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Azerbaijan’s gas sales strategy at a crossroads

OIES ENERGY COMMENT

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Supplies of gas to Turkey from the first phase of the Shah Deniz project in Azerbaijan were halted on 17 April, as a 6.6 bcm/year sales contract expired, without the two sides reaching agreement on extending it. The context is a push in recent years by Botas of Turkey, the buyer, to increase volumes of spot LNG in its import portfolio, and reduce dependence on pipeline gas imported under long term contracts (LTCs). For the seller, the Shah Deniz consortium led by BP, failure to agree terms for contract renewal highlights the difficulties of marketing Azeri gas: sales in Europe are inhibited by transport costs, there is limited volume flexibility upstream, and sales to the domestic Azeri market are constrained by low regulated prices. This Comment[1] argues that this contract non-renewal is indicative of broader problems: changing market conditions in Turkey and Europe may further frustrate timely exploration and development in the Caspian Sea, which in turn could undermine prospects for expansion of the Southern Gas Corridor to Europe in this decade.[2]

The Shah Deniz I sales contract with Botas ran from 2007. BP has stated that negotiations on a new agreement have been underway for some time, and are continuing. But on 17 April, as the contract expired and no renewal had been agreed, import flows were halted. Such an abrupt cessation of deliveries is unusual. Turkey also buys gas from the second phase of the Shah Deniz project, under a contract that runs from June 2018 to 2033; flows have been ramping up for nearly three years, and BP said that they have almost reached the plateau level, 6 bcm/year. These flows are not affected.[3] The supplier of gas to Botas is Azerbaijan Gas Sales Company (AGSC), whose shareholders are the same as the Shah Deniz consortium's; AGSC is (since 2015) operated by Socar, the state-owned Azeri oil and gas company.[4]

Over the next decade, as the Shah Deniz I gas field goes into decline, its gas output will be overtaken by Shah Deniz II, from which, in addition to the 6 bcm/year for Turkey, 10 bcm/year has been contracted for sale in Europe. It was on the basis of these flows that the Southern Gas Corridor from Azerbaijan to Italy was planned, financed and commissioned. It comprises the South Caucasus Pipeline through Georgia, the Trans Anatolian Pipeline (TANAP) through Turkey and the Trans Adriatic Pipeline (TAP) to Italy. First Azeri gas to Europe flowed at the start of this year.

The Shah Deniz I contract with Botas is likely to be renewed eventually, for reasons set out in the next section. The background is a solid economic and political relationship: Turkey now imports two thirds as much gas from Azerbaijan (11.5 bcm in 2020) as from Russia (16.2 bcm); and the two governments, who signed intergovernmental agreements that underpin gas sales and transit agreements, are on good terms.[5] Nevertheless, the stand-off in negotiations, and interruption of flows, is indicative of changing market trends – which in turn may produce changes in Azeri upstream producers' gas sales strategies.

The short-term consequences: finding markets

The Shah Deniz field produces both natural gas and condensate. Shutting in production is a very undesirable option, because of the commercial importance of maintaining steady output of condensate. Presumably, in the short term, the consortium will maintain output at its current level, and seek to find outlets for gas that would have been expected to flow to Turkey. (The volume covered by the previous contract, 6.6 bcm/year, is equal to about 18 million cubic metres per day (mmcm/d).) Possible options

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[1] With thanks to Jack Sharples, who provided Figure 1 and the commentary. I thank colleagues, and those in the industry, who have discussed the issues with me. Any mistakes made, and opinions expressed, are my own

[2] This Comment continues a discussion of the southern corridor begun in previous publications: S. Pirani, *Azerbaijan's gas squeeze and the implications for the southern corridor* (OIES, 2016) and S. Pirani, *Let's not exaggerate: Southern Gas Corridor prospects to 2030* (OIES, 2018)

[3] "BP confirms gas flow halt under expired Azerbaijan-Turkey contract", SP Global Platts, 27 April 2021 <https://www.spglobal.com/platts/en/market-insights/latest-news/natural-gas/042721-bp-confirms-gas-flow-halt-under-expired-azerbaijan-turkey-contract>

