

Oil Pipelines: Eurasian geopolitical reconfiguration

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Abstract

The Caspian Sea is an important source of oil for the world, particularly Europe. However, the landlocked area was surrounded by neighbors who were commercial rivals and possessed major regional access routes. Examination of Eurasian oil pipelines evidences two large regions: Northern European and Mediterranean European systems involved in competition and collaboration in close quarters with competition and confrontation to reach the European markets from the Caspian Sea sources. With the demise of the Soviet Union, and driven by EU and US interests, as well as counting on their support, the Caspian region broke the Russian oil monopoly in less than a decade.

Keywords: Caspian Sea, Eurasia, Geopolitics, Oil pipelines.

Introduction

Since mid-XX century, regional energy infrastructure has developed to connect Caspian Sea and Central Asia production centers to consumption markets. Oil pipelines are cost-efficient, profitable, and economical alternatives to traditional hauling via the oceans.¹

¹ Trucking costs escalate sharply with distance, becoming the most expensive of petroleum transport. While ubiquitous, it is limited to short haul where alternatives are unavailable. Railroad tank car costs do not rise as sharply with distances, but costs remain a multiple of pipeline and waterborne alternatives and are not universally available. Waterborne shipments can be competitive with pipelines but limited by geography. To replace a 150,000-barrel per day, 1,000-mile pipeline with: a) trucks, each holding 200 barrels (8,400 gallons) and travelling 500 miles per day, would require a fleet of 3,000 trucks, one truck unloading every 2 minutes; b) with trains, each with 75-cars holding 2000-barrels, would require one unloading daily returning empty to the source –along separate tracks– to be refilled; c) with ships, where rivers and coasts allow, tank barges and tank vessels compete aggressively against pipelines. (Trench, 2001: pp.2-3).

Politicization of energy (Elliot, 2020) and transport (LRT, 2020), with pipeline politics often dealing with opposing economic and political interests (Moradi, 2006), and use of sanctions against some countries – Russia (Valori, 2017) and Iran (Jaffe, 2018) –, raises the importance of sanction-free routes between East and West –or Eurasia;² Central Asia-Caspian Sea-Caucasus-Black Sea/Anatolia.³ Several Eurasian countries are landlocked, dependent on transit states and vulnerable to their maneuvers (Idan & Shaffer, 2011). Location of Caspian and Black Seas, Azerbaijan, Georgia, and Turkey, provides unique geopolitical situation regarding any commodity traversing East (China)-West (Europe).

Pipelines have been laid out in Eurasia, vying to access markets, dominate and prevent others from entering them. We shall examine how this geopolitical game has taken place in Central Asia-Caspian Sea-Anatolia, and some regional consequences.

For this purpose, I briefly comment on oil geopolitics and present development of major Eurasian oil pipelines. I then review their timeline and draw conclusions as to prospects.

Energy geopolitics

Energy is essential to life, including society and the international arena. Energy resources are both a commercial good and a strategic good, using this natural double characteristic as foreign policy tool (Crane et al., 2009). “Energy can be viewed as an issue in which geography is highly intertwined with power politics” (Ersen & Celikpala, 2019: p.584). Hence, energy resources are of great interest for economic sciences as well as political disciplines (Dieke & Schröder, 2017: p.23). This explains “The political nature of energy security policies” (Frappi, 2013: p.44).

² Eurasia: the concept itself may be loaded with political connotations. It may mean “non-Russian former Soviet republics (Grant, 2012: p.2), “post-Mongol space” (Kotkin, 2010), since there is “No consensus on how the region covering the nations that emerged from the rubble of the Soviet Union should be referred to.” (Hutchings, 2016, p. xiii). OECD uses Eurasia to refer to the Caucasus and Central Asia, but also includes Afghanistan, Belarus, Mongolia, Moldova, and Ukraine (OECD, 2020). Due to cultural ties and geographic proximity, Azerbaijan is often grouped with Central Asia (Englefield, 1994: p.53).

³ To include Anatolia is appropriate as the term Eurasia arose when portraying Turkey as a bridge between Europe and Asia, not only in terms of geography but also as a link between two civilizations (Ersen, 2013).

Participants in energy dynamics have increased weight and power in international fora and politics. Substantial influence and power fall to whomever has partial or total control over any process and mechanism to deliver energy: 1) source possession, 2) exploitation, 3) production, 4) transport, 5) storage, 6) market distribution, and 7) price-setting. These subjects fall under energy security defined as “the uninterrupted availability of energy sources at an affordable price” (International Energy Agency, 2019), the ability to “guarantee a sufficient amount of resources at affordable prices whenever and however the demand arises” (Bilgin, 2015: p.68) or predictability “achieved only in a regulatory framework that aggregates the interests of all stakeholders and ensures a fair distribution of risks, obligations and revenues” (Kaveshnikov, 2010: p.602).

Foreign policy has traditionally been impacted by natural surroundings. Thus, geography matters. However, in a critical perspective, “it is not the geography that determines a state’s position and thus its foreign policy, but it is the construction of certain images and language, which shapes the geopolitical space of interaction” (Schröder & Wessels, 2017: p.46). Political actors and leadership may use a narrative –hub, center, corridor, ...– “in a strategic way to shape policy discourse from the perspective of their own interests ... the narratives are ... not only influenced by domestic politics but also by the changing dynamics of [international, regional and bilateral relations] together with political and economic developments in the regional context” (Dieke & Schröder, 2017a: p.242).

International amity and relations are promoted when trying to reach the markets. Developing energy resources is “driven by markets, but also heavily influenced by domestic and regional politics, which will continue to shape the map” (Koranyi, 2016: p.1). Eurasian infrastructure will continue as the Caspian Sea’s oil and gas become a growing reality in European households and markets. Infrastructure transporting Caspian hydrocarbons to Europe include the *Caspian Pipeline Consortium* (CPC) and *Baku-Novorossiysk* (BNP) oil pipelines, and trilateral schemes, such as the *Baku-Tbilisi-Erzurum* (BTE) gas pipeline and the *Baku-Tbilisi-Ceyhan* (BTC) oil pipeline. Complexities and intricacies become evident when we consider that the *Southern Gas Corridor* (SGC) was initially developed by six countries (Azerbaijan, Georgia, Turkey, Greece, Albania, and Italy), yet may further develop East –with Turkmenistan– and into Europe –with the Balkans and Southeastern Europe. SGC became operational on Dec. 31, 2020, and as it keeps developing, more countries will join –probably even Russia.⁴

⁴ Alexander Medvedev, Gazprom’s Deputy CEO, stated Jan. 24, 2017, that Russia has sufficient installed capacity upstream to deliver more than 100 billion cubic meters per year of extra gas to Europe but that due to an infrastructure problem, they were working

On the other hand, tensions may occur due to copious issues – mainly political and economic (Bowman, 2019) – in processes involved to deliver energy to the markets, fueling global conflicts (Klare, 2014). Recent Eurasian examples include the Russia-Ukraine gas crises of 2006, 2009 and 2014 (Sullivan, Kamensky, & Makhholm, 2018), the 2009 Turkmen-Russia gas dispute (Gorst, 2009), the Belarus-Russia 2007 (Crane et al., 2009) and 2020 energy disputes over gas (Abbasova, 2020) and oil (Kudrytski, 2020).

