Energy Diplomacy – Southern Gas Corridor (SGC)

While leaning on the previous Institute's analysis, this work will particularly examine Azerbaijan's Southern Gas Corridor (SGC) as a strategic pathway for both the EU and Azerbaijan amidst the ongoing energy transition. The SGC serves as an infrastructure project, aiming to transport natural gas from the Caspian region to Europe. The strategic positioning of Azerbaijan, established infrastructure, and commitment to align with global climate needs are the strong features complimenting the SGC. By capitalizing on its natural resources and embracing innovative solutions such as CCS and hydrogen production, Azerbaijan can position itself as a reliable partner in the global pursuit of climate resilience. Addressing societal skepticism and fostering industry readiness are the next step for the SGC. As the world moves towards a more sustainable energy future, the SGC will continue to play a vital role in shaping the energy landscape of the Caspian region and Europe. In essence, the SGC embodies a paradigm shift towards collaborative energy governance, where mutual interests converge to forge a path toward a more sustainable future.

The Role of Oil and Gas Companies in the Global Energy Transition:

Climate change has shifted from a distant concern to an imminent crisis demanding immediate action across all sectors of society. At the forefront of this global challenge are oil and gas companies, longstanding pillars of the world's energy landscape. As the primary contributors to greenhouse gas emissions, these companies wield considerable influence in shaping the course of climate change and bear significant responsibility for mitigating its impacts. The urgency for change is underscored by the existential threat posed to oil and gas companies in the face of rapid global energy transformation. According to the report from the Atlantic Council, in the S&P 500, the energy sector has experienced a dramatic decrease of 48 percent in the last 10 years (Krauskopf, 2019).

National oil companies (NOCs), in particular, emerge as key players in this landscape. Fully or majority-owned by national governments, these companies have significant influence, accounting for half of global oil production and holding a substantial share of global oil reserves (Belle and Mulhovo, 2024). Oil income serves as a vital revenue source for governments, underpinning essential services and societal well-being. Despite their centrality to national economies and revenue generation, NOCs face mounting pressure to participate in the energy transition and support the decarbonization of the energy system.

Recent global climate conferences, such as COP28 hosted by the United Arab Emirates (UNFCCC, 2023) and the upcoming COP29 scheduled in Azerbaijan (UNFCCC, 2024), highlight the active involvement of petrostates and oil and gas companies in this pivotal transition. Moreover, IRENA analysis highlighted the link between the markets, governance structures, institutional features, and the energy transition in NOCs (IRENA, 2021), and in the face of these challenges and opportunities, oil and gas companies must navigate a multifaceted landscape

characterized by policy, investor, and societal pressures. The sector's utilization of interconnected technologies offers great avenues for decarbonization. From geological expertise to the development of carbon capture and storage (CCS) and hydrogen production, the industry holds existing expertise that can be harnessed to facilitate the energy transition.

Azerbaijan's Strategic Positioning in Green Energy and the Role of SGC:

There are numerous opportunities open for countries like Azerbaijan, which thanks to their proximity to Europe and well-established oil and gas infrastructure, can utilize the already existing expertise and infrastructure to invest in hydrogen projects (Belle and Mulhovo, 2024). It has the potential to decarbonize the energy sector. Additionally, CCS technologies, which can capture emitted CO2, hold significant promise. Notably, according to the IEA report, a substantial portion of large-scale CCS projects, approximately 80% (2020), are integrated with oil and gas operations. Scaling up CCS is a pivotal aspect of global decarbonization efforts, aligning with initiatives such as the EU's Net Zero Industry Act and Nationally Determined Contributions under the Paris Agreement (IEA, 2023).

By becoming the host country for the next COP29, Azerbaijan has immediately drawn attention to its energy sector. Considering current geopolitical changes in Eurasia, Azerbaijan is in a favorable position to extend its influence both eastward into Central Asia and westward into the Balkans and further in the EU. The planned increase in energy supply to Europe and the advancement of critical connectivity projects such as the Middle Corridor and SGC are positioning Azerbaijan to apply an active role in the region, emerging as a vital hub for essential energy resources. Meanwhile, being a petrostate and with the oil and gas sector being the cornerstone of

the country’s economy, Azerbaijan, considering the green transition, does participate in the process through its diversification efforts. Moreover, having renewable energy potential as hydro, solar, wind, and geothermal resources (IEA, 2023) is an opportunity for future growth. As it was stated during the Green Energy Advisory Council meeting in Baku, considering the role of the oil and gas sector in the green energy transition, SGC is going to be the platform for enhanced energy partnership between Azerbaijan and the EU (President AZ, 2024).