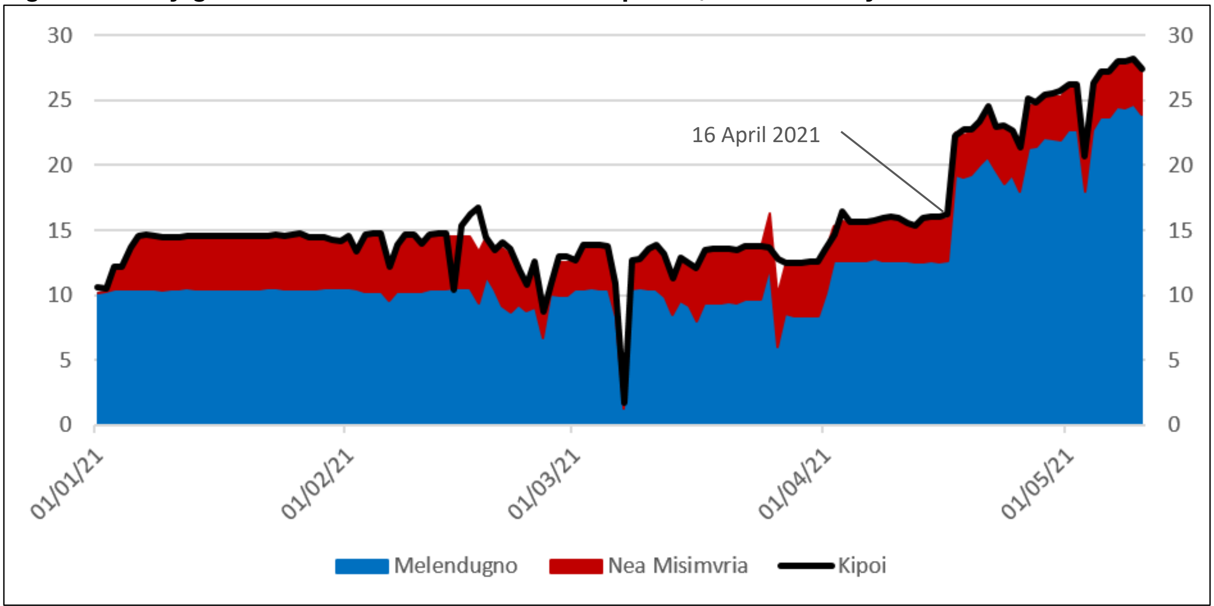
[4] The shareholders in the Shah Deniz consortium, and AGSC, are: BP (28.8%), TPAO of Turkey (19%), Socar (16.7%), Petronas of Malaysia (15.5%), Lukoil of Russia (10%) and NIOC of Iran (10%).

[5] The intergovernmental agreements underpin the Shah Deniz II sales contract and TANAP transit contract. See "Azerbaijan, Turkey pen Shah Deniz natural gas deals", *Offshore Energy*, 28 October 2011 <https://www.offshore-energy.biz/azerbaijan-turkey-pen-shah-deniz-natural-gas-deals/>

include (i) marketing some volumes in Europe; (ii) storing the gas; and (iii) selling to the domestic market: it is likely that a combination of these will be found.

Gas flow data indicates that the Shah Deniz consortium has opted in the first instance to *sell some volumes in Europe*. After the Botas contract expired on 17 April, flows along the Southern Corridor, via Greece to Italy, rose by around 10 mmcm/d. Flows from Turkey to Greece (at Kipoi), offtake from the TAP pipeline in Greece (at Nea Misimvria), and exit flows from TAP in Italy (at Melendugno), from the beginning of this year, are shown in Figure 1.[6]

Figure 1: Daily gas flows on the Trans-Adriatic Pipeline, 1 Jan-14 May 2021



Source: Data from ENTSOG Transparency Platform, graph by OIES

In the same time period, since 1 January 2021, flows from Turkey to Greece at the smaller, Ipsala-Kipi, cross-border interconnection point, have generally been around 2 mmcm/d – just under half the 5 mmcm/d capacity. The spare capacity there, of about 3 mmcm/d, equates to 1 bcm/year. It could, in theory, be an option for bringing Azeri gas to Greece via Turkey, but that is not happening at present.