Geopolitical models are competing in Eurasia, with challenges for the EU and the Middle East (Dieke & Schröder, 2017a: p.241). A geopolitical role “as a safe route to access energy resources in the Middle East, SEM [South East Mediterranean] and the Caucasus is important for the EU’s strategy to diversify supplier countries and routes”, as in the case of Turkey (Eralp & Öner, 2017: p.233), Azerbaijan, the Caucasus and the Middle East region. In Eurasia, countries, producers, transporters, price-setters, and consumers are involved in a combination game competing with one another to reach the markets.

Azerbaijan, Kazakhstan, Turkmenistan and Uzbekistan, former soviet republics endowed with rich hydrocarbon resources, inherited USSR pipeline networks. Following separate strategies, they first tried to increase oil and gas production, establish transport routes to the world markets, and later built petrochemical industrial complexes (Ibrahimov, 2018). Being close to Eurasia, “Turkey ... has been trying to foster relations with Russia, Iran, the EU and the U.S. concurrently” (Schröder & Wessels, 2017: p.37) in order to enable “the successful operation of natural gas and oil pipelines that run in various directions through the Turkish territory” (Davutoglu, 2008: p.92). Energy strategy arises from geopolitics, foreign policy priorities and market characteristics (Bilgin, 2015: p.68). This represents opportunities for Eurasian countries since –to reach Europe– Caspian oil must traverse the Caucasus to reach the Black Sea or Anatolia on to the Mediterranean Sea, while bypassing risks in the North (Russia) and South (Iran).

with European partners –*NordStream 2* and *Turkish Stream*–, which would nonetheless still be insufficient and were talking to use available capacity on the Poseidon project or TAP (Roberts, 2017). After Brendan Devlin, Advisor in the Directorate General for Energy, European Commission, confirmed Mar. 5, 2015, that Russia (Gazprom) could use TAP if it built *Turkish Stream* providing gas to Greece (Gotev, 2015), there has been numerous comments (Gurbanov, 2017). Nonetheless, as of Jan. 2021 Russia had not officially proposed to use TAP (Garibov, 2020).

Caspian Sea/Caucasus region

The Caucasus' unique geographical twofold location between East (China) and West (Europe) as well as between North (Russia) and South (Iran), places it at a strategic crossroads with geopolitical interest to Russia, Iran, Turkey, the USA, and the EU (Kochlazade, 2016). The region is known for its volatility, due to ethnic, religious, political, and military tensions after the collapse of the Soviet Union.

Geopolitical interest in Eurasia includes energy motives. Today, the world is aware about its regional relevance and potential hydrocarbon resources,⁵ naming it as the New Persian Gulf (Manning, 2000) for it may contain 16% of the world's oil (Fenvesi, 1998) or that its natural gas and oil reserves, together with Central Asia's, "dwarf those of Kuwait, the Gulf of Mexico, or the North Sea." (Brzezinski, 1997: p.124), making it a "centre of a global energy focus" (Nick, 2005). In 1991, the Caspian Sea countries –excluding Russia– represented 0.68% and 2.11% of world's oil and gas proven reserves. In 2019 –again excluding Russia– they represented 2.22% and 13.20% (BP, 2020).

The Caspian region faced challenges to extract and transport hydrocarbons to reach the markets, as well as financing for any project.⁶ Caspian fields are far from the markets and initially had to rely on old Soviet pipelines. But the Caspian countries could also use their geographic position as a bargaining chip, e.g., in 1994 Azerbaijan signed the *Contract of the Century* to exploit and deliver its Caspian oil to Europe, and in 1997 Kazakhstan agreed to build the Chinese-financed *Kazakhstan-China Oil*

⁵ Estimates for the Caspian basin have been: 48 billion barrels of oil and 292 trillion cubic feet of natural gas (EIA, 2013: p.8), 10% of the world's gas and oil reserves (Penkova, 2014: p.113), 4% of the world's oil and gas reserves and responsible for 3.29% of world's oil production and 3.6% of global gas output (Karataeva, 2014: p.424), 15% of the world's oil reserves, albeit producing 2% of the world's oil output in 2011 (O'Neil, Hawkins, & Zilhaver, 2011: p.10), with its natural gas reserves at 8.76 trillion cubic meters (Indeo, 2018). Hydrocarbon production was predicted to continue driven by rising energy demands of the European Union, China and India –all eager to cash in (Caspian Environment Programme, 2010: p.13).

⁶ Natiq Aliyev, former SOCAR president, stated that Azerbaijan in the early independent years "had a base of highly qualified specialists who were replaced by amateurs, domestic equipment and technologies, Soviet standards and oil fields that are being developed with old methods. We had all this, but we did not have the main thing - finance" [«Однако давайте вспомним, чем располагал Азербайджан в те годы. Мы имели базу, высококвалифицированных специалистов, которые были заменены на дилетантов, отечественную технику и технологию, советские стандарты и нефтяные месторождения, которые разрабатывались старыми методами. Все это у нас было, но не было главного – финансов».] (Aliyev, 2003: p.69).

