolian Pipeline (TANAP) across Turkey, and land acquisition has begun in both Greece and Albania for the third pipeline, the Trans Adriatic Pipeline (TAP) from Turkey's border with Greece to southern Italy.

Overall, there are four main elements involved in developing the SGC.

These are:

- The upstream development of Shah Deniz itself, together with the infrastructure required to land and process the gas at the Sangachal terminal. This is the Shah Deniz Phase Two (SD2) project, intended to produce some 16 billion cubic metres of gas a year (bcm/y) with gas production starting in 2019 and reaching its plateau level in or around 2022. This gas will all be exported, with six bcm/y going to Turkey and 10 bcm/y to European Union customers under contracts that have already been signed. An earlier phase of field development, Shah Deniz Phase One (SD1), came on stream in 2006/7 and is currently capable of producing some 9.9 bcm/y, of which 6.5 bcm/y is exported to Turkey by means of the existing South Caucasus Pipeline. The SD2 development alone accounts for around half of the $48 bn cost of the entire SGC project cited in December 2014 by Rovnag Abdullayev, the CEO of Azerbaijan's state oil company SOCAR, which is a major stakeholder in all elements of the corridor project.
- The expansion of the existing 693-km South Caucasus Pipeline (SCP-X) to enable it to carry the additional 16 bcm/y of gas bound for Turkey and the EU, together with small additional amounts required to operate the system.
- The 1,800-km TANAP project through Turkey; this will start at a connecting point with the SCP-X at the Georgian-Turkish border and terminate at Ipsala/Kipoi, where it will connect with TAP. (Ipsala is the closest Turkish town and Kipoi the closest Greek community).
- The 860-km TAP project – the Trans-Adriatic Pipeline – from Kipoi to San Foca in southern Italy.

These projects all have to be ordinated to ensure their capacities and, above all, their timeframes are properly synchronised to the start-up of SD2, now expected in 2019. The process is aided by the shareholding structures of the various ventures. Thus SOCAR, the State Oil Company of Azerbaijan, holds a 10%

stake in Shah Deniz (of which the SCP pipeline is an integral part); a 58% stake in TANAP; and a 20% stake in TAP. BP holds a 28.8% stake in Shah Deniz/SCP; a 12% stake in TANAP; and a 20% stake in TAP.

Most of the major engineering, construction and supply contracts for the upstream development at SD2 were signed in 2014, and work started on major construction sites in Azerbaijan and Georgia. In December 2014, SOCAR announced that the TANAP group had awarded construction following extensive orders for actual pipe delivery. TAP is somewhat less advanced, but only because it is running to a different schedule as it will not enter service until a year after SCP-X and TANAP. This, in turn, is because Shah Deniz will only start producing the gas for delivery to Europe a year or so after the start of gas deliveries to Turkey. Curiously, TAP actually took its formal Resolution to Construct in November 2013, several weeks before the Shah Deniz consortium took its counterpart action, the Final Investment Decision, concerning the upstream development of SD2 and SCP-X.2 In March 2015, TAP began the prequalification process for two key contracts, the first for engineering, procurement, construction, and installation of the 105-km, 36-inch subsea section that is to connect Albania to Italy; and the second for the supply of offshore linepipe and coating.

Turkish Stream

In contrast to the SGC, Russia has yet to start physical implementation of the Turkish Stream project unveiled by President Putin in Ankara on 1 December 2014, although it is crucial to realise that this project will in practice utilise some €6bn worth of contracts signed by Gazprom in 2014 when Russia's goal was to build a new pipeline to Europe by means of an offshore link to Bulgaria, rather than to Turkey.[3]

Turkish Stream constitutes the complementary offshore (and Turkish onshore) leg of a project which Russia confusingly (and probably deliberately) terms its 'Southern Corridor' project – and it cannot be assessed in isolation from it. For some years, Gazprom has been engaged in a $22.5bn project to upgrade or lay some 2,506 kms of gas pipeline from Pochinki, in the Nizhny Novgorod oblast, and Pisarevka, in Voronezh oblast, to the Russkaya compressor station near Anapa on the Black Sea coast. Russkaya was originally intended to be the jumping off point for South Stream, Gazprom's previous proposal for a 63 bcm/y four-string offshore pipeline across the Black Sea to Bulgaria. It will now be the starting point for Turkish Stream.

