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Editorial

Bohuslava Šenkýřová



In 2022 the energy prices have become the top economic topic. In Europe we can speak about an energy crisis. Particularly because of the war in Ukraine the prices of natural gas and electricity have risen by hundreds of per cent and the oil product prices have risen as well. Higher prices affect the whole economy as well as our school and students just as millions of Europeans.

At the same time, we can observe the energy flows being redirected: Europe has been looking for new sources to replace Russia's natural gas as Russia strives to find new customers in Asia.

According to many economic experts, Europe itself can in part be blamed for the current energy crisis. In recent years Germany had deliberately shut down many of



their nuclear power plants. Natural gas had replaced nuclear sources and had been used as a stand-by source to level-out the unstable electricity produced by wind turbines, and as the cleaner fuel in the heating plants. In other words, Europe had been pushing its demand

for natural gas up in recent years. War in Ukraine has brought up sanctions that included the refusal to open the new gas pipeline Nord Stream 2 from Russia to Europe. In addition to the expected reduced purchase of natural gas from Russia, the war has brought out hi-



gher risk on the energy market and speeded-up filling of gas storage. All that resulted in rising prices. Since natural gas and electricity are substitutes, rising prices of natural gas get ultimately always reflected in the higher price of electricity. Many European countries have introduced price controls and compensations inevitably causing further increasing of budget deficits. Energy sector has been, to put it clearly, the principal main economic topic of the past year. This issue of the bulletin brings three articles debating the current developments in the energy sector. As Europe has its Green Deal, a plan of gradual reducing fossil fuels (oil, natural gas and coal), China has its “30-60 Plan” to re-

duce the carbon dioxide emissions. Jiang Hui, the Chinese Director of the Confucius Institute at VŠFS, writes about gradual change in China’s orientation from coal to new energies. The article confirms the so-called environmental Kuznets curve, showing that China, after having reached a certain income level per capita, has become focusing on improving the quality of its environment.

Two more articles are dedicated to the current changes in the energy market orientation. Kristína Kysel’ová explains that the dependence on the Russian gas supplies is bilateral. Just as Europe depends on Russia, Russia similarly depends on Europe and it is very difficult to replace the existing trade

partners in this industry with new ones. However, it has been happening, albeit slowly, and the article written by economic experts Hana Lipovská and Jana Bobošíková reveals that while Nord Stream 2 pipeline brings no natural gas to Europe, the pipeline Power of Siberia supplies Russian natural gas to China which profits from cheap and diversified supplies of natural gas.

I wish you interesting reading in these intricate times!

Bohuslava Šenkýřová is the rector of the University of Finance and Administration and chair of the administrative board Confucius Institute at the University of Finance and Administration

The Short and Long Term Effects of China's 30-60 Goals

Jiang Hui



The 30-60 goals are China's energy saving and carbon reduction schedule in response to the global climate crisis. The 30-60 goals include two targets:

„emission peak“ and „carbon neutrality“. In the short term, the 30-60 goals encourage China to reduce the proportion of coal consumption and increase the research and development and application of carbon capture, carbon sequestration, carbon utilization and other related technologies. In the long term, the 30-60 goals promote the growth of the new energy industry, optimize the structure of the automobile industry, and realize the coordinated development of economic level and environmental protection.

By July 14, 2022, Hangzhou Meteorological Observatory had issued four consecutive red alerts for high temperature. On July 12, 2022, the extreme maximum temperature in Hangzhou reached 40.3°C. China was not the only country facing the threat of extreme weather. Other countries around the world also frequently experienced extreme heat. In the summer of 2022, Europe experienced unusually high temperatures and wildfires, the United States also suffered from power shortages due to high temperatures, the Greek government announced being one of



the worst in the Mediterranean region's history. The frequency of extreme heat has led to questions about how extreme weather occurs? What policies can humans put in place to mitigate or avoid similar extremes?

The background of the 30-60 goals

In response to the global warming crisis, most countries have put environmental protection at the top of the agenda. In recent years, China has made great achievements in energy conservation and emission reduction. In 2019, China's carbon dioxide emissions per unit of GDP decreased by 18.2 percent and 48.1 percent over 2015 and 2005 respectively, and

non-fossil energy accounted for 15.3 percent of primary energy consumption, 7.9 percentage points higher than 2005. In 2018, China's forest area and forest stock increased by 45.09 million hectares and 5.104 billion cubic meters respectively over 2005. China became the country with the largest increase in forest resources in the world during the same period.^[1]

What impact will the 30-60 goal have on China's future economy development model? How will China balance „environment protection“ and „economy growth“? Should environment protection come first or economy development first, or should we seek dynamic and coordinated

Table 1: Disposable Income and Environment quality in big cities of China

YEAR	2013	2014	2015	2016	2017	2018	2019	2020	2021
GDP(%)	7.8	7.4	7	6.8	6.9	6.7	6	2.2	8.1
PCDI(Thousand RMB)	18.3	20.2	22	23.8	26	28.2	30.7	32.2	35.1
AQI_BEIJING	73	58	152	133	44	38	44	28	27
AQI_SHANGHAI	125	72	82	58	54	36	50	47	43
AQI_GUANGZHOU	82	55	41	51	51	32	42	35	31
AQI_SHENZHENG	77	50	32	45	46	27	38	34	27
AQI_WUHAN	179	84	109	93	95	71	67	80	69

Sources: <https://www.aqistudy.cn/historydata/>

Remarks: GDP (Gross Domestic Product), PCDI (Per Capita Disposable Income), AQI (Air Quality Index)

development between the two?