Pipeline (KCOP), the first pipeline to directly send Caspian oil to China. Nonetheless, a pending issue was the legal status of the Caspian Sea, somewhat settled with the *Convention on the Legal Status of the Caspian Sea* (CLSCS) (Aktau, Aug. 12, 2018), with border guidelines and joint cooperation of adjacent countries for use/sharing aquatic and subsea (hydrocarbon) resources yet trans-Caspian pipelines requiring approval of all Caspian Sea states, of which Russia and Iran still oppose them on environmental concerns (Labardini, 2020).⁷

Pipeline development in Eurasia

Distribution of hydrocarbons in the Caspian Sea is uneven, with all five littoral states' largely dependent on oil and gas industries.⁸ While Russian and Iranian share is small (Shaffer, 2010), Kazakhstan has the most substantial proven oil reserves, Azerbaijan was a pioneer in offshore oil production and Turkmenistan is a leader in proven natural gas reserves. Whereas for Azerbaijan, Kazakhstan and Turkmenistan the Caspian Sea is the main source of energy reserves, Russia and Iran have other energy resources as well.⁹

Due to being landlocked, Caspian hydrocarbons face logistics, drilling and transport issues to reach world markets (Garibov, 2017a). The Caspian resource-states (Azerbaijan, Kazakhstan and Turkmenistan) were surrounded by neighbors who were commercial rivals and possessed major regional access routes. This was even

⁷ Just a month after the Convention was adopted, Russia recalled that, while it did not have plans to lay pipelines on the basin's seabed, "the laying of pipelines along the Caspian Sea bottom is ruled out in case of objections on the part of Caspian states" (AzerNews, 2018a), and less than a year later it stated opposition to a TCP due to environmental issues (Хроника Туркменстана, 2019).

⁸ Of total exports: in Azerbaijan, oil, gas and oil-refining products accounted for 89% (2017); in Iran, fuels and mining products for 44.7% (2015); in Kazakhstan, for 75.1% (2016); in Turkmenistan for 60% (2014) (Tehran Convention, 2019: p.23). Exports of crude oil and petroleum products were nearly 70% of total Russian petroleum liquids production (Eurostat, 2020).

⁹ In 2019, of the total global oil reserves Kazakhstan held 1.7% and Azerbaijan 0.4%; while of the total global gas reserves Kazakhstan held 1.3%, Azerbaijan 1.4%, Turkmenistan 9.8%, and Uzbekistan 0.6% (BP, 2020). In terms of natural gas Turkmenistan is a leader in Eurasia while the Russian and Iranian shares is quite reduced (Karataeva, 2014: p.425). Azerbaijan was a pioneer in Caspian offshore oil production, the world's largest oil producer by 1901 (half of the total global production) (Bahgat, 2011: pp.131 - 137), and the Azeri-Chirag-Guneshli oilfield listed in 2007 as the world's ninth largest oilfield in terms of production (International Energy Agency, 2008: p.10).

with “a plethora of alternative oil and gas pipelines” on seven general options: 1) to Russia, 2) to Europe via Russia and the Black Sea, 3) to the Black Sea via Georgia, 4) to Europe via Turkey, 5) to the Persian Gulf via Iran, 6) to Pakistan and India via Turkmenistan and Afghanistan, and 7) to the Yellow Sea via Uzbekistan, Kazakhstan and China (Manning, 2000: pp.20-24).

Table 1

CIS countries – oil reserves and production (BP, 2020).

	Oil proven reserves (MMbbl)		Oil proven reserves World %		Oil production (kb/d)		Oil production World %	
	1992	2019	1992	2019	1992	2019	1992	2019
Azerbaijan	1.3	7.0	.12	.40	228	779	.35	.82
Kazakhstan	5.2	30.0	.47	1.73	569	1931	0.87	2.03
Russia	116.1	107.2	10.54	6.18	7,978	11,540	12.14	12.12
Turkmenistan	0.5	0.6	.05	.03	109	264	.17	.28
Uzbekistan	0.3	0.6	.03	.03	79	62	.12	.07

There was no major geopolitical game in Eurasia before the demise of the USSR, as all transportation routes from the Caspian went through Russia. After the USSR’s collapse, Russia first insisted new pipelines should cross its territory (Kommersant, 2005), then declined to participate (Simpson, 2004). In the spring of 1992, Turkish Prime Minister Süleyman Demirel proposed to Central Asian countries and Azerbaijan that pipelines should run through Turkey.

After seven decades of the USSR’s monopoly, the countries started receiving serious interests for exploring, developing, and producing their oil and gas resources with investments and partnerships with foreign energy companies, contributing to achieve diversification, economy development, and reduced dependence from Russia. Azerbaijan pursued a balanced foreign policy, opened up foreign direct investment in oil to fund development and promote regional stability and growth (BP Azerbaijan, 2019), seeking economic independence. Kazakhstan did major economic reforms to attract foreign investors. Turkmenistan kept strong control over economy and the energy sector. Uzbekistan aimed at stabilization avoiding economic and institutional shock (Raimondi, 2019).

Laying of Caspian Sea oil pipelines

Eurasia, i.e., the Caucasus/Caspian Sea, has significant transit infrastructure, hosting major oil pipelines: *Caspian Pipeline Consortium* (CPC), *Baku-Novorossiysk pipeline* (BNP), *Baku-Supsa pipeline* (BSP), Baku-Tbilisi-Ceyhan pipeline (BTC) and, inasmuch as it reaches the same destination point and thus becomes a competitor, *Kirkuk-Ceyhan Pipeline* (KCP). For the US and the EU, the region matters as transit route for Caspian energy (Lynch, 2006) and energy source diversification for the EU (Bayramov, 2015).

Caspian oil moves through pipelines, ports, ships, and railways. Two pipelines –CPC and BTC– dominate the network, with over 50% of available capacity. Smaller pipelines together with Russian pipelines available to Caspian production provide another 25%. This is supplemented by smaller, but significant, routes involving railways, swaps with Iran and other transport options (World Bank, 2008: p.7).

Kirkuk-Ceyhan Pipeline (KCP)

Reshaped Iraq-Turkey relations: the former needed export routes to the Mediterranean and the latter needed reliable sources of supply and currency. With KCP, Iraq became Turkey's largest supplier of oil while providing an alternate route to export its oil. Developed during Iraqi-Turkish economic rapprochement in 1960s to its construction in 1970s, KCP was built independently of major oil companies. It was the largest pipeline system in the Middle East at one point (Bowlus, 2017).

Noteworthy is that KCP was built (1970) some three to four decades earlier than the other Caspian/Caucasus pipelines [BNP (1998), BSP (1999), CPC (2003), and BTC (2006)]. This reflects the evolving state of the world. While oil embargoes of 1956 (Saudi Arabia vs. France and the UK) and 1967 (vs. the U.S., the U.K. and Germany) may not have been as successful as foreign policy tools (Crane et al., 2009), they evidenced the need for diversification (for producers and consumers), striving to satisfy domestic industrial needs and acquiring foreign currency. KCP is a clear example offering diversification to Iraq, direct oil import and currency for Turkey; both reducing Russian influence. Other pipelines (BNP, BSP, CPC, and BTC) arose when pipelines to (Northern) Europe had developed and crafted European dependency from Russian fuel, impelling diversification.

