

# Liberated Karabakh

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### Regional Energy Connectivity in the Wake of the Second Karabakh War

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The collapse of the Soviet Union in 1991 dramatically altered the relationship dynamics between the three South Caucasian republics—Armenia, Azerbaijan, and Georgia. Despite the state of integration and interdependence that existed in imperial and then Soviet times, the countries’ economic, political, and social ties promptly were eroded during the period that began with the collapse of the USSR. The eruption of ethno-political conflicts promoted the closure of borders and significant regional fragmentation. The different geostrategic orientations of the three states of the South Caucasus further exacerbated the region’s disintegration. While Georgia decided to pursue membership in the EU and NATO, Armenia became a member of the Russia-led Eurasian Union. Meanwhile, Azerbaijan opted to pursue a multi-vector policy and balance between the West, Russia, and other powers.

The region’s fragmentation has particularly manifested itself in the energy sector. After signing a production-sharing agreement on the joint development of the Azeri-Chirag-Deepwater Gunashli (ACG) oil field in Azerbaijan on 20 September 1994, which became known as the “Contract of the Century,” heated debates arose about the major route for exporting this crude to the global market. From a commercial and technical standpoint, building an oil pipeline through Armenia to Turkey’s Mediterranean coast would have been the optimal

option. The realities on the ground, however, dictated a different scenario. The Armenian occupation of Azerbaijani territory (Nagorno-Karabakh and seven surrounding regions) during the First Karabakh War in the early 1990s resulted in Yerevan's isolation and blocked its participation in the project. As a result, a BP-led consortium opted for a route through Georgia, which became known as the Baku-Tbilisi-Ceyhan (BTC) pipeline. While ultimately the BTC project proved successful, the geopolitical situation, which was the result of Armenian aggression, made the evacuation route of Caspian hydrocarbons more expensive: a longer and more secure pipeline passing through extremely rugged terrain, circumventing Armenia, was required to be built.

Similarly, Armenia's continued aggression excluded the country from participation in major natural gas projects in the region. After the discovery of the giant Shah Deniz natural gas field in Azerbaijan's section of the Caspian Sea in 1999, a trilateral strategic partnership consisting of Azerbaijan, Georgia, and Turkey resulted in the construction of the South Caucasus Pipeline in 2006, which allowed the export of Azerbaijani gas from Shah Deniz Stage 1 to Georgia and Turkey. With the development of Shah Deniz Stage 2, an extensive partnership encompassing seven national governments and 11 different companies<sup>1</sup> was formed to extend Azerbaijan's offshore natural gas supplies from beneath the Caspian Sea to European customers thousands of kilometers away, in a project known as the Southern Gas Corridor. Again, instead of participating in this strategic project and benefiting from the resulting energy supplies and transit dividends, Yerevan chose a policy of self-isolation and continued occupation.

The South Caucasus region, being a crossroads for regional grid connections originating in Russia, Iran, and Turkey (the latter also provides a gateway to the EU power market), has a tremendous potential to benefit from various seasonal, price, and geographical combinations in the trade of electricity.<sup>2</sup> However, for the past three decades the Karabakh conflict also hindered regional cross-border electricity connectivity. While bilateral electricity exchanges do happen in small-scale volumes, the development of a single regional grid, which used to function during the Soviet period, essentially has been stalled. Fragmented regional cooperation has also hampered the development of renewables as well as increased regulatory uncertainties whilst reducing investors' confidence—all of which are crucial factors for the actualization of capital-intensive cross-border electricity projects.

Besides rejecting participation in and benefiting from various regional projects—which, in turn, made their realization more complicated and expensive—Armenia's aggressive posture has represented a threat to energy supply routes originating in Azerbaijan. The region's major energy arteries passed in near proximity to the Karabakh conflict zone. In this regard, any escalation was understood by all stakeholders as possibly endangering the flow of Caspian hydrocarbons to Western markets. In fact, Armenian officials have never concealed their ambitions to attack Azerbaijan's critical energy infrastructure, including pipelines, dams, and power plants. During the Second Karabakh War, Armenian forces repeatedly targeted Azerbaijan's oil and gas pipelines.<sup>3</sup>

During this war, Armenian armed forces also tried to hit other critical infrastructure objects, including a 2,400 MW gas-fired power plant and a 400 MW hydropower plant in the Azerbaijani city of Mingachevir.<sup>4</sup> At least one of the missiles landed near that energy bloc but did not explode.<sup>5</sup>

On 10 November 2020, after six weeks of bloody armed conflict, Armenia accepted a Russia-brokered ceasefire agreement on Azerbaijan's terms, thus effectively capitulating to Baku.<sup>6</sup> The resulting shift in power dynamics has dramatically changed the geopolitical landscape not only in the South Caucasus but in the wider Black Sea-Caspian region. More importantly, the end of the Second Karabakh War has created new opportunities for unlocking the region's economic, transport, and energy potential, as reflected in the tripartite statement that brought the fighting to an end and set the stage for a new postwar regional economic order.<sup>7</sup>

#### NATURAL GAS SUPPLIES FROM AZERBAIJAN TO ARMENIA

In the wake of the end of the fighting and pledges to re-open communication links in the region, a peculiar agreement took place between Gazprom Export, a subsidiary of Russia's state-owned Gazprom, and the State Oil Company of the Azerbaijan Republic (SOCAR) on 16 March 2021. The two parties signed a short-term contract for the transportation of Russian gas to Armenia through the territory of Azerbaijan due to planned preventive maintenance work on

the Russian part of the North Caucasus-Transcaucasia trunkline.<sup>8</sup> As a result, Armenia received natural gas for several weeks via Azerbaijan for the first time in three decades.

Some observers rushed to make claims about the possibility of exporting Azerbaijan's natural gas to Armenia. If the two sides were to reach a peace agreement, the short-term prospects of which currently do not appear promising, the supply of natural gas from Azerbaijan to Armenia would indeed be logical. Azerbaijan is a hydrocarbon-rich state while Armenia does not have oil and gas reserves; hence, it is forced to import most of its energy needs. In addition, the two countries are located just next to each other, which would dramatically reduce transportation costs.

