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The Strategic Benefits of the Southern Gas Corridor

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At the end of 2020, the Southern Gas Corridor became fully operational. This marked the completion of a journey that began a decade ago when the government of Azerbaijan and the State Oil Company of the Azerbaijan Republic (SOCAR) took a strategic decision to launch a major natural gas export project.

The Southern Gas Corridor is one of the largest and the most expensive gas supply projects in the world built to date. In December 2013, SOCAR and its partners signed a Final Investment Decision (FID) to establish a gas pipeline corridor from Azerbaijan through Georgia, Turkey, Greece, and Albania before ending in Italy. A branch pipeline is now under construction to Bulgaria, which is expected to be completed in the second half of 2021. In July 2018, the project supplied its first gas to the Turkish market and went on to change the dynamics of that country's gas market, whereby Azerbaijan is now one of its top gas suppliers. On December 31st, 2020, inaugural commercial gas supplies arrived from the Caspian into Europe, signaling the commencement of the Southern Gas Corridor's full operations.

For Azerbaijan, the Southern Gas Corridor provides a major source of revenue unlinked to the global oil market; the project also strengthens Baku's links with its neighbors and Europe. For SOCAR—as operator of components of the project and investor in all its segments—the project's success represents a major step in the company's transition from a national to an international energy company. The Southern Gas Corridor provides new gas supplies to Turkey, Georgia, and Europe and is a platform for increased supplies to these markets and also can be extended to reach additional markets in Europe. With the completion of the first stage of the Southern Gas Corridor, Azerbaijan and SOCAR, together with their partners, are examining strategies for the next phase of the corridor's development.

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The Southern Corridor is a strategic mega-project, transiting seven countries and six regulatory systems. The project links 11 different investors and, in its first stage, will supply 12 different gas buyers. SOCAR and BP have been involved in all aspects of the $33 billion project. The consortium and SOCAR concluded 25-year contracts with European gas buyers, which serve as a check on potential changes in market conditions. Despite the complexity and scope of the project, the Southern Gas Corridor has been completed on schedule and below budget. Initial project costs were estimated at $44.6 billion, while in the end the project was completed with an investment of $33 billion—a savings of more than 26 percent.

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The present corridor is comprised of four different commercial projects: the upstream development of the Shah Deniz II gas field in Azerbaijan; the expansion of the South Caucasus gas pipeline; the establishment of the Trans-Anatolian Pipeline (TANAP) through Turkey; and the establishment of the Trans-Adriatic Pipeline (TAP) from the Turkish border to Greece, Albania, and Italy via the Adriatic Sea. In tandem with the FID on the Southern Gas Corridor, Azerbaijan and its investment partners have extended Production Sharing Agreements (PSAs) on the Shah Deniz field to the year 2048.

This essay will next examine Azerbaijan's political and commercial goals in establishing the Southern Gas Corridor. It will then consider the project's impact on European energy security, the strategic importance of the project, and the hurdles that were overcome. It will conclude with a discussion of lessons learned for international energy export and policy.

Azerbaijan's and SOCAR's goals

The main goals of contemporary Azerbaijan and SOCAR—in terms of oil and natural gas production and export projects—have always been to provide resources to fuel the country's development and strengthen its independence and security. Azerbaijan reestablished its independence in 1991, amid the collapse of the Soviet Union, and is geographically located at the geopolitical crossroads of three major powers: Turkey, Russia, and Iran.

Early in its independence period, neighboring Armenia invaded Azerbaijan and occupied close to 20 percent of the latter's sovereign territory. Armenia expelled all ethnic Azerbaijanis from both Armenia and the occupied territories, turning more than one million Azerbaijanis into refugees or displaced persons. The new state also inherited a collapsed economy and healthcare and education systems.

In the midst of this turmoil, Azerbaijan sought to attract foreign investment and develop its energy resources—extreme challenges in light of the prevailing situation. Moreover, Azerbaijan's landlocked status meant that it needed cooperation from neighbors to get its hydrocarbon resources to world markets. It was, in short, almost impossible to imagine that the young state could carry out major new production and export projects. Yet a little more than a decade following this tragic period, the Baku-Tbilisi-Ceyhan (BTC) oil pipeline and the South Caucasus gas pipeline had both become operational. Revenues from these energy export projects allowed Azerbaijan to develop good infrastructure and public services as well as build housing for the refugees.