Meanwhile, there is a changing role of the oil and gas companies in energy, this analysis will primarily examine the strategic significance of Azerbaijan's SGC for both the EU and Azerbaijan amidst the ongoing energy transition. The SGC serves as a crucial energy infrastructure project, aiming to transport natural gas from the Caspian region to Europe.

The SGC will not only impact the energy transition but will also need and create changes in other areas such as policy, society, and industry. The political fit refers to the need for the policies and regulations governing energy production and consumption to align with the goals of decarbonization and sustainability. Meanwhile, society's increasing awareness and concern about climate change and environmental degradation play a significant role in shaping energy policies and practices. Finally, for the SGC, understanding the industry's readiness to seize CCS and hydrogen production opportunities is crucial for determining the project's success and its contribution to the energy transition. Therefore, this study will delve into various aspects, including policy alignment, societal demands for decarbonization, and industry changes, particularly concerning CCS technology and blue hydrogen production.

Evolving Energy Alliances: Azerbaijan's Role Amidst Political Shifts in Europe:

“The Russian clash with the west over Ukraine has prompted significant political changes in Eurasia, leading to a reconsideration of energy alliances and a closer examination of everyone’s role” – as guru of the higher education in Africa and the Swiss MP, prof. Djawed Sangdel pointed out. Caucasus is surely an important energy transiting and producing partner. Countries in Southeast Europe and Central Europe, including existing customers like Greece, Bulgaria, and Italy, as well as potential new customers such as Hungary, Croatia, Serbia, North Macedonia, Bosnia and Herzegovina, Romania, Slovenia, and Albania (Bowden, 2022), have expressed interest in increasing their imports of Azerbaijani gas.

Figure 1: Pipeline Gas Flows From the Russian Federation to the EU (2021-2023)
Source: ENTSOG

These countries, collectively forming the Southeast Europe and Central European region, are seeking to diversify their energy sources away from reliance on Russian supplies. Furthermore, major producers in the region, including Serbia, Greece, Bosnia and Herzegovina, Bulgaria, and Romania, are aligning their energy policies with the EU's decarbonization objectives. They are aiming to reduce coal production and consumption, substituting it with natural gas and renewable energy sources. As the Prime Minister of Albania, Edi Rama said as the proportion of Russian gas

in the EU is declining from 40% to zero and with the push for green initiatives the utilization of Azerbaijani gas resources and the Caspian region becomes increasingly vital for the mutual future of the regions (President AZ, 2024). On December 31, 2020, the initial transmission of Azerbaijani gas to the EU has started. According to Azerbaijan's Energy Ministry, within three years, the SGC facilitated the delivery of over 31 billion cubic meters (bcm) of natural gas to Europe.

In July 2022, European Commission President Ursula von der Leyen and Energy Commissioner Kadri Simson visited Baku to confer with President Aliyev and formally endorsed a Memorandum of Understanding regarding the exportation of increasing by 4 bcm of gas from Azerbaijan to Europe, starting in 2022 (European Commission, 2022). This agreement further underscored Azerbaijan's status as a credible energy ally. At this moment, gas supplies to Europe from the Corridor have increased by 46% compared to 2021. The RePowerEU policy by the European Commission (2022) aims for a significant and immediate reduction in the EU's reliance on Russian gas, intending to eliminate dependence on imported Russian fossil fuels, including oil, gas, and coal, well before 2030. This plan involves diversifying gas imports from alternative sources such as the MENA region, LNG, and gas from Azerbaijan, among other strategies.

Policy Dynamics in the SGC:

European companies operating within the SGC are undergoing significant policy changes as well, in particular, in their approach to renewable energy and the broader electricity supply chain (IRENA, 2021). One group of companies, including Eni, Shell, and Total, is not only diversifying their portfolios to include renewable energy but also investing extensively across the electricity supply chain, from production to generation and supply. Shell and Total, for example, have expanded their presence through the acquisition of companies involved in various aspects of

electricity generation, battery storage, domestic power, and more, on a global scale (IRENA, 2021). These shifts in operational organization reflect European companies' recognition of the need to align with Europe's transition to a lower-carbon economy, driven by both policy mandates and financial pressures. As these companies increasingly invest in renewable energy and transition toward becoming electricity providers, there could be shifts in the demand for natural gas and the role of the corridor in supplying Europe's energy needs. The SGC serves as a crucial energy infrastructure project, providing European countries with an alternative to Russian gas and supporting decarbonization objectives, meanwhile expanding the energy market for Azerbaijan.