Baku-Novorossiysk pipeline (BNP)

Post-independence Azerbaijan had to overcome serious challenges, including possible civil war (Nejad, 1995: p.40), dire economic situation and distraught oil industry.¹⁰ With two large markets –Europe and China–, the former was attainable in the immediate future while the latter required large distances and complex political arrangements with more participants. It had to be achieved to reduce Russian dependence, avoiding international sanctions. An initial compromise allowed pumping oil to Georgia (BSP) and to Russia (BNP). Turkey claimed a part with strong support in Washington vying to limit Russia’s control over Caspian oil export (Anker, Baev, Brunstad, Overland, & Torjesen, 2010). Out of seven general routes (Manning, 2000: pp.20-24), only one destination remained (Europe) with three possible routes: 1) Russia/Black Sea, 2) Georgia/Black Sea, and 3) Georgia/Turkey. For instance, the North (Russia), South (Iran) and East (Turkmenistan) routes were no real options destined to producing countries and natural energy competitors.

The “Northern Route”, as BNP was also known, had a lower cost (USD 1 billion) by reversing a Soviet-era pipeline that previously delivered Russian crude to Baku. Disadvantages were preserving Russia’s monopoly over Azerbaijani oil, as well as wintertime recurring problems with fog and wind making difficult tanker loading. With the Second Chechen War, a Chechnya bypass was constructed (Kandiyoti, 2012: p.165). The route passes close to Russia’s Makhachkala port, to which it is also connected, allowing access for crude oil from the eastern Caspian.

I underline a politically sound decision for Azerbaijani oil yet revenue-affecting. To export through BNP, Azerbaijan agreed to blend its higher quality crude with Russia’s and market it as Urals blend (EIA, 2019: p.3), sold at 10% less (OilPrice.com, 2020). BNP has had flow/geopolitical issues due to quota disagreements, technical matters, earthquakes, and military issues.¹¹

¹⁰ Azerbaijan’s GDP growth was -0.7% (1991), -22.6% (1992), -23.1% (1993), -19.7% (1994), -11.8% (1995), 1.3% (1996) (World Bank, 2020).

¹¹ Since 1997, BNP had maximum throughflow in 2012 (2 million tons), diminishing in 2019 (.824 million tons), which was 36.5% less than in 2018 (Shaban, 2020). Flow was suspended in 2014 by Russia adducing Azerbaijan had not signed new agreements nor fulfilled minimum quota; SOCAR responded BNP is market-based operated. In 2016, Russia suspended flow on account of an earthquake in Azerbaijan, but promptly resumed operations. Azerbaijan suspended pumping in March 2019 for inspections and repairs and restarted in July. Same happened in January 2020 on account of technical issues. Flow restarted on July 17 – five days after the military confrontation flared up in the Azerbaijani-Armenian border.

Baku-Supsa pipeline (BSP)

BSP, or the “Western Route”, was constructed by refurbishing (1998) a partially constructed pipeline in Azerbaijan. It was connected to a disused oil pipeline from Tbilisi to Batumi. This was further refurbished to Supsa, where an off-shore loading facility was constructed.

BSP was closed in mid 2006 because of corrosion and a landslide (Today.Az, 2008). A major explosion and fire closed BTC in 2008, and BSP was used to re-route Azerbaijani oil deliveries (NewsWire, 2008), which was also temporarily closed due to the Russo-Georgian War (BBC News, 2008). On July 10, 2015, Russian troops gained control over a section of BSP in the occupation line of self-proclaimed South Ossetia (RWR Advisory Group, 2015). Nonetheless, SOCAR stated that Azerbaijan can deliver to Supsa via alternative routes (AzVision.Az, 2015).

Caspian Pipeline Consortium (CPC)

Soon after independence, Kazakhstan had a swap arrangement with Iran, whereby Iran would deliver to the Persian Gulf an amount equivalent to Kazakh oil delivered to Northern Iran (The Economist, 1993). An agreement with Turkey was signed in March 1993 to build a pipeline from Baku connecting to KCP tracing a route south to the Iranian border. It would have carried Azerbaijani and Kazakhstani oil (Sagheb & Javadi, 1994).

As part of its active policy in pipeline development strategy, Russia has shown a desire to distance itself from any clashing or “dominating attitude of the transit countries” in its export routes (Pototskaya, Katrovskiy, & Chasovskiy, 2016: p.783). Russia established with Kazakhstan the Caspian Pipeline Consortium to construct 1,510 km CPC pipeline. Commissioned in 2001, CPC collects oil mainly from large West Kazakhstan oil fields, as well from Russian producers, on to Novorossiysk on Russia’s Black Sea and to international markets via the Bosphorus (Caspian Pipeline Consortium, 2014).

While Russian and Kazakhstan governments have shares of 24% and 19% respectively, “Moscow had to allow the participation of Western companies such as Chevron, Shell, ExxonMobil, Eni and British Gas” (Penkova, 2014: p.126). As the largest privately-operated pipeline route, CPC was the only oil pipeline within Russia not controlled by state-owned Transneft, Russia’s oil pipeline monopoly (Coburn, 2010).

Russia resisted doubling CPC volume, with disagreements between shareholders capping expansion plans to add another 150 kbd by 2024 to accommodate growing oil output in the region (Pipeline & Gas Journal, 2020). Kazakh oil producers exporting via CPC sought in May 2020 to divert flows to Russia's Transneft Novorossiysk and Ust-Luga ports because this would allow them to mix barrels and export Urals grade oil instead that trades \$5-\$6 a barrel above the CPC Blend.

Trans-Caspian Oil Transport System (TCOTS)

Proposed system to transport oil through the Caspian Sea from Kazakhstani oil fields to Baku, and to the Mediterranean or Black Seas. It is planned to have a 739 km. pipeline from Eskene to Kuryk in Kazakhstan (*the Kazakhstan-Caspian Transportation System*) and a 700-kilometer undersea *Trans-Caspian Oil Pipeline* (TCOP) from Kuryk to Sangachal, alternatively using tanker shuttles from Kuryk to Sangachal with a 500 kbd capacity in the initial stage, rising to 1,200 kbd, but Kazakhstan was unable to reach the target. It is opposed by Iran and Russia (Labardini, 2020; Indeo, 2018; Cutler, 2016).

Original TCOP provided for 150 kbd of Kazakh oil across the Caspian in the first stage. In 2016 this was almost fully accounted for with 120 kbd sent to Azerbaijan by tanker, on to Georgia's Black Sea coast and to the planned Euro-Asian Oil Transportation Corridor (EAOTC)¹² via the Odessa-Brody Pipeline (Cutler, 2016).