With Gazprom already committed to spending some €6bn on the offshore sections of Turkish Stream (the value of the various contracts signed for South Stream in 2014), together with additional costs to be incurred for the construction of the 180-km landline across Turkish Thrace, the planned terminal at Ipsala, and revisions to the original contracts because the new route will be slightly longer than the old, total costs for Turkish Stream are likely to reach $10 bn. Moreover, these are simply the costs for a two-string system. Laying another two strings and installing

2 The TAP RtC was not actually announced until just after the Shah Deniz Partners had announced the FID for the SD2 project on 17 December 2013.

3 The Turkish media began calling Mr. Putin's proposal 'Turkish Stream' within days of the initial announcement. By mid-December, Turkish Energy Minister Taner Yildiz was using the phrase. Turkish Stream is now the standard popular description for the project being implemented by the Gazprom subsidiary, Gazprom Russkaya.

Source: Gazprom (official map based on the Russian view of Ukraine's boundaries).

the requisite compression facilities would probably cost at least a further $5 bn.[4]

4 Offshore pipelines commonly consist of 'strings'. Each string is, in effect, a separate pipe laid alongside, or near, other pipes. But collectively they are considered a pipeline. The Southern Gas Corridor essentially consists of a single physical pipe (although twin 36-inch pipes will be used for TANAP's offshore section between Anatolia and Thrace). The offshore section of Turkish Stream will, according to Gazprom's declared goals, consist of four strings, each capable of carrying 15.75 bcm/y. Initially one can expect a single physical pipeline to be built across Thrace to Ipsala to carry gas transported across the Black Sea by the first two strings. This may well be of sufficient physical size (particularly since it will not have to carry gas bound for the Istanbul region itself) to carry at least some third string gas as well, although in all probability, a second onshore line will be required for the second pair of strings, should they actually be built.

Turkish Stream, as with South Stream before it, constitutes the southern element in a twin-pronged approach by Russia to develop new export lines to European customers that would enable it to end its reliance on transit pipelines across Ukraine. The northern element is Nordstream, whose first 27 bcm/y capacity string began carrying gas in November 2011 and whose second string, also 27 bcm/y capacity, was opened in October 2012.

Turkish Stream is a serious project and almost certainly at least the first two strings of this system will be built, providing Russia with the ability to transport 31.5 bcm/y of gas to – and through – Turkey. Whether the remaining two strings are laid is more problematic, but Moscow does not need to take a decision on them for some years. Landfall for Turkish

Stream will be at Kiyiköy, on the Black Sea coast of Turkish Thrace, while an accompanying 180-km pipeline will be built across Thrace to Ipsala, on Turkey's frontier with Greece, to enable deliveries to reach Turkey's border with the European Union.

The most important aspect of the project is that Russian officials have stressed that real work is to start in 2015; a consequence of the fact that Turkish Stream is the heir to contracts that Gazprom signed in 2014 when it was planning to lay South Stream. Gazprom group companies signed contracts worth €1bn in January 2014 for physical pipe for the first string of the original South Stream project, and a second set of contracts worth €800m in late March for pipe for the second string. Delivery was to Bulgaria, and the pipe ordered under these contracts is now stored at the port of Varna. Gazprom also signed a €2bn contract in March 2014 with Italy's Saipem to lay the first string, and in April 2014 it signed a further contract with the Swiss company, Allseas, for the world's biggest pipelaying vessel, the *Pieter Schelte* to lay the second string of South Stream. This contract was believed to worth between €1.2 and €1.5 bn. The physical pipe for both strings has been both forged and delivered to Bulgarian terminals, and these will now be recycled for use by Turkish Stream.

Saipem was to have started laying South Stream before the end of 2014, although no offshore pipe had been laid as of 1 December, when President Putin unveiled his dramatic change of plan. But the company's principal pipelaying vessel, the *Saipem 7000*, along with another Saipem pipelaying vessel, did sail to the Black Sea. As of June 2015, both vessels were understood to be still in the Black Sea although no offshore pipe had actually been laid. With the new Turkish Stream route to Kiyiköy able to utilise roughly three-quarters of the previously surveyed South Stream route to the Bulgarian port of Varna, and with pipelaying being an activity that can be interrupted, there is little reason to doubt that the *Saipem 7000* will at least make a start on laying the first string during 2015. However, as of early 2015, the *Pieter Schelte* was still in Rotterdam and pipelaying for the second string was not expected until 2016.

