



# The Ukraine War, the New Geopolitics of Energy, and Norway

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# Introduction

This study aims to address the question of how Russia's invasion of Ukraine in 2022 has changed patterns of regional and global energy interactions and how this influences perceptions of Norway as a major regional energy actor. To examine these important questions, we will proceed in the following manner. In the first part of this study, we will present our operational understanding of the key concepts shaping our thinking about the relationship between the geopolitical and geoeconomic aspects of international cooperation and rivalry. Here we also will discuss the role of various national instruments of power in the pursuit of geopolitical and geoeconomic objectives.

In the second part we narrow the scope of this examination to shed light on the relationship between geopolitics and energy in global and regional contexts, paying special attention to trends shaping the international energy game. This includes the changing role of Russia; how green energy transition reshapes international energy cooperation and how old and new energy-related policy instruments are evolving in this rapidly changing energy landscape. In addition, we also examine the nature of the old and new threats to energy flows, particularly those related to critical energy infrastructure.

In the third part of this study, we examine the direct and indirect impacts the Russian war against Ukraine has had on energy markets and what implications these recent developments have for the position of Norway as a major energy actor. Norway's importance for energy consumers, especially in Europe, has increased because of the war. Although the global energy trends discussed in the previous section also influence Norway and Europe, the focus in the latter section is on the regional dimension as Norway's energy supplies reach first and foremost Europe.

Finally, we examine possible scenarios that may influence energy markets and geopolitical conditions, with special attention paid to global factors with the potential to cause serious shifts. Part of the focus is on possible technological breakthroughs that may change the parameters of the international energy interactions and undermine the position of traditional energy producers and exporters.

# Part 1. What is geopolitics?

## Changing understandings of geopolitics

### Geopolitics and geoeconomics

In very general terms, “geopolitics” is understood as the “study of the influence of such factors as geography, economics, and demography on the politics and especially the foreign policy of a state”.<sup>1</sup> In other words, geopolitics is understood as the study of how geography affects politics and international relations. The focus in the studies of geopolitics is on actors such as states, governments, individuals, organizations, companies, who are involved in political, economic, and financial activities—and how they interact with one another.

In this brief study geopolitics should be understood as the impact geographic factors, relative power, and technology have on state behavior and international order. In the current debate on geopolitical factors shaping the international environment, the focus is often on the role of great powers in this process. For instance, the leading US-based think tank RAND Corporation has over the past years published several studies on great power competition as a key factor shaping international relations.<sup>2</sup> However, as we examine great power politics through the prism of the war in Ukraine and its impact on the Norwegian energy sector, we adopt an approach that will allow for examination of the impact of these geopolitical factors on policies of other actors, including smaller states, operating in the international system who use various diplomatic, information-related, military and economic instruments of national power to defend and promote their national interests in the international environment.<sup>3</sup>

The use of various types of economic instruments can therefore also have what could be termed geoeconomic impacts on other actors’ choices. Geoeconomics in this context should be understood as “the use of economic instruments to promote and defend national interests, and to produce beneficial geopolitical results; and the effects of other nations’ economic actions on a country’s geopolitical goals”.<sup>4</sup>

As mentioned above, economic instruments of national power are only one instrument that states can use when they compete for influence on the global stage. In the current international context, it appears that geoeconomics instruments play a more important role than other traditional geopolitical factors.<sup>5</sup>

### Instruments of national power: from DIME to MIDFIELD

In the ongoing debate on what instruments of power states have at their disposal when pursuing their objectives two abbreviations are often mentioned: DIME (Diplomatic, Informational, Military, Economic instruments of national power) and MIDFIELD (Military, Informational, Financial, Intelligence, Economic, Legal and Development-related instruments of power).<sup>6</sup>

<sup>1</sup> Merriam Webster Dictionary at <https://www.merriam-webster.com/dictionary/geopolitics>

<sup>2</sup> An updated list of publications and comments on these questions is available here: <https://www.rand.org/topics/geopolitical-strategic-competition.html>

<sup>3</sup> See for instance Goddard, S. E., & Nexon, D. H. (2015). The dynamics of global power politics: A framework for analysis. *Journal of Global Security Studies*, 1(1), 4-18.

<sup>4</sup> Blackwill, R.D., Harris, J.M. (2016). *War by Other Means: Geoeconomics and Statecraft*. Cambridge: Harvard University Press.

<sup>5</sup> Luttwak, E.N. (1990). From Geopolitics to Geo-Economics: Logic of Conflict, Grammar of Commerce. *National Interest* 20, pp.17–23.

<sup>6</sup> See for instance Rodriguez, C. A., Walton, T. C., & Chu, H. (2020). Putting the “FIL” into “DIME” Growing Joint Understanding of the Instruments of Power. *Joint Force Quarterly*, 97(Second Quarter), 121-128. Retrieved from <https://apps.dtic.mil/sti/pdfs/AD1099537.pdf>. This is also relevant: Joint Chiefs of Staff. (2018). Strategy, Joint Doctrine Note 1-18, April 25, 2018. Washington DC Retrieved from [https://irp.fas.org/doddir/dod/jdn1\\_18.pdf](https://irp.fas.org/doddir/dod/jdn1_18.pdf)

An important challenge many states face when trying to use their instruments of national power is the question of how to combine and bundle them to achieve wished effects. Here the concept of grand strategy is understood as a way countries use their resources (means) and their instruments of power (ways) to achieve their objectives (ends).<sup>7</sup> The international position of various actors depends not only on what resources they have at their disposal but also on how they formulate their objectives and how they use various instruments of statecraft to achieve their goals.

For instance, Russia's invasion of Ukraine in 2022, which aimed to achieve regime-change and take control of the country, has turned out so far to be disastrous for Russia's international standing and has revealed the relative weakness of its statecraft and of its military. Also, the collective West's forced withdrawal from Afghanistan after two decades of war can be viewed as a strategic defeat that weakened the perception of the West and the USA in particular as an almost hegemonic actor who could achieve its objectives over the whole world. One could also assume that the way the West was forced to leave Afghanistan also played a part in Putin's strategic calculation as he most probably expected that the West would not be able and willing to confront Russia over Ukraine having in mind what the Russian propaganda presented as its strategic defeat in Afghanistan.

### Economic statecraft, economic warfare, geoeconomics and geopolitics

Because the main objective of this brief study is to examine the impact of the war on the position of Norway as the leading energy actor in Europe – and globally – we must consider some other concepts central for our understanding of the recent developments. Economic statecraft describes how states use economic instruments of power when trying to achieve their objectives, such as engaging in what is referred to as “economic warfare”. According to a seminal work on the relationship between geoeconomics and statecraft, states can use – and misuse – trade policy, investment policy, economic sanctions, cyber, economic assistance, financial and monetary policy, and not least national policies governing energy and commodities to promote and defend their interests and to influence the choices of other actors.<sup>8</sup>

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<sup>7</sup> On the concept of grand strategy see for instance Gaddis, J.I. (2019). *On Grand Strategy*. Penguin Books; Silove, N. (2018). Beyond the Buzzword: The Three Meanings of 'Grand Strategy', *Security Studies* 27, no. 1 (2018): 27–57, [doi.org/10.1080/09636412.2017.1360073](https://doi.org/10.1080/09636412.2017.1360073); Biddle, T.D. (2015). *Strategy and Grand Strategy: What Students and Practitioners Need to Know*. US Army War College, The Strategic Studies Institute; Kennedy, P.M. (ed.) (1992). *Grand Strategies in War and Peace*. Yale University Press.

<sup>8</sup> Blackwill, R.D., Harris, J.M. (2016). *War by Other Means: Geoeconomics and Statecraft*. Harvard University Press. See also Wigell, M., Scholvin, S., Aaltola, M. (2018). *Geo-economics and Power Politics in the 21st Century: The Revival of Economic Statecraft*. Routledge and Wigell, M. and Scholvin, S. (2018). *Geo-Economics as Concept and Practice in International Relations: Surveying the State of the Art* (No. 2), FIIA Working Paper. FIIA – Finnish Institute of International Affairs.

## Part 2. Geopolitics and energy

### Geopolitics and the geoeconomics of energy flows

Because this brief study aims to map the possible impact the ongoing war may have on the basic conditions in which the Norwegian energy sector operates, it is important to highlight some crucial questions that underpin the relationship between the external and internal factors shaping these framework conditions.

There are three issues that deserve closer attention. First, there is the relationship between the political and the economic aspects of these interactions. This is important in the context of a war that was a politically motivated action with huge impacts on economic cooperation, especially in the field of energy where the most important actors – Russia on the one hand and the EU and the trans-Atlantic community on the other – had to decide how to address questions related to strong energy interdependence that had been a characteristic feature of their economic cooperation prior to the outbreak of the war. Second, because we want to examine the impact of events that have been taking place outside of the borders of Norway on an important branch of the national economy that is strongly tied to external markets, we also must have a good understanding of the relationship between the national and international levels. Finally, as mentioned, the Norwegian energy sector is strongly connected to external markets and the situation on those markets is in turn strongly influenced by flows of energy commodities not only in the region but also at the global level. It is therefore important to see how these global flows and developments influence the framework conditions behind the operation of the Norwegian energy sector.

In his seminal work on international political economy, Geoffrey Underhill outlined three fundamental premises of International Political Economy (IPE)<sup>9</sup>:

- I. that the political and economic domains cannot be separated in any real sense;
- II. that political interaction is one of the principal means through which the economic structures of the market are established and, in turn, transformed;
- III. that there is an intimate connection between the domestic and international levels of analysis, and that the two cannot meaningfully be separated off from one another.

As far as the question of energy flows is concerned, it is important to see this question in the broader context. Over the past decades the issue of how various flows shape international relations has gained growing attention. Our examination of how energy flows coming from Norway are influenced by the ongoing war is based on a response to two recent studies on the impact of international flows on two countries that it is relatively natural to compare Norway with – Finland and the Netherlands. An FIIA report<sup>10</sup> argued that geopolitics is increasingly

<sup>9</sup> Stubbs, R., & Underhill, G. R. D. (Eds.). (2005). *Political Economy and the Changing Global Order* (Third Edition ed.). Oxford: Oxford University Press. Underhill, G. R. D. (2000). *Conceptualizing the Changing Global Order*. In R. Stubbs & G. R. D. Underhill (Eds.), *Political Economy and the Changing Global Order* (Second Edition ed., pp. 3–24). Oxford: Oxford University Press. Underhill, G. R. D. (2000). *State, Market, and Global Political Economy: Genealogy of an (Inter-?) Discipline*. *International Affairs*, 76(4), 805–824.