The increase in flows via TAP means that the Turkey-Italy route is now operating near to full capacity. The incremental flows equate, roughly, to half of the "spare" volumes from Shah Deniz I. From the seller's point of view, this solution is limited not only by the level of demand but also by pipeline capacity. Most of it is booked under contracts for Shah Deniz II gas. As the ramp-up of that field continues, it is unlikely that any spare capacity will be available for Shah Deniz I gas.

The consortium's second option, *storing gas*, is also limited by capacity. Azerbaijan's two main storage facilities, at the Galmaz and Garadag fields, have an aggregate active gas volume of 2.9 bcm.[7]

The third option, *sales to the domestic market,* is problematic because of the low level of domestic prices. Azerbaijan's gas consumption is about 12-13 bcm/year, of which – in round numbers – 5.5 bcm/year is supplied from Socar's own production, and 2 bcm/year from associated gas from the Azeri-Chirag-Guneshli oil field, transferred to Socar free under the production sharing agreement. The remaining volumes, around 5 bcm/year, have in recent years been sourced variously from: spare volumes from Shah Deniz I; imports from Russia; or imports from Iran (which may be sourced via swaps

[6] There was an unplanned outage on the TANAP pipeline on 18-19 May, and so these flows fell unexpectedly to zero on those days ("Austrian gas imports aid Italian storage demand", Platts European Gas Daily, 20 May 2021). This has no direct bearing on the issues discussed in this comment

[7] Socar, *Annual Report* 2019, p. 32

with Turkmenistan).[8] By next year, some spare volumes from Shah Deniz II, and up to 1.5 bcm/year from the Absheron field operated by Total, may also be available. (Azerbaijan's gas balance is shown in Table 1 below.)

All these suppliers – the Shah Deniz consortium included – presumably aim to achieve prices as close as possible to netback from European prices. But wholesale and retail prices are regulated at levels below the cost of production and supply, leaving a gap to be filled by Socar and/or the Azeri treasury. Gas prices are set by the regulator at 75 manat/mcm ($44/mcm or €3.41/MWh) for wholesale sales, 100 manat/mcm ($4.55/MWh) for retail sales to households and 200 manat/mcm (€9.10/MWh) for retail sales to industry. A survey by the Energy Charter Secretariat found that in 2019 Azeri retail tariffs were on average €5/MWh, compared to €15/MWh in Georgia, €23/MWh in Ukraine and €43-65/MWh in the EU.[9]

The Shah Deniz consortium's current dilemma highlights a general problem for Azeri producers: while domestic prices are very low, the costs of delivering gas to European markets may be too high.

Assuming a production cost of $50-60/mcm, and transport costs of $50/mcm via the South Caucasus Pipeline, $103/mcm for TANAP, and $70-80/mcm via TAP, the cost of delivery to Italy is $273-293/mcm (€20.66-22.17/MWh).[10] These costs are lower than current wholesale gas prices (of €27-27.50 at the PSV hub in May 2021), but substantially higher than the cost of delivery of gas from Algeria, Libya, Russia and Norway – as shown by recently-published estimates, which put the delivered cost of Azeri gas to Italy at nearly twice that of Russian gas and nearly three times that of Algerian gas.[11] Azeri gas is more competitive in Turkey: the estimated cost of delivery is $179-189/mcm (€13.55-14.31/MWh), a little lower than current wholesale gas prices (quoted at $206-209/mcm in May 2021 by Argus).

Two preliminary conclusions are: 1. Turkey is potentially the most attractive market for Azeri gas, but the unresolved contract negotiations suggest that the Azeri sales strategy will have to become more flexible. 2. A short break before resumption of Shah Deniz I deliveries to Turkey can easily be accommodated, but a longer-term reduction in these sales, although unlikely, would require a more drastic revision of the consortium's sales strategy, and in extremis its production strategy. A key difference between the two sides is that, while it is in the consortium's interests to maintain steady output of gas and condensate, Turkish import strategy is based on increasing the flexibility of offtake.

Turkey's import strategy and market trends

Botas has in recent years transformed its portfolio of gas imports, moving away from pipeline imports under long-term contracts, and raising the proportion of LNG, and the proportion of spot purchases of LNG. Between 2014 and 2020, LNG's share of total imports more than doubled, from 14.8% to 31%. In January-February 2021 it was 28%.[12] Gazprom of Russia has lost significant market share, both to LNG and to Azeri imports. Botas has created a very diversified, and flexible, supply portfolio, and effectively served notice on pipeline importers that their sales strategies will have to change.