The theoretical basis of the 30-60 goals

30-60 goal is the carbon dioxide emission schedule, including „emission peak“ and „carbon neutrality“. The peaking carbon emission target requires that China’s total carbon dioxide emissions do not rise and reach to a peak by 2030. The Emission Peak indicates that the carbon dioxide emissions will change from increasing to decreasing, and economic development will no longer produce carbon increment. The Carbon Neutrality target requires that in 2060, the total amount of carbon dioxide or greenhouse gases emitted by production and living in China will be offset by afforestation, energy conservation and emission reduction, so as to achieve relatively „zero emissions“.

Environmental Kuznets curve

In 1993, Panayotou inspired by in-

verted U-shaped curve between per capita income and income inequality defined by Kuznets in 1955, and named the relationship between environmental quality and per capita income as the Environmental Kuznets Curve (EKC) for the first time. EKC revealed that environment quality began to degrade with the increase of income, and after the income level rose to a certain extent, it improved with the increase of income, that is, there was an inverted U-shaped relationship between environmental quality and income.^[2]

The 30-60 goal aims to improve environmental quality by reducing carbon emissions, capturing carbon and neutralizing carbon. Reducing carbon emissions will inevitably require production enterprises to reduce disposable fossil energy consumption, which will impact economy growth. According to EKC, income level and environment protection include several stages, such as „low income level, high environmental quality“, „high

economic growth, low environmental quality“ and „high income level, high environmental quality“. Since 1978, China has enjoyed rapid economic growth at the expense of the environment. At present, the Chinese government has realized the importance of environment protection for sustainable economic development. While developing the economy, China pays special attention to strengthening environment protection. Since 2013, the disposable income of Chinese residents has gradually





Table 2:
TOP5 global wind power installations in 2021

Ranking	Countries	Proportion %
1	China	50,91
2	The United States	13,58
3	Brazil	4,06
4	Vietnam	3,74
5	Britain	2,78
6	The total of the other	24,92

Source:

<https://www.china5e.com/news/news-1132289-1.html>

Table 3:
TOP5 global PV installations in 2021

Ranking	Countries	Power capacity (GW)
1	China	54,9
2	The United States	26,9
3	India	13
4	Japan	6,5
5	Brazil	5,5
6	The total of the other	68,2

Source:

<http://www.chinapower.com.cn/tybfd/hyyw/20220722/159615.html>

increased, and the environmental quality has also been gradually improved (Table 1).

Table 1 shows that the air quality of big cities in China has been significantly improved since 2013, among which, the air quality of Beijing has improved the most, and the air quality of Shenzhen is better than that of other cities. Meanwhile, Chinese people's incomes have risen substantially, the environmental quality has also improved substantially. China's economic development and environment protection are entering a new stage of integrated development. The 30-60 goals will help China explore a new path in economy development and environment protection.

The short-term effect of 30-60 goals: The proportion of coal consumption falls

Before the 30-60 goals were put forward, the proportion of coal consumption in China's primary energy consumption had shown a downward trend. For example, from 2014 to

2020, the share of coal consumption in China's primary energy consumption dropped from 65.8 percent to 57 percent, and the share of non-fossil energy consumption increased from 13.8 percent to 15.8 percent.^[3] This proportion continued to decline to 56% in 2021. The 30-60 goals will force Chinese provinces to speed up the development of energy conservation and carbon reduction plans, and accelerate the reduction of coal consumption.

Increased research and development of carbon-related technologies

To reduce Carbon emissions and enhance Carbon reuse, technologies such as Carbon Capture Usage and Sequestration (CCUS) will continue to make breakthroughs. In July 2021, Sinopec launched the construction of China's first million-ton CCUS project. By the end of 2021, China has also gained worldwide leading level in the field of carbon transport technique, has completed pilot phase and

are Implementing industrial application demonstration in carbon capture technology, are using the technology to commercial application stage for the technologies such as carbon chemical utilization and carbon biotechnology utilization, has been applied commercially on a large scale in the field of geological utilization and storage of carbon, ground leaching mining technology.^[4]

The long-term effect of the 30-60 goals: Promote the growth and development of new energy

In order to successfully achieve the 30-60 goals, all provinces in China have accelerated the research and development and utilization of new energy to reduce the dependence on and consumption of traditional fossil energy. Representative new energy sources include wind power generation, photovoltaic power generation and so on. In 2021, the world's newly installed wind power capacity was 93.6GW, and the top



three countries were China, the United States and Brazil, among which China's installed capacity accounted for 50.91%. The global PV report released by the International Energy Agency (IEA) showed that the global PV market grew rapidly again in 2021, with 175GW of new installed capacity, bringing the cumulative installed capacity to 942GW. China's installed PV capacity is ahead of the rest of the world. China is already playing a leading role in the new energy sector. The 3060 goals will promote the development and expansion of new energy-related technologies and enterprises at a faster rate, and the structure of energy utilization will undergo a major transformation, then non-fossil energy will take a dominant position.