<sup>10</sup> Aaltola, M., Käpylä, J., Mikkola, H., & Behr, T. (2014). *Towards the Geopolitics of Flows: Implications for Finland*. At [https://storage.googleapis.com/upi-live/2017/01/fiia\\_report\\_40\\_web.pdf](https://storage.googleapis.com/upi-live/2017/01/fiia_report_40_web.pdf)

defined by the emerging and strengthening force of global flows. This entailed a strategic shift of balance away from traditional geopolitics focused on relatively self-reliant territorial sovereign states towards more dynamic geopolitical and geoeconomic interdependencies. A study conducted by the Hague Centre for Security Studies underlined the importance of flows in the context of the Dutch security and defence policy.<sup>11</sup>

Any study of flows should imply studying at least four aspects: the nature – or the ‘content’ of the flows; their size – or volumes of the flows; temporal aspects, or past, actual, and future history of flows; and finally, their spatial aspect, or how flows move in certain geographical and political spaces. In the political context one should also pay special attention to studying flow-related risks, challenges and opportunities and the way flows influence – and are influenced by – political decisions of various types of actors and stakeholders and their understandings of the workings of the political system.

These two pre-war studies demonstrated the importance of various flows (e.g. of goods, energy, finance, people, information) in shaping international cooperation. This became even more obvious after the outbreak of the war in 2022. There was, for instance, a burning need to find a solution to the problem of how to replace Russian energy flows to Europe – which had generated huge revenues for Russia that made this war possible – with flows of energy from other parts of the world to constrain Russia’s ability to continue this war. What preoccupied Western decisionmakers even more was the question of how to reduce or even eliminate the strong EU energy dependence on Russia that gave Russia a strong political leverage in Europe that had made itself too dependent on supplies of Russian energy.<sup>12</sup>

The situation was especially challenging when it comes to supplies of Russian gas because these gas flows came through a well-developed network of pipelines connecting Russian production fields with markets in Europe, developed even further after the illegal annexation of Crimea by Russia in 2014 by the construction of the NordStream2 pipeline. These pipelines served as a convenient solution to the EU gas dilemma in times of peace, but this infrastructure was rigid and difficult to replace in case of a rupture with Russia. In both cases, Norway as the second most important supplier of gas to Europe had a role to play. However, it became clear that due to various structural factors, such as availability of resources to be sent to market as well the capacity of the transport infrastructure to handle these increased volumes, Norway alone was not able to fill the gas gap on the European gas market caused by the conflict.<sup>13</sup>

The outbreak of the war demonstrated that reliance on Russia was not wise. Russia’s use of military power against its neighbor also demonstrated that Russia did not share the basic values of its key energy customers in Europe and seemed to treat the international interaction as a zero-sum game and not as a mutually beneficial win-win game.<sup>14</sup> The EU and the EU member states were therefore forced to revise their policies towards Russia and look for new solutions.

<sup>11</sup> T. Sweijts, Manen, H.v., Kertysova, K., and Bekkers, F. (2018). Flow Security and Dutch Defense and Security Policies. The Hague Centre for Strategic Studies at <https://hcss.nl/sites/default/files/files/reports/Flow%20Security%2012012018.pdf>.

<sup>12</sup> Godzimirski, J. M. (2016). Russia–EU energy relations: from complementarity to distrust?. In J. M. Godzimirski (Ed.), *EU leadership in Energy and Environmental Governance? Global and Local Challenges and Responses* (pp. 89–112). Palgrave Macmillan.

<sup>13</sup> See for instance Godzimirski, J. M. (2015). Norwegian gas in Europe: Part of a solution or part of a problem? BSR Policy Briefing(1), 105–117 at [http://www.centrumbalticum.org/sites/default/files/user\\_uploads/bsr\\_policy\\_briefing\\_1\\_2015\\_small.pdf](http://www.centrumbalticum.org/sites/default/files/user_uploads/bsr_policy_briefing_1_2015_small.pdf) and Godzimirski, J. M. (2022). Norwegian Gas in Europe in the 2020’s. In K. Liuhto (Ed.), *The Future of Energy Consumption, Security and Natural Gas: LNG in the Baltic Sea region* (pp. 161-190). Palgrave Macmillan. [https://doi.org/10.1007/978-3-030-80367-4\\_6](https://doi.org/10.1007/978-3-030-80367-4_6)

<sup>14</sup> Smith, M. E. (2011). A liberal grand strategy in a realist world? Power, purpose, and the EU’s changing global role. *Journal of European Public Policy*, 18(2), 144–163.

## Geopolitics and global value chains: from globalization to “repatriation”

The European/Western debate on how to become less reliant on Russia came in a special situation, almost immediately after two years with lockdowns and an economic slowdown caused by the global COVID pandemic. This pandemic, in combination with the increasing tensions in relations between the USA and China, revealed another weakness – the West had made itself too dependent on other actors by moving its businesses to other parts of the world – first and foremost China and India. This made various types of economic value chains much longer and more difficult to deal with in a situation of global crisis. In addition, the expatriation of production had clear political consequences, such as the growth of populism in the West, symbolized by the rise of Donald Trump. The Trumpian slogan of Making America Great Again (MAGA) appealed to many who believed increased globalization produced a detrimental effect on America’s social and economic situation. The global pandemic further convinced them that long value chains and expatriating production to rival countries caused various political, social, and economic problems. The outbreak of the war in 2022 seemed therefore to add to those concerns by putting the question of energy security and dependence on unfriendly states higher on the Western political agenda.

In the energy sphere these calls for de-globalization and reducing energy dependencies on sometimes unreliable external suppliers, resonated well with the debate on the negative impact of the use of fossil fuels – still the backbone of the global economy – on the environment. The use of fossil fuels was viewed as the main reason for climate change that is framed in the public debate as an existential threat to the whole humanity. The proposed response to climate change is a green energy transition to gradually reduce and ultimately phase fossil fuels out of the global energy system.

## Geopolitics and fossil fuels

Fossil fuels still play a key role in securing access to energy in the global context and this situation will continue in many years to come regardless of climate change measures. Countries endowed with these resources can therefore still reap not only economic benefits but also political leverage, which may help formulate and implement their grand strategic designs.<sup>15</sup> Russia is one country to have adopted this comprehensive and strategic approach to energy resources. In the first edition of Russia’s energy strategy published in 2003 this was clearly stated:

Russia has abundant energy resources and a powerful fuel and energy sector that forms the basis of economic development and is an instrument in [the] realisation of domestic and foreign policy. The role of the country at the global energy market in many respects defines geopolitical influence.<sup>16</sup>

## Energy, geopolitics, and grand strategy: the case of Russia

Energy resources play an important role in Russian strategic designs and pursuit of the country’s strategic objectives. The war in Ukraine has illustrated very clearly how important energy resources are, both in the preparatory phase, when Russia was able to build a strategic reserve thanks mostly to the revenues generated by its energy sector, and during the war itself when Russia was able to earn even more from selling its energy resources on increasingly volatile and nervous markets. Furthermore, Russia sought to use its energy resources to influence the decisions of its Western adversaries and tried to degrade the energy resources of Ukraine to achieve its surrender.

<sup>15</sup> On the role of energy resources in grand strategy see O’Sullivan, M. L. (2013). The Entanglement of Energy, Grand Strategy, and International Security. In A. Goldthau (Ed.), *The Handbook of Global Energy Policy* (pp. 30–47). Wiley-Blackwell.

<sup>16</sup> Government of the Russian Federation. (2003). *Energeticheskaya Strategiya Rossii na period do 2020 goda [Energy Strategy of Russia through 2020]*. Government of the Russian Federation.

Russia treats its energy resources as an important element in its grand strategic approach that can be used in combination with other instruments of power to influence decisions of other actors and achieve key objectives. Energy resources are treated not only as an important strategic resource that can be used directly, for instance to establish energy relations with other actors and to make them dependent on Russia in political terms, something that could give Russia an important political leverage.<sup>17</sup> They can also serve as a means in this strategy because they have helped Russia to build its military capabilities by providing funding for several military modernization programs. Finally, protecting Russia's energy resources is also one of the objectives of the Russian strategy as these resources have been playing a key role in helping Russia build up its military capabilities and secure political stability in the country. Energy revenues are thus critical to the stability and survival of the Putin's regime, which is a top priority for any authoritarian and personalistic regime.<sup>18</sup> This is also one of the reasons why the 2008 law on foreign investments in Russia's strategic sectors put limitations on the control of the energy sector by foreign actors.<sup>19</sup>

In short, when planning its aggression against Ukraine, Putin may have believed that the EU's – and even more so, the single EU member states' – dependence on energy imports from Russia could be used instrumentally to limit their willingness and ability to implement any anti-Russian restrictive measures, especially in the energy sector. It was expected in Moscow that the economic and political costs of implementation of these anti-Russian measures would be so high that the West would limit itself to rhetorical condemnation of Russian actions. Moscow expected the West would be reluctant to provide any substantial support to Ukraine against Moscow's "special military operation" due to its own fears of escalation into full-scale war between NATO and Russia. In addition, Putin was most probably aware that even in the worst-case scenario, if the EU were to introduce serious restrictive measures, it would impose heavy costs on EU member states while Russia would continue to receive energy revenues in any case. Thus, overall, Moscow calculated it could withstand economic pressure from the West and continue to finance the war in Ukraine.

## Energy and geopolitical change: the global dimension

The war in Ukraine had damaging and critical impacts in the region but also contributed to a further globalization of energy markets. In their seminal work on developments in energy markets, Goldthau and Witte<sup>20</sup> argued that there was only one global oil market while there were still three regional gas markets – the North American, the European (shipped mainly through pipelines), and the Asian one (dominated by seaborne LNG supplies). Several factors have since then contributed to new patterns in global gas interactions, transforming the three regional gas markets into a new global one. Nothing illustrates this ongoing globalization of the gas market better than the increased flows of LNG coming from various sources to Europe after the imposition of anti-Russian sanctions that helped the EU survive the first winter after the outbreak of the war.

<sup>17</sup> Larsson, R. (2006). Russia's Energy Policy: Security Dimensions and Russia's Reliability as an Energy Supplier. FOI Scientific Report. Stockholm: FOI - Swedish Defence Research Agency, p.177 where he lists Russia's energy levers and Orttung, R. W., & Overland, I. (2011). A limited toolbox: Explaining the constraints on Russia's foreign energy policy [doi: DOI: 10.1016/j.euras.2010.10.006]. *Journal of Eurasian Studies*, 2(1), 74–85.

<sup>18</sup> For more on the strategic importance of Russian energy resources see Godzimirski, J. M. (2021). Russian Grand Strategy and Energy Resources: The Asian Dimension. In E. Buchanan (Ed.), *Russian Energy Strategy in the Asia-Pacific* (pp. 57–83). Australian National University Press. <https://press.anu.edu.au/publications/russian-energy-strategy-asia-pacific> or O'Sullivan, M. L. (2013). The Entanglement of Energy, Grand Strategy, and International Security. In A. Goldthau (Ed.), *The Handbook of Global Energy Policy* (pp. 30–47). Wiley-Blackwell for a broader discussion on role energy can play in strategic designs.

<sup>19</sup> Government of the Russian Federation. (2008). Federal Law No. 57-FZ of April 29, 2008 "On the procedure for making foreign investments in business entities of strategic importance for ensuring the country's defence and state security". For more on the importance of the Russian energy sector in Russian strategic designs see Liuhto, K. (2007). A future role of foreign firms in Russia's strategic industries. *Electronic Publications of Pan-European Institute* 4/2007 at [https://www.utu.fi/sites/default/files/media/Liuhto04\\_07.pdf](https://www.utu.fi/sites/default/files/media/Liuhto04_07.pdf)

<sup>20</sup> Goldthau, A., & Witte, J. M. (Eds.). (2010). *Global Energy Governance: The New Rules of the Game*. Global Public Policy Institute; Brookings Institution Press.