Vladimir Chizhov, Russian Ambassador to the European Union, told the author in January that the initial requirement of the planned 63 bcm/y system was to be able to supply gas to the Istanbul area, and that this could not be done if the pipeline were to make a landfall, as some reports had previously suggested, on Turkey's Anatolian Black Sea coast. He also said that the immediate aim was to develop the project through implementation of the contracts signed in 2014.[5]

Chizhov and other Russian officials have confirmed that Turkish Stream's first 15.75 bcm/y string will serve Istanbul. This is quite logical, since it will simply replace gas supplied to Turkey via the Trans-Balkans line that passes through Moldova, Romania and Bulgaria after transiting Ukraine. The line also supplies some gas to the countries through which it transits and so, although the bulk of first string output will undoubtedly be used to supply the Istanbul area, a portion of it, perhaps some 3-4 bcm/y, will be used to supply Gazprom's other customers in the region.

As for the second string, there are at least two main ways in which Gazprom can ensure its throughput serves existing customers, without requiring any additional infrastructure. One would be to utilise the TAP pipeline being built as part of the EU-backed Southern Gas

5 Interviews with Chizhov by the author, Athens 23 and 24 January 2015.

Corridor; the other would be to utilise part of the West Balkans pipeline system, but in reverse, with gas flowing north into Bulgaria and Romania, rather than south into Turkey. The first option is particularly intriguing – and potentially worrisome for the developers of the EU-backed Southern Gas Corridor, because it could serve to block the medium- and long-term augmentation of gas supplies to Europe from the Caspian and Middle East.

The possibility that Russia might seek to utilize TAP – and it should be noted that neither Gazprom nor the Russian government are understood to have raised this issue openly – dates back to within the first few days of Turkish Stream.6 The TAP pipeline is being built in accordance with EU regulations that provide for the first 10 bcm/y of shipments to be organised without any requirement for competition from third party suppliers: in other words, it is reserved for SD2 gas. But the line is being designed and constructed so that, as and when additional compressors are installed, it can carry at least 20 bcm/y – and quite possibly around 23-24 bcm/y.

TAP is due to enter service as a 10 bcm/y capacity line in early 2020. Should Gazprom proceed with Turkish Stream at the pace indicated by Russian officials, then its second string should be ready for use sometime in 2017. By 2018 or 2019, the 180-km onshore pipeline from Kiyiköy to Ipsala should also be ready for use. Gazprom would then possess the flexibility to commit to a substantial volume of gas to TAP if it so chose. If it wished to use TAP from the outset, Gazprom would have to signal its intentions well in advance so that the requisite extra compressors for the expansion phase could be ordered, and installed, from the very start.

No other producers are expected to be in a position to supply gas to the SGC in significant volumes by this date. The 'next wave' of post-SD2 Azerbaijani projects, for which much of the capacity expansion in the SGC system was intended, are not really expected to come seriously on stream until 2023. Unless Turkmenistan finally gets its act together or Iran not only resolves its outstanding nuclear-related problems with the 5 + 1 group but also gets its infrastructure in order to take advantage of the situation, no other major potential supply source is likely to be in a position to contribute substantial input to the SGC system by 2020. Gazprom might therefore be reasonably expected to win a capacity auction and thus book space in the line. In practice, should it adopt the TAP approach, Gazprom could use the line to ship some 10-12 bcm/y of second string gas to Italy, with the balance of second string capacity, roughly 4-6 bcm/y, used to supply additional gas to a steadily rising Turkish market.

The author has confirmed with senior European Commission officials that there is no obstacle to Gazprom seeking to secure access to TAP's expansion phase capacity.7 Moreover, Russia has already agreed with Turkey that the terminus for the onshore section of Turkish Stream would be Ipsala, the terminus on the Turkish side for TANAP, thus enabling Russian throughput from Turkish Stream to access TAP with minimum technical fuss.

An alternative, or perhaps complementary, option would be for Gazprom to seek to supply existing customers in Central and Eastern Europe by means of reversing the

6 The author publicly raised this possibility in an address in Brussels on 11 December 2014. He is unlikely to have been the only person to think of it.

7 Discussion with senior EC Energy official, Brussels, 11 Dec 2014.

Trans-Balkan line which it currently uses to supply gas to Turkey via Ukraine, Moldova, Romania and Bulgaria.8 However, if Gazprom sought to implement reverse-flow through the Trans-Balkan line, it would raise the question as to how could it ensure this conformed to EU regulations. There is also the issue that while reverse flow through the Trans-Balkan line would help Gazprom deliver gas to some existing customers, it would not be able to serve major customers in Hungary, Slovakia and further into Central Europe unless there were major improvements made in developing gas pipelines across Romania or through Serbia. Moreover, Romania is moving steadily towards gas autonomy, producing as much gas domestically as it needs for its own internal consumption. Indeed, should its Neptun field prove as promising as its developers hope, there are prospects for Romania to become a modest net exporter in the 2020s.