In an analysis of the issues, my colleague Gulmira Rzayeva commented recently: "One thing is clear: Turkey will not accept the same old-fashioned long-term sales contracts, with oil price indexation and burdensome Take-or-Pay [provisions], in the new contracts." In all negotiations, Botas may be expected

[8] On Azerbaijan's gas balance, see: S. Pirani, *Let's Not Exaggerate*, pp. 8-9
[9] Energy Charter Secretariat, *In Depth Review of the Energy Efficiency Policy of the Republic of Azerbaijan* (ECS, 2019), p. 76
[10] The TANAP tariffs are published; others are the author's estimates. See also Pirani, *Azerbaijan's gas supply squeeze*, p. 13. In an earlier version of this paper, there was an error in the conversion of values from $/mcm to €/MWh in this paragraph, which has now been corrected.
[11] Hasanov et al stated delivered costs of natural gas to Italy as $1.66/mmbtu from Algeria, $1.81/mmbtu from Libya, $2.53/mmbtu from Russia, $3.82/mmbtu from Norway and $4.74/mmbtu from Azerbaijan. See: Fakhri Hasanov et al, "The role of Azeri natural gas in meeting European Union energy security needs", *Energy Strategy Reviews* 28 (2020) 100464. My estimate of the cost of delivery from Azerbaijan is about one-and-a-half times higher than this
[12] Data from Argus, with thanks. See also: Gulmira Rzayeva, "Is Gazprom losing the Turkish market, and why?", in *OIES Quarterly Gas Review* no. 11, October 2020, pp. 8-12

to press for changes to price formation (which has historically been up to 100% oil indexation), for shorter terms of 3-5 years, and for a reduction of ToP levels, possibly down to 50%.[13]

The strength of Botas's negotiating position rests on its success in diversifying gas supply sources, and the historically low level of gas prices. Turkey's approach, of developing a wholesale market in which importers increasingly compete for spot sales, follows the European market. There the transition from oil-indexed gas prices to gas-to-gas pricing has been underway for a decade; the proportion of spot pricing has grown; and the proportion of LNG imports has grown.

How, then, might the Shah Deniz I contract be renegotiated? First, volumes are likely to be reduced, as the field is in natural decline, and Botas is also contracted to purchase 6 bcm/year from Shah Deniz II until 2033. Second, the buyer will push for price formation at a lower level, in line with market trends.[14] Third, the ToP obligation will surely be cut from its previous level, 80%. Due to the importance of maintaining steady output of condensate, as mentioned above, this is an issue on which the Shah Deniz consortium may be reluctant to give ground – while, for Botas, increasing the flexibility of offtake has become central to its gas purchasing strategy.

The long term: implications for Azerbaijan field development

The hopes for expanding the Southern Gas Corridor from Azerbaijan to Europe rest on the potential for increasing gas production in the Caspian Sea, and in attracting investment to expand the pipeline infrastructure – specifically, taking TANAP from its present capacity of 16 bcm/year to planned capacity of 31 bcm/year, and doubling the capacity of TAP, which is currently 10 bcm/year.[15] In previous papers I have argued that (i) Azeri gas production would reach the necessary level, in the best case, only at the end of this decade; and (ii) in any time scale, conditions in the Turkish and European gas markets would have to change, in order to underpin the necessary investment. The non-renewal of the Shah Deniz I contract suggests that market trends are pushing Southern Corridor expansion still further away.

When Azeri gas was delivered to Europe for the first time, at the start of this year, Rovnag Abdullayev, chief executive of Socar, welcomed it as the result of seven years' collaboration between European and Azeri companies. He said: "We embarked on this journey by signing 25-year gas sales agreements with European gas distribution companies."[16] The non-renewal of the Shah Deniz I contract underlines that the future of such financing is in doubt. As the proportion of spot sales rises in Turkish and European markets, project financing will have to be structured in new ways. The protection from price risk afforded to sellers by long term contracts will not be available. This in turn will throw into sharper relief Azerbaijan's higher cost of deliveries to European markets.

It has been argued that the sponsors of the initial Southern Corridor pipeline construction projects were helped by the European Commission's strategic imperative, to diversify sources of gas supply.[17] Will this imperative also make future expansion possible? Obstacles to it include the market trends mentioned, and the prominence in European energy policy of decarbonisation, which was a minor concern when the Southern Corridor was first conceived.