When it comes to oil trade in the period after the outbreak of the war in Ukraine, the global nature of the oil market was confirmed. By 2021 the EU covered almost 25 percent of its oil needs by importing crude oil from Russia. For Russia the European market (mostly the EU) represented slightly less than 53 percent of all exports of crude oil. When the EU reacted to the Russian war against Ukraine, one of the goals was to cut Russian oil supplies to Europe and stop the flow of petrodollars Russia was using to pursue its military objectives in Ukraine. However, it turned out to be relatively easy for Russia to find new markets for its oil, first and foremost in Asia, where both China and India used the opportunity to purchase Russian crude at steeply discounted prices. For instance, while in 2021 Europe imported 138.7 million tons of the Russian crude oil and India only 4.5 million tons, in 2022 the supplies of Russian oil to Europe went down to 116.9 million tons, while export to India skyrocketed to 37 million tons. In the same period supplies of Russian crude oil to China went from 79.6 million tons to 86.2 million tons.

Another important trend influencing global energy markets was the increased focus on the need to deal with the negative impacts of the use of fossil fuels on the global environment. The EU was very dependent on imports of fossil fuels from external suppliers to cover its energy needs and at the same time most concerned about the climate change and has led the international efforts in green energy transition. The goal was to address the two long-term strategic energy-related challenges the EU had to cope with: dependence on external supplies of fossil fuels and the climate change agenda to reduce the use of fossil fuels. At the same time the EU and other actors have had to consider how the green energy transition could weaken or strengthen the competitiveness of their economies in a world characterized by the higher levels of economic interaction and competition among various centers of economic and political power. In the case of the EU, it was about finding a new answer to what is often referred to as the EU energy trilemma: how to balance the EU concerns for security of supply, with its concern for energy sustainability and securing EU economic competitiveness. However, it was not only the EU that was facing this trilemma; all countries importing energy commodities were also concerned about climate change and had to create favourable conditions for their economic development.

In addition, energy exporting countries must address similar set of questions when thinking about their future role in the global system. However, they are obviously more preoccupied with the question of security of demand and the possible negative impact of the green energy transition for their position as major producers and exporters of fossil fuels. Furthermore, they are concerned about how this ongoing green energy transition can influence their economic situation and have knock-on effects on the stability or even survival of energy-producing semi-authoritarian or authoritarian regimes.<sup>21</sup>

What factors are going to influence future developments in global and regional energy markets? A good overview of these factors can be found in recently published studies on the future evolution of energy markets and the expected impact of the green energy transition.<sup>22</sup>

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<sup>21</sup> For more on the specific features of petrostates see Ashford, E. (2022). *Oil, the State and War. The Foreign Policies of Petrostates*. Georgetown University Press.

<sup>22</sup> BP. (2023). *BP Energy Outlook 2023 Edition*. <https://www.bp.com/content/dam/bp/business-sites/en/global/corporate/pdfs/energy-economics/energy-outlook/bp-energy-outlook-2023.pdf> and DNV. (2023). *Energy Transition Outlook 2023. A global and regional forecast to 2050*. DNV. <https://www.dnv.com/energy-transition-outlook/download.html>.

A BP study<sup>23</sup> has identified several core factors that are going to influence the evolution of energy markets in a mid- and long-term perspective. These are:

- The depletion of the carbon budget can result in higher economic and social costs.
- Increased but not sufficient government support for the energy transition in a number of countries.
- The disruption to global energy supplies caused by the Russia- Ukraine war increases the importance of energy security, affordability, and sustainability.
- The heightened focus on energy security increases demand for domestically produced renewables and other non-fossil fuels, helping to accelerate the energy transition.
- The importance of fossil fuels is declining, but the transition to a low-carbon world requires a range of other energy sources and technologies, including low-carbon hydrogen, modern bioenergy, and carbon capture, use and storage.
- Oil demand declines driven by falling use in road transport.
- The prospects for natural gas depend on the speed of the energy transition.
- The recent energy shortages and price spikes highlight the importance of the transition away from hydrocarbons.
- The global power system decarbonizes, led by the increasing dominance of wind and solar power.
- The use of modern bioenergy – modern solid biomass, biofuels and biomethane – grows rapidly.
- Low-carbon hydrogen plays a critical role in decarbonizing the energy system.
- Carbon capture, use and storage plays a central role in enabling rapid decarbonization trajectories.
- A range of methods for carbon dioxide removal will be needed for the world to achieve a deep and rapid decarbonization.

What are the possible market effects of the interaction of factors listed above? A good summary is provided by a recently published DNV study<sup>24</sup> on the outlook for renewable energy. The study concludes that in the space of a single generation the energy landscape will look very different, with a 13-fold increase in solar and wind electricity production by mid-century and the level of electrification doubling by 2050, bringing down the cost per unit of energy for consumers. However, the same study on adds that the process will be much more demanding, and the success is not guaranteed even by 2050 because of a lack of electric grids and renewable supply-chain capacity emerging as critical bottlenecks to a faster transition. This study argues that more expansive policies promoting renewable electricity and other zero-carbon solutions, not just in the high-income world, but globally will be needed to improve the chances of achieving net-zero emissions by the mid of the century and to complete energy transition.

How this transition can be achieved in the mid- and long-term perspective changes the power balance between the traditional producers and exporters of fossil fuels and the emerging champions of the world of renewable energy. How will the emergence of renewables as the dominant source of energy change power relations globally and at the regional levels? To answer this question, it is crucial to consider what the new geopolitics of renewables could look like and what implications this could have for various actors.

<sup>23</sup> BP. (2023). BP Energy Outlook 2023 Edition, p.6-7.

<sup>24</sup> DNV. (2023). Energy Transition Outlook 2023.

### The geopolitics of renewables

The issue of how green energy transition is going to change power relations among various types of actors has been thoroughly examined in previous studies. The opinions on these impacts differ greatly.<sup>25</sup> In 2017 a group of leading experts published a detailed examination of how the green energy transition might influence geopolitical developments.<sup>26</sup> They argued that there were seven areas in which energy transition could make a geopolitical impact. These were: 1) critical materials supply chains; 2) technology and finance; 3) new resource curses; 4) electric grids; 5) reduced oil and gas demand; 6) reduced risk of climate change; and 7) sustainable energy access. They argued that there was a risk of cartelization around materials critical to renewable energy, and that those cartels – or other actors – could control vulnerable value chains. This meant that in a world in which renewables are the dominant source of energy, capital for investment and technology may increasingly become sources of international cooperation or rivalry. As a result, oil and gas producers could lose their dominance in the energy mix, petrostates could lose access to the high rents associated with the resource curse and the renewable hubs could suffer from a new version of the resource curse. However, the authors of the report argued that renewable producers would be less exposed to resource curse that is characterized by an overvalued exchange rate, a decline in non-tradeable sectors of the economy, increased corruption, authoritarian institutions, and higher levels of domestic and international violent conflict. There were several reasons why experiencing resource curse related challenges was viewed as less probable in the case of countries producing renewable energy. First, renewable energy resources are not point-source and renewable energy can be produced almost all over the world and can be developed domestically if needed. Also, the need for a high governance capacity and the involvement of multiple sectors should reduce the chances of “Dutch disease” because countries “specializing” in renewable energy may develop more diversified and progressive economies.

The higher level of electrification of the system will make actors more intertwined, creating new power relations and vulnerabilities. Lower demand for oil and gas can result in the decline in revenue generated from fossil fuel energy exports and can provide an impetus for political reform and economic diversification, but also create conditions for political instability. Another possible implication of green energy transition is, in the opinion of authors of this report, reduced risk of conflict and instability caused by climate change because a successful implementation of the policy of energy transition would reduce the negative footprint of the use of fossil fuels.

There are four aspects of the emerging geopolitics of renewables that deserve closer attention in the context of the ongoing war in Ukraine.

First, increased decentralization of energy production and use is expected as new renewable technology can be deployed in areas that have limited access to traditional fossil sources of energy for purely geological reasons. *Energiwende* in Germany is a good example of how the new energy system based on solar and wind power has made Germany as a country less dependent on external sources of energy and turned millions of German households in producers and consumers – or prosumers – of locally available energy. Similar solutions can also help other countries deal with their dependence on external sources of energy by building decentralized energy systems based on locally available sources of energy that could be harnessed using new more economically viable renewable technologies.

<sup>25</sup> For more on the debate on this see Vakulchuk, R., Overland, I., & Scholten, D. (2020). Renewable energy and geopolitics: A review. *Renewable and Sustainable Energy Reviews* 122. At [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3565990](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3565990)

<sup>26</sup> O'Sullivan, M., Overland, I., & Sandalow, D. (2017). *The Geopolitics of Renewable Energy*. In Working Paper. New York NY; Cambridge MA; Oslo: Columbia University Press; Harvard Kennedy School; NUPI At <https://www.belfercenter.org/sites/default/files/files/publication/Geopolitics%20Renewables%20-%20final%20report%206.26.17.pdf>

However, and this is the second aspect, the growing dependence on new materials critical for production of renewable energy will in turn change the global geopolitics of energy. A renewable energy system will need access to other types of commodities to function at both the local and the global levels. This will also change the pattern of local and global energy interactions, demoting some traditional fossil fuels powers and giving more leverage to those who control value chains crucial for the development of the new system.

A good illustration here is the increasingly dominant role of China in this emerging global renewable energy context. According to some estimates, on average 65 percent of the production of various clean-energy technologies takes place in China, producing more than 53 percent of offshore and 55 percent of onshore wind towers, 73 percent of offshore wind and 62 percent of onshore wind nacelles as well as 84 percent of offshore and 61 percent of onshore wind blades. In production of solar wafers, cells and modules China's share is also impressive – 96, 85 and 75 percent respectively.<sup>27</sup> China is also one of the key producers of minerals important for the implementation of green energy projects with 60 percent of rare earths produced in China, as well as the country where many clean energy metals are processed. For instance, according to recent data 40 percent of copper, 35 percent of nickel, 65 percent of cobalt, 87 percent of rare earths and 58 percent of lithium are processed in China, which gives China both an economic and political lever in its relations with other actors.<sup>28</sup>

Third, energy transition will also most probably result in new technological solutions that will make the system more stable and efficient. Having in mind the focus on electrification of the whole system the issue of how to store energy produced intermittently by solar and wind facilities will gain more attention. Another focus will be on finding new ways of using nuclear energy as an important element stabilizing the new non-fossil system based on intermittent renewable sources of energy.