Baku-Tbilisi-Ceyhan (BTC)

After renewing independence, Azerbaijan wanted to export oil to Western markets. Immediate routes were BNP and BSP. However, both had the inconvenience of serving smaller LR-2 tankers (Balat & Ersoy, 2005) to cross the Bosphorus and Dardanelles bottlenecks.¹³ BTC pipeline was designed to reach Ceyhan which could

¹² EAOTC was agreed in May 2008 amongst Azerbaijan, Georgia, Lithuania, Poland, and Ukraine. The Azerbaijani-Polish economic cooperation commission recommended EAOTC be included in EU's Eastern Partnership. EAOTC had not been implemented due to delays in developing Kashagan, and because Russia agreed to CPC expansion, obviating the need to find export routes for Tengiz oil (Cutler, 2016).

¹³ The Bosphorus has treacherous currents, great twists and turns, and is one of the heaviest sea-traffic regions in the world. Traffic is five times heavier than the Panama Canal. When the Treaty of Montreaux was signed, 4,500 ships annually crossed the Bosphorus; with

handle very large crude carriers and bypass the Turkish Straits (Petroleum Economist, 2004). The Turkish route meant a pipeline from Azerbaijan would run through Georgia –routes through Armenia were politically impossible due to war over Nagorno-Karabakh. This left the Azerbaijan-Georgia-Turkey route, longer and more expensive to build.

The project was proposed in 1992, with the first document on its construction signed between Azerbaijan and Turkey on 9 March 1993 and a trilateral one with Georgia on November 18, 1999 (Iqbal & Shah, 2015). The project gained momentum following the 29 October 1998 Ankara Declaration by the presidents of Azerbaijan, Georgia, Turkey, Kazakhstan, and Uzbekistan. Construction began in April 2003 and was completed in 2005, inaugurated on 25 May 2005 at the Sangachal Terminal (Mamatelashvili, 2014). The start of the Second Chechen War (1999) helped justify the final choice of BTC –at which point, Russian LukOil withdrew from the consortium. Nonetheless, Moscow maintained that oil reserves in Azerbaijan were too limited to justify a costly project as BTC (Anker, Baev, Brunstad, Overland, & Torjesen, 2010).

Iran also opposed BTC regarding it a threat. It claimed BTC was unreasonably expensive (USD 3.6 billion (EBRD, 2014)). Tehran, together with Moscow, alleged a trans-Caspian pipeline promotes undesirable ecological consequences (Indeo, 2018) due to the region’s seismic situation. It tried convincing the world community the Caspian had considerably less oil reserves, especially in the Azerbaijan sector. As tensions over BTC heated up, Iran proposed alternatives suggesting oil swaps as most profitable (Nassibli, 1999).

BTC is the second longest oil pipeline in the former Soviet Union after Druzhba pipeline. It opened in mid-2006 and runs parallel to BSP as far as Georgia turning south through Turkey to Ceyhan on the Mediterranean. BTC is capable of transporting around 50 million tpa of crude oil. Capacity can be increased to 60-65 million tpa by employing drag reducing chemicals and to 80 million tpa with additional pumping capacity. It has also carried Kazakh¹⁴ and Turkmen crude oil (World Bank, 2008: p.55).

about 55,000 ships in 2005 (Birpinar, Talu, Su, & Gulbey, 2005). In 2017 a sheep-carrying ship sunk a military Russian vessel (Romania Insider, 2017).

¹⁴ Kazakhstan pledged in 1999 and in 2006 formally joined BTC to transport its crude towards the West. It had to use Russia’s Caspian Transport Consortium in 2008. However, Kazakh oil transport via BTC was interrupted 2008-2013 due to high tariffs and shipping discrepancies. “Being a monopolist in the Caspian Transport Consortium, Russia strongly delayed renewal process of oil transportation in this direction. As a result,

BNP and BSP were important for Azerbaijani oil revenues. However, BTC was the defining project for both Azerbaijan¹⁵ and the region. BTC strongly contributed to unlock Caspian's economic potential, bringing investment and revenues and parallel Azerbaijani and regional development. BTC strengthened competition by expanding Caspian oil transport capacity, adding route competition, increasing revenues to host governments. This pipeline "practically put an end to the Russian monopoly on transportation of energy resources from the Caspian Sea" (Ciarreta & Shahriyar, 2011: p.2). Together with CPC, BTC provided in 2008 more than half of available transport options for the Caspian basin oil (World Bank, 2008: p.7), with CPC delivering Caspian oil through Russia.

Since 2010 BTC has run with significant spare capacity, exporting less than its 1.2 mb/d, wherefore SOCAR proposed reversing part of BNP to bring more Russian oil to transport it through BTC (EIA, 2019: p.4). This would allow also Russian oil to bypass the Turkish Straits yet affecting its oil revenue through Novorossiysk.

Laying Northern and Mediterranean European pipelines

When building infrastructure from source to markets, countries prefer the easiest and economical options –subject to political considerations. This is confirmed by analyzing the timeline of major Eurasian pipelines built, including their intended purpose.

Some points stand out considering source's location, transit routes and destinations. The prize is to reach major demand centers (Germany, first EU economy (Ewing, 2019) and France, second EU economy (Horobin, 2019)) and markets along the way. Pipelines compete with one another and other modes of transportation. There are long- and short-haul pipelines. Pipelines serve dissimilar regions with varying consuming patterns, derived from different refineries, consumption patterns, and varying storage capacities. From the layout of the Eurasian oil pipelines, distinctive purposes may be discerned.¹⁶

this break lasted for 5 years and only resumed in October 2013" (Assanbayev, 2014: p.152).

¹⁵ With its oil strategy in place, Azerbaijan recorded amazing annual GDP increases: 27.9% (2005), 34.5% (2006) and 25.5% (2007) (World Bank, 2020).