Promote the adjustment and optimization of the structure of the automobile industry

The 30-60 goals will promote the growth and expansion of the new energy vehicle industry. According to China's New Energy Vehicle Industry Development Plan, by 2035, pure electric vehicles will become the mainstream of new vehicles sold in China, public sector vehicles will be fully electric, fuel cell vehicles will be commercialized, and highly autonomous vehicles will be applied on a large scale.

Conclusion

Considering the growth of Per Capita Income and improvement of environmental quality in China, the 30-60 goals are helpful to speed up to realize

the harmonious development of economic growth and environmental protection, energy consumption structure will change significantly, the proportion of coal in energy consumption will decline substantially, R&D of new energy will continue to rise, photovoltaic, wind power and other new energy technology will be widely used, Meanwhile, the structure of automobile industry will adjust and optimize, more new energy vehicles will replace traditional fuel vehicles.

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- [3] Ministry of Ecology and Environment: *The share of coal consumption in China decreased from 60.4% to 57% from 2017 to 2020* (<http://www.ccoalnews.com/news/202103/01/c140730.html>)
- [4] Chinese Academy of Environmental Planning, Ministry of Ecology and Environment, Wuhan Institute of Rock and Soil Mechanics, Chinese Academy of Sciences, China Agenda 21 Management Center. *China Carbon Dioxide Capture, Utilization and Storage (CCUS) Annual Report (2021)-- CCUS Pathway Research in China.2021-7-28.*

New setup of the commodity market due to Russian invasion to Ukraine

Kristína Kyselová



Russian invasion of Ukraine in the spring of 2022 had dramatically shifted the already fragile state of Europe's energy markets. Europe has united in solidarity with Ukraine and unleashed an unprecedented reaction towards the aggressor – Russian federation. Along with the political and opinion-based war, this conflict has opened the door for an energy crisis. The crisis materialised over solid foundation of a long & cold winter of 2021/2022 combined with the diversion from the general EU energy strategy of moving away from nuclear power. Another notable influence is the surge of energy demands in many Asian countries waking up from the post-COVID-19 inertia.^[1] Nonetheless, the European Union is still desperately dependent on Russian federation and its energy resources. However, this relationship goes both ways and Russia is as dependent on EU as EU is on Russia. European Union is significantly reliant upon imported energy

sources as it is unable to satisfy its energy needs by intra-union energy market only. Russian federation contributes a total of 30% of oil and 43% of all natural gas flowing to the EU, making Russia the key importing partner. Russian contributions are supported with oil and gas from Norway, USA, Kazakhstan, and other countries.^[2] Especially heavily dependent are countries from behind the former Iron Curtain and former Soviet Union countries. Dependency such as seen in the European energy mix comes from the decades-long strengthening of the economical bond between the former Soviet-controlled countries. Energy transportation is a complex discipline with immense transactional costs of switching the supplier, therefore any established connection basically locks the two sides together. Such



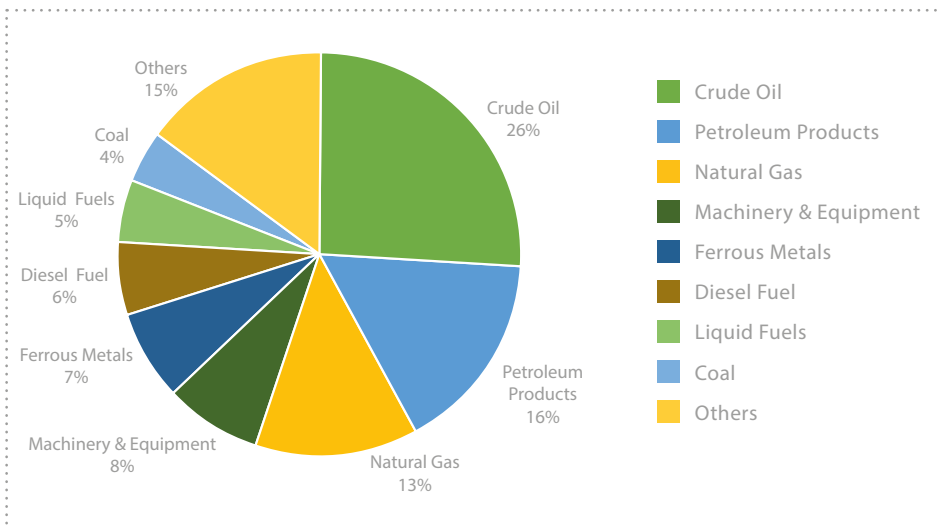
bond between the countries is further sealed by building a mosaic of gas and oil pipelines and by doing so, the European Union has firmly tied itself with the Russian Federation. When Russian forces crossed the Ukrainian border in the early morning of 24th of February 2022, the western hemisphere answered in unison and disapproved of Russian unsolicited military intervention. Russian federation underestimated the world's reaction after somewhat mild reaction to the Crimea annexation in 2014. However, in 2022 it was different and western world imposed a new series of economic sanctions to Russia (note: several were already in place as a result of Russian annexation of Crimea peninsula), including targeted restrictive measures, economic sanctions, and diplomatic measures. Besides