For President Putin, for Gazprom and for Russia as a whole, there are several advantages in developing a two-string system: it makes intelligent use of the contracts Gazprom has already signed with regard to South Stream; it saves face for the Russians; and it leaves open the idea of a 63 bcm/y system at some indefinable point in the future. It also eliminates, at least for the first string, the issue of having to ensure development of infrastructure in accordance with EU regulations, the problem that confronted South Stream since its offshore section was due to make landfall in an EU country, Bulgaria, while its onshore section would have been subject to EU regulation throughout its length as it would have involved construction either in full EU member states or across member states of the European Energy Community, which also apply EU energy regulations.

Officially, Turkish Stream is described by Gazprom as a four-string system, with President Putin saying that the 63 bcm/y system would culminate in a terminal at the Turkish-Greek border capable of handling 50 bcm/y. However, with regard to the third and fourth strings, Gazprom will require fresh infrastructure to get their throughput to market. It is one thing for President Putin to declare his intention to construct a 50 bcm/y terminal on Turkey's border with Greece from which gas would then be supplied to customers in the European Union; it is quite another matter to build such a terminal in the absence of the necessary infrastructure to carry such volumes of gas to from the terminal to customers within the European Union. Someone would have to invest some very large sums indeed to ensure the delivery of some 31.5 bcm/y of third and fourth string gas to market and, since markets on that scale would require construction of a pipeline from the Turkish-Greek border at least to Southern Italy or through the Balkans to northern Italy/Austria, the costs would be likely to reach €4-5 bn for the former and €8-10 bn for the latter. Greek officials told the author in January that so far no one had made any approach to Greece about the possible onward transit of Russian gas to EU customers further afield.[9]

Whether Gazprom itself would be prepared to consider such outlays to secure access to

8 This is a view most prominently argued by Jonathan Stern of the Oxford Institute for Energy Studies, who considers that the bulk of the second string would probably be used in this fashion.

9 This paper was written before Russia and Greece signed an MOU in St Petersburg on 19 June 2015 on an extension for Turkish Stream across Greece. This was described as €2 bn Russian-Greek joint venture, with Greek costs covered by Russian loans. There was no immediate indication concerning either the proposed timetable for the project or any onward connection from Greece to Italy.

markets, or whether European customers would be interested in raising funds of such magnitude to ensure access to Russian gas – or a combination of the two – must be considered highly doubtful given current financial constraints in the gas industry, notably in Russia. Moreover, since any such pipeline would have to be built and operated strictly in accordance with EU regulations, it would have to build in the principle of eventual third party access to the system, even though such a project would nonetheless be assured of receiving some initial exemption from full third party access in its early years.

One question which Russian officials have yet to answer is how the development of Turkish Stream can be related – if at all – to Russian obligations to honour existing long-term supply agreements to EU customers in Central and Eastern Europe. Some of these, notably Bulgaria and Greece, could be supplied by Turkish Stream, as could Italy – at least to a limited extent. But others, notably Serbia, Hungary, Slovakia and Austria could not.

There does appear to be a view in Russia that delivery to the EU border is sufficient to meet the terms of existing contracts, but this is disputed by western gas analysts. Indeed, there was a sharp discussion on this subject at a conference workshop in Vienna in January 2015 between two extremely prominent analysts, Andrey Konoplyanik, Adviser to the Director General of Russia's GazpromExport, and Jonathan Stern, of the Oxford Institute for Energy Studies. Konoplyanik considered that since EU regulations meant that Gazprom would not actually own the gas molecules once they were dispatched across the border into the EU, it was for the EU to consider "how to re-route the contracted amount to Baumgarten."[10] For its part, Konoplyanik anticipated, Gazprom would deliver gas to the planned hub on the Turkey-Greece border which would then be put up for auction to customers in the EU. Stern considered that delivery to such a hub would not be sufficient to meet current contractual obligations whereby Gazprom had to deliver gas to locations agreed with its central European customers. "It is not the obligation of the buyer to get gas to the delivery point; it is the obligation of the seller," said Stern.[11]