Fourth – and closely related to the second one – is the changing pattern of energy and power interactions with countries that have traditionally relied on production and export of fossil fuels and the emergence of new powerful energy actors controlling various elements of the green energy value chains. The key fossil energy players of today can see their geopolitical influence waning, especially if they will not be able to invest revenues generated by their endowment with fossil fuels into new solutions and industries crucial for development of a new greener and more sustainable energy system.<sup>29</sup> For instance, according to a 2019 study on the GeGaLo index, most of the world's major oil exporters, such as Iraq, Russia, and Saudi Arabia, will experience a weakening of their energy-related geopolitical positions. On the other hand, the study argues that in some examined scenarios also China and the United States will face some serious problems with retaining their geopolitical positions.<sup>30</sup>

<sup>27</sup> For an interesting overview see <https://www.visualcapitalist.com/where-are-clean-energy-technologies-manufactured/>

<sup>28</sup> For more on that see <https://elements.visualcapitalist.com/visualizing-chinas-dominance-in-clean-energy-metals/>

<sup>29</sup> On how this is viewed from the perspective of an important fossil fuels power see for instance Kulagin, V. A., Grushevenko, D. A., & Kapustin, N. O. (2020). Fossil fuels markets in the “energy transition” era [10.32609/j.ruje.6.55177]. *Russian Journal of Economics*, 6(4), 424-436.

<https://doi.org/10.32609/j.ruje.6.55177>. On which countries will be able to deal with the challenge of energy transition and which will suffer heavy losses see Overland, I., Bazilian, M., Ilimbek Uulu, T., Vakulchuk, R., & Westphal, K. (2019). The GeGaLo index: Geopolitical gains and losses after energy transition. *Energy Strategy Reviews*, 26, 100406. <https://www.sciencedirect.com/science/article/pii/S2211467X19300999>

<sup>30</sup>Ibid.

Figure 1. The GeGaLo index – key losers according to five indexes<sup>31</sup>

|     | 1<br>FFR + RES | 1b<br>FFR*([G + C]/2)+RES | 2<br>FFR + RES + FFD | 2b<br>(FFR + FFD)*([G + C]/2)+RES | 3<br>FFR + RES + FFD + G + C |
|-----|----------------|---------------------------|----------------------|-----------------------------------|------------------------------|
| 147 | Iran           | Cameroon                  | USA                  | Libya                             | Venezuela                    |
| 148 | Russia         | Qatar                     | Eq. Guinea           | Russia                            | C. African Rep.              |
| 149 | Saudi Arabia   | Russia                    | Russia               | Nigeria                           | North Korea                  |
| 150 | Iraq           | Sudan                     | Norway               | Sudan                             | DRC                          |
| 151 | Poland         | Nigeria                   | Trinidad and T.      | Venezuela                         | Yemen                        |
| 152 | Venezuela      | Venezuela                 | Saudi Arabia         | Qatar                             | Afghanistan                  |
| 153 | USA            | DRC                       | Australia            | North Korea                       | Somalia                      |
| 154 | UAE            | North Korea               | UAE                  | DRC                               | Iraq                         |
| 155 | Kuwait         | Iraq                      | Kuwait               | Iraq                              | Syria                        |
| 156 | Qatar          | Yemen                     | Qatar                | Yemen                             | Qatar                        |

## Green energy transition and geopolitics: the EU context

During the first 18 months of the war several steps have been taken at the EU and national levels to deal with new challenges related to energy security. The EU was the key actor as the dependence on energy imported from Russia prior to the outbreak of the war made the union and many of its members most exposed. The energy policy of the EU has over the past decades been shaped by three key concerns – how to secure access to needed energy (“security of supply”); how to make the use of available energy more sustainable and cope with climate change; and finally, how to secure the competitiveness of the EU economy when EU energy bills were higher than those paid by their main economic competitors.

The outbreak of the war caused an immediate shift in the balance in the EU energy policymaking landscape. As ending supplies coming from Russia became a top short-term priority less attention was paid to the sustainability of energy use and the impact of energy costs on the competitiveness of the European economy in the global context. In the first months of the war finding a replacement for Russian supplied energy became the top policy priority.

However, it was also soon realized that one of the ways of reducing structural dependence on energy from Russia – and from other external actors – was to speed up the green energy transition in the EU. The objectives defined in the EU policy documents were not to be achieved immediately but the outbreak of the war put the issue of energy dependence on Russia much higher on the political agenda and boosted the EU work on energy transition as a means of responding to both climate change and energy dependence on Russia. The most important steps taken in response to Russia’s war in Ukraine were to address both the short- and long-term challenges faced by Europe. In “Re-Power Europe”, a plan announced on 8 March 2022, only two weeks after the outbreak of the war, EU Commission President Ursula von der Leyen explained the goals: “We must become independent from Russian oil, coal and gas. We simply cannot rely on a supplier who explicitly threatens us.

<sup>31</sup> For more details on how these indexes are calculated see Overland, I., Bazilian, M., Ilimbek Uulu, T., Vakulchuk, R., & Westphal, K. (2019). The GeGaLo index: where 1 is the basic index with only fossil fuel reserves and renewables; 1b adds weighting of fossil fuels by governance and conflict; 2 is the basic index, with two fossil fuel indicators; 2b adds weighting of fossil fuels by governance and conflict; 3 is an index with all indicator groups simply added up with equal weights. FFR stands for fossil fuel resources, FFD for fossil fuel dependency, RES for renewable energy sources, G for governance, and C for conflict.

We need to act now to mitigate the impact of rising energy prices, diversify our gas supply for next winter and accelerate the clean energy transition. The quicker we switch to renewables and hydrogen, combined with more energy efficiency, the quicker we will be truly independent and master our energy system".<sup>32</sup>

The EU is indeed not the only actor that has embarked on this transition to green and clean energy as many other countries share this aim. Even Russia seems to have realized that its position as the key energy producer and exporter of fossil fuels can be endangered by this turn towards a greener energy system.<sup>33</sup> Three months before the outbreak of the war, in October 2021, Russia published its own strategy on dealing with the challenges related to green energy transition.<sup>34</sup> The main question addressed in this document were how Russia should ensure sustainable economic growth when demand for energy and carbon-intensive products could be lower. This strategy laid out a new and more ambitious target aiming to make Russia net carbon neutral by 2060.

One World Bank study<sup>35</sup> argues that Russia will have to deal with risks and opportunities associated with the global shift to carbon neutrality and that the best way of succeeding would be to adopt a policy of closer cooperation with major centres of economic power, including the EU, the USA and China. However, Russia's decision to launch its war against Ukraine strained both political and economic relations with the collective West. This war had a rather opposite effect – the collective West strengthened its energy cooperation, became more motivated to implement policies limiting Russia's role as a global energy player and launched even more ambitious plans to speed up green energy transition. Taken together, all of this makes Russia's potential return as energy supplier to Europe after the war even less realistic.

It turned out that when taking decisions on the war the current Russian regime seemed to be less interested in reaping short-term economic benefits from its energy cooperation with the collective West than in achieving some poorly defined geopolitical objectives in the post-Soviet space. One of the long-term consequences of this is the apparent speeding up of the green energy transition in the collective West which will have long-term consequences for the international position of Russia and other major producers and exporters of fossil fuels.

## Old and new tools in the national and international energy policy toolbox

When mapping new and old instruments of power applied by Russia in its energy policy, we could start by presenting the Russian policy repertoire examined prior to the outbreak of the war and see whether any new elements were added to this list after the war broke out. To illustrate this, we will therefore look at some general categories of instruments used in implementation of Russian energy policy, identify instruments that had been used before the war and add those relatively new instruments that were applied more or less successfully during the war.

<sup>32</sup> European Commission. (2022). REPowerEU: Joint European action for more affordable, secure and sustainable energy at [https://ec.europa.eu/commission/presscorner/detail/en/ip\\_22\\_1511](https://ec.europa.eu/commission/presscorner/detail/en/ip_22_1511)

<sup>33</sup> Godzimirski, J. M. (2022). Energy, climate change and security: The Russian strategic conundrum. *Journal of Eurasian Studies*, 13(1), 16-31. <https://doi.org/10.1177/18793665211054518>. See also Overland, I., Bazilian, M., Ilimbek Uulu, T., Vakulchuk, R., & Westphal, K. (2019). The GeGaLo index: Geopolitical gains and losses after energy transition. *Energy Strategy Reviews*, 26, 100406. <https://doi.org/10.1016/j.esr.2019.100406>

<sup>34</sup> Government of Russian Federation. (2021). Strategy for socio-economic development of the Russian Federation with a low level of greenhouse gas emissions until 2050. Government of the Russian Federation at <https://docs.cntd.ru/document/726639341?marker=7DGOK7>

<sup>35</sup> Makarov, I., Daniel Besley, D., Dudu, H., Boratyński, J., Chepeliev, M., Golub, E., Nemova, V., Stepanov, I. (2021). *Russia and Global Green Transition: Risks and Opportunities*. World Bank.

There are five more general categories of policy instruments applied by Russia in implementation of its energy policy – and in other areas as well. These are:

Judicial or legal instruments that prescribe desired behavior and set norms and as such influence behavior of actors by making them understand what is desired and accepted and what is not.

Economic instruments that aim to influence financial considerations of actors, providing economic incentives to those who accommodate Russian interests and de-incentivizing those who could oppose the realization of Russian plans.

Communicative instruments that transfer knowledge for the purpose of informing, persuading, convincing or tempting to create social support and/or increase awareness concerning Russian policy.

Infrastructural or physical instruments can include construction of various elements of physical energy infrastructure or actions aimed at the existing infrastructure in order to change its physical and market parameters and render it either useful or useless to other actors.

In addition, as the war and military attacks on energy infrastructure have shown, Russia is also willing to use various types of military instruments to influence energy policies of other actors.

Two comprehensive studies on Russian energy policy and its instrumental repertoire published before the war present a more detailed list of measures taken by Russia to support its energy policy. These measures included amongst other various types of economic measures such as subsidies, as exemplified by lower prices paid for Russian energy by Belarus or price discounts given to India, China, and other buyers of Russian oil after the outbreak of the war. Also, other economic instruments were used such as export bans to stop the export of Russian energy commodities to countries that were not willing to pay in roubles imposed by Putin in March 2022.

Russia has also used legal measures to defend its energy sector's interests, such as court cases or the use of international arbitration against energy partners, such as Poland or Ukraine. Also, Russia signed legally binding agreements with preferential clauses, which shows how legal instruments are combined with the economic ones. An excellent example is the deal signed with Ukraine in 2010, which allowed the country to pay a lower price for Russian gas in return for the extension of basing rights for the Russian Black Sea Fleet in Crimea until 2047.

Among the measures implemented by Russia influencing infrastructure we find for instance gas pipelines shut offs used to influence energy situation of others. Such shut offs occurred in Ukraine in 2006 and 2009, and Yamal and NordStream1 shut offs in 2021 and 2022 belong to the same category. Pipeline explosions belonged also to this energy policy repertoire, the best-known example being the sabotage against NordStream1, NordStream2 attributed by some to Russia. On many occasions Russia decided also to construct alternative transit pipelines, such as TurkStream, Power of Siberia 1, Power of Siberia 2 or both NordStream pipelines. Russia has also been accused of conducting various types of cyberattacks aimed amongst

others at elements of critical energy infrastructure in Ukraine, but also at various institutions, including Stortinget that shapes Norwegian policy or Gassco that is responsible for shipment of the Norwegian gas to the European continent. Supply interruptions, such as halting of supplies through NordStream1 in August 2022 or much lower than agreed supplies of Russian gas through Ukraine also belong to this category of infrastructure related measures.