Such

Odkazy

- [1] EU energy prices [online]. Brussels, Belgium: European Commission, 2022 [cit. 2022-09-17]. (https://energy.ec.europa.eu/topics/markets-and-consumers/eu-energy-prices_en)
- [2] From where do we import energy? [online]. Luxemburg: Eurostat, 2022 [cit. 2022-09-04]. (<https://ec.europa.eu/eurostat/cache/infographs/energy/bloc-2c.html>)

Figure 1: Russian exports by category in 2021 [USD Millions]



Source: *Russia Exports of Natural Gas* [online]. New York, NY, USA: Trading Economics, 2022 [cit. 2022-09-04]. (<https://tradingeconomics.com/russia/exports-of-natural-gas>)

other things, EU sanctions banned Russian import of crude oil and refined petroleum products, coal and any other fossil fuels, gold (note: including jewellery), steel, iron, and wood. Sanctions were unfolded gradually with expectations to cover nearly 90% of Russian oil imports to Europe by the end of 2022. However, a temporary exception is in place for the above-mentioned, heavily Russian oil dependent states of the EU. Furthermore, penalties were imposed over banking sector as well, banning Russian and Belarussian banks from the SWIFT system.^[3]

Economic pressure of the aforementioned factors and the fact that switching from one oil and gas supplier to another is an extremely invasive act in terms of cost and infrastructure, contributed to the critical situation on the Europeans energy

markets. Question that stands out is how European Union and Russian federation are going to cope with the current energy crisis. How would EU supplement the supply chain disruption and where would Russia find alternative markets for their fossil fuel production. And ultimately how this invasion will change the energy markets in Europe and the world. Reorientation from the fossil fuel powered economies is inevitable and might be dramatically accelerated by this invasion. And how would mono-commodity exporters cope with such radical detachment from fossil fuels? How the invasion opens all sorts of questions and realizations?

Energy dependency map

In the peak of globalized markets and approaching a general idea of one global economy, energy markets

are extremely tightened and intertwined on global, regional, and even local level. By definition, energy market is a series of trading actions where participants handle processes associated with the trade and provision of energy, which may refer to the electrical energy market or other energy resources. International energy markets conclude mostly natural gas market and oil market, peripherally uranium market. Coal and renewables are sources of energy primarily consumed in the country of their origin or by close neighbouring countries. True players of global politics therefore are natural gas and oil, of which Russian federation disposes both. Transportation of such is especially complicated owing to a grid of pipelines moving it, leaving little to no space for breaking the given dependency and complicate any supplementing options.