As an option, an Azerbaijan-Armenia natural gas pipeline could be constructed along the Zangezur corridor, an anticipated trade corridor (as outlined in Article 9 of the aforementioned tripartite statement ending the Second Karabakh War) that would connect Azerbaijan's Nakhchivan Autonomous Republic to the rest of Azerbaijan via Armenia's Syunik province. Such a project would not only help to provide Armenia with natural gas and diversify its supply sources; it would also establish a direct gas connection between Azerbaijan and its landlocked exclave of Nakhchivan, currently depending on gas imports from Iran (more on this below). Perhaps, such an arrangement would also help to reinforce trust between Baku and Yerevan and promote regional economic reintegration.

However, such a scenario is unlikely at present, given the Kremlin's tight grip on Yerevan. Not only does Russia provide security for Armenia; it also dominates the Armenian economy, including the energy sector. Armenia imports more than 80 percent of its natural gas needs from Gazprom alone.<sup>9</sup> Its remaining natural gas requirements (around 0.5 bcm) are imported from Iran in an electricity-for-gas swap arrangement.<sup>10</sup> In fact, Yerevan repeatedly has tried to increase the imports of natural gas from the Islamic Republic, as the Iran-Armenia pipeline's capacity is around 2.3. bcm; it has failed to do so successfully due to Moscow's opposition. Furthermore, Gazprom Armenia, a subsidiary of Gazprom operating in Armenia, is the only gas supplier in the country, effectively controlling Armenia's natural gas supply operation, distribution, transmission system, and underground storage facilities.<sup>11</sup> Therefore, even if Russia

gives a green light to natural gas imports from other sources, Gazprom will still control the distribution of natural gas in Armenia, including its pricing structure.<sup>12</sup>

#### THE IGDİR-NAKHCHIVAN GAS PIPELINE

While the restoration of the agreed-upon transportation corridors between Azerbaijan and Armenia has been delayed due to Yerevan's hesitation and opposition, Baku and Ankara have agreed to construct a Turkey-Nakhchivan natural gas pipeline. A Memorandum of Understanding on the project was signed between Turkey's Energy and Natural Resources Minister Fatih Dönmez and Azerbaijan's Energy Minister Parviz Shahbazov on 15 December 2020, just weeks after the end of the Second Karabakh War.<sup>13</sup> The natural gas pipeline will run from Igdir in Turkey's eastern Anatolia to Sederek in Nakhchivan. The pipeline's annual capacity of 500 million cubic meters will be filled with part of the Azerbaijani gas sent to Turkey.<sup>14</sup> The project is expected to be completed in 2022.<sup>15</sup>

As a landlocked exclave of Azerbaijan separated by Armenia, Nakhchivan is at present unable to directly receive natural gas from Azerbaijan's main territory. In these circumstances, Nakhchivan's natural gas demand has been mainly met through imports from Iran, based on swap operations with the country. Under the swap agreement between Baku and Tehran signed in 2004, Azerbaijan ships natural gas to Iran's city of Astara, with 85 percent of that volume going to Nakhchivan.<sup>16</sup> The construction of the Igdir-Nakhchivan pipeline would terminate the requirement that Azerbaijan engages in swap operations with Iran to provide its strategic western exclave with natural gas supplies. Besides reducing Azerbaijan's dependence on Iran, the realization of the Igdir-Nakhchivan gas pipeline will further promote Ankara's presence into the South Caucasus. As noted by Paul Goble, "the energy project has the potential to shake up the geopolitics of the region—adding to Russian and Iranian fears about a Turkish advance, while simultaneously underscoring Turkey's readiness to support Baku even more enthusiastically in the latter's quest for a more direct overland route between mainland Azerbaijan and Nakhchivan."<sup>17</sup>

## PHASE TWO OF THE SOUTHERN GAS CORRIDOR

Another important post-war development in regional energy affairs has been the completion of the Southern Gas Corridor on 31 December 2020. The project is a \$40 billion 3,500-kilometre pipeline system taking natural gas from Azerbaijan's Shah Deniz natural gas field in the Caspian to Turkey and Europe—a historical first. Notwithstanding the engineering, technical, geographical, geopolitical, and lately pandemic-induced logistical challenges, the Southern Gas Corridor was safely brought into service on schedule and under budget. Representing an alternative supply route bypassing Russia, the Southern Gas Corridor helps to diversify Turkey and Europe's natural gas imports and improve the energy security of everyone concerned.

Now that the Southern Gas Corridor is up and running, attention is being attached to the project's second stage, which would entail an expansion of the corridor's capacity. Strategic foresight ensured that, from the onset, all the corridor's pipelines were built to be expandable. The South Caucasus Pipeline, the first in the series of the corridor's pipelines, and which takes natural gas from Azerbaijan's Shah Deniz to Georgia, can be expanded by up to 10 bcm. The Trans-Anatolian Pipeline (TANAP), the corridor's middle leg that carries natural gas across Turkey, can double its capacity from its current 16 bcm to 31 bcm.<sup>18</sup> The Trans-Adriatic Pipeline (TAP), the corridor's final leg crossing Greece, Albania, and the Adriatic Sea before coming ashore in southern Italy to connect to the Italian natural gas network, will also be able to double its capacity from its current 10 bcm to 20 bcm—should more supplies become available in the future.<sup>19</sup> During the Phase Two development stage, the corridor's shareholders will seek to reach additional markets in Europe, including the western and eastern Balkans. In addition to finding new clients, the corridor's expansion will entail the development and inclusion of new supply sources.

Thus, not only is Azerbaijan the sole provider of natural gas for the recently completed Southern Gas Corridor Phase One, but it also has the potential of becoming a gas supplier for the expanded, Phase Two version of the corridor in the future. However, depending on production and consumption patterns, the country's available natural gas supplies alone might not be enough to justify the corridor's expansion.<sup>20</sup> In this

regard, Simon Pirani of the Oxford Institute for Energy Studies suggests several scenarios of natural gas output in Azerbaijan.<sup>21</sup> In his study, an assumption of the lowest plausible level of natural gas production in Azerbaijan suggests that there might be no volumes available for Phase Two of the Southern Gas Corridor. By contrast, the highest plausible level of natural gas production in Azerbaijan (in case all potential investments are made, and all fields are developed) could gradually add up to 15 bcm—enough volume to ensure the full capacity of an expanded version of the Southern Gas Corridor.