Were Russia to book space on TAP it would have profound consequences for alternative suppliers seeking access to the SGC, since they would no longer be able to utilise its planned capacity expansion and, like the third and fourth strings of Turkish Stream, they would have to wait for fresh infrastructure to be developed from Ipsala/Kipoi to the rest of Europe. By limiting Azerbaijan's 'next wave' of anticipated exports, or confining it to a Turkish market that was already in the position to receive a lot more gas from Russia, Gazprom would probably ensure that the economics of TANAP would get worse than they already are, because a pipe built with a 56-inch diameter (which costs a lot more than a pipe of just 42-inch or 48-inch diameter) will continue to only carry the original 16 bcm/y of SD2 exported, rather than the prospective 30-33 bcm/y that a 56-inch line can carry. Concern for the economics of TANAP was the main reason why Statoil and Total decided not to join that project, and then to withdraw from Shah Deniz altogether. Of the original Shah Deniz partners, only BP has joined SOCAR in taking a stake in TANAP. This probably reflects two factors. The first is that BP is more willing

10 Konoplyanik, Turkish Stream Workshop, European Gas Conference, Vienna, 28 January 2015. Author's note.

11 Stern, Turkish Stream Workshop, European Gas Conference, Vienna, 28 January 2015. Author's note.

to take a long term view of TANAP, and thus be more patient about securing a return on its investment which will cost the company 12% of whatever is TANAP's final cost. The second is that BP has so much at stake in Azerbaijan, where it is a major shareholder (and operator) of the giant Azeri-Chirag-Guneshli oilfield as well as operator at Shah Deniz, that it cannot really say 'No' to a project such as TANAP; all it can do is try to keep the costs down.[12]

Shah Deniz consortium members have spoken emphatically of their hopes that other countries can input gas into the SGC system. On 10 February 2014 Azerbaijani Foreign Minister Elmar Mamedyarov said in Baghdad that Iraq – and, indeed, any other country – would be welcome to use the new lines being developed to carry gas from Azerbaijan to Europe. The EU has long negotiated with Baku and Ashgabat for possible Turkmen input into the system, and the Kurdistan region of northern Iraq and the Eastern Mediterranean are routinely cited as further potential contributors of gas.[13] As for Iran, its gas would be extremely welcome from a European perspective, so long as it was the result of an agreement on the outstanding nuclear issue in a post-sanctions environment. While it looks increasingly as if Iran possesses not only the gas resources but the ability to produce substantial increased volumes of gas as a result of major phases of its giant South Pars gasfield development project coming on stream, it is far from clear that it possesses the infrastructure necessary to carry such volumes of additional gas to market.

Mamedyarov's call for non-Azerbaijani input was almost certainly an indication of Azerbaijani concern that the new system, and particularly TANAP, might require additional input to ensure its commerciality. The minister also pointed out that with the Shah Deniz I contracts coming up for expiration in 2021, if TANAP does not get another wave of Azerbaijani gas then the pipeline will only be half full.

Responses to Turkish Stream

Since President Putin announced Turkish Stream, there have been at least three moves to promote new pipeline systems in the Black Sea region. None of these have specifically referenced the possibility that Russia might seek to secure access to TAP, and thus present problems for those seeking to increase non-Russian throughput of gas in the SGC once the initial SD2 gas is flowing smoothly. But it is

12 It might seem peculiar that BP and its partners in Shah Deniz should have persevered for so many years, given the complexities of both developing and exporting gas to market over long distances. Part of the answer is that while gas may yield relatively thin profits, the Shah Deniz field is also condensate-rich. And there is no need for much fresh infrastructure to handle the condensate and export it, since it can utilise the Baku-Tbilisi-Ceyhan oil pipeline, which opened in 2006.

13 The companies developing the EU-backed Southern Gas Corridor are not specifically seeking input from Turkmenistan, but would welcome such input if it was offered by Ashgabat. "If we did transport Turkmen gas to European markets," a senior Azerbaijani official told the author in 2014, "it would improve TANAP's IRR (internal rate of return)." He stressed that Azerbaijan would not seek to block any Turkmen input into the system, but that it would be up to Ashgabat to make the first move – and he was not confident that Turkmenistan would be interested in making such a move. Despite all the prospective advantages that both Turkmenistan and the developers of the SGC would gain from Turkmen input into the system, and, indeed, the fact that Malaysia's Petronas is both the operator of Turkmenistan's major Caspian offshore gas production field and is acquiring a 15% stake in the Shah Deniz consortium, the likelihood that the necessary Trans-Caspian Gas Pipeline will be built in the near future to enable Turkmen gas to access the SGC at Sangachal still looks remote. "It's too early" was the terse comment of that same senior Azerbaijani official when contacted by the author in March 2015.

almost certainly no coincidence that a Russian move which is capable of closing one door to non-Russian supplies might prompt fresh thinking on how to open alternative doors.