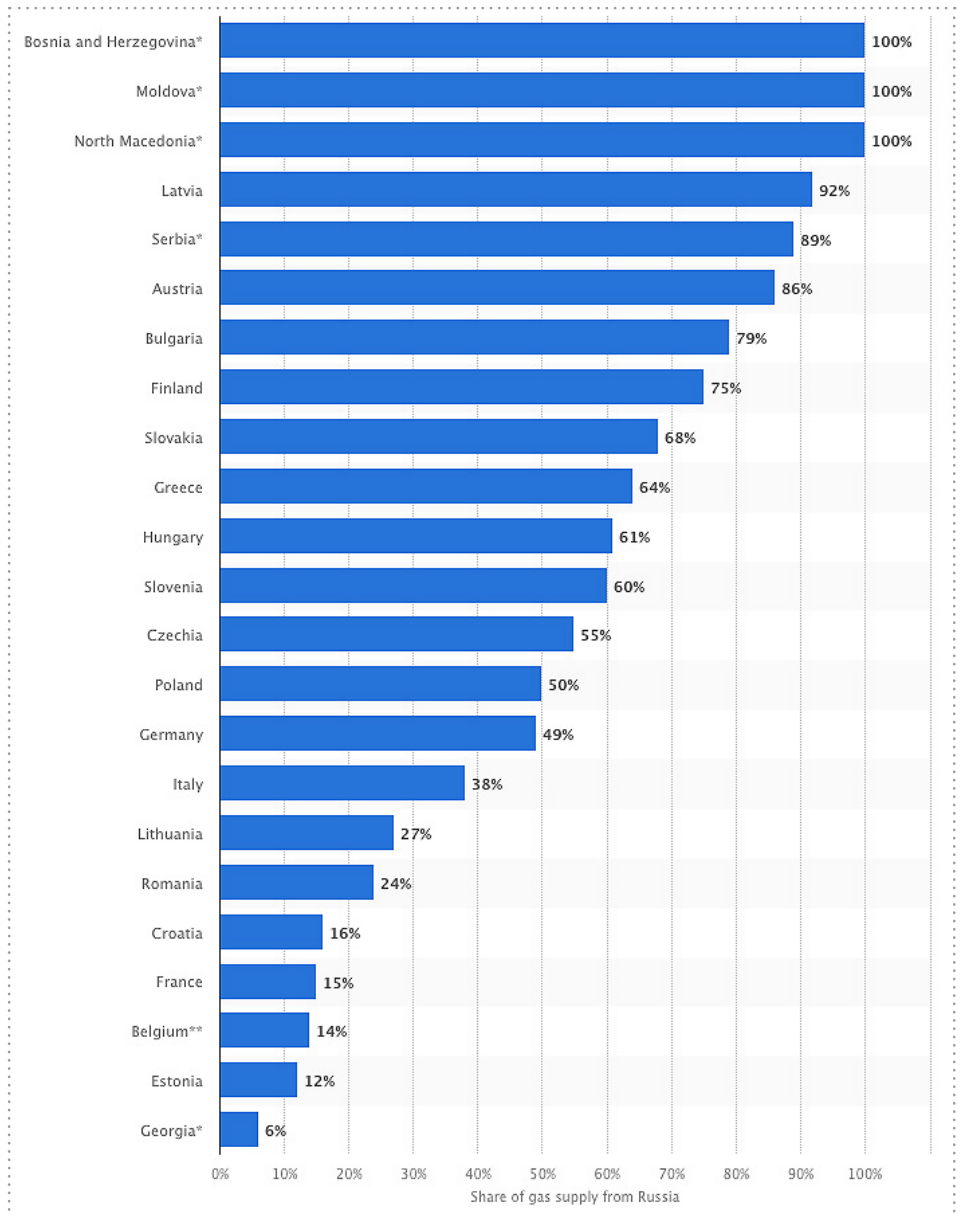
Russian energy sphere of influence

As of 2021 Russian federation ranks as the second largest natural gas producer and the third largest oil producer (note: Russian federation and Saudi Arabia are taking turns on the second place, year after year having comparable outputs.). Russian fossil fuel production is immense on a global scale making Russian exports essential for a world's growing demands. Majority of both flow to Europe and Asia. About 60% of Russian oil exports goes in OECD Europe member

[3] *EU sanctions against Russia explained* [online]. Brussels, Belgium: European Commission, 2022 [cit. 2022-09-17]. (<https://www.consilium.europa.eu/en/policies/sanctions/restrictive-measures-against-russia-over-ukraine/sanctions-against-russia-explained/>)

countries (note: total of 22 countries overlap with the EU membership), approximately 20% to China and significant amounts to India.^[4] EU imports 29%^[5] of crude oil from Russian federation, whereas countries from behind Iron Curtain exhibit overall dependency ranging from 78,4% in Slovakia to 8% in Slovenia and Bulgaria. Former soviet bloc members currently in EU note average dependency rate of 40.4% in 2021. Notable countries dependent of Russian oil are Germany with almost 30% imports and Romania with 32.8%.^[6] Germany as a member of the Big Three (note: informal term used to describe the most powerful economies in EU, before Brexit it was known as the Big Four.) might have a compelling voice in the EU-Russian relationships. Chinese ratio of oil imported from Russia soars to 55% in 2022^[7], strengthening the economical bond between the countries. India, South Korea, and Japan both source some of their oil from Russia, it is not their primary importer.^[8] Similar to oil, EU is strongly built upon Russian natural gas, up to 43% is imported from Russian fe-

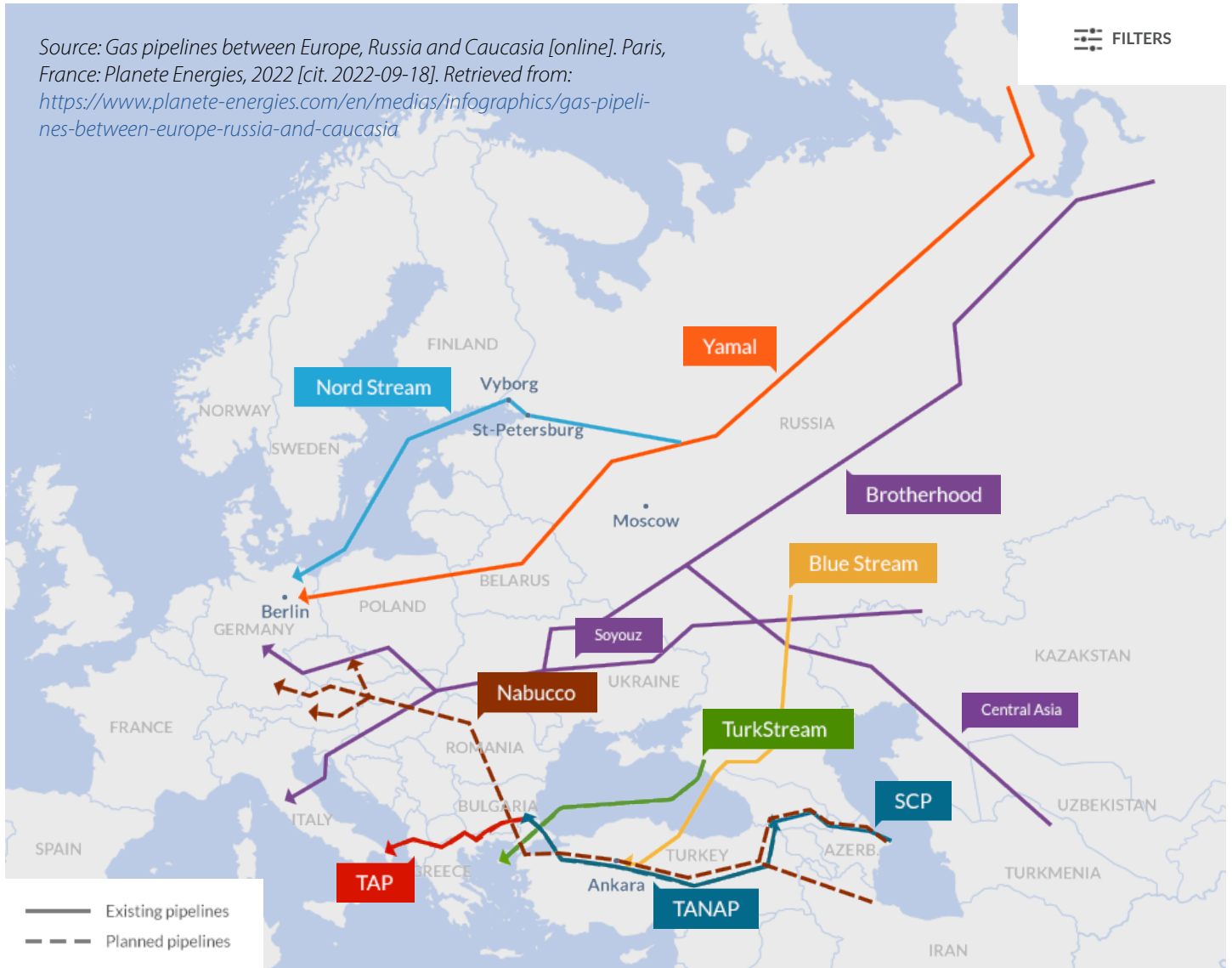
Figure 2: Share of gas supply from Russia in Europe in 2021, by selected country