Turkmenistan, with its vast natural gas reserves, currently seems to be the most feasible source base for the Southern Gas Corridor Phase Two. Indeed, the country possesses the fourth-largest natural gas reserves in the world: an estimated 13.6 trillion cubic meters, accounting for around 7.2 percent of the world's total.<sup>22</sup> The Central Asian republic is also home to the world's second-largest natural gas field, called Galkynysh.

However, unlike Azerbaijan, Turkmenistan so far has had limited opportunities to monetize its massive reserves. After the dissolution of the Soviet Union, Russia naturally became Turkmenistan's major market for natural gas shipments due to pre-existing infrastructure connections, thus enabling Moscow to boost its gas exports to Europe. Due to its geographical proximity and a lack of proper internal infrastructure, Iran also imported some natural gas from Turkmenistan for its northeast while using its southern natural gas deposits to ramp up exports to foreign markets. Amid Ashgabat's disputes with Moscow and the completion of the Central Asia-China natural gas pipeline in 2009, China gradually replaced Russia as the major market for Turkmenistan's natural gas supplies. Currently, more than 80 percent of the value of Turkmenistan's exports stem from natural gas, with basically all of it going to one customer: China.<sup>23</sup> Against this backdrop, Ashgabat is highly motivated to diversify its natural gas exports base and launch a westward supply line through Azerbaijan to join the Southern Gas Corridor.

In fact, Turkmenistan has long aspired to ship natural gas in a westerly direction, including lucrative European markets. A consortium of Shell, Bechtel, and General Electric tried to construct a pipeline across the Caspian to ship the Central Asian republic's vast natural gas resources to

Turkey and Europe in the late 1990s. The project even received a strong support from the United States, as it was in line with Washington's policy objective of encouraging an energy-pipeline corridor running from east to west through Eurasia that would bypass both Russia and Iran. However, following the discovery of Azerbaijan's Shah Deniz natural gas field by BP in 1999, the project was abandoned as Baku became the new starting point and resource base for a projected southern energy corridor. The realization of this project satisfied the EU whilst also satisfying American interests. As the *Wall Street Journal* put it: "After all, a gas pipeline from Azerbaijan also fits the U.S. strategy of creating an east-west corridor that avoids Russia and Iran for energy exports from the newly independent former Soviet countries bordering the Caspian Sea."<sup>24</sup>

#### THE DOSTLUQ DEAL: A GATEWAY FOR TURKMENISTAN'S GAS SUPPLIES TO EUROPE?

The improvement of relations between Baku and Ashgabat over the past three years, the conclusion of the Convention on the Legal Status of the Caspian Sea, the end of the Second Karabakh War, and the completion of the Southern Gas Corridor Phase One are amongst the factors that paved the way for the signing of a landmark agreement on energy cooperation in the region: a Memorandum of Understanding (MoU) between Azerbaijan and Turkmenistan on the joint exploration and development of hydrocarbon resources in the Dostluq field, located in the Caspian Sea. The "historic document,"<sup>25</sup> as Azerbaijan's president Ilham Aliyev called it, was signed on 21 January 2021. It marks a new stage of energy cooperation between the two Caspian littoral states as it allows them to start joint work on the development of a once-disputed section of an undersea hydrocarbons field in the Caspian Sea for the first time. The deal essentially provides the foundation for establishing a direct gas connection between Azerbaijan and Turkmenistan and facilitates Ashgabat's potential participation in Phase Two of the Southern Gas Corridor project.

Dostluq, which means "friendship" in the titular languages of both Azerbaijan and Turkmenistan, is the new name of the oil and gas field discovered by Soviet Azerbaijani geologists and geophysicists in 1959.<sup>26</sup>

At that time, it was known as "Promezhutochnaya," which means "intermediate" in Russian. Located on the maritime border between Azerbaijan and Turkmenistan, both Baku and Ashgabat have laid claim to the field since the dissolution of the Soviet Union in 1991, calling it Kepez and Serdar, respectively. In the past three decades, there have been several attempts to develop the field. However, all deals failed as Baku and Ashgabat were not able to find middle ground on sharing the undersea deposits. The signing of the aforementioned memorandum finally put an end to this three-decade-old dispute.

The launch of Dostluq will help to channel additional revenue streams and maintain liquid production for both Azerbaijan and Turkmenistan. Reserves estimates vary dramatically. Preliminary numbers suggest 20 to 100 million tons of oil and 10 to 30 billion cubic meters of natural gas.<sup>27</sup> According to the SOCAR, the development of the Dostluq block "will most likely require the collection of new modern seismic data and the drilling of exploration wells."<sup>28</sup> Due to the Dostluq field's proximity to Azerbaijan's massive ACG complex, Ashgabat will be able to export its part of produced hydrocarbons from the field through existing Azerbaijani infrastructure with little additional infrastructure development.

Baku is already a major transit partner for Ashgabat, with around 29 million barrels of Turkmen oil, roughly accounting for one third of the country's total production, being shipped via the BTC trunkline to reach international markets.<sup>29</sup> Interestingly, just a month before the Dostluq deal was inked, SOCAR Trading, a SOCAR subsidiary, won a tender by Eni Turkmenistan to sell around 500,000 tons of Okarem oil from Turkmenistan in 2021.<sup>30</sup> Furthermore, in September 2021, SOCAR and Vitol agreed to transport around 1 million tons of Turkmenistan's oil, an arrangement that began a month later.<sup>31</sup> The two deals increase Ashgabat's oil supplies to the BTC pipeline, thus further bringing the countries together.

