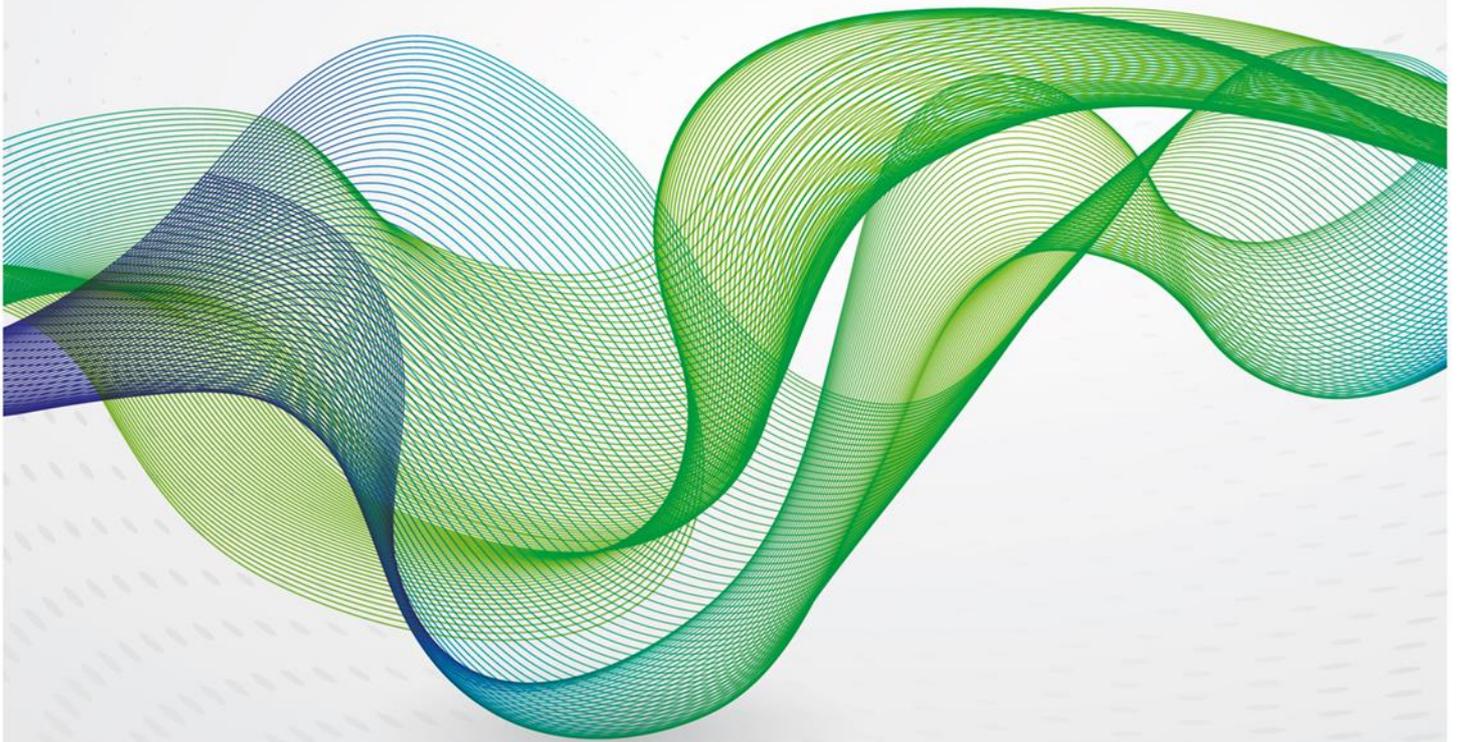


January 2022

Protests in Kazakhstan – potential impacts on global energy markets





Introduction

In the first week of January 2022, dissatisfaction with price rises for LPG in Kazakhstan quickly escalated into broader political protests throughout the country. At the invitation of President Tokayev, Collective Security Treaty Organisation (CSTO) forces (reportedly mainly Russian) immediately responded and within hours entered the country on 6th January.¹ Several members of the Nazarbayev family reportedly left the country for Moscow on 5th January.² Evidently, at this stage there is no clarity as to how events might unfold, either inside Kazakhstan or whether there could be contagion or repercussions throughout the wider region.