¹⁶ Pipeline transport is highly linked to logistics hubs, which serve as gateways for regional supply. They are characterized by interconnections among many pipelines and, often, other modes of transportation –such as tankers and barges, rail, and usually trucks, especially for local transport– that allow supply to move from system-to-system across countries and regions in a hub-to-hub progression, characterized by substantial storage

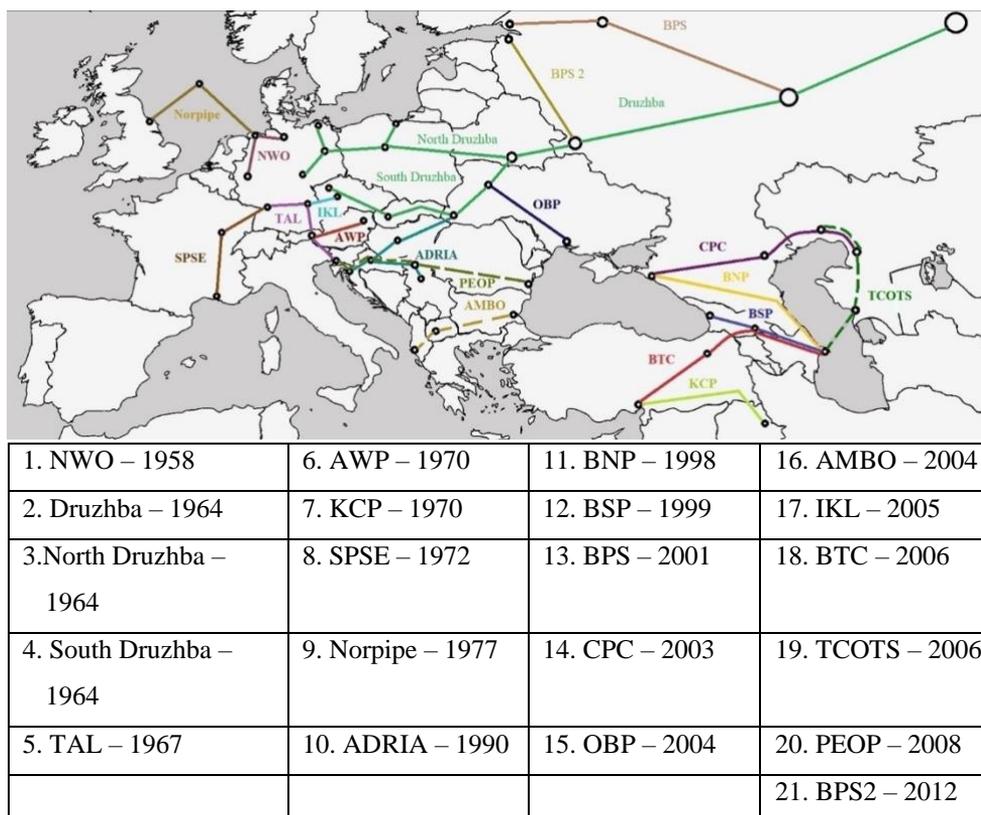


Figure 1. Major Eurasian oil pipelines¹⁷

- 1) To directly reach the European markets from the sources. Directed to markets in Germany, France, traversing Italy and Central Europe– directly from sources in Asia/Eastern Europe.

capacity. Availability of storage and transportation enhances supply opportunities and increases supply flexibility, both essential ingredients for an efficient market (Trench, 2001: p.7).

¹⁷ NWO: North-West Oelleitung GmbH; Druzhba: Druzhba Pipeline, including the northern and southern branches; TAL: Trans-Alpine Pipeline; AWP: Adria-Wien Pipeline; SPSE: Société du Sud-Européen Pipeline; Norpipe: Norpipe; KCP: Kirkuk-Ceyhan Pipeline; ADRIA: ADRIA/JANAF Pipeline; BNP: Baku-Novorossyisk Pipeline; BSP: Baku-Supsa Pipeline; BPS: Baltic Pipeline System; CPC: Caspian Pipeline Consortium; OBP: Odessa-Brody Pipeline; IKL: Ingolstadt-Kralupy-Litvinov Pipeline; BTC: Baku-Tbilisi-Ceyhan Pipeline; BPS2: Baltic Pipeline System 2.

- a) *Druzhba*¹⁸ and *Norpipe*¹⁹ are prime examples. They respectively directly reach the markets from sources in Central Russia and Siberia, and the Northern Sea.
 - b) Regions surrounding main markets serve as transit routes and benefit two-fold: receiving transit fees revenue and oil from the sources.
 - c) They evidence mutual dependence between sources and markets (Paillard, 2010). In 2018, almost one third of the European Union's (EU) oil imports came from Russia (Eurostat, 2020). In 2016, exports of crude oil and petroleum products were nearly 70% of total Russian petroleum liquids production, mostly to European countries, with revenues from oil and natural gas –including exports– making up 36% of Russia's federal budget revenues (EIA, 2016).
- 2) *To reach the world's oil markets through the oceans.* Oil market is not only European but global. Pipelines that do not reach the markets are destined to the oceans. This also evidences the liquid nature of oil and the relative ease for its handling.
- a) BPS,²⁰ BPS2,²¹ OBP,²² CPC, BSP, BNP, BTC, and KCP exemplify this. Caspian Sea countries (Azerbaijan and Kazakhstan) reused old pipelines (BNP) or built new ones to reach Black (CPC, BSP) or Mediterranean (BTC) Seas.
 - b) The points they reach at the oceans are veritable oil logistics hubs.
- 3) *To reach consumption centers from the oceans.* Mirroring source-to-ocean pipelines, these pipelines connect consumption regions from the coast. Oil is coming from world's sources, not only originated in Eurasian production centers.

¹⁸ World's longest pipeline from central western Siberia to Ukraine, Hungary, Poland, Slovakia, and Germany. One of the world's top five global chokepoints (Foreign Policy, 2006).

¹⁹ Two export pipelines from Ekofisk Complex in Norway to U.K. and Germany.

²⁰ *Baltic Pipeline System*. Commissioned in 2001, Russian oil transport system from West Siberia and Urals-Volga regions to the Gulf of Finland.

²¹ *Baltic Pipeline System - 2*. Proposed to bypass Belarus after Jan. 2007 oil transport dispute with Russia (RT News, 2007).

²² *Odessa–Brody pipeline*. Crude oil pipeline between Odessa, Ukraine, and Brody near the Ukrainian-Polish border (Fandrigh, 2016).