Perhaps more importantly, the last obstacle to a direct gas connection between Azerbaijan and Turkmenistan disappeared with the signing of the Dostluq MoU, thus essentially opening up the SGC to Turkmenistan's supply of natural gas to Europe. At early stages, instead of constructing a full-fledged trans-Caspian pipeline, Baku and Ashgabat will likely focus on the realization of a short interconnector between Azerbaijan's offshore fields

and Turkmenistan. This new piece of infrastructure could be even joined with an interconnector from some of Kazakhstan's fields in the Caspian, given their proximity.<sup>32</sup> Such a modest approach would help to build trust and prove the possibility of a direct gas corridor between Azerbaijan and Turkmenistan. In addition, unlike a full-fledged shore-to-shore pipeline, the interconnector between offshore fields would not be subject to environmental approval by all Caspian littoral states, as stipulated in the Convention on the Legal Status of the Caspian Sea.<sup>33</sup> Finally, the realization of such an interconnector project would be politically more acceptable for both Moscow and Tehran: Russia and Iran have long resisted the construction of a Trans-Caspian Pipeline, seeing such a project as a rival to their own natural gas supply networks.

#### OTHER POTENTIAL SUPPLIERS FOR SGC PHASE TWO

Until recently, Russia has been considered as a potential source for natural gas supplies for SGC Phase Two. In particular, concerns were voiced in the West that Russia could book capacity in an expanded version of the Trans Adriatic Pipeline—the SGC's final leg stretching from the Turkish-Greek border to Italy. This was especially the case given the Kremlin's challenges associated with the development of Nord Stream 2—the expansion of existing natural gas supplies (Nord Stream 1) from Russia to Germany under the Baltic Sea. While this booking of space, as it were, could be interpreted as a geopolitical blow to the EU's energy diversification motives, Russian Gazprom's potential participation in this project would have been fully in line with current EU regulations, which requires TAP to provide third party access to an expanded version of the pipeline.<sup>34</sup> However, with the completion of Nord Stream 2 on 10 September 2021, the likelihood of Moscow's participation in the SGC has dropped dramatically.

Iran is another potential candidate for gas supplies to Europe via an expanded Southern Gas Corridor. The country is home to some of the largest deposits of proved gas reserves, ranking as the world's second-largest reserve holder of natural gas.<sup>35</sup> Despite its potential, however, Tehran has been unable to become an important natural gas supplier and monetize its vast reserves due to various technical, managerial,

financial, and geopolitical issues. In addition, Iran's extremely high and inefficient domestic gas consumption has dramatically limited the country's available resource base for exports. In fact, Iran is the fourth-largest consumer of natural gas in the world after the United States, Russia, and China.<sup>36</sup>

The discovery of a new natural gas deposit (called the Chalous field) in the Caspian Sea in August 2021, which took place amid heightened hopes for sanctions relief, might become a game changer for Iran's natural gas supplies. Iran's Khazar Exploration and Production Company (KEPCO) believes the Chalous field to be the tenth-largest natural gas deposit in the world.<sup>37</sup> According to the company's CEO, Ali Osuli, "if the initial estimates are confirmed and exploration success is achieved, the Iranian sector of the Caspian Sea will play a significant role in gas exports to Europe in the near future, in which case Iran's new gas hub will be formed in the north to let the country supply 20 percent of Europe's gas needs from this region."<sup>38</sup>

However, the discovery of these yet-to-be-confirmed natural gas deposits represents only the first step for Iran's potential gas supplies to Europe. Even assuming the lifting of sanctions, Iran would need a proper infrastructure network to successfully evacuate natural gas from the north of the country, which it currently lacks. Essentially, Tehran has four major options. The *first* and perhaps commercially most viable one would be to join an expanded Southern Gas Corridor. There are many ways to accomplish this. Tehran could build an offshore connection with Azerbaijan's Sangachal terminal, which is located on the coast of the Caspian Sea 45 kilometers south of Baku; it could build a new pipeline directly to Turkey, from where it would join TANAP; or Iran could use the existing (and currently operational) Iran-Turkey pipeline. The latter might become vacant by the time the Chalous field is ready for exploitation, as the current 25-year contract for the sale of Iranian gas to Turkey expires in 2026 and Ankara plans to start its own gas production in the Black Sea. The prospects for the Islamic Republic's participation in the SGC, however, might be jeopardized as relations between Azerbaijan and Iran sour amid Tehran's offensive rhetoric against Baku.<sup>39</sup>

The *second* option would consist in building a pipeline from Iran's north to the shores of the Persian Gulf in the south of the country, from where Tehran could liquify natural gas and ship it via LNG vessels. Technically, Iran could also use its Caspian offshore deposits to supply its northern regions, while freeing up more natural gas produced in the Gulf area for LNG supplies. In any case, building a pipeline and/or a liquefaction facility would significantly add up to the project's costs, albeit this export method would be politically preferred for Tehran.

The *third* option is to send natural gas to Turkmenistan and further onwards to China via an additional line within the Central Asia-China gas corridor. However, given the strained relationship between Tehran and Ashgabat as well as Iran's past unwillingness to transit Turkmenistan's natural gas supplies to Turkey and onward, this option seems to be politically unattainable.

The *fourth* option is to export natural gas to Pakistan and perhaps further onward to India, thus effectively replicating Ashgabat's Turkmenistan-Afghanistan-Pakistan-India (TAPI) project. Tehran has long planned to do just that. By 2014, Iran had even completed the infrastructure required to supply natural gas to the Iranian-Pakistani border. However, due to various geopolitical and financial reasons, Islamabad at present does not seem to be interested in realizing the initiative.

Finally, the completion of the SGC opens the prospects for incorporating natural gas supplies located in the Eastern Mediterranean, particularly Israel. While the country's domestic demand for electricity is largely met by gas from the smaller Tamar field, the larger Leviathan field (discovered in 2010, just a year after Tamar) has yet to become a source of Israel's natural gas exports. Israel has several options on the table, but a pipeline to Turkey and further to Europe through TANAP—the longest leg of the Southern Gas Corridor—would be the shortest and most commercially viable route. As noted by SOCAR Vice President for Investments and Marketing, Elshad Nasirov, "Israeli gas to Turkey and then entering TANAP with swaps in the Turkish market is commercially the most viable option to export gas from the East Mediterranean into Europe and we support that option."<sup>40</sup>

The bottom line is that the likelihood of these options and projects being executed has increased as a result of the outcome of the Second Karabakh War.