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In 2010, the government of Azerbaijan and SOCAR decided to launch the Southern Gas Corridor in order to take further advantage of the country's more than 2.6 trillion cubic meters of proved gas reserves. Additional Azerbaijani gas reserves are currently estimated at 3.45 trillion cubic meters. The Shah Deniz field is a large, world-class gas resource in Azerbaijan, containing over 1 trillion cubic meters of natural gas and more than 240 million tons of condensate.

In addition to providing a steady revenue stream, the Southern Gas Corridor project is designed to strengthen the country's ties with its neighbors and Europe. More broadly, Baku hopes that the project will generate a stronger Western interest in preserving peace and security in the South Caucasus, due to Azerbaijan's new role as a major energy supplier.

As noted above, SOCAR is in the midst of an important transition from a national oil company into an international oil company. SOCAR is the operator of the Southern Caucasus Pipeline and is also an investor in all the components of the Southern Gas Corridor, including the Europeanportion—TAP. Thus, the Southern Gas Corridor constitutes a new investment model with the European Union.

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In terms of its commercial goals, SOCAR, BP, and other Shah Deniz partners assessed that while natural gas demand in Europe may stagnate, imports will grow because domestic production in Europe is in decline. Moreover, with some European states attempting to phase out coal consumption and nuclear energy, there will be growing demand for natural gas in many European markets.

The economics of the Southern Gas Corridor project were positively affected by the fact that Shah Deniz is also a condensate field; thus, production of the gas is accompanied by condensate production for export as well, which is linked to the global price of oil. The gas supply contracts concluded for the first stage of the Southern Gas Corridor are exceptionally l ong-term—up to 25 years—as are the transit agreements. Two important considerations follow from this: *first*, Southern Gas Corridor supplies are not subject to market vacillations and price volatility; *second*, consumers are able to rely on stable gas supplies at an anticipated price.

Prior to launching this gas export project, Azerbaijan needed to design it in such a way as to ensure alignment with the interests of multiple public stakeholders (i.e. Turkey, Georgia, Albania, Greece,

Italy, the EU, and United States) and companies (chief among them BP). This was not an easy feat, since divergent goals were in play: the companies wanted to bring supplies to the most profitable markets in Europe in the most cost-efficient manner whereas some political actors wanted the gas supplies to reach Europe's most vulnerable markets (located in Eastern and Central Europe) in order to improve the region's security of supply. In designing the Southern Gas Corridor, Azerbaijan therefore had to identify a route that met both commercial and policy goals.

Azerbaijan's gas export strategy reflects several principles. *First*, Azerbaijan works with all countries. Thus, Azerbaijan exports gas in multiple directions and is prepared to transit it from multiple sources without discrimination. *Second*, the investing companies in the Southern Gas Corridor are from multiple countries and even different continents. A prevailing principle is that energy is never used as a coercive political tool. *Third*, Azerbaijan is not competing with other suppliers in the European market. It does not strive to supplant another supplier but rather to make more gas supplies available to the European continent.

European Energy Security

The volumes of the Southern Gas Corridor are quite modest relative to Europe's overall gas consumption. However, the project provides for significant supply diversification for specific markets, which constitutes its unique energy security and geopolitical contribution. The contracted gas to Europe in its first stage is 10 billion cubic meters (BCM) annually, in addition to 6 BCM to Turkey. It should be noted, in this context, that the capacity of TANAP and TAP can be relatively easily doubled to 32 and 20 BCM, respectively. Moreover, these can be further expanded to deliver additional volumes. By 2022, the gas supplied by the Southern Gas Corridor will provide, in terms of total national gas consumption, 13 percent of demand in Italy, 20 percent in Greece, and 33 percent in Bulgaria.