- a) TAL,²³ SPSE²⁴ and ADRIA²⁵ – hauling oil from oceans to consumption centers.
 - b) Different features associate with each particular sea. An option is the Black Sea, but it is better to reach the Mediterranean as it reaches faster the world market and avoids the Bosphorus and Dardanelles bottlenecks (Petroleum Economist, 2004).
- 4) *Interconnector pipelines*. With ocean-to-consumption pipelines in place, smaller but necessary efforts must be taken to haul oil to additional consumption centers.
- a) IKL²⁶ and AWP²⁷ exemplify this point. They carry oil from main lines (TAL) to consumption centers not as large as the main line destination point.
- 5) *A geopolitical vision*. Regional infrastructure –such as oil pipelines– is rift with geopolitical battles.²⁸ To conclude any project requires cooperation to overcome complex technical issues, garner vast amounts of financial resources –from countries, international financial institutions, and oil companies– and maintaining an unswerving political commitment. Cooperation and understanding must continue after becoming operational, or it may become unused. Geopolitics has had significant role in achieving results while business orientation in maintaining them.
- a) *Druzhba*. “Дружба” in Russian means friendship. It portrays that the 5,500 km. pipeline supplied Russian oil to energy-hungry western regions of the Soviet Union and its “fraternal socialist allies” in the former Soviet bloc: Ukraine, Belarus, Czechoslovakia, Poland, Hungary, and German

²³ *Trans-Alpine Pipeline*. Transports from Trieste to refineries in Central Europe. Plays a strategic role in the European economy (Trans-Alpine Pipeline, 2019).

²⁴ *South European Pipeline*. In France, Switzerland, and Germany (International Energy Agency, 2007).

²⁵ *ADRIA*. Pipeline in Croatia, Serbia, and Hungary with lines to Slovenia and Bosnia-Herzegovina.

²⁶ *Ingolstadt–Kralupy–Litvínov pipeline*. Built as an alternative to *Druzhba* due to political and economic changes and concerns about Russian oil reliability (MERO, 2008).

²⁷ Has transported all of Austria’s crude oil imports –from the Austrian/Italian border to the Schwechat refinery (OMV, 2020).

²⁸ In the U.S., some pipelines –such as *Big Inch* and *Little Big Inch*– were built to counter the threat of German submarine attacks on coastal tankers; *Colonial Pipeline* to counter the strike of the maritime union; and *Trans-Alaska Pipeline* to meet the challenge posed by the 1973 Arab oil embargo (Liu, 2020).

Democratic Republic. It is the largest principal artery for the transportation of Russian (and Kazakh) oil across Europe. Druzhba is one of the greatest geopolitical instruments for Russia.

- b) *BNP*. Moscow insisted on delivering oil to Novorossiysk, while AIOC consortium, led by BP, was reluctant to opt for this cheaper option but wary of antagonizing Russia. In BNP, Azerbaijan had to accept to mix its high-quality oil with Russian lower grade and sell it as Urals blend, \$4-\$5 p/b less than the Azerbaijani grade (Today.Az, 2014) or 10% less in 2020.
 - c) *OBP*. Intended to haul oil from the Caspian Sea (Kazakhstani) to Odessa, linking to South Druzhba pipeline. Oil would have been transported to EU, and OBP would have extended to Plock and Gdansk. With insufficient oil, Ukraine accepted the Russian proposal to reverse pipeline flow, thus transferring Russian oil southwards to Black and Mediterranean Seas. Hence, Russia preempted Caspian oil flowing into Europe and prevented competition in the EU market (Kropatcheva, 2011).
 - d) *BPS2*. While BPS was built to transport oil from West Siberia and Urals-Volga regions to the Gulf of Finland to reach oceans and alternative markets, BPS2 had clear geopolitical views. BPS2 surged after the 2007 Belarus-Russia oil transit dispute. Even with a negative profitability report, Russia developed BPS2 to bypass former Soviet transit countries (Belarus), intending to protect Russia and its partners from “dominant attitudes of the energy transit countries” (Pototskaya, Katrovskiy, & Chasovskiy, 2016: p.786).
- 6) *Once in operation, pipelines may become more business oriented and may disregard ideologies.* Intent for pipelines may vary substantially in pre-operational phases, including design, financing, and construction, and projects may stall and never come to fruition. Once operational, the pipeline may survive its original political impetus, as in Druzhba –carrying Eastern Russian oil to hungry-energy Western Soviet republics and Soviet bloc countries, yet after the USSR’s demise functioning as an important source of revenue²⁹ (and somewhat) independent of ideology. A pipeline, due to political or economic reasons or

²⁹ In 1985, oil represented 39% of USSR’s total hard currency revenues, and *Druzhba* was the largest (2000) and second largest (2009) exporting oil route for Russia’s Transneft (Vatansever, 2010: p.4 -7).

instability, may become unsound or renew its interest. *Druzhba*³⁰ is a case in hand.

Two different regions emerged in Eurasia: Northern and Mediterranean Europe. The vast majority of examined pipelines link to consumption centers in Northern Europe, via direct source-to-consumption and ocean-to-consumption-center pipelines. Major oil sources for Northern Europe are Russia and the Northern Sea. By building one pipeline – *Druzhba* in the Soviet era –, Russia became dominant in the north.

Decades later came the development of Mediterranean pipelines. One set to reach the oceans and another set from the coasts to consumer markets. They seek shortest/quickest possible routes to reach oceans and world markets. Major source in these pipelines is Russia, but they also include Caspian Sea states (Kazakhstan and Azerbaijan), and Irak.

A distinct feature is the timeline. Northern pipelines linking sources to Northern Europe were built first (NWO in 1956 and *Druzhba* in 1964), followed by ocean-to-consumption centers pipelines (AWP and ADRIA) as new European consumption centers developed. Southern pipelines (BNP [1998], BSP [1999], CPC [2003], and BTC [2006]) were built in less than one decade, yet 3-5 decades after the northern pipelines –save for KCP (1970).

This evidences geopolitical developments. Before the USSR's demise, there was no energy competition since all oil crossed Russia. After its collapse, the newly independent countries from Central Asia and the Caucasus had to develop large regional infrastructure projects to overcome their landlocked situation (Alisgandarli, 2017) – in dire post-independence economic conditions. In Eurasia, out of 10 countries only Russia, Iran and Georgia were sea-abutters, with heightened geopolitical relevance to reach the world markets – only the latter non-subject to international sanctions. This required prolonged negotiations between governments and companies to overcome technical issues but particularly to cement agreement (Garibov, 2017a) amidst coordination and cooperation between competing and confronting interests, with crisscrossing interests in possible collision.

There is no major international oil pipeline from Asia to South-eastern Europe. One can surmise this is due to large distances involved, because oil producers prefer the easiest and cheapest option to reach oceans and world markets. Hence, there were

³⁰ In 2020, supplies via *Druzhba* lost efficiency in comparison to the Urals supplies via BSP, BSP2 and BNP due to sharp freight rates decline since summer (Yagova & Gorodyankin, 2020).

insufficient compelling commercial interests warranting building a pipeline thereto. As the region grows economically this would represent an option for development.