## REINTEGRATION OF ELECTRICITY MARKETS

The end of the Second Karabakh War and the resulting tripartite statement, coupled with an anticipated full peace agreement between Armenia and Azerbaijan (and another between Armenia and Turkey) might also help to promote the establishment of a common harmonized regional electricity market framework. As mentioned above, the unresolved Karabakh conflict has impeded regional cross-border electricity projects for three decades. While bilateral electricity exchanges have taken in small-scale volumes, a region-wide partnership has been largely stalled.

Armenia, in particular, has a lot to gain from the restoration of regional electricity exchanges. Due to its occupation of Karabakh, Yerevan has only been able to trade electricity with Georgia and Iran, since interconnections with Azerbaijan and Turkey had been disabled. The electricity system connection with Georgia is asynchronous, while trade with Iran has been happening on an electricity-for-gas swap arrangement comprising of Armenia's electricity exports to Iran in return to the imports of natural gas.<sup>41</sup> Yerevan has also remained outside the Azerbaijan-Georgia-Turkey (AGT) Power Bridge Project aimed at supporting increased trade and exchange of electricity and improving network reliability.<sup>42</sup>

A significant expansion of electrical networks, with the use of renewables, is being currently undertaken by Azerbaijan as the country seeks to rebuild the liberated territories in and around Karabakh. Declared a green zone and a hub for sustainable development, the region will become home to smart cities and villages using renewable energy sources. Baku has already allocated \$1.5 billion for the reconstruction of the de-occupied lands in 2021.<sup>43</sup> A significant part of the funds will go for infrastructure spending, including the development of renewables and energy communications.

Karabakh has a great potential for developing green energy: one quarter of Azerbaijan's domestic water resources originate in the liberated regions. Karabakh's major rivers, including Tartar, Bazarchay (Bargushadchay), and Hakari are well-suited for harnessing hydropower.<sup>44</sup> The ongoing construction of the Khudaferin and Giz Galasi dams (the latter is also known as Maiden Tower), which are both being built jointly with Iran, are envisaged to provide 280 MW of energy, whereas the anticipated

hydroelectric power plants in the Kalbajar-Lachin area will generate 120 MW of energy, thus effectively providing for the region's primary energy needs.<sup>45</sup> Karabakh's solar energy potential is estimated at 3,000-4,000 MW and its wind energy potential at 300-500 MW. Once they come online, electricity supplies will be made available to the whole population of the formerly occupied territories, regardless of ethnicity. If a full peace agreement is reached, Azerbaijan's electricity supplies might be also extended further to settlements in Armenia.

The integration of countries' electricity grids could also promote the development of renewable energy, which is an increasingly important issue on the agenda of all countries and is part of the UN 2030 Agenda for Sustainable Development—specifically, SDG7. As electricity generation from renewables tends to be more variable and uncertain than conventional sources, regional cooperation and grid planning are essential for the deployment of renewable energy sources. Well-designed integration methods and coordination policies could help to maximize the cost-effectiveness of incorporating variable renewable energy (VRE) into electrical grids while improving system stability and reliability.<sup>46</sup> In addition, regional partnership can help to reduce regulatory uncertainties and improve investor confidence, both of which are essential for capital-intensive cross-border electricity initiatives.

Finally, even if Armenia and Azerbaijan were to reach a full peace agreement, building a full-fledged and well-integrated regional electricity system might still be jeopardized due to the existence of two parallel integration projects regarding the creation of a common electricity market in the region. The establishment of a single power market is pursued within the context of the EU's Energy Community as well as the Eurasian Economic Union. Georgia signed the protocol on the accession of Georgia to the Energy Community on 14 October 2016 and ratified it on 21 April 2017, thus becoming a full-fledged member. This has resulted in Tbilisi undertaking a commitment to implement key EU regulations and rules on electricity and gas networks, the environment, renewable energy, energy efficiency, oil, and energy statistics.<sup>47</sup> Azerbaijan is also closely cooperating with the Energy Community. Armenia, by contrast, is developing a single market for electricity, gas, and oil within the Russia-led Eurasian Economic Union. As a result, the opposite political orientation of the two parallel

integration processes on the creation of common electricity markets in the region might end up, ironically, promoting further regional fragmentation. As Irina Kustova of the Brussels-based Energy Charter Secretariat put it, “while both projects seek greater market integration and liberalization of electricity sectors, competing regionalism behind the projects might potentially increase their regional rivalry in the future.”<sup>48</sup>

#### REGIONAL ENERGY CONNECTIVITY AT THE CROSSROADS

The Karabakh conflict between Azerbaijan and Armenia dramatically hindered the integration processes not only in the South Caucasus but also in the wider Black Sea-Caspian area. The fragmentation has been especially obvious in the energy domain. The Armenian occupation of Azerbaijan's territories promoted Yerevan's isolation from the region's major oil and gas projects and made the evacuation of Caspian-basin hydrocarbons more expensive, since longer and more secure pipelines passing through extremely rugged terrain were required to be built. Similarly, the conflict has limited opportunities for promoting regional cross-border electricity connectivity. Finally, aside from rejecting participation in and benefiting from various regional initiatives—which, in turn, made their realization more complicated and expensive—Armenia's aggressive posture has over the last 30 years represented a threat to the energy supply routes from Azerbaijan to Georgia, Turkey, and Europe, given that the region's major energy infrastructure projects passed in the near proximity to the conflict zone.

The Second Karabakh War, which came to an end with Azerbaijan's victory, has dramatically changed geopolitical realities on the ground. The end of the fighting has created new opportunities for unlocking and developing the region's communications links, including those in the energy sector. However, the restoration of transportation and energy links, particularly between Azerbaijan and Armenia, has so far been limited due inter alia to Yerevan's unwillingness to implement fully the terms of the tripartite statement. In the meantime, Azerbaijan and Turkey have decided to move forward on the construction of the Igdir-Nakhchivan natural gas pipeline. The project will allow Baku to ship its own gas to its landlocked exclave via Turkish territory, thus ending the requirement that

Azerbaijan engages in swap operations with Iran to provide its strategic western exclave with natural gas supplies.