If it emerges that what has happened has been more or less a coup d'etat and we are seeing the elite rearranging the deck chairs, there will be organisational and personnel changes in Kazakh companies. Influence over the deployment of the oil revenues will be one of the main prizes.

With Kazakhstan being a major oil and gas producer, there is a clear energy dimension to these events. Kazakhstan is connected to international traded energy markets at two points:

- Its 1.3 million b/d crude oil exports through the CPC pipeline to the Black Sea directly enter the international market.
- Indirectly, it plays a transit role in the transportation of around 30 bcma of Turkmen gas to China. This gas meets over 8% of China's gas demand, and if China sought to replace this volume its only immediate recourse would be to the international LNG market. Its other response could be to increase its coal consumption to compensate, although the ability to switch is somewhat limited by the end users, which are mainly in the industrial and commercial sectors rather than power. Also, greater use of coal would clearly have a very negative emissions impact at a time when Beijing is looking to reduce its carbon footprint.

These volumes are sufficiently material to have an impact on global oil and gas markets in the event of any physical disruption or even market anticipation of potential supply interruptions. While it is judged unlikely that any crude oil or gas supply disruptions would be for a long duration, even a short outage would move markets. Given that oil and gas markets are already tight, a small \$2 per barrel rise in crude prices around 5th -6th Jan was ascribed by one IOC trader to be some nervousness around CPC.³ For perspective, 1.3 Mb/d from CPC is greater than the UK's oil output (1.0 Mb/d in 2020), and 30 bcma is equivalent to the average annual increase in global LNG exports over 2015-20.⁴

This comment seeks to present an outline of Kazakhstan's energy industry; its production, exports and transit role. In particular, it will explore the two abovementioned touch points with the international energy market and also briefly examine its role in energy supplies within the Central Asia region. Additional issues such as the importance of Kazakhstan as the world's single largest uranium producer; potential repercussions for foreign investment in the Kazakh energy sector as well as any changes in how the Kazakh energy industry is organised and managed are beyond the scope of this paper.

1. Kazakhstan's energy profile

Kazakhstan has a long tradition as an energy producer. In the Soviet period, in 1990 it produced almost 20% of USSR coal output. While it was also an oil and gas producer, volumes at that time were relatively small. Coal production has continued to be important for the country, but hardly any Kazakh coal

¹ Daily Telegraph, 6th Jan 2022

² www.forbes.com/sites/daviddawkins/2022/01/07/kazakhstan-tycoons-including-members-of-nazarbayev-family-shed-billions-as-stocks-plunge/?sh=4ab61c934186

³ Author's conversation

⁴ BP Statistic Review of World Energy, July 2021, tables on global LNG exports and global oil output.

appears on the global market. Of production of 109 million tonnes in 2020, 22.4 million tonnes were exported, but virtually all into the CIS (22.1 million tonnes) and within the CIS most went to Russia.⁵

In terms of its domestic energy balance, the mix is dominated by coal. Today coal accounts for 53% of domestic energy supply. Oil, used mostly in the transport sector, accounts for 24% and gas 20%. The remaining 3% is hydro and renewables. As a general characteristic, this is an economy fuelled by coal and financed by oil.

Oil production became much more important following the USSR's dissolution. Kazakhstan adopted a fairly open foreign investment policy, which led to the development of the giant fields of Tengiz and recently Kashagan, and also Karachaganak. Oil production climbed rapidly after 2000, reaching 90 million tonnes (approaching 2 million barrels/day) in the late 2010s, falling slightly in 2020 to 86 million tonnes. For context, Kazakhstan's oil output is around 2.3% of global output, and its exports of crude are also around 2.3% of globally crude oil trade movements.