The high-level support extended to the Southern Gas Corridor by both Washington and Brussels over the past decade contributed to the project's success. The United States and the EU sought to improve Europe's energy supply security and reduce national security vulnerabilities by establishing a new source and a new route of gas supplies into Europe from the Caspian region. Doing so required a long-term strategy that extended over multiple terms of both American administrations and EU commissions.

The Southern Gas Corridor has also catalyzed the building of interconnector natural gas pipelines in Southeast Europe. Further interconnecting gas markets across Europe has been an American and EU policy goal for a long time; however, it was only this private sector initiative that was able to establish such an interconnection in practice. The Ionian-Adriatic Pipeline (IAP) is an additional interconnector with likely prospects for development.

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Clear Strategic Value

The geopolitical importance of the Southern Gas Corridor was clearly illustrated in the weeks before the project's technical operational commencement in November 2020. Due to the clear strategic value of the project, Azerbaijan's adversaries—together with those that oppose the improvement of European energy security—sought to undermine the Southern Gas Corridor project. For instance, on July 12th, 2020, Armenia launched an attack on Azerbaijani military units stationed near the border between the two states in the Tovuz region—a part of the country through which its major energy and transport corridor runs westward, in the direction of Europe. At the time of these attacks, Elshad Nasirov, Vice-President of SOCAR for Marketing and Investments, stated that "it is not by chance that Armenia launched a military operation against Azerbaijan three months before the start of Azerbaijani gas supplies to Europe."

Yerevan chose the timing and location of the attacks in an attempt to create the impression that Armenia has the capacity to disrupt this strategic energy and transit corridor. During the fighting, Armenia attempted to capture the Qaraqaya Heights in Azerbaijan, which are perched above the energy and transit corridor. Following these attacks, senior Armenian officials haughtily pointed out that Armenia's goal in the fighting was to make it clear to the EU that somehow "Armenia is the guarantor" of Europe's energy secu-

rity, announcing that Yerevan had plans to coordinate with the EU's Directorate General for Energy in light of the July 2020 attacks.

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As subsequent events made clear, the July 2020 fighting represented an initial phase of the full-scale Second Karabakh War that broke out in autumn 2020. As a result of the war, Azerbaijan successfully liberated its territories that had been under Armenian occupation for close to three decades. In addition, Azerbaijan removed the Armenian threat to the Southern Gas Corridor and restored its strategic deterrence.

Hurdles Overcome

Not only has the Southern Gas Corridor had to contend with military threats to the project's security, but it has also had to address questions about its long-term commercial viability in light of significant gas market changes. During its development stage, some questioned whether mega-natural gas supply pipeline projects were still relevant in a world awash in liquified natural gas (LNG); others raised the issue of whether they met energy security and geopolitical needs that could not be fulfilled by LNG. Still others asked whether, given significant growth in renewable energy consumption and public support for such directionality, there would be significant future demand for natural gas in Europe.

Thus, before seeking investment, SOCAR and its partners had judged that while renewable capacity and demand was growing significantly in Europe, the EU had not fully found adequate substitutes for its diminishing nuclear and coal generation capacity. In addition, SOCAR and its partners were able to draw on the scientific and public policy consensus that had determined that natural gas is the most compatible baseload fuel with the current generation of renewables. Thus, a conclusion was drawn that demand for renewables went hand in hand with demand for pipeline-supplied natural gas.

Demand for pipeline natural gas will be preserved for at least several more decades, despite the rising available supplies of LNG for several reasons. *First*, pipeline natural gas is cheaper: LNG still costs more in Europe on average than most pipeline-supplied options. Many consumers in Europe have found the price of LNG to be prohibitive.

Second, relying on LNG supplies exposes consumers to extreme volatility in prices. The potential for extreme LNG price spikes was illustrated in January-February 2021, when a cold spell in Asia rocketed demand for LNG cargoes, leading subsequently to soaring gas prices in Europe and the UK as well as increasing the level of difficulty to access supplies. During this same time period, pipeline-supplied natural gas continued to be delivered to Europe stably and at a much lower price. This is an important case study in comparing the security of supply and security of price benefits of pipeline gas versus LNG for Europe.