Considering other political fits in the framework of the Southern Gas Corridor, the SGC operates within the framework of European competition legislation, which prohibits joint sales and marketing through a single seller as it breaches Article 81(1) EC and Article 53 of the European Economic Area Agreement. However, when long-term gas supply contracts were signed with European gas buyers in 2013, the marketing arm of the Shah Deniz consortium, Azerbaijan Gas Supply Company (AGSC), a single seller, was exempted from joint sales restrictions. This exemption was granted because although AGSC is a single consortium, it has seven shareholders, the Shah Deniz Gas Entitlement Holders, and each sells its gas via AGSC in proportion to its entitlement.

Society and Green Transition:

Skepticism from society regarding Azerbaijan's ability to contribute to the green transition and serve as an energy ally for Europe due to its reliance on fossil fuels is a valid concern. Given Azerbaijan's significant oil and gas reserves and its historical dependence on these resources, there may be doubts about the country's commitment to sustainability and its capacity to transition to

cleaner energy sources. Addressing these concerns requires transparent communication and concrete actions from Azerbaijan to demonstrate its dedication to green initiatives and its willingness to embrace renewable energy technologies.

Azerbaijan's initiative to host COP29 highlights its commitment to leading discussions on global climate action, despite its abundant fossil fuel resources. This represents the dedication to exploring ways for a sustainable and efficient green energy transition on a global scale, and most importantly, economies heavily dependent on the oil and gas sector.

The meeting in Baku had two important topics: advancing the bilateral clean energy agenda between Azerbaijan and the EU and the operational aspects of the SGC. Hydrogen was a focal point of the discussion as it has the potential in the long run to intersect both areas (President AZ, 2024). The country has a lot of opportunities for renewable energy, such as wind and solar, which can further be used to produce hydrogen and electricity that can be exported and further replace fossil fuels. They have set national targets to reduce greenhouse gas emissions by 40% by 2050 compared to the levels from the 1990s (Abnett, 2024). In this context, having discussions on blue and green hydrogens within the framework of the SGC is of significant importance. Oil companies operating in the country are also taking their part in the green energy initiatives. For instance, BP is planning to start construction of a solar power station with a capacity of 240 MW (Azernews, 2024) in the summer of 2024.

The SGC is an initiative in the transition of oil and gas-dependent Azerbaijan towards green energy, proving the point that they meet societal demands on decarbonization. The EU has integrated clean energy as a fundamental aspect of its bilateral relations with Azerbaijan (European Commission, 2022). Those also align with the EU projects such as REPowerEU, which is an opportunity for Azerbaijan to deepen its engagement with the EU on renewable energy and

accelerate its transition towards a cleaner and more sustainable energy future. The recent signing of a Memorandum of Understanding with EU wind companies signifies a stride forward. The export of green energy is poised to sustain Azerbaijan's relevance as an energy exporter beyond 2040 when existing long-term gas supply contracts are set to expire.

Moreover, since as the part of decarbonization plan, the national oil and gas companies are planning to employ CCS, like any other technology or decision, they need government support and political commitment at least until the technology develops not only in the sense of numerous industrial changes or agreements but also to foster societal support. Both because of public skepticism and the industry's failure to effectively communicate its decarbonization plans, there is a huge backlash for the oil and gas sector (Berns et al, 2019). As well as many are skeptical about CCS as a climate mitigation tool, basing their arguments on high costs and uncertainties about the safety of carbon storage. As Fattouh et al. say critics argue that CCS might perpetuate reliance on fossil fuels and hinder the adoption of cleaner technologies (2021). Some go further and advocate for prioritizing natural carbon sinks over CCS technologies.

Changes in Industry:

The EU's continued demand for gas, both for power generation and industrial applications, underscores the relevance of the SGC as a crucial source of energy supply. Azerbaijan has substantial gas reserves as well as the existing infrastructure for gas transportation to the EU. However, in light of global actions to transition towards cleaner energy sources, Azerbaijan also faces the imperative to adopt more sustainable practices. In the context of the SGC, the integration of CCS technology and the production of blue and green hydrogen present significant opportunities for aligning with the evolving energy landscape and addressing sustainability concerns.

First, concerning resource availability, Shah Deniz Deep, Absheron Stage 1 and 2, ACG Deep, and Ümid are part of production portfolios managed by international consortia, with Ümid being developed by SOCAR.