Another important milestone in the region's energy affairs was the signing of a Memorandum of Understanding between Azerbaijan and Turkmenistan on joint exploration and development of hydrocarbon resources of the Dostluq field in the Caspian Sea. The timing of the deal is not accidental. The conclusion of the Convention on the Legal Status of the Caspian Sea, the end of the Second Karabakh War, and the recent completion of the Southern Gas Corridor, coupled with an improvement of relations between Baku and Ashgabat for the past three years, paved the way for the deal. All this suggests the likelihood of a direct gas connection between Azerbaijan and Turkmenistan being constructed in the time ahead, which would facilitate Ashgabat's participation in the Southern Gas Corridor.

The end of the Second Karabakh War and the completion of the Southern Gas Corridor also provides an opportunity for other potential suppliers to join an expanded version of Phase Two of this strategic project. Besides Turkmenistan, Russia, Iran, and Israel are widely regarded as potential providers of natural gas for SGC Phase Two. With the competition of Nord Stream 2, however, Moscow's participation in the project currently seems to be highly unlikely. Iran's announcement in August 2021 about the finding of the giant offshore Chalous deposit in the Caspian Sea might become a game-changer and facilitate the country's participation in Phase Two. However, the discovery of this gas deposit, which has yet to be confirmed, would represent only the first step on Iran's way towards natural gas exports to Europe. In addition to a lack of appropriate infrastructure and funding, many uncertainties still remain around the sanctions regime. Israel, too, might become a supplier of natural gas for an expanded Southern Gas Corridor in the future, as the transportation of Israeli gas to Europe via Turkey and TANAP is commercially the most viable option.

Finally, the South Caucasus region, being a crossroads for regional grid connections among Russia, Iran, and Turkey (the latter also provides a gateway to the EU power market), has a significant potential to benefit from various seasonal, price, and geographical combinations in electricity trade. The end of the Second Karabakh War and an anticipated full peace

agreement might help to realize the aforementioned benefits via fostering the reintegration of existing national grids into a single regional power system. Closer regional cooperation and grid planning would also help to promote the deployment of renewables, diminish regulatory uncertainties, and attract investments, all of which are essential for capital-intensive cross-border electricity initiatives.

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## NOTES

1. "BP Welcomes Completion of Southern Gas Corridor Mega-Project," December 31, 2020, [www.bp.com/en/global/corporate/news-and-insights/reimagining-energy/southern-gas-corridor-mega-project-completes.html](http://www.bp.com/en/global/corporate/news-and-insights/reimagining-energy/southern-gas-corridor-mega-project-completes.html).
2. Irina Kustova, "Regional Electricity Cooperation in the South Caucasus: Cross-Border Trade Opportunities and Regional Regulatory Uncertainties," *Energy Charter*, April 15, 2016, 4, [www.energycharter.org/fileadmin/DocumentsMedia/Occasional/Regional\\_Electricity\\_Cooperation\\_South\\_Caucasus.pdf](http://www.energycharter.org/fileadmin/DocumentsMedia/Occasional/Regional_Electricity_Cooperation_South_Caucasus.pdf).
3. Nick Coleman and David O'Byrne, "BP 'Deeply Concerned' as Pipeline Attack Raises Stakes in Azerbaijan Conflict," *S&P Global Platts*, October 7, 2020, [www.spglobal.com/platts/en/market-insights/latest-news/natural-gas/100720-bp-deeply-concerned-as-pipeline-attack-raises-stakes-in-azerbaijan-conflict](http://www.spglobal.com/platts/en/market-insights/latest-news/natural-gas/100720-bp-deeply-concerned-as-pipeline-attack-raises-stakes-in-azerbaijan-conflict).
4. "Aliyev Warns of Consequences if Armenia Targets Oil, Gas Pipelines," *Daily Sabah*, October 14, 2020, [www.dailysabah.com/politics/diplomacy/aliyev-warns-of-consequences-if-armenia-targets-oil-gas-pipelines](http://www.dailysabah.com/politics/diplomacy/aliyev-warns-of-consequences-if-armenia-targets-oil-gas-pipelines).
5. "Azeri-Armenia Conflict Moves Closer to Pipeline Routes," *Argus Media*, October 5, 2020, [www.argusmedia.com/en/news/2147295-azeriarmenia-conflict-moves-closer-to-pipeline-routes?backToResults=true](http://www.argusmedia.com/en/news/2147295-azeriarmenia-conflict-moves-closer-to-pipeline-routes?backToResults=true).
6. "Armenia, Azerbaijan and Russia Sign Nagorno-Karabakh Peace Deal," *BBC News*, November 10, 2020, [www.bbc.com/news/world-europe-54882564](http://www.bbc.com/news/world-europe-54882564).
7. "Statement by the President of the Republic of Azerbaijan, the Prime Minister of the Republic of Armenia and the President of the Russian Federation," *Ministry of Foreign Affairs of the Russian Federation*, November 10, 2020, [www.mid.ru/en/foreign\\_policy/news/-/asset\\_publisher/cKNonkJE02Bw/content/id/4419267](http://www.mid.ru/en/foreign_policy/news/-/asset_publisher/cKNonkJE02Bw/content/id/4419267).