Third, as additional regions of Europe—particularly the Balkans and other parts of Southeast Europe—develop economically enough to adopt more environmentally friendly fuel mixes, demand for natural gas in these regions is anticipated to grow. However, most of these new consumers will find LNG access prohibitive, either because of geographic or price constraints. Indeed, despite increasing LNG options, the Shah Deniz consortium was able to conclude 25-year gas supply contracts that will allow it to sell all the gas capacity planned in the first stage of the project's production.

Fourth, geographic factors also restrict LNG supplies. LNG cannot solve the gas needs of many landlocked states in Europe presently dealing with security of supply challenges—mostly located in Central and Eastern Europe. Moreover, countries whose maritime access is located east of the Bosporus, such as Bulgaria and Ukraine, cannot directly receive LNG supplies, since LNG vessels are prohibited from transiting this waterway. To this may be added the fact that increased instability in recent years in regions and countries that border major trade waterways—most notably the Persian/Arab Gulf—has increased public aversion to current trade policies in parts of the West. Also, unexpected external shocks, such as the COVID-19 pandemic, raise further questions about the reliability of LNG deliveries.

An additional hurdle to actualizing the Southern Gas Corridor project came in the form of the potential for EU regulatory changes proposed after it had already been initiated and foreign investments made. This hurdle has been overcome by agreement.

Initially, it was widely assumed that the political risk of the project was highest in Georgia and Turkey, and that the European portion would be built smoothly. In reality, the Georgian and Turkish portions were built without a glitch: on time and below budget. It was, in fact, the segment in Europe (TAP) that ended up presenting the biggest challenge: project costs were greatly reduced in the easternmost parts of the Southern Gas Corridor located in Azerbaijan, Georgia, and Turkey whilst costs in the TAP segment dropped only marginally. Moreover, the Southern Gas Corridor elements in Azerbaijan, Georgia, and Turkey were completed ahead of schedule whilst TAP ended up being delivered later than initially expected. Investors considering the establishment of new supply projects into Europe very clearly noticed these challenges, which represents an informative case study.

Looking Ahead

Now that the Southern Gas Corridor is up and running, SOCAR has turned its attention to the development of Phase II of the Southern Gas Corridor. SOCAR now aims to reach additional markets and transit natural gas from additional locations as well as to develop Azerbaijan's untapped gas resources. In this next phase, the Southern Gas Corridor would be able to transport gas from new sources, such as those located in the Eastern Mediterranean, Central Asia, and, at some point, Iran.For instance, the signing on January 21st, 2021, of a Memorandum of Understanding between Azerbaijan and Turkmenistan on the joint development of the newly named Dostluq oil and gas field in the Caspian Sea increases the likelihood of the future export of Central Asian hydrocarbons westward via the Southern Gas Corridor and the BTC oil pipeline. This agreement reflects a mutual desire of the two states for increased cooperation.

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In Azerbaijan, SOCAR plans to produce additional gas volumes through the initiation of new phases of production in existing fields (e.g. Shah Deniz III, deep gas in the Azeri-Chirag-Gunashli field project) as well as the inauguration of production in new fields. These include Shafag Asiman (the giant structure where the first exploration well is being drilled by BP), Babek (400 BCM of gas), Absheron (350 BCM of gas), and Umid (at least 200 BCM of gas)—all of which also contain extensive condensate reserves. Azerbaijan is engaged in the development plans for these resources and seeks to add between 15 and 20 BCM annually by 2030.

SOCAR is also engaged in developing new infrastructure to extend the reach of current gas production. One significant new piece of infrastructure will be the pipeline connecting Nakhchivan—Azerbaijan's exclave—to Turkey's existing pipeline network, which is already supplied by Southern Gas Corridor volumes from the main part of Azerbaijan via the existing pipeline corridor. Despite being small and inexpensive, this new piece of infrastructure will have a significant impact on regional gas flows, increasing the security of supply to Nakhchivan and creating greater interconnection within Turkey itself, thereby allowing additional regions of Turkey to access the new gas resources originating in Azerbaijan.