Source: Share of gas supply from Russia in Europe in 2021, by selected country[online]. Hamburg, Germany: Statista, 2022 [cit. 2022-09-05]. Retrieved from: <https://www.statista.com/statistics/1201743/russian-gas-dependence-in-europe-by-country/>

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- [5] From where do we import energy? [online]. Luxemburg: Eurostat, 2022 [cit. 2022-09-04]. Retrieved from: <https://ec.europa.eu/eurostat/cache/infographs/energy/bloc-2c.html>
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- [8] MENON, Shruti. Ukraine crisis: Russian oil turns to Asia as sanctions bite. BBC[online]. London, UK, 2022 [cit. 2022-09-05]. (<https://www.bbc.com/news/world-asia-india-60783874>)

Figure 3: Russian pipelines to Europe



deration.^[9] As is strikingly obvious from the Figure 12^[10], most of Europe is alarmingly dependent on Russian imports. However just like Europe is dependent on Russia, it is the same vice versa. 74% of Russian federation's natural gas exports flow

to OECD Europe, 13% to Asia and Oceania. Asia imports mostly LNG, natural gas in gaseous state is just supplemental to its energy needs.^[11] Considering the energy market situation described above, Russia has viable energetic ties with numerous

world's leading economies, namely China as the second largest one, Japan on third place, Germany fourth, India fifth, Italy ninth.^[12] Russia basically singlehandedly serves energy needs of one whole continent. Moreover, energy sphere of influence re-

[9] From where do we import energy? [online]. Luxembourg: Eurostat, 2022 [cit. 2022-09-04]. (<https://ec.europa.eu/eurostat/cache/infographs/energy/bloc-2c.html>)

[10] Share of gas supply from Russia in Europe in 2021, by selected country [online]. Hamburg, Germany: Statista, 2022 [cit. 2022-09-05]. (<https://www.statista.com/statistics/1201743/russian-gas-dependence-in-europe-by-country/>)

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[12] GDP (current US\$) [online]. Washington D.C., WA, USA: World Bank, 2022 [cit. 2022-09-05]. (<https://data.worldbank.org/indicator/NY.GDP.MKTP.CD>)

Figure 4: Russian pipelines to Asia



Source: KELLEY, Michael. *Here's The Proposed Gas Pipeline That Has Russia-China Relations Stronger Than Ever* [online]. New York, NY, USA: Business Insider, 2014 [cit. 2022-09-18]. (<https://www.businessinsider.com/russia-china-pipeline-2014-5>)

aches through two whole continents amassing unbelievable global power on the energy markets in general. Over the course of 20th and 21st century has Russian federation and its economic partners built vast grid of oil and gas pipelines. About 27% of total world's pipelines are laid in Europe.

The longest and oldest of the modern pipelines is the Druzhba oil pipeline build in 1962 by the Council for Mutual Economic Assistance (note: commonly known as Comcon in English-speaking countries.). Druzhba connected the eastern part of Russia to delivery points in the former USSR, nowadays Central and Eastern Europe, supplying Ukraine,

Belarus, Poland, Hungary, Slovakia, and Czech Republic. Second longest pipeline is the Yamal gas pipeline built in 2006 which connected Siberian Yamal peninsula with Germany from where gas is distributed across many European countries.^[13] Supplemental to Yamal another monstrous gas pipeline was built and opened in 2011 – Nord Stream. Due to Europe's growing gas demands, in 2015 Germany has started building a mirroring pipeline to the Nord Stream 1 called Nord Stream 2. Nord Stream 2 was never completed and currently any construction is discontinued.^[14] Balkan along with Turkey and Greece is supplied by the Blue Stream and Turk Stream pipelines.