Russia has also been using information and communication related tools to promote its energy interests, including heated and even threatening rhetoric. Another important tool from the toolbox used by Russia in its pursuit of energy objectives was the idea of using personal networks for this purpose – the best example is the so-called Schroeder case involving the former German chancellor. Also sophisticated PR campaigns promoting NordStream1 and NordStream2 are good examples of Russia using information tools to promote and defend its energy interests.

Some of the measures implemented by Russia when pursuing its goals in energy policy are more difficult to place in this conceptual landscape. For instance, what is termed as military saber rattling, including threats of military escalation both before and during the war or threats of supply interruptions to countries deemed by Russia as unfriendly and not willing to pay in roubles for Russian supplies fall under the category information and communicative instruments, but also have clear economic and even legal or military framing.

After the outbreak of the war in February 2022 Russia has added several measures to this energy policy repertoire. For instance, the war has forced Western energy companies to leave Russia and their assets were taken over by Russian actors, which can be somehow described as hostile takeovers. Russia decided also to introduce its own restrictive measures, trying to force its energy customers to pay in roubles, which was a clear breach of legally binding contracts signed by Russia before the war. To punish the West and to continue to earn money needed for the conduct of the protracted war Russia decided to redirect energy flows from Europe to Asia. Russia achieved some success in this field but first and foremost when it came to oil that could be shipped to non-European markets, like China or India. However, even here there were some costs as Russia had to sell its oil at strongly reduced prices. The situation was much more difficult in the case of gas as Russia lacked the infrastructure to redirect flows from Europe to Asia and had to reduce production when the European market was effectively closed. Russia also used military tools – missiles, drones, bombs – to target civilian energy infrastructure in Ukraine in an attempt to force the country to surrender. Some experts also implicated Russia in the most spectacular attack on critical energy infrastructure – the sabotage against the NordStream1 and NordStream2 pipelines in September 2022.

## Old and new threats to energy flows

Threats related to energy flows can emerge at various places in the value chains and at various times. They should also be examined in terms of their probability and the possible impact they may have on institutions, states, and societies. When thinking about how the ongoing war can and already has changed threat perceptions in the energy context, it is important to place these possible war-related threats in this broader context.

The relations between the collective West and Russia have evolved in recent years from (limited) cooperation to full scale confrontation, as exemplified by Russia waging war in Ukraine and confronting the West. The recent evolution of relations between Russia and the collective West should be factored in when mapping the possible risks and threats to energy flows and energy infrastructure.

### Old and new threats to energy infrastructure

When trying to understand what threats energy infrastructure can be exposed to it is crucial to see the whole spectrum of possibilities as presented in the graph below. When actors cooperate with each other, the possible threats can stem from natural accidents or from human failures. In a situation of growing competition one could expect that those you compete with and against can be more willing to adopt some unfriendly overt and even covert measures to improve their position vis a vis their competitors and infrastructure could therefore be exposed to threats based on deliberate human actions. For instance, cyberattacks on infrastructure could be viewed as belonging to this competitive arsenal. Another possibility is that actors who used to be cooperative “discover” some problems in their infrastructure needed by others. This was for instance the case after the Polish fuel concern bought the most important oil refinery in Lithuania where one of the other bidders was a Russian state-controlled oil company. Almost immediately after this was announced, Russian authorities declared that the oil pipeline that was used to supply Russian oil to the refinery was damaged and could no longer be used for this purpose.

## The Continuum of Competition

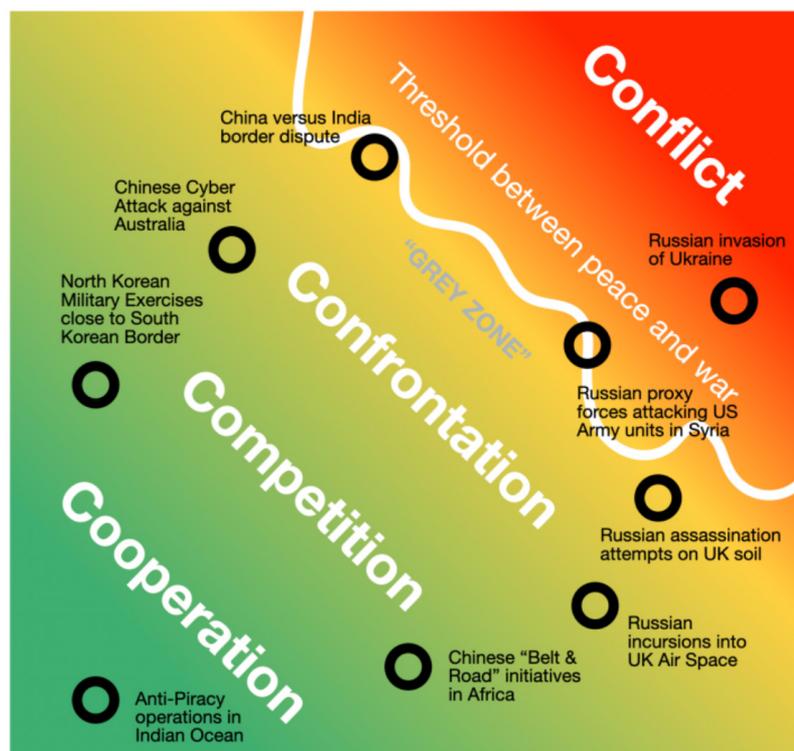


Figure 2. The continuum of competition approach<sup>36</sup>

When relations between actors move in the direction of an open confrontation infrastructure could be exposed to other set of more serious threats – a sophisticated cyberattack on the Iranian nuclear infrastructure attributed to Israel and the USA and known as Stuxnet is a

<sup>36</sup> Drummond, N. (2020). A Guide to the 2020 Integrated Review at <https://uklandpower.com/2020/07/06/a-guide-to-the-2020-integrated-review/>

very good example of what kind of threats can be expected in a period of confrontation. And finally, when relations develop into a conflict between actors, these threats can become existential – not only to infrastructure itself but to societies whose will to fight can be shattered by critical infrastructure attacks that could make life unbearable. This was, for instance, strategy adopted by Russia in its war on Ukraine, after the political leadership in Moscow realized that the original plans for a quick victory failed.

When discussing this issue in the broader context of the ongoing war it also is important to have in mind what happened in Ukraine in 2022 when attacks on infrastructure were rather atypical. The original Russian plan was to take control over the country by launching some small surgical strikes that were to force the country's leaders to run away and the army to surrender. As Ukraine was to be "handed" over to a pro-Russian clique, destroying civilian infrastructure was considered unwise for purely economic and political reasons. In addition, Russian policymakers expected a more friendly welcome in Ukraine by what they believed were pro-Russian forces in the Ukrainian society. Destroying infrastructure and causing pain was therefore seen as counterproductive in the initial phase of the Russian invasion of Ukraine.

However, in a recently published study on how the great powers prepare for the future war, RAND argued that Russia's geographic size and position, its technological capabilities, natural resources, and history of conflict with its neighbors have influenced the types of military forces it developed, and the strategies used for their deployment. According to this study when preparing for a conflict Russia focuses on the application of both hybrid and noncontact warfare, which involves it relying on a mix of nonmilitary tools and long-range, precision strikes as means for targeting an adversary's military-economic potential and national leadership.<sup>37</sup> The importance of these initial strikes aimed to weaken the adversary's military-economic potential was also confirmed in a longer RAND study examining Russian ideas on the initial phase of the potential war.<sup>38</sup> It is therefore important to assume that any conflict with Russia would also result in deliberate attacks on the critical military, economic and civilian infrastructure as a way of weakening the potential adversary. This makes the question of the effective protection of critical infrastructure – also in the energy sector – that a potential adversary will most probably aim to paralyze at the outset of a potential conflict an issue of greatest political, economic, and societal importance.

When thinking about how this critical infrastructure – including Norwegian energy infrastructure – should be protected it is therefore crucial to consider the worst-case scenario. However, when translating these ideas on how to protect critical infrastructure into actual policies in this field, it is also crucial not to make the applied medicine more harmful than the effects of potential attacks on the infrastructure by the theoretical adversary. The focus of such a policy should therefore be not only on the potential negative impacts of actions undertaken by potential adversaries, but also on the probability of such actions, and the political, economic and social costs of implementation of various types of threat mitigating measures. In other words, it is important to strike a pragmatic balance and to prepare not necessarily for the worst-case scenario, but for the one that is the most probable under current circumstances. It is also important to have in mind what kind of instruments of national power the most probably adversary will be willing and able to apply to achieve his objectives when trying to inflict damage to critical energy infrastructure.

<sup>37</sup> Cozad, M., K. Gierlack, C. A. Cooper III, S. G. Straus, S. Lilly, S.A. Pillion, and K. E. Eusebi. (2023). Preparing for Great Power Conflict. How Experience Shapes U.S. and Chinese Military Training, RAND Corporation at [https://www.rand.org/content/dam/rand/pubs/research\\_reports/RR1500/RR1554-1/RAND\\_RRA1554-1.pdf](https://www.rand.org/content/dam/rand/pubs/research_reports/RR1500/RR1554-1/RAND_RRA1554-1.pdf)

<sup>38</sup> Reach, C., Blanc, A.A. and Geist, E. (2022). Russian Military Strategy: Organizing Operations for the Initial Period of War. RAND Corporation at [https://www.rand.org/pubs/research\\_reports/RR1233-1.html](https://www.rand.org/pubs/research_reports/RR1233-1.html)

## Part 3. The war in Ukraine, energy, and Norway

Wars are the continuation of politics by other means and drive changes in the international system.<sup>39</sup> The Russian war in Ukraine is not an exception to this rule. The ongoing war involves Russia, the top global exporter of fossil energy, and Ukraine, an important transit country for export of Russian gas to Europe. Also the EU, the main recipient of the energy exports coming from Russia and the collective West are indirectly involved and affected by the Russian actions in Ukraine. In addition, the USA that has over the past decade become the biggest global producer of natural gas and become less dependent on external supplies of energy is the main actor supporting Ukraine's fight against Russia. It is therefore not surprising to see what effects this war has had on energy trade and interactions. This war forced those who needed to replace energy supplies from Russia with supplies from other actors to adopt various short-term and mid-term measures to address the immediate energy supply related problems. They also had to rethink and redesign their long-term energy plans as it was from the very beginning of the Russian aggression relatively clear that there will not be return to energy business as usual situation in relations between Russia and its traditional energy customers in the EU.

The most immediate consequence in the European – and partly also in the global context – was the apparent shift of the focus from questions related to (non)sustainability of fossil energy and negative impacts of the use of fossil fuels on climate change to questions related to security of supply. Securing access to needed energy in a situation when Russian tanks rolled into Europe's second biggest country and Russia was apparently willing to use its energy weapon to influence decisions of European policymakers became the top political priority. There was also increased realisation that without access to relatively cheaper Russian energy assets the competitiveness of European economies dependent on Russian gas and oil – and the German economy was the best example here – will suffer heavy losses. This combination of factors led to the reopening of some coal driven power plants in Germany. Another example of short-term impacts of the war was the implementation of new infrastructure projects, such as the quick opening of new FSRU terminals in Germany and Finland that were to help address problems related to shortage/disappearance of supplies of piped gas from Russia.