Aside from investment in transport infrastructure, there is the question: will the changing market conditions affect the pace of investment decisions on Caspian gas production? In the case of Absheron, the next field due to reach first gas, the answer is yes. While the project's 1.5 bcm/year first phase, which will serve the domestic market, is expected to start producing by the end of this year, no final

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[13] Gulmira Rzayeva, *The Renewal of Turkey's Long Term Contracts: natural gas market transition or 'business as usual'?*, Energy Insight no. 72 (OIES: September 2020), especially pp. 12-15 and 20

[14] Rzayeva, *The Renewal of Turkey's Long Term Contracts*, op cit

[15] See reported remarks by Elshad Nassirov, vice president of Socar, "Azerbaijan's Socar turns attention to Southern Gas Corridor 'phase two'", SP Global Platts, 17 February 2021. The binding phase of a market test for TAP expansion was announced by the company on 17 May 2021, with bids to be submitted on 17-20 July 2021

[16] "First Commercial Gas Delivery to Europe via Southern Gas Corridor", Europetrole, 4 January 2021, <https://www.euro-petrole.com/first-commercial-gas-delivery-to-europe-via-southern-gas-corridor-n-i-21604>

[17] Hasanov et al, "The role of Azeri natural gas", op cit

investment decision has yet been taken on the 5 bcm/year second phase, which is projected to serve export markets.[18]

Other fields are at various stages of exploration and development, including the Shafag-Asiman field (under a BP-Socar production sharing agreement), and the Karabagh and Dan Ulduzu-Ashrafi-Aypara fields (Socar and Equinor).[19] A potentially significant development is the recent agreement reached between Azerbaijan and Turkmenistan on the joint development of the deep-water Dosluk field (formerly named Serdar (by Turkmenistan) and Kaypaz (by Azerbaijan)), which lies on the Caspian maritime border between the two countries. The agreement, signed by Turkmen and Azeri political leaders in January, ends a dispute over ownership of the field that has persisted since the collapse of the USSR in 1991. The field is primarily oil, but is reported also to have gas reserves. Turkmenistan has invited Lukoil of Russia to participate in its development.[20] This project, like the possible small-volume pipeline linking the Turkmen and Azeri fields in the Caspian, may also play a role in future gas supply.

All of these projects may potentially supply gas for Azerbaijan and/or the Southern Corridor, but not in any substantial volumes in this decade. The table shows Azerbaijan's gas balance, and, on the right hand side, illustrative projections of the lowest and highest plausible levels of output in 2025 and 2030. (The Dosluk field, where exploration has not started, is not included.)

Table 1. Azerbaijan gas balance and illustrative projections

		Actual				Provisional	Illustrative projections			
							2025		2030	
		2016	2017	2018	2019	2020	low	high	low	high
Production: total		**18.7**	**18.2**	**19.2**	**24.5**	**26.1**	**30.9**	**38.5**	**28.8**	**47.2**
Socar (including Umid-Babek)		*5.25*	*5.5*	*5.41*	*5.6*	*5.8*	*5.4*	*8*	*6*	*9*
ACG associated gas		*2.75*	*2.88*	*2.3*	*2.1*	*2.2*	*2*	*3*	*2*	*3*
ACG non-associated gas							*0*	*0*	*0*	*5*
Shah Deniz I		*10.7*	*10.2*	*11.5*	*11*	*10*	*6*	*7*	*4*	*4.2*
Shah Deniz II		*0*	*0*	*0*	*5.8*	*8.1*	*16*	*16*	*13.8*	*14*
Absheron phase 1							*1.5*	*1.5*	*1.5*	*1.5*
Future projects	*Absheron phase 2*						*0*	*1.5*	*0*	*5*
	Karabagh and Ashrafi/Dan Ulduzu/Aypara						*0*	*1.5*	*1.5*	*1.5*
	Shafag-Asiman						*0*	*0*	*0*	*4*
Other/ stock change		**0.22**	**– 0.57**	**0**	**– 0.1**	**0**	**0**	**0**	**0**	**0**
Imports: total		**0.3**	**2.11**	**1.8**	**0**	**0**	**0**	**0**	**0**	**0**
	import from Russia	*0*	*0.35*	*1*	*0*	*0*				
	import from Iran/ Turkmenistan	*0.3*	*1.76*	*0.8*	*0*	*0*				
Total gas balance		**19.2**	**19.7**	**21.0**	**24.4**	**26.1**	**30.9**	**38.5**	**28.8**	**47.2**
Consumption: total		**19.2**	**19.7**	**21.0**	**24.4**	**26.1**	**32**	**32**	**32**	**32**
Azerbaijan		*11.19*	*10.87*	*11.08*	*12.5*	*12.7*	*13.5*	*13.5*	*13.5*	*13.5*
Exports	*Georgia*	*1.57*	*2.32*	*2.4*	*2.22*	*1.85*	*2.5*	*2.5*	*2.5*	*2.5*
	*Turkey - SD I and II contracts**	*6.48*	*6.54*	*7.53*	*9.58*	*11.55*	*6*	*6*	*6*	*6*
	Europe - SD II contracts	*0*	*0*	*0*	*0*	*0*	*10*	*10*	*10*	*10*
Residual available for Turkey and Europe							***– 1.1***	***6.5***	***– 3.2***	***15.2***