In Asia, Russia has a developed grid connecting it to western Asia and Caucasia, mostly due to closeness in the CIS region and shared historical development. Whereas Eastern Asia market is served mostly via two main entrance points due to topographical profile of the region. The western entrance is for the Altai gas pipeline, connecting Russia with the Xinjiang region. Altai pipeline started operating in 2019^[15] and along with its Kazakh counterpart the Kazakhstan-China oil pipeline^[16] serve the energy needs of western China. Moving to the north Chinese salient of the Inner Mongolia region is the entrance point for the Power of Siberia gas pipeline. Power of Siberia

[13] HUSSEIN, Mohammed. *Mapping the world's oil and gas pipelines* [online]. Doha, Qatar: Al Jazeera, 2021 [cit. 2022-09-18]. (<https://www.aljazeera.com/news/2021/12/16/mapping-world-oil-gas-pipelines-interactive>)

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[15] HENDERSON, James. *The Commercial and Political Logic for the Altai Pipeline* [online]. Oxford, UK: The Oxford Institute for Energy Studies, 2019 [cit. 2022-09-21]. (<https://www.oxfordenergy.org/publications/the-commercial-and-political-logic-for-the-altai-pipeline/>)

[16] About KCP [online]. Almaty, Kazakhstan: Kazakhstan-China Pipeline LLP, 2022 [cit. 2022-09-21]. (<https://www.kcp.kz/company/history>)

was finished in 2019 with plans to elongate pipeline reaching Shanghai in 2025 and Beijing in 2030^[17]. The most eastern pipeline – the East Siberia – Pacific Ocean pipelines (note: usually abbreviated as ESPO pipeline) supplies oil from Siberia’s oil fields to Eastern China, Japan, and Korea. ESPO Pipeline was constructed and put in use in 2012.^[18]

Energy sector segmentation and ways of supplementing disrupted supply

In general, options to supplement are the following:

1. Plugging to another source on the pre-existing grid – provided that a country or region is connected to an alternative exporter the importer may supplement its energy needs there. However, it is highly unlikely because supplier’s grid was already built according to the most advantageous supplier and this concept is only applicable in regions that are surrounded by fossil fuels powerhouses. Countries that could eventually leverage this principle are f. e. Turkey with the options to lean towards either CIS block or Arabian Peninsula. Such approach bears no additional cost of changing the supplier.

2. Alternative transport – if alternative pipeline system does not exist, delivery must be supplemented



by ground transit, maritime or air transport. This approach rises the final fuel price significantly by the transactional costs. Furthermore, the risk of not having a matching supply of vehicles to support such a supplying bridge and possible cuts to other market segments giving up their capabilities must mirror in the risk component of the final price.

3. Constructing new grid – a complete reorientation to another supplier. This approach emerges from position of no return. In practice it could be a vile redirection of

political influences that rules out any future economic relations or final depletion of a source. Secondly, such action incentives extreme long-term projects with immense investments and expectations tied to the project. As the price for projects like these usually counts in billions constructing a new pipeline must mean building an equivalently strong and trustful relationship between the sides. A failed example of this is the Nabucco pipeline’s story. Early in the third millennium has EU developed strategic plans for cutting the energy dependence on Russian gas. Nabucco

[17] CHENG, Evelyn. *This map shows the massive gas pipeline that Russia and China are building* [online]. Englewood Cliffs, NJ, USA: CNBC, 2022 [cit. 2022-09-21]. Retrieved from: <https://www.cnbc.com/2022/07/27/map-of-power-of-siberia-gas-pipeline-that-china-russia-are-working-on.html>

[18] VON HIPPEL, David, Ruslan GULIDOV, Victor KALASHNIKOV a Peter HAYES. *Northeast Asia regional energy infrastructure proposals* [online]. 39. Elsevier: Amsterdam, Netherlands: Energy Policy, 2011 [cit. 2022-09-21]. ISSN 0301-4215. Staženo z: doi:10.1016/j.enpol.2009.08.011

pipeline was supposed to bring gas from Azerbaijan and Iran to Austria, additionally supplying Czech Republic, Hungary, Bulgaria and Romania on its way^[19]. Nabucco failed to a somewhat hesitant commitment from Azerbaijan due to government's concerns about disrupting gas market for the Russian Federation^[20]. However, EU kept pressuring Azerbaijan until the whole project crumbled and Nabucco remains were left to slowly deteriorate overtime. This is a fine example of the "Scottish parliament paradox", when after all the money and time invested into the project there is no voice of reason stopping it from wasting even more time and money.^[21]

The three options described above all contemplate with some sort of political background. Major players in gas an oil industry have global markets divided and held in both established trading routes and contracts signed. Moreover, as can be seen from the

Azerbaijan example political alliances play a viable role too. Such statement is proven in Organization of Petroleum Exporting Countries coherence after the Yom Kippur war events^[22] when it misused its price giving power for political agenda. Therefore, actionable market is often predefined and only major shifts in the global politics may result in such supplier's reorientation.