Conclusion and final comments

One third of the world's primary energy comes from oil (Donev, Afework, Erhardt, Hanania, & Stenhouse, 2020), evidencing energy is a life necessity. One could surmise it is the central focus of foreign policy. To control any part of the energy processes, to exploit, produce, transport, distribute, store, and set prices, it provides great influence and power on the whole. Wherefore countries participate in as many of them as they can.

Europe depends on Russian energy,³¹ with higher dependence in Eastern and Southeastern Europe. Russia has influence on account of its oil, and has used it as political pressure, as seen with Turkmenistan, Belarus, and Ukraine. Yet, moving westward into Europe, negotiations over Russian oil are generally about supply and pricing, not political factors (Kaplan, 2014). Nonetheless, this dependency is mutual (Paillard, 2010). Just as Europe depends on Russian energy, Russia depends on the oil revenue.³²

Economic/commercial issues are of paramount importance in regional/international infrastructure, including pipelines. They have to satisfy technical matters and survive long maturing political processes. To become a reality, and to continue in operation, they cede to political concerns confirming their unique natural double feature as commercial and strategic goods used as foreign policy tools. Some pipelines were specifically built for political reasons in spite of not satisfying commercial issues, such as BPS2 with a negative profitability report and Russia building it to bypass former Soviet republics due to “dominant attitudes of the energy transit countries” (Pototskaya, Katrovskiy, & Chasovskiy, 2016: p.786). Ideological and geopolitical motivations may overcome once a pipeline becomes operational –including surviving a new era, such as Druzhba with the demise of the USSR– but they are

³¹ EU imports 53% of the energy it consumes, with its import dependency particularly high for crude oil (over 90%), natural gas (66%) and solid fuels (42% of coal) (European Parliament, 2014).

³² In 2018, 30% of EU's crude oil imports came from Russia (Eurostat, 2020). Two years before, exports of crude oil and petroleum products were nearly 70% of total Russian petroleum liquids production –mostly to European countries– with revenues from oil and natural gas –including exports– making up 36% of Russia's federal budget revenues (EIA, 2016).

never only business. Nonetheless, once operational, pipelines may have a life of their own (Bayramov, 2019).

Of the analyzed pipelines, none directly deliver oil to Europe, except for Druzhba – designed for the former Soviet republics. Oil travels by pipeline first to the oceans, is ship-transported to Europe and pipeline-delivered to the markets. Northern European pipelines were developed in the 1958-1990 period, while the Caspian Sea/Caucasus pipelines –also going to the oceans (Black and Mediterranean Seas)– were built in less than a decade at the turn of the millennium (1997-2006) [except for KCP, operational since 1970s]. They were developed only after the demise of the USSR.

In the Caspian Sea/Caucasus region, during the Soviet era all pipelines went to Russia. Somewhat opening up the market, BNP still preserved in 1997 Russia's monopoly yet providing Azerbaijan with much needed international revenue. The first fissure occurred in 1998 with BSP and rail routes from Baku to Batumi and Supsa. The second fracture took place when CPC opened in 2001 carrying Kazakh oil to the Black Sea via Russia.³³ The third crevice befell on 2006 with BTC finally breaking Russia's monopoly and bypassing the Bosphorus/Dardanelles bottleneck.³⁴ Kazakhstan and Azerbaijan are developing trans-Caspian oil shipping from Aktau to BTC (Beckman, 2018) (80% fulfilled in 2016) (Cutler, 2016) –and eventually a trans-Caspian pipeline. These routes provide competition undermining Russia's position. Thus, Azerbaijan together with Kazakhstan inhibited Russia's oil monopoly in the Caspian Sea (Kaplan, 2014) and in less than a decade.³⁵

Internationally, BTC –and CPC– opened the gate to 1,2% of world's oil consumption of additional oil, diversified supply, opened regional projects, spread political influence of oil producing countries, and reduced oil transportation cost from the Caspian. BTC had the largest impact on Azerbaijan's oil industry, with 80% of exports going through BTC –mostly sourced from ACG, Shah Deniz condensate, Turkmen Cheleken crude, and small Kazakh oil volumes. Azerbaijan's GDP in 2006

³³ In 2005, Caspian oil and oil products exports moved over four main transport routes: North and west through the Russian pipeline and rail network (including CPC [~66% of regional exports]), West through Azerbaijan and the Georgian Black Sea ports (~22%), South through Iran (~8%), East to China by rail (~4%) (World Bank, 2008: p.51).

³⁴ Another fissure of Russia's diminishing monopoly ensued with completion of Kazakhstan (Atasu)-China (Alashankou) oil pipeline in July 2006 delivering crude 613 miles on to the west-east China pipeline.

³⁵ BNP, BSP and BTC were developed in tandem (Englefield, 1994), CPC was commissioned in 2001. KCP was commissioned 1970.

grew 46% (Mamatelashvili, 2014). For the Caspian region, BTC meant international political significance, additional investments in oil production (Azerbaijan: ACG; Kazakhstan: Kashagan), boosting GDP. It represented introduction to new construction and oil extraction technologies, as well as significant reduction of tanker traffic in Bosphorus (Mamatelashvili, 2014).

Driven by US and EU energy interests, and with their support, Azerbaijan managed to establish transit routes for energy resources; first through Russia's Black Sea (Novorossiysk), and later bypassing Russia to Georgia's Black Sea (Supsa) and finally bypassing the Black Sea and Bosphorus to the Turkish' Mediterranean (Ceyhan). BTC was largely regarded in Azerbaijan as a tool to decrease its oil and gas export dependence on Russia, as well as to build new economic, political and security links with Turkey and Europe. The Azerbaijani political leadership treated BTC more as a geopolitical asset than for its economic benefit. Azerbaijan's preference for "this western route over Russian or Iranian routes shows the limited nature of Baku's trust in its northern and southern neighbors and its desire to secure the country's independence and sovereignty with the help of Turkey and the West" (Cornell & Ismailzade, 2005). In essence, "Azerbaijan became less dependent on Russia and Iran after BP-led consortium finished construction of BTC" (Bilgin, 2015: p.71). BTC is both a power resource and the interaction medium for regional and international actors, including governments and NGO's, due to the wide array of connections made possible (Bayramov, 2019).

By breaking the oil source monopoly for Europe, the Caspian Sea/Caucasus region has opened alternatives for European energy sourcing. Whereas Europe was importing one third of oil imports from Russia in 2014 (European Parliament, 2014), the figure dropped to 25.2% in 2018 (WITS, 2020).

The Caspian Sea/Caucasus region has thus oiled the hinge of the Eurasian door as one economic and political continent that today exists through regional oil pipeline infrastructure.

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