However, the war also will most probably have some mid- and long-term effects as the EU and the countries with a high level of dependence on energy from Russia have expressed more interest in speeding up a green energy transition as outlined in the 2019 European Green Deal plan.<sup>40</sup>

### Changing patterns of energy interactions

Until February 2022 Russia, and the USSR before it, was the main external supplier of energy to the enlarging European Union. The EU was also the main market for Russian energy commodities. Trade in energy goods generated huge revenues for the Russian state and most of this revenue came from Russia's energy trade with the EU. This created a situation of strong energy interdependence between the EU and Russia.<sup>41</sup> The EU needed energy commodities coming from Russia to cover its growing energy needs that could not be covered neither by falling domestic production, nor by increased shares of renewable energy resources produced local in energy mixes. Russia on the other hand welcomed the EU's willingness to pay well

<sup>39</sup> Gilpin, R., 1981. *War and Change in World Politics*. Cambridge University Press.

<sup>40</sup> European Commission. (2019). The European Green Deal sets out how to make Europe the first climate-neutral continent by 2050, boosting the economy, improving people's health and quality of life, caring for nature, and leaving no one behind at [https://ec.europa.eu/commission/presscorner/detail/en/ip\\_19\\_6691](https://ec.europa.eu/commission/presscorner/detail/en/ip_19_6691)

<sup>41</sup> Wigell, M., Vihma, A. (2016). Geopolitics versus geoeconomics: the case of Russia's geostrategy and its effects on the EU. *International Affairs* 92, 605–627. <https://doi.org/10.1111/1468-2346.12600>

to meet its energy needs. This energy trade gave Russia not only political clout and leverage in its relations with the EU, but in addition generated huge revenues for the Russian state budget that helped the Putin regime to stabilize the situation in Russia and invest in the modernization of its armed forces, increasing its military capabilities.

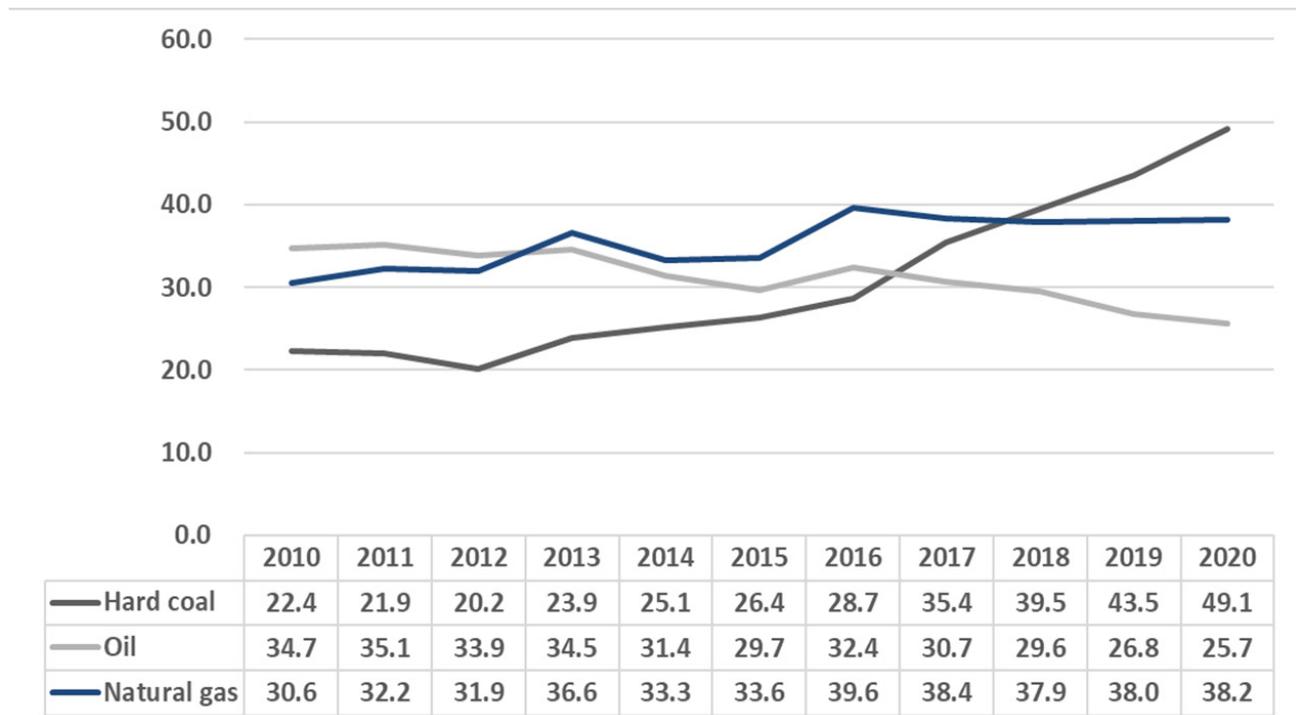


Figure 3. Russia's shares (%) in energy imports to the EU (Eurostat data)

However, the EU and Russia approached the issue of interdependence in general and energy interdependence in particular in different ways. The EU has four types of power at its disposal – normative power, regulatory power, economic power and marker power. The EU approaches international relations mostly, albeit not exclusively, from a liberal-institutional perspective.<sup>42</sup> According to the liberal-institutional approach to international relations interdependence is supposed to reduce and mitigate the risk of conflict between the interacting parties as any conflict would be detrimental to their economic and political interests. However, Russia approaches the realm of international relations from a realist perspective and treats interdependence rather as a part of the problem and not a part of the solution because according to the realist reading of international relations any dependence can increase the risk of a conflict in relations between involved parties.

Proponents of the liberal-institutional approach expect that actors are willing to cooperate on solving common challenges, that cooperation reduces the risk of conflict and is a win-win game from which participating actors can benefit. However, Russian policymakers under Putin have approached these questions from a purely realist perspective viewing international relations as a zero-sum game focusing on reducing risks related to the country's security in an anarchic international environment. In line with this realist approach, they were preoccupied

<sup>42</sup> For more on EU four powers see Goldthau, A., & Sitter, N. (2019). Regulatory Power or Market Power Europe? Leadership and Models for External EU Energy Governance. In J. M. Godzimirski (Ed.), *New Political Economy of Energy in Europe: Power to Project, Power to Adapt* (pp. 27–47). Palgrave Macmillan.

most with Russia’s security – or their regime’s security – as they understood it and not with economic gains generated by energy trade with the EU. The Russian invasion of Ukraine demonstrated that decisionmakers in the Kremlin were willing to play tough and ignore the strong energy interdependence between Russia and the collective West.



Source: Russian Customs.

Figure 4. Directions and value of Russian oil and gas exports prior to the outbreak of the war<sup>43</sup>

The measures implemented by the EU have brought some positive results. By 16 January 2023 gas price in Europe dropped below USD 600/tcm (1000 cubic meters) for the first time since August 2021<sup>44</sup> when Russia started its manipulations on the European energy market. Russian supplies of gas to Europe have been falling constantly since the beginning of war. In the whole 2022 Gazprom supplied 100.9 bcm of gas to countries in far abroad and this volume was lower than in 1990. The trend continued in 2023. In December 2022 Gazprom exported 99.1 mcm/day of gas to Europe through the Ukrainian pipeline system, in the first two weeks of 2023 the volume of export through this Ukrainian network fell to 63.7 mcm per day or 22 percent less than in December 2022.<sup>45</sup> By the end of January (on 31 January) only 24.5 mcm/day were booked and in the first 30 days of 2023 only 951.4 mcm were shipped

<sup>43</sup> World Bank (2021) Russia Economic Report| № 46 at <https://documents1.worldbank.org/curated/en/099050011302118976/pdf/P17756206d40310aa0a5e109d6fa60bc55a.pdf>, p.20.

<sup>44</sup> <https://lenta.ru/news/2023/01/17/gazdeshevo/>

<sup>45</sup> <https://lenta.ru/news/2023/01/17/22/>

(or 31.2 mcm/day on average).<sup>46</sup> Similar trend was also observed when it comes to shipment through the TurkStream – in December 2022 1.26 bcm of Russian gas were shipped through this route, while in the first 29 days of 2023 the volume fell to only 0.787 bcm.<sup>47</sup>

According to IEA assessment Russian revenues from sale of oil and gas dropped by 40 percent or USD 12 billion in January 2023 compared with January 2022. Russia's export of piped gas to Europe plummeted by 80 percent from the level before the invasion and although its oil exports to global markets have fallen only slightly, Russia's oil and gas export revenues were suffering heavy losses after going up following the invasion.<sup>48</sup> The same IEA study concluded therefore that Russia did not win this energy competition and is not only losing major customers but also access to key technologies and financing due to sanctions. Another conclusion is that much of the Russian gas that used to go to Europe will struggle to find an alternative market.

A good illustration of how the war has changed the pattern of energy interactions involving Russia is presented in Figure 3. The most important conclusion to be drawn is that the EU managed to reduce imports of energy commodities from Russia, although the period of transition was longer and due to higher energy prices Russia managed to reap impressive economic benefits from selling its energy commodities to the EU also after the outbreak of war as illustrated in Figure 5 that presents an overview of Russia's main energy customers after the outbreak of the war.