* The illustrative projections in this row only include the Shah Deniz II contract (2018-33). The Shah Deniz I contract, currently under renegotiation, is excluded

Source: AzStat and companies (actual); author (illustrative projections)

[18] "Gas produced from Absheron field to be directed to domestic needs at first stage", Azer News, 19 September 2020; "Total Plans to Produce at Absheron in 2021", *Offshore Engineer*, 30 May 2019

[19] "BP, Socar make ultra-deep gas condensate discovery", SP Global Platts, 25 March 2021; "Socar Equinor exploration project delivers encouraging results", Socar press release, 16 March 2021

[20] "Turkmenistan, Azerbaijan sign MoU", *Oil & Gas Journal*, 22 January 2021; "Lukoil ishchet Druzhby", Neftegaz.Ru, 19 February 2021

The table is adapted from an earlier paper. Some minor changes have been made to the illustrative projections, but the overall picture is unchanged.[21] Note the illustrative projections of consumption: for simplicity's sake, it is assumed that Azerbaijan's consumption will remain flat at 13.5 bcm/year (although it is reasonable to suggest that it could be slightly higher), and Georgia's at 2.5 bcm/year. Then the contracted exports for Turkey and Europe are included, but the Shah Deniz I contract now being renegotiated is *not included*.

The row "Residual available for Turkey and Europe" shows the range of likely volumes available for any successor to the Shah Deniz I contract, and any new incremental sales. In both 2025 and 2030, assuming the *lowest plausible level* of output, there would be *no* volumes available. The numbers are negative, because projected production is lower than the projected demand; even without supplying any additional gas to Turkey, Azerbaijan might have to supplement its gas balance with imports, as it did in 2016-18. Assuming the *highest plausible level* of output, there could be 15 bcm/year of incremental gas available for Turkey and Europe by 2030 – although this number could fall again by 2035, due to the natural decline of the Shah Deniz fields.

Conclusions

The table highlights a key question: could the market and political conditions in Europe and Turkey – which appear less favourable for investment decisions than they were previously – delay projects that contribute to the high scenarios, including Absheron phase 2, Shafag-Asiman and ACG non-associated gas? With such a delay, gas would not be available to support Southern Corridor expansion until some point in the 2030s; without such a delay, 15 bcm/year of extra output can be envisaged, but only by 2030.

The market trends highlighted by the non-renewal of the Shah Deniz contract will add to the difficulties, associated with the high cost of delivering Azeri gas to Europe, of expanding the Southern Gas Corridor. Even the most optimistic assumptions about upstream development do not suggest that substantial quantities of additional gas will be available in the 2020s. There are no plausible scenarios under which the transport infrastructure expansion will be completed in this decade.

[21] Pirani, *Let's Not Exaggerate*, p. 10. Changes to illustrative projections: Socar own output, "low" and "high" for 2025 reduced (natural decline, development progress); ACG associated gas, "low" projection reduced by 0.5 bcm in 2025 and 2030 (reinjection requirements); Absheron II "low" projection for 2030 reduced to zero (no investment decision yet)