Conclusion

Summing up, Russian invasion has truly challenged the global (and not only energy) markets and completely derailed regional development trends in Asia and Europe, with an indirect impact on the whole world. Radical change in the pre-established supply chains dramatically changed power balance between the regions. By deflecting from Russia, Europe had to substitute elsewhere, however its options are very limited. Provided that EU's change of supplier is driven

by boycotting an autocratic regime, it would be illogical to reorient to another one and fiscally support their own nondemocratic approach. Such development is not only a great threat, but also an amazing opportunity for Europe to finally cut back on energy dependency on the Russian federation and make its energy mix greener and more sustainable. Both governments and private sectors have to invest heavily into independency and complete restructuring of the energy sector, which enables Europe to strengthen their geopolitical position and any future relevancy. On the other hand, Asia should not be mesmerised by sudden influx of cheaper and more accessible energy and must not lock itself up in decades-long investments into the dying industry of fossil fuels.

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Winners and Losers in Global War over Natural Gas

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Long before the conflict between Russia and Ukraine began, Russian natural gas had been, unnoticed at the beginning, massively redirected to China. China and its industrial operations have thus secured stable supply of cheap natural gas for decades. Who is the winner of the global war over the strategic resource and who is the loser?

According to data published in 2019 BP Statistical Review of World Energy Russian Federation had at the end of 2019 the largest reserves of natural gas in the world. While the EU countries held 0.3% and China 4.2% of global mining reserves, Russian reserves of natural gas represented almost one fifth (19.1%) of global reserves.

Russia is at the same time the largest global producer of natural gas. In 2019 the difference between consumed and produced natural gas in Russia was 235bn of cubic metres in favour of the production the majority of which had been exported. Russia's share on the global natural gas exports was 27%.

More than three quarters of Russian

natural gas had been sold to EU countries, mostly (33%) to the Federal Republic of Germany. Compared to that, Russia exported to China only 0.3bn of cubic metres of natural gas, which is 1 per mille (‰) of total Russian export and less than 1 per mille of China's annual natural gas consumption.

The new natural gas pipeline – Power of Siberia – was launched into operation in December 2019, which when finished should be almost 4,000 kilometres long. According to the original design the pipeline should have brought 5bn of cubic metres of Russian natural gas to China in 2020, 10bn of cubic metres in 2021 and 15bn of cubic metres in 2022. In 2023 the natural gas from Russia is expected to cover 40% of China's demand and in 2025 the Power of Siberia is expected to bring 38bn of cubic metres of natural gas from Russia which significantly exceeds the import from Australia and Turkmenistan.

Russian Gazprom and Chinese state energy company China National Petroleum Corp. signed a contract on natural gas supply for 30 years in 2014. The second contract between Russia and China was signed in February 2022, not long before the outbreak of the Russia-Ukraine conflict.

The long-term contract worth US\$ 400bn has opened the fast-developing Asian markets to Russia and at the same time somewhat protects Russia from the sanctions imposed by Western Europe. China, on the contrary, has secured supplies of natural gas for a significantly lower



price. In another contract, Russia has made sure that payments will be made not in US dollars, but exclusively in Russian roubles or Chinese yuan. In the Gazprom CEO's words, this arrangement will be "for both parties, advantageous, on-time, reliable and practical, and will simplify the calculations and serve as an example worth following by others". So far for the planned activities. And what about reality? In 2021 Russia exported to China not 10bn but 16.5bn cubic metres of natural gas, which means that the original plan was exceeded by 60%. This year's supplies have been increased by 68% compared to the previous year which corresponds to the output expected originally in 2024.

Our gross estimate is that currently Russia exports to China approximately 27% of its natural gas export production compared to 1% in 2019. Data published by International Monetary Fund show that from January to July 2022 the total Russian export to China had increased by 50% compared to the same period in 2019. Russia and China have already

Natural gas (2019)



commenced the construction of Power of Siberia 2 natural gas pipeline that is expected to transport 50bn cubic metres of natural gas per year. Moreover, a Power of Siberia 3 natural gas pipeline construction has been included in a new 30-year contract with Gazprom. By 2030 China is expected to receive over 100bn cubic metres of natural gas from Russia per year, which corresponds to the volume of natural gas imported in 2019 multiplied by 333. Redirection of the trade in natural

gas will be strongly perceived in EU member states. The Kremlin announced as early as in September 2022 that the natural gas supply to Europe would not be reinstated unless the Western sanctions against Russia were lifted. So, it seems that China is the winner in the crisis between Russia and European Union. China has managed to secure a reliable supply of cheap natural gas for their fast-growing industrial sector. While in China the natural gas prices have dropped by

one-fourth since February 2022, in the European Union the prices have risen by almost 60% (the difference between the minimum and maximum price in 2022 was almost 550%). And so, we in the European Union were left to wish for a mild winter.

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