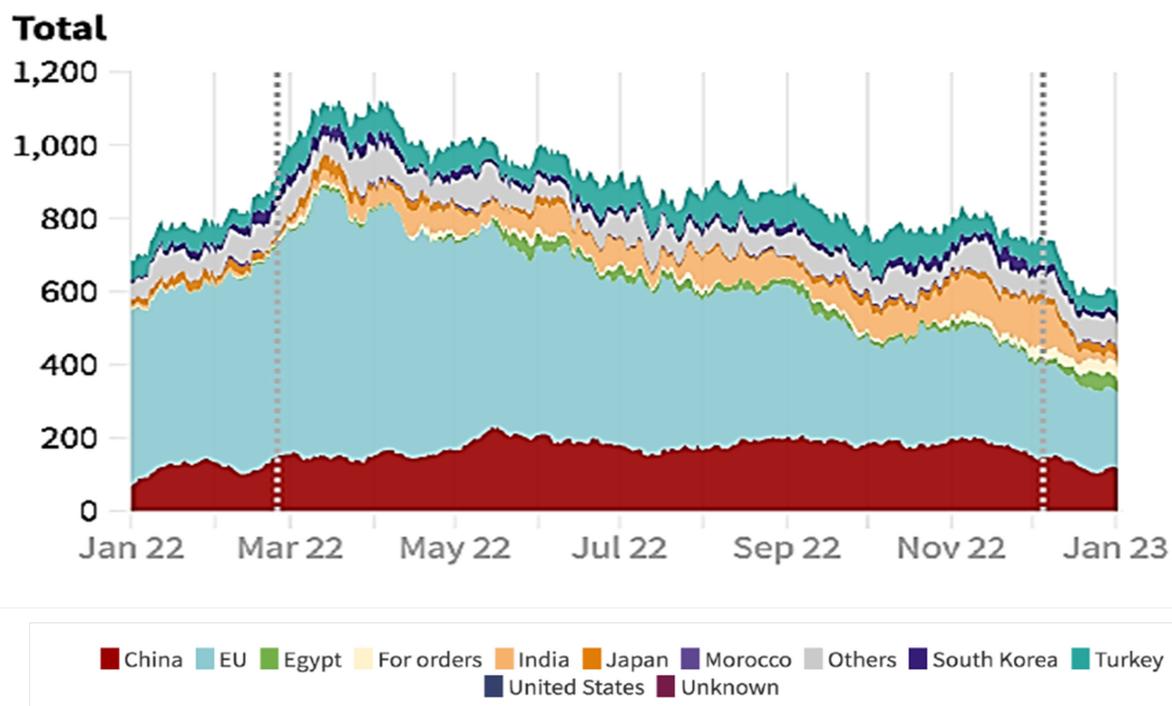


Figure 5. Value of Russian export of energy commodities (million Euro per day) with geographical overview of the clients<sup>49</sup>

<sup>46</sup> <https://lenta.ru/news/2023/01/31/dorogo/>

<sup>47</sup> <https://lenta.ru/news/2023/01/31/dorogo/>

<sup>48</sup> IEA (2023), Where things stand in the global energy crisis one year on, IEA, Paris <https://www.iea.org/commentaries/where-things-stand-in-the-global-energy-crisis-one-year-on>

<sup>49</sup> Reproduced from Centre for Research on Energy and Clean Air. (2023). EU oil ban and price cap are costing Russia EUR 160 mn/day, but further measures can multiply the impact at <https://energyandcleanair.org/publication/eu-oil-ban-and-price-cap-are-costing-russia-eur160-mn-day-but-further-measures-can-multiply-the-impact/>

### The end of energy interdependence between the EU and Russia?

The process of loosening energy ties between the EU and Russia started already in 2014 when the Russian decision to annex Crimea made the EU reconsider its political and economic relations with Russia. In response to these new developments on 28 May 2014, the EU published its European Energy Security Strategy<sup>50</sup>, accompanied by an In-depth study of European Energy Security, discussing these issues in detail.<sup>51</sup> These documents mapped the energy security situation in Europe when political tensions between Russia and the EU had reached new heights. This strategic document outlined what the EU could and should do to become less dependent on external suppliers of energy, first and foremost Russia. The steps to be taken included: 1) Immediate actions aimed at increasing the EU's capacity to overcome a major disruption during the winter of 2014/2015. 2) Strengthening emergency/solidarity mechanisms, including coordination of risk assessments and contingency plans, protecting strategic infrastructure. 3) Moderating energy demand. 4) Building a well-functioning and fully integrated internal market. 5) Increasing energy production within the European Union. 6) Further developing energy technologies. 7) Diversifying external supplies and related infrastructure. 8) Improving coordination of national energy policies and speaking with one voice in external energy policy.

In addition, the Energy Union project was officially launched by the EU in February 2015 that was to strengthen the EU hand in energy relations with Russia. The aim was to give EU consumers – households and businesses – secure, sustainable, competitive and affordable energy. It was also understood that achieving this goal would require a fundamental transformation of Europe's energy system. To make this happen the implementation was to focus on five areas:

1. Energy security, solidarity, and trust;
2. A fully-integrated internal energy market;
3. Energy efficiency contributing to moderation of demand;
4. Decarbonizing the economy;
5. Innovation and competitiveness.

However, after the initial impetus caused by the shock resulting from Russia's illegal annexation of Crimea, some EU states – first and foremost Germany – decided to launch very different energy deals with Russia. The construction of the NordStream2 pipeline could hardly be seen as reducing the country's energy dependence on a more aggressive Russia. The launching of this highly controversial project was widely viewed as undermining the principles of the new EU approach to energy cooperation with Russia and caused various tensions within the EU club. It could also be one of the factors that emboldened Russia and made it launch its war in Ukraine in 2022 as the construction of NordStream2 was almost concluded by February 2022 and Russian policymakers most probably expected that Germany would be reluctant to support anti-Russian measures that could also have very negative consequences for the German economy.

<sup>50</sup> European Commission. (2014). European Energy Security Strategy at <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52014DC0330>

<sup>51</sup> European Commission. (2014). Commission Staff Working Document. In-depth study of European Energy Security at [https://energy.ec.europa.eu/system/files/2014-10/20140528\\_energy\\_security\\_study\\_0\\_0.pdf](https://energy.ec.europa.eu/system/files/2014-10/20140528_energy_security_study_0_0.pdf)

It turned out that the launching of the war against Ukraine had a sort of sobering effect on Germany policymakers who responded by introducing policy of *Zeitenwende* described by many as a tectonic shift in German policy towards Russia and energy cooperation with Russia. This policy of *Zeitenwende* was accompanied by the launching by the EU on 8 March 2022 of a REPower EU communication, providing a blueprint to put an end to the imports of fossil energy from Russia well before 2030. It was also made clear that implementation of this policy would require diversifying EU energy supplies, increasing energy savings and efficiency and accelerating the green energy transition.<sup>52</sup>

Since the outbreak of the war all EU member states decided to introduce eleven packages of sanctions against Russia. The aim of these sanctions was to make Russia change its political course, stop its war in Ukraine, or to make Russia unable to continue this war by imposing high economic and political costs on the Putin regime.<sup>53</sup> Several of these restrictive measures are aimed at the Russian energy sector, with coal, crude oil and petroleum products sectors being hit the hardest and Russian gas sector receiving less attention.

In May 2022 the EU published another strategic document EU external energy engagement in a changing world outlining the Union's objectives in energy policy given the new situation.<sup>54</sup> This document stated clearly that although "the green energy transition is at the heart of the EU's drive for energy independence", moving away from Russian fossil fuels would require replacing some of them with fossil fuels from other international suppliers and that the EU will therefore "favour diversification strategies that encompass both gas and green hydrogen investments."<sup>55</sup>

The document described the situation after the outbreak of the war as a critical time for the global energy policy. It concluded that Russia's invasion of Ukraine had far-reaching consequences for the energy security of not only the EU, but the entire world. Russia's actions triggered price volatility on the energy markets and underlined the need for partnerships based on trust and shared long-term goals. It repeated that the green energy transition was the only way to simultaneously ensure sustainable, secure and affordable energy worldwide but underlined that to be successful, the transition must be socially just and fair and aimed not only at phasing out fossil fuels and outdated practices, but also at phasing in green energy, innovative technology, better markets and circular economy. The document stressed that transition is a good opportunity for the EU and its partners to build together a new energy system that is more sustainable, more equal and more collaborative. However, even after the introduction of restrictive measures aimed, amongst others, at the Russian energy sector, it turned out more time was needed before Russian energy supplies to the EU could be effectively phased out. By the end of August 2023, the EU remained the main energy customer of Russia as presented in Figure 6.

<sup>52</sup> European Commission. (2022). REPowerEU: Joint European action for more affordable, secure and sustainable energy at [https://ec.europa.eu/commission/presscorner/detail/en/ip\\_22\\_1511](https://ec.europa.eu/commission/presscorner/detail/en/ip_22_1511)

<sup>53</sup> A complete overview of these sanctions is available here: <https://www.consilium.europa.eu/en/policies/sanctions/restrictive-measures-against-russia-over-ukraine/history-restrictive-measures-against-russia-over-ukraine/>

<sup>54</sup> European Commission. (2022). EU external energy engagement in a changing world at <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52022JC0023>

<sup>55</sup> Ibid.

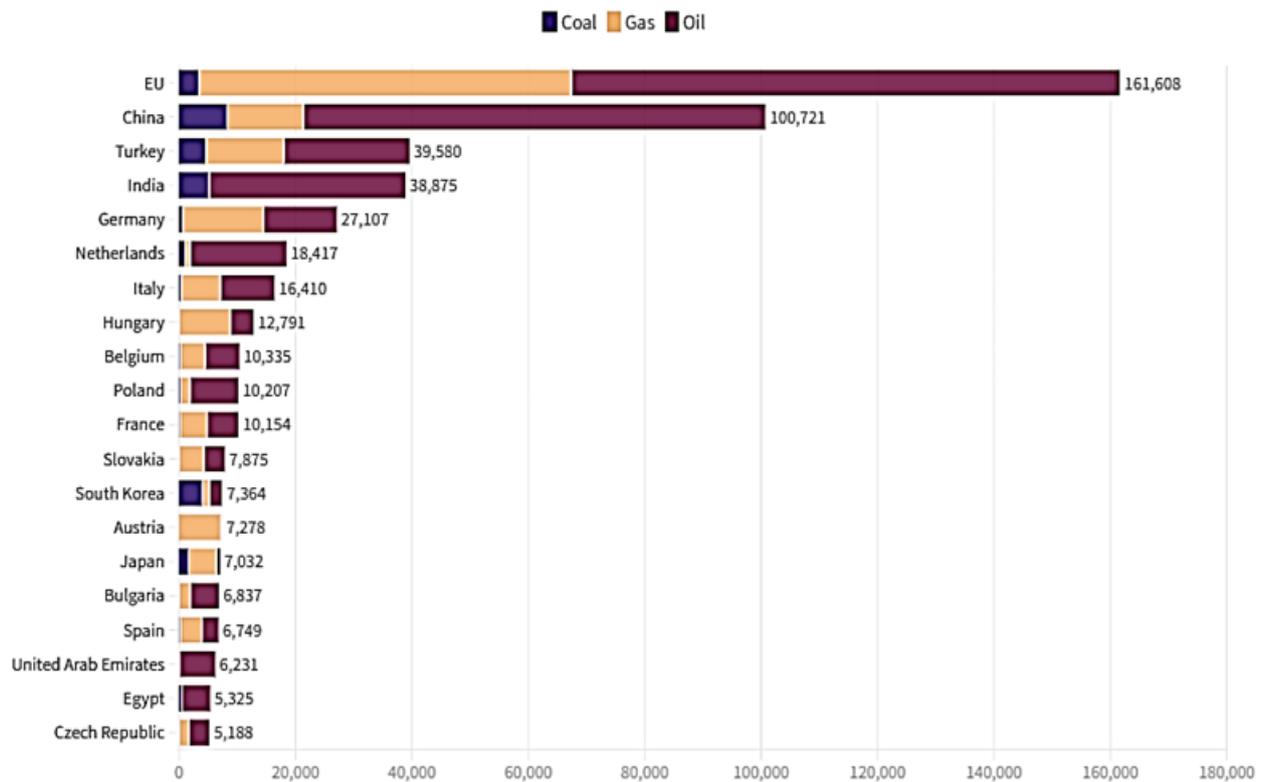


Figure 6. Main importers of Russian energy between February 2022 and August 2023 (USD million)<sup>56</sup>

### New energy partnerships: LNG and global gas market?

The most burning question the EU had to deal after the outbreak of the war was the issue of very strong dependence on Russian gas supplies to Europe that came through a well-developed but not flexible system of pipelines. To address this problem EU had to diversify away from Russia and secure suppliers from other actors. Those increased supplies were to replace approximately 160 bcm of Russian gas reaching the EU annually prior to the war and could come via the existing pipelines connecting the EU with producers in the region, but there were some structural constraints in this field and the additional volumes were expected to be limited – 10 bcm or more of the additional volumes of gas.<sup>57</sup> It was therefore expected that only LNG supplies coming from the key LNG producers could alleviate the situation by providing access to at least additional 50 bcm of gas per year. The USA, Canada, Egypt, Israel, Nigeria, Senegal, Angola, Australia and Qatar were mentioned as potential suppliers of additional volumes of LNG to the EU in years to come, while Norway, Algeria and Azerbaijan were mentioned as producers who could increase supplies of gas to the EU via existing pipelines. To get better access to LNG the EU expressed also interest in coordinating its policy in this field with other key importers of LNG, such as Japan, South Korea, and China.<sup>58</sup>

Table 1. demonstrates what have been the effects of these ambitious plans to replace gas supplies from Russia by gas supplies coming from other directions. The main conclusion to be drawn is that Russia's shares have been continuously falling in line with the EU plans, Norway's and UK's shares have been going slightly up, but the most important development was the clearly visible increased importance of LNG supplies coming from various corners, but first and foremost from the USA.