8. “During the Planned Preventive Maintenance on the ‘North Caucasus-Transcaucasia’ Russian Gas Will Be Delivered Through the Azerbaijan Territory,” *Gazprom Export*, March 17, 2021, [www.gazpromexport.com/en/presscenter/press/2512](http://www.gazpromexport.com/en/presscenter/press/2512).
9. “Republic of Armenia,” Second Biennial Update Report, United Nations Framework Convention on Climate Change, May 4, 2018, [unfccc.int/sites/default/files/resource/Armenia%27s%20BUR2\\_04.05.18\\_0.pdf](http://unfccc.int/sites/default/files/resource/Armenia%27s%20BUR2_04.05.18_0.pdf)
10. “Energy,” *Armenia-Country Commercial Guide*, September 16, 2021, [www.trade.gov/country-commercial-guides/armenia-energy](http://www.trade.gov/country-commercial-guides/armenia-energy).
11. Nargiz Mammadli, “Azerbaijan Helps Russia with Natural Gas Supplies to Armenia,” *Caspian News*, March 20, 2021, [caspiannews.com/news-detail/azerbaijan-helps-russia-with-natural-gas-supplies-to-armenia-2021-3-20-0](http://caspiannews.com/news-detail/azerbaijan-helps-russia-with-natural-gas-supplies-to-armenia-2021-3-20-0).
12. Natalia Konarzewska, “Armenia’s Gas Dispute with Russia,” *CACI*, April 29, 2019, [cacianalyst.org/publications/analytical-articles/item/13570-armenias-gas-dispute-with-russia.html](http://cacianalyst.org/publications/analytical-articles/item/13570-armenias-gas-dispute-with-russia.html).
13. “Azerbaijan and Turkey Have Signed a Memorandum of Understanding on Natural Gas Supply to Nakhchivan,” *Ministry of Energy of the Republic of Azerbaijan*, December 15, 2020, [minenergy.gov.az/en/xeberler-arxivi/azerbaycan-turkiye-ile-naxcivana-tebii-qazin-tedarukune-dair-anlasma-memorandumu-imzalayib](http://minenergy.gov.az/en/xeberler-arxivi/azerbaycan-turkiye-ile-naxcivana-tebii-qazin-tedarukune-dair-anlasma-memorandumu-imzalayib).
14. “Turkey, Azerbaijan Ink Deal to Secure Nakhchivan’s Natural Gas Supply,” *Daily Sabah*, December 15, 2020, [www.dailysabah.com/business/energy/turkey-azerbaijan-ink-deal-to-secure-nakhchivans-natural-gas-supply](http://www.dailysabah.com/business/energy/turkey-azerbaijan-ink-deal-to-secure-nakhchivans-natural-gas-supply).
15. “Turkish Ministry Reveals Timing for Igdir-Nakhchivan Gas Pipeline Construction,” *Azer News*, August 19, 2021, [www.azernews.az/oil\\_and\\_gas/182385.html](http://www.azernews.az/oil_and_gas/182385.html).
16. “Turkey, Azerbaijan Ink Deal,” *Daily Sabah*.
17. Paul Goble, “Turkish Pipeline to Nakhchivan Shakes up Power Relations in South Caucasus,” *Eurasia Daily Monitor* 18, issue 127 (August 10, 2021), [jamestown.org/program/turkish-pipeline-to-nakhchivan-shakes-up-power-relations-in-south-caucasus](http://jamestown.org/program/turkish-pipeline-to-nakhchivan-shakes-up-power-relations-in-south-caucasus).
18. Engin Esen, “TANAP Carrying Gas in Full Capacity: CEO,” *Hurriyet*, January 15, 2021, [www.hurriyetdailynews.com/tanap-carrying-gas-in-full-capacity-ceo-161643](http://www.hurriyetdailynews.com/tanap-carrying-gas-in-full-capacity-ceo-161643).
19. Danila Bochkarev, “TAP Pipeline is Bringing EU Energy Policy to Azerbaijan,” *EURACTIV*, December 11, 2020, [www.euractiv.com/section/azerbaijan/opinion/tap-pipeline-is-bringing-eu-energy-policy-to-azerbaijan/](http://www.euractiv.com/section/azerbaijan/opinion/tap-pipeline-is-bringing-eu-energy-policy-to-azerbaijan/).
20. Akhmed Gumbatov, “Completing the Southern Gas Corridor,” *Baku Dialogues* 4 ,no. 1 (Fall 2020), [bakudialogues.ada.edu.az/media/2020/08/27/bd-1-gumbatov.pdf](http://bakudialogues.ada.edu.az/media/2020/08/27/bd-1-gumbatov.pdf).
21. Simon Pirani, “Azerbaijan’s Gas Sales Strategy at A Crossroads,” *Oxford Institute for Energy Studies*, May 2021, [www.oxfordenergy.org/wpcms/wp-content/uploads/2021/05/Azerbaijans-gas-sales-strategy-at-a-crossroads.pdf](http://www.oxfordenergy.org/wpcms/wp-content/uploads/2021/05/Azerbaijans-gas-sales-strategy-at-a-crossroads.pdf).
22. “BP Statistical Review of World Energy 2021,” July 2021, [www.bp.com/content/dam/bp/business-sites/en/global/corporate/pdfs/energy-economics/statistical-review/bp-stats-review-2021-full-report.pdf](http://www.bp.com/content/dam/bp/business-sites/en/global/corporate/pdfs/energy-economics/statistical-review/bp-stats-review-2021-full-report.pdf).
23. “Turkmenistan,” *The Observatory of Economic Complexity (OEC)*, September 20, 2021, [oec.world/en/profile/country/tkm](http://oec.world/en/profile/country/tkm); “Turkmenistan: Chinese Debt Trap Unlocked,” *EurasiaNet*, June 15, 2021, [eurasianet.org/turkmenistan-chinese-debt-trap-unlocked](http://eurasianet.org/turkmenistan-chinese-debt-trap-unlocked).
24. Hugh Pop, “GE, Bechtel Back Out of Proposal for Oil Pipeline in Caspian Basin,” *The Wall Street Journal*, June 27, 2000, [www.wsj.com/articles/SB962056071428182225](http://www.wsj.com/articles/SB962056071428182225).
25. Jeyhun Aliyev, “Azerbaijan, Turkmenistan Sign Deal on Caspian Hydrocarbon Field,” *Anadolu Agency*, January 22, 2021, [www.aa.com.tr/en/economy/azerbaijan-turkmenistan-sign-deal-on-caspian-hydrocarbon-field/2118835](http://www.aa.com.tr/en/economy/azerbaijan-turkmenistan-sign-deal-on-caspian-hydrocarbon-field/2118835).
26. “Rystad Energy: Dostluq Field’s Development to Support Liquid Hydrocarbon Production,” *Report.az*, September 10, 2021, [report.az/en/energy/rystad-energy-dostluk-field-s-development-to-support-liquid-hydrocarbon-production](http://report.az/en/energy/rystad-energy-dostluk-field-s-development-to-support-liquid-hydrocarbon-production); Natig Aliyev, “Kapaz. SOCAR’s Official Statement,” *Azerbaijan International* 5, no 7 (Autumn 1997), 87, [www.azer.com/aiweb/categories/magazine/53\\_folder/53\\_articles/53\\_statement.html](http://www.azer.com/aiweb/categories/magazine/53_folder/53_articles/53_statement.html).
27. Ayya Lmahamad, “21m Tons of Oil to be Produced from Karabakh Field,” *AzerNews*, August 12, 2020, [www.azernews.az/oil\\_and\\_gas/167898.html](http://www.azernews.az/oil_and_gas/167898.html); Orkhan Jalilov, “Azerbaijan, Turkmenistan Sign Memorandum on Joint Exploration and Development of Oil Field,” *Caspian News*, January 23, 2021, [caspiannews.com/news-detail/azerbaijan-turkmenistan-sign-memorandum-on-joint-exploration-and-development-of-oil-field-2021-1-23-0](http://caspiannews.com/news-detail/azerbaijan-turkmenistan-sign-memorandum-on-joint-exploration-and-development-of-oil-field-2021-1-23-0).
28. Vladimir Afanasiev, “Deep-Water Friendship: Turkmenistan and Azerbaijan Bury Caspian Sea Hatchet,” *Upstream Online*, January 12, 2021, [www.upstreamonline.com/politics/deep-water-friendship-turkmenistan-and-azerbaijan-bury-caspian-sea-hatchet/2-1-949189](http://www.upstreamonline.com/politics/deep-water-friendship-turkmenistan-and-azerbaijan-bury-caspian-sea-hatchet/2-1-949189).
29. Afanasiev, “Deep-Water Friendship.”
30. “SOCAR Wins Tender for Turkmen Oil Purchase,” *Report.az*, December 14, 2020, [report.az/en/energy/another-victory-socar-wins-tender-for-turkmen-oil-purchase](http://report.az/en/energy/another-victory-socar-wins-tender-for-turkmen-oil-purchase).
31. Agshin Rafigoglu, “Supplies of Turkmen Oil Via BTC to Increase,” *Report News Agency*, September 9, 2021, [report.az/en/energy/supplies-of-turkmen-oil-via-btc-to-increase](http://report.az/en/energy/supplies-of-turkmen-oil-via-btc-to-increase).
32. Luke Coffey, “A Trans-Caspian Gas Pipeline: Start Small but Aim Big,” *The Heritage Foundation*, May 20, 2019, [www.heritage.org/global-politics/commentary/trans-caspian-gas-pipeline-start-small-aim-big](http://www.heritage.org/global-politics/commentary/trans-caspian-gas-pipeline-start-small-aim-big).
33. “Convention on the Legal Status of the Caspian Sea,” *President of Russia*, August 12, 2018, [en.kremlin.ru/supplement/5328](http://en.kremlin.ru/supplement/5328).
34. Gumbatov, “Completing the Southern Gas Corridor.”