Kazakhstan production of fuels 1990-2020											
	1990	1995	2000	2005	2010	2015	2016	2017	2018	2019	2020
Crude oil (millions tonnes)	18.4	20.5	35.3	61.5	79.7	79.5	78	86.2	90.4	90.5	85.7
Gas (billion cubic metres)	7.1	5.9	11.5	25	37.4	45.5	46.4	52.9	55.5	56.4	55.1
Coal (millions tonnes)	131.4	83.3	74.9	86.6	106.6	102.5	97.9	106.7	113.7	111.1	109.2

sources:
 CIS 1991-2015 Statistical Yearbook celebrating 25 years of the CIS, CIS Stat 2016
 CIS Stat website <http://www.cisstat.com/eng/> for individual country fuels production data monthly

Of this 2020 crude oil production, 70.6 million tonnes were exported (1.5 million b/d). Apart from 0.5 million tonnes exported to CIS countries (mainly Uzbekistan), all crude exports went into the international market, with the CPC pipeline handling some 60 million tonnes. The remaining exports travelled mainly through the Russian pipeline system to ports on the Baltic Sea and small amounts by rail. Trans-Caspian shipment to Azerbaijan has also been used in the past. In addition, Kazakhstan is an exporter of oil products, but the volumes are small at around 2 – 3 million tonnes/year in recent years. Much of this goes into the immediate Central Asian market, but some enters the international market and also goes to countries such as Afghanistan (which received 200,000 tonnes of Kazakh gasoline in 2020).⁶

Kazakhstan is a major gas producer, 55 bcm in 2020. However, this includes gas used for reinjection and powering pipeline compressors.⁷ Volumes delivered into the domestic market (marketable gas), are relatively small. Exports in 2020 were lower than in recent years at 19.8 bcm. Main exports were to Russia (8.0 bcm) and China (7.4 bcm).⁸

⁵ Kazakhstan is the world's 8th largest coal producer after (in descending order) China, India, Indonesia, USA, Australia, Russia and South Africa. See BP Statistical Review of World Energy, July 2021. Historical coal production numbers from Toplivno-energeticheskii kompleks SSSR v 1990, VNIKTEP, Moscow 1991 and the CIS Stat databases at www.cisstat.com for individual CIS member country monthly production of fuels. Kazakh coal exports from the foreign trade yearbook Vneshnyaya trgovlya respubliky Kazakhstan 2015-19, Kazstat sbornik, Nur-Sultan 2020, and the 2021 edition of the same sbornik covering the period 2016-20.

⁶ Kazstat, O vneshnei trgovle i vzaimnoi torpovle Respubliki Kazakhstan tovarimi

⁷ For a detailed examination of the Kazakh gas balance see Simon Pirani, Central Asian gas – prospects for the 2020s, OIES paper NG155, December 2019

⁸ There are some strange entries in the exports data; for instance, 3 bcm exported to Switzerland, according to Kazakhstan official reporting. How these exports happen needs further explanation.

Kazakhstan gas exports (in bcm)

	2018	2019	2020
Russia	9.3	9.8	8.0
Ukraine	6.9	4.2	0.6
Uzbekistan	1.3	0.4	0.1
Kyrgyzstan	0.3	0.3	0.3
Total FSU	17.7	14.6	9.0
China	5.2	7.4	7.4
Switzerland	3.0	3.3	3.2
Germany	0.0	0.0	0.3
Poland	0.6	0.3	0.0
Total non-FSU	8.8	11.0	10.8
Total gas exports	26.5	25.6	19.8

source: Vneshnyaya trgovlya Respubliki Kazakhstan 2016-20, Kazstat sbornik, Nur-Sultan 2021, page 126

2. Caspian Pipeline Consortium pipeline (CPC)

CPC is a 1,500 km pipeline running from NW Kazakhstan into Russia and terminating on Russia's Black Sea coast near to Novorossisk. It transports crude oil from the major Kazakh oilfields of Tengiz, Karachaganak and Kashagan and also small amounts of Russian crude. From the Black Sea crude oil then travels into the Mediterranean and beyond and becomes part of the global oil market.