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In addition, the November 10th, 2020, the agreement that ended the Second Karabakh War contains a provision stating that infrastructure links between the two states will be restored. Accordingly, a direct pipeline between Nakhchivan and the main part of the country can be envisioned.

Lessons for International Energy Projects

The decade of work that went into the Southern Gas Corridor—from conception to execution—provides several lessons. *First*, major energy production and supply projects require fulfillment of both commercial and policy goals. Policy goals alone are not enough to incentivize the establishment of production and infrastructure costing billions of dollars. On the other hand, commercial ventures on their own—without significant public interests and political support—probably cannot make it across seven

states with two dozen investors and gas buyers.

Second, states still fulfill an important role in proving for energy security. Having strong political support from the government of Azerbaijan, the main partners along the route (such as Turkey), and the United States and the European Union were all essential to the success of the Southern Gas Corridor.

Third, receiving gas supplies requires years, if not decades, of planning and activity and the EU will need to give a signal to the market if it wants to receive new future gas supplies. The European Union is presently engaged in a policy formation process to determine the role of natural gas in its fuel mix in the decades prior to transitioning to the primary consumption of renewable energy. The EU faces a policy dilemma on the role of natural gas in its future fuel mix. On the one hand, EU institutions seek to produce comprehensive policies to ensure the security of their gas supplies, such as the EU's support for the establishment of the Southern Gas Corridor. In contrast, many policymakers and non-governmental organizations would like to reduce the use of natural gas, which they lump together with other fossil fuels. Environmental NGOs in the EU today tend to treat natural gas similar to the Union's policy toward coal and oil, despite the lower environmental and climate impact of natural gas.

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It should be noted, of course, that the current phase of Caspian gas export will not be affected by any anti-gas sentiments in the EU, since long-term supply contracts have been concluded. However, further exports and potential the expansion of the Southern Gas Corridor pipeline network could be affected by prevailing attitudes toward the consumption of natural gas.

The EU is thus in a policy conundrum: its institutions and popular sentiment are, by and large, averse to supporting new gas projects in Europe; at the same time, renewable energy supplies at this stage cannot deliver Europe's energy needs—especially without gas providing baseload generation (i.e. a stable energy supply base that allows proper electricity grid function). Major gas import projects such as the Southern Gas Corridor require years of planning and major investment commitments. This means that the EU needs to clearly signal years ahead if it wants to receive new gas supplies in order to secure a smooth transition to a greener economy.

With this new policy signal emanating from Brussels, many EU member states are likely to adopt the quickest path to emissions reductions by increasing their respective consumption of natural gas.

In December 2020, the European Commission decided that each EU member state could chose the composition of its own fuel mix and thus the way it plans to achieve emissions reductions. Accordingly, this is interpreted to mean that EU member states can include natural gas and nuclear energy in their future fuel mixes. This decision may lead to an increase in demand for natural gas in Europe. In this context it is useful to underline that America's experience indicates that the cheapest and fastest way to achieve climate-altering emissions reduction is through switching from coal to natural gas in power production. With this new policy signal emanating from Brussels, many EU member states are likely to adopt the quickest path to emissions reductions by increasing their respective consumption of natural gas.

The July 2020 tragic attacks by Armenia in close proximity to the Southern Gas Corridor are a reminder of the importance of the continued protection of critical energy infrastructure. Because these pipelines have strategic importance, they can become easy targets. Now that the project is up and running, it needs to be constantly protected: Azerbaijan will continue to engage in further improving its critical energy infrastructure-protection capabilities.

Of course, the best protection is peace. As part of SOCAR's next stage of project development, the government of Azerbaijan has initiated plans to renew energy supplies to Azerbaijan's newly-liberated territories. These supplies will be made available to the entire population of the formerly occupied territories, as is the case with all citizens of Azerbaijan. Hopefully, the victory that returned the liberated territories to Azerbaijan will also produce a new phase of peace in the South Caucasus in which energy infrastructure will play an important role in advancing regional cooperation. BD