35. "Iran," *U.S. Energy Information Administration*, July 20, 2021, [www.eia.gov/international/analysis/country/IRN](http://www.eia.gov/international/analysis/country/IRN).
36. "Iran," *U.S. Energy Information Administration*.
37. "New Gas Hub in Northern Iran," *Khazar Exploration and Production Company (KEPCO)*, September 24, 2021, [www.kepco.ir/en/news/1719/New-Gas-Hub](http://www.kepco.ir/en/news/1719/New-Gas-Hub).
38. "Iran Eyes the Prospect of Supplying Europe with Gas," *Pipeline Technology Journal*, August 24, 2021, [www.pipeline-journal.net/news/iran-eyes-prospect-supplying-europe-gas](http://www.pipeline-journal.net/news/iran-eyes-prospect-supplying-europe-gas).
39. Ayya Lmahamad and Vafa Ismayilova, "Experts Ponder Reasons Behind Iran's Aggressive Anti-Azerbaijan Rhetoric," *AzerNews*, October 9, 2021, [www.azernews.az/nation/184186.html](http://www.azernews.az/nation/184186.html).
40. Stuart Elliott, "Azerbaijan's Socar Turns Attention to Southern Gas Corridor 'Phase Two,'" *S&P Global Platts*, February 17, 2021, [www.spglobal.com/platts/en/market-insights/latest-news/natural-gas/021721-azerbajians-socar-turns-attention-to-southern-gas-corridor-phase-two](http://www.spglobal.com/platts/en/market-insights/latest-news/natural-gas/021721-azerbajians-socar-turns-attention-to-southern-gas-corridor-phase-two).
41. "Energy," *Armenia: Country Commercial Guide, U.S. Department of Commerce*, September 16, 2021, [www.trade.gov/country-commercial-guides/armenia-energy](http://www.trade.gov/country-commercial-guides/armenia-energy).
42. Irina Kustova, "Regional Electricity Cooperation," 4.
43. Ayya Lmahamad, "Azerbaijan to Use Renewable Energy to Meet Karabakh's Power Needs," *AzerNews*, September 8, 2021, [www.azernews.az/oil\\_and\\_gas/183056.html](http://www.azernews.az/oil_and_gas/183056.html).
44. "Energy Potential of Nagorno-Karabakh and Surrounding Regions," *Azerbaijan Energy Regulatory Agency*, November 2, 2020, [regulator.gov.az/en/news/127](http://regulator.gov.az/en/news/127).
45. Vusal Gasimli, "Baku's 'smart' Karabakh Plan Paints a Bright Future," *Daily Sabah*, March 30, 2021, [www.dailysabah.com/opinion/op-ed/bakus-smart-karabakh-plan-paints-a-bright-future](http://www.dailysabah.com/opinion/op-ed/bakus-smart-karabakh-plan-paints-a-bright-future).
46. "Integrating Variable Renewable Energy into Grid: Key Issues," *National Renewable Energy Laboratory*, September 20, 2021, [www.nrel.gov/docs/fy15osti/63033.pdf](http://www.nrel.gov/docs/fy15osti/63033.pdf).
47. "Georgia Ratifies Europe's Energy Community Accession Agreement," *CIVIL.GE*, April 26, 2017, [civil.ge/archives/126354](http://civil.ge/archives/126354).
48. Kustova, "Regional Electricity Cooperation," 1.