Recent volumes shipped by CPC are tabulated below. Volumes over the last 3 years have been stable at around 1.3 Mb/d. In 2021, the 60.7 million tonnes were made up of 53.1 Kazakh crude and 7.7 Russian.

CPC crude oil shipments

	in millions tonnes	in millions bbls/day
2015	42.8	0.9
2019	63.3	1.4
2020	59.0	1.3
2021	60.7	1.3

www.cpc.ru/EN/operations/Pages/loading.aspx

CPC 2021 split

	in millions tonnes
Tengiz	26.6
Karachaganak	10.3
Kashagan	15.7
Total these 3	52.6
Total Kazakh crude	53.1
Russian crude	7.7
Total CPC	60.7

www.cpc.ru/EN/press/releases/2022/Pages/20220110.aspx

3. Kazakhstan and Central Asian energy

Within the Central Asian region there are movements of crude, oil products and gas between the countries but this trade does not play into what might be understood as a conventional regional market. By and large, prices are still set by the States and State companies control the industry. Volumes imported or exported are relatively small, and although important for individual country balances, would not influence global markets in the event of supply problems.

Kazakhstan exports some gas to Uzbekistan and also Kyrgyzstan. It exports crude to Uzbekistan (0.5 million tonnes in 2020) and oil products to most countries in the region (about 0.5 million tonnes in 2020). In the event of any disruption, these kinds of volumes could probably be replaced easily from either Russia or China.

4. Kazakhstan's economy: the importance of crude oil exports

Kazakhstan is a petro-economy, with oil central to its economic recovery after the USSR dissolution and its impressive growth in the 2000s. Crude oil exports account for 50-60% of total exports, fluctuating with the international oil price. The table below details the volumes and values of its crude oil, oil product and gas exports over 2015-2020 and highlights the very significant role of crude oil in the country's export mix.

Kazakhstan oil & gas exports 2015-2020						
	Crude oil		Condensate		Oil products	
	Mtes	\$bn	Mtes	\$bn	Mtes	\$bn
2015	63.6	\$26.8	1.2	\$0.5	4.9	\$1.4
2016	62.2	\$19.3	1.2	\$0.3	3.9	\$0.9
2017	68.7	\$26.6	0.9	\$0.3	4.0	\$1.2
2018	69.8	\$37.8	0.4	\$0.2	3.4	\$1.3
2019	70.0	\$33.6	0.3	\$0.1	2.9	\$1.0
2020	70.6	\$23.7	0.3	\$0.1	2.3	\$0.6
	Gas		Gas to China		Total Oil & Gas	
	bcm	\$bn	bcm	\$bn	\$bn	
2015	21.5	\$1.7	0.6	\$0.0	\$30.4	
2016	21.6	\$1.3	0.5	\$0.1	\$21.7	
2017	25.6	\$1.6	0.6	\$0.1	\$29.6	
2018	26.5	\$2.2	5.2	\$1.0	\$41.4	
2019	25.6	\$2.5	7.4	\$1.6	\$37.2	
2020	19.8	\$1.9	7.4	\$1.4	\$26.3	
	Total exports		% oil & gas in total exports			
	\$bn		crude oil	total oil & gas		
2015	\$46.0		58%	66%		
2016	\$36.7		53%	59%		
2017	\$48.5		55%	61%		
2018	\$61.1		62%	68%		
2019	\$58.1		58%	64%		
2020	\$46.9		50%	56%		

sources:
Vneshnyaya torgovlya Respubliki Kazakhstan 2015-29, stat sbornik, Nur-Sultan 2020, pp 123-128
and the 2021 edition of the same sbornik / yearbook for 2020 data

5. China's gas imports

China's gas demand has grown very fast from 25 bcm in 2000 to 330 bcm in 2020, an annual average growth rate of an astonishing 14% pa. In 2020, the Chinese gas market was 85% of the size of the EU gas market. In 2000, China was in balance, but even though domestic output has increased

impressively, it has not kept up with this rate of demand growth. LNG imports started in 2006. In 2020, supply was 194 bcm domestic gas, 46 bcm pipeline and 94 bcm LNG.⁹

The sources of pipeline imports over recent years are shown in the table below:

China pipeline gas imports (in bcm)						
	Kazakhstan	Turkmenistan	Uzbekistan	Russia	Myanmar	Total
2015	0.3	26.2	1.5		3.7	31.7
2016	0.4	27.8	4.1		3.7	35.9
2017	1.0	31.5	3.3		3.2	39.1
2018	5.5	32.5	6.2		2.9	47.0
2019	6.6	30.9	4.8		4.4	46.7
2020	7.0	27.2	3.3	3.9	4.0	45.5

source: China General Administration of Customs

Imports from Kazakhstan totalled 7 bcm in 2020, and at this level any interruption would not have an appreciable impact on China's overall gas supply. By far the largest source of pipeline imports is Turkmenistan. Volumes fell slightly to 27 bcm in 2020, and at this level they accounted for 8% of China's demand. Or from another perspective, the Turkmenistan imports are roughly one-third of the level of current total LNG imports. In other words, Turkmen gas plays a significant role in China's gas supply arrangements. Imports from Russia through the Power of Siberia pipeline are at the ramp-up stage and were probably just over 10 bcm in 2021.

Turkmen, Kazakh and Uzbek gas comes to China through a corridor of three pipelines A, B and C, which have a combined capacity of 55 bcma and which are routed from Eastern Turkmenistan through Uzbekistan and Kazakhstan. Lines A & B were commissioned in 2009-10, and Line C in 2014.¹⁰ The proposed Line D will take an alternative routing via Uzbekistan, Tajikistan and Kyrgyzstan and will be larger at 30 bcma capacity.

In the event of a supply disruption, the options open to China for replacing Turkmen gas are limited basically to the international LNG market, subject to China having sufficient regas capacity at its terminals to accept more LNG. Russian gas from the Power of Siberia pipeline is at its build-up stage, and Russia cannot move West Siberian gas eastwards into it as there are no pipeline connections to do so: supply is all from dedicated new production in East Siberia. The only other option for China would appear to be to substitute with coal, but this would only partly offset the needed volumes given the different end-uses and would be a less desirable option politically on the eve of the winter Olympics.

6. Conclusion

Kazakhstan's foreign trade is dominated by crude oil exports. These account for between 50% and 60% of total exports. Kazakhstan touches the international traded energy markets at 2 points. First, there is a direct connection into crude oil markets through the CPC pipeline terminating in the Black Sea and carrying 1.3 million b/d. Secondly, there is an indirect connection through transit of Turkmen gas to China. In the event of a problem with its 37 bcma total supply from Central Asia, China would probably need to look to the international LNG market to replace this pipeline volume.

All this is not to suggest that there will be any impact on crude and gas flows from any continuation of the events of the last week. It simply says that *if* something were to happen, then the crude and gas

⁹ All data from BP Statistical Review of World Energy, 2021 edition

¹⁰ For more details of this transportation corridor, see Pirani Central Asian gas – prospects for the 2020s, OIES paper NG155, December 2019, pp 10-11

flows from Kazakhstan are of sufficient magnitude to have an immediate impact on global oil and gas markets. Blowing up pipelines is a very difficult thing to do. More likely, any disruption could be the result of staff failing to work at pumping and compressor stations.

Global oil and gas markets are tight. The very high gas prices seen in Europe in recent months have become a highly political issue, and gas markets look likely to remain tight through the short and into the medium term. On the oil side, demand rising as economies recover from Covid-related contractions will probably mean global oil markets become firmer as 2022 progress.¹¹ And tight markets are less forgiving of any supply problems.

Acknowledgements

The author would like to thank Michal Meidan, Jack Sharples, Mike Fulwood and Andreas Economou at OIES for their comments, and also Dena Sholk at IHS for her data hunting.

¹¹ See Jack Sharples, A Series of unfortunate events – supply-side factors in the European gas price rally in 2021 and the outlook for the rest of the winter, OIES Energy Insight number 108, December 2021, and OIES Oil Monthly, January 2022 Update slide pack and OIES Oil Monthly number 10, December 2021.