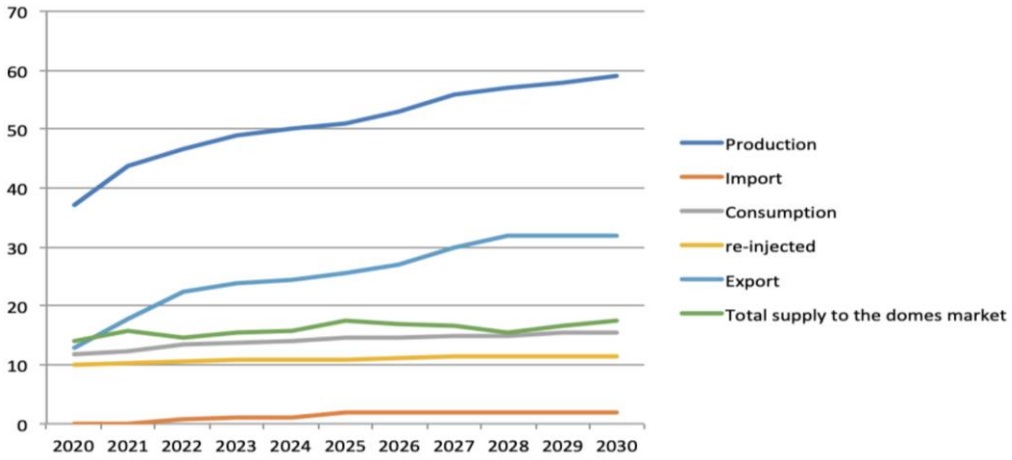

Figure 2: Gas Remaining for the Domestic Market vs. Gas Consumption
Source: Rzayeva (2023)

Meanwhile, the SGC has the following capacity, which is only planned to increase.

Pipelines	Capacity	Transportation tariff	Status
SCP	7.5bcma	Base $40/100km/1mmcm tariffs are escalated at 1 January each year by 2.5%	Operational
SCPx	24bcma	Base $49.8/100km/1mmcm tariffs are escalated at 1 January each year by 2.5%	Operational
SCPfx	31bcma	To be defined	To be expanded
TANAP	16bcma	Base $107/$76/100km/1mmcm escalated annually from 2018 at 1%	Operational
TANAPx	31bcma	To be defined	To be expanded
TAP	10bcma	€60/100 km/1mmcm	Operational
TAPx	20bcma	To be defined	To be expanded

Figure 3: The Expansion of the SGC segments,
Source: Rzayeva (2023)

CCS:

According to the Ministry of Energy of Azerbaijan, aligning with the societal and political demands for energy exports, Azerbaijan has started heavily investing in renewables such as wind and solar, attracting millions of foreign investments. As well as the technical potential for renewable energy, offshore specifically is 157 GW, among which wind and solar energy take the leading positions. Azerbaijan's potential for implementing CCS technology within the oil and gas sector is a critical aspect of this transition. The country's involvement in international consortia, such as the Shah Deniz Deep and Absheron projects, offers opportunities for integrating CCS into gas production processes (Rzayeva, 2023). CCS technology, by capturing and storing carbon dioxide emissions from natural gas combustion (IEA, 2024), can significantly reduce greenhouse gas emissions, aligning with both EU and global sustainability goals.

Azerbaijan's oil and gas sector presents the opportunity for CCS implementation. The country has substantial hydrocarbon reserves, which are expected to continue playing a significant role in its energy mix for the foreseeable future. Meanwhile, to mitigate its environmental impact CCS deployment is an attractive option. Since the government has shown its commitment to sustainability, by leveraging these strengths, Azerbaijan can effectively implement CCS technology to capture and store carbon emissions from its oil and gas operations, thereby reducing its carbon footprint and contributing to global climate goals. The economic feasibility of CCS relies on various factors, which include capital costs, operational expenses, and market demand. While CCS technologies have advanced in recent years, they still require substantial upfront investments and operational costs.

Hydrogen Production:

Similarly, hydrogen production requires significant investment in infrastructure and may face competition from conventional fossil fuels. However, as global efforts to decarbonize increase and demand for clean energy rises, the hydrogen market (especially for Azerbaijan) is expected to grow. Azerbaijan can leverage its abundant natural gas reserves to produce blue hydrogen. The offshore expertise collected over several decades by the oil and gas industries is the key to supporting the offshore wind industry. Repurposing existing offshore infrastructure can facilitate the efficient transition to offshore renewable energy technologies.

Blue hydrogen production, which involves using natural gas as a feedstock and capturing the resulting CO2 emissions through CCS (IRENA, 2021), offers a promising pathway towards decarburization in the SGC to adapt to changing market dynamics. As a major gas producer in the region, Azerbaijan can greatly benefit from the development of blue hydrogen as an alternative energy carrier. By using CCS with hydrogen production, it can produce clean hydrogen while decreasing emissions from gas operations at the same time. Moreover, blue hydrogen production presents new economic opportunities, including export potential and diversification of the energy portfolio, further reinforcing Azerbaijan's role as a key player in the global energy market.

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