<sup>56</sup> Centre for Research on Energy and Clean Air. (2023). Payments to Russia for fossil fuels August 2023 update at <https://www.russiafossiltracker.com/>

<sup>57</sup> Ibid. p.3.

<sup>58</sup> Ibid. p.3-4.

Table 1. Gas supplies to the EU 2021-2023. Shares of various actors/routes.<sup>59</sup>

| Source of gas           | 2021    | 2022    | 2023 per 16.08 |
|-------------------------|---------|---------|----------------|
| Russia                  | 41,1 %  | 18,7 %  | 8,4 %          |
| Norway                  | 23,5 %  | 26,1 %  | 29,7 %         |
| Algeria                 | 10,0 %  | 9,5 %   | 10,3 %         |
| UK                      | 2,3 %   | 7,3 %   | 7,0 %          |
| Azerbaijan              | 2,4 %   | 3,4 %   | 3,9 %          |
| Libya                   | 0,9 %   | 0,7 %   | 0,8 %          |
| LNG                     | 19,8 %  | 34,2 %  | 39,9 %         |
| Volume of EU import mcm | 373 089 | 359 794 | 192 514        |

Figure 7 demonstrates clearly what countries played a key part as suppliers of LNG to the EU prior and after the outbreak of the war in Ukraine. What is clearly discernible is the increased role of the USA in this context as well as the ability of LNG suppliers to replace Russia as the main source of gas to Europe. In addition, the EU managed to reduce its consumption of gas in 2022 which helped to survive the first war winter without major problems.

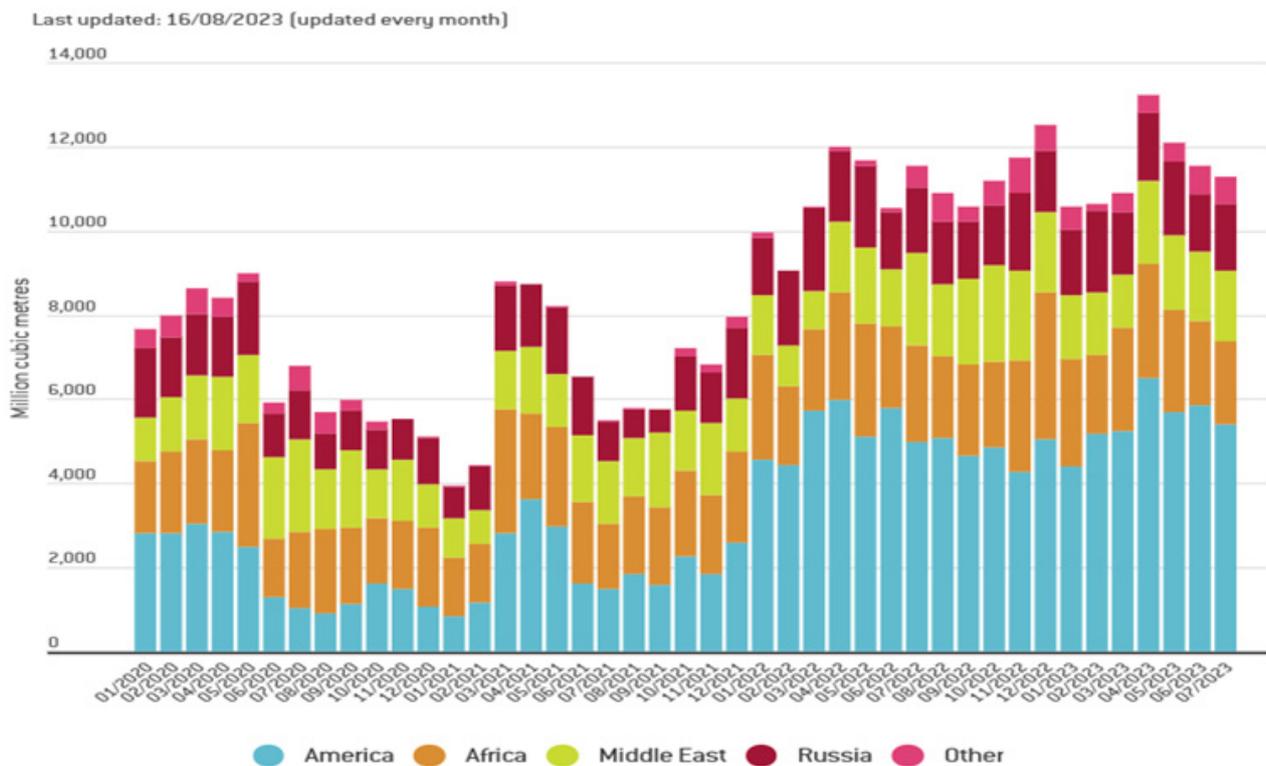


Figure 7. Main suppliers of LNG to the EU 2020 to July 2023 – monthly data<sup>60</sup>

<sup>59</sup> Data from McWilliams, B., G. Sgaravatti, G. Zachmann (2021) 'European natural gas imports', Bruegel Datasets <https://www.bruegel.org/dataset/european-natural-gas-imports>

<sup>60</sup> Source: McWilliams, B., G. Sgaravatti, G. Zachmann 2021 <https://www.bruegel.org/dataset/european-natural-gas-imports>

## Norway’s changing role on the European energy market: opportunities and challenges

Until the outbreak of the war in 2022, Norway had been the second most important external supplier of energy to the EU, if oil and gas supplies are combined, next to Russia. However, since the production of oil in Norway reached its peak in 2001 the share of Norway in external supplies of oil to the EU went down from 19.3 percent in 2002 to 9.7 percent in 2020. In the same period Norway managed to retain around a 20 percent share in external gas supplies to the EU.

Due to geographical proximity and the construction of infrastructure linking Norwegian gas and oil fields with customers in Europe, almost all Norwegian gas and oil production reaches the EU market. Like all other producers and exporters of energy, Norway’s export revenues depend on the global market prices for these commodities that are in turn influenced by the demand and supply balance on the market as well as by other events influencing prices and trade movements.

Over the past three years there were two major factors influencing international trade in energy commodities. First, the Covid pandemic reduced global demand for energy because of the lower level of economic activity caused by various types of Covid related restrictions. The result was much lower prices for energy commodities at the global and regional levels. Second, the outbreak of the war in Ukraine in February 2022 resulted in the high level of uncertainty on the global market and led to skyrocketing energy prices, especially gas.

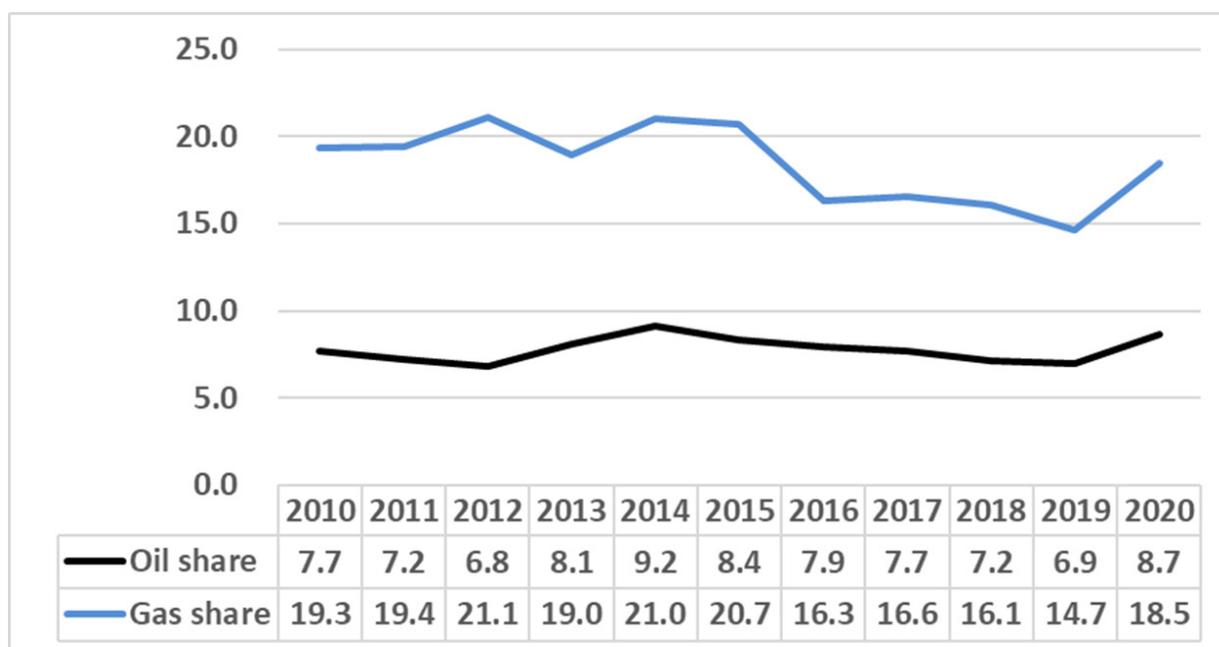


Figure 8. Norway’s shares in external energy supplies to the EU (Eurostat data 2023)

When Russia decided to invade Ukraine in February 2022, the EU responded by imposing various restrictive measures on trade with Russia. Introducing these restrictive measures also affected the position of Russia as the main external supplier of energy to the EU. Although it took some time before these measures could make a substantial impact on Russia’s energy revenues and supplies of energy commodities, including gas, over time most of Russia’s oil and gas supplies were pushed out from the EU market.

One of the consequences was that Norway has increased its share on the EU gas market during the Ukraine war for two main reasons: 1) the gradual elimination of Russian gas supplies to the EU caused by the EU restrictive measures and Russia's countermoves; and 2) because of the lower level of gas consumption in Europe caused partly by higher prices and lower demand