On February 2015, during a visit by Azerbaijani President Ilham Aliev to Bulgaria, Bulgarian Prime Minister Boyko Borisov declared after a meeting with Aliev: “We want the Nabucco pipeline project to be unfrozen and more precisely – its part through Bulgaria,” and that he expected a fresh presentation about the need for Nabucco to be made to the European Commission. Mr Borisov was referring to the ill-fated Nabucco Pipeline project, developed between 2002 and 2013 as a line that would bring Caspian (and, initially, Iranian) gas to Europe.14 This had originally envisaged a pipeline system running from Turkey’s borders with Georgia and Iran right through to the Austrian hub at Baumgarten. Once SOCAR had committed itself to developing TANAP (with TANAP effectively substituting for the Turkish section of Nabucco), a rather shorter version of the project, known as Nabucco West was developed. Nabucco West, primarily developed by Austria’s OMV, was the principal contender to TAP in the competition to carry SD2 gas to market in the European Union. It had envisaged a line from Turkey’s border with Bulgaria (where it would have connected to a proposed terminal for TANAP), through Bulgaria, Romania and Hungary to the gas hub at Baumgarten in Austria. In effect, in calling for a revival of Nabucco, and with a specific reference to Bulgaria, Mr Borisov was calling for a revival of Nabucco West.

For its part, Slovakia’s Eustream gas distribution company has likewise been proposing a project called Eastring. This envisages the creation of a pipeline system between Slovakia’s border with Ukraine and Turkey’s border with Bulgaria that would be capable of operating in either direction: either to carry gas from Central and Western Europe to Bulgaria or from the Caspian and the Middle East to the heart of Europe. At this stage it is far too early to judge just how realistic this plan is. Eustream says it is close to signing memoranda of understanding with Hungary, Romania and Bulgaria – but MoUs are notoriously expressions of desire, quite different from Final Investment Decisions or Resolutions to Construct, which constitute the start of actual implementation of major projects. So far, Eustream has disclosed capacities, costs and timetables which convey little sense of how the project would be developed. The line is supposed to have a 20 bcm/y capacity; to have a length of between 744 and 1,015 kilometres depending on the selected route; to have a first phase construction cost of between €1.1 bn and €1.5 bn; and to start commercial operation by the end of 2018.

But pipelines are expensive beasts, commonly costing around $4m per kilometre for a 48-inch line capable of carrying 20 bcm/y. That would put the overall cost of the project at anything from $3bn to $4bn, which tends to indicate that the project’s developers are not looking at a full delivery system for 2019, but at some unspecified date thereafter.

Finally, BP, one of the leading partners in developing the SGC, is dusting off its 2010-2011 concept for developing various existing pipelines in the Balkans into a roughly unified system known as the South East European Pipeline (SEEP). Although the loosest of the original proposals for carrying SGC gas to market, it had the virtue of working with a

14 Bulgaria wants Nabucco gas pipeline’s renewal, *Trend News Agency*, Azerbaijan, 4 March 2015.

grain of mainstream thinking of energy security within the European Commission: namely that the most important short-and medium-term measures that could be undertaken to improve EU gas sector energy security was the development of relatively small-scale and low-cost interconnectors to end 'energy islands,' markets that are unconnected to alternative suppliers and dependent solely on Russian gas supplies. In 2015, a revived SEEP can take advantage of the fact that the EU's gas interconnector programme is now far more advanced than it was in 2010, when SEEP was first proposed.

All three proposals seek, in effect, to develop a substitute for the former Nabucco West project. The question bedevilling them is whether they can succeed where the original Nabucco and Nabucco West projects failed: in other words: can they secure a sufficient commercial rationale to justify their costs? The original Nabucco West project failed because, while it enjoyed extremely strong political support within the EU, its commercial rationale was not as strong as that of the TAP.

Conclusion

Turkish Stream does not pose a direct threat to the Southern Gas Corridor, since the SGC's development is already well under way. But, should Gazprom turn to the Trans-Adriatic Pipeline to deliver some of Turkish Stream's throughput to markets in the European Union, then it will indeed pose serious challenges to the way in which the SGC evolves. In particular, it will force both the partners developing the SGC, and those EU member states who are looking to diversify their sources of supply and/or their methods of delivery to develop a coherent programme for gas connections in the Balkans and, via Southeast Europe, for new connections to a central European hub such as Baumgarten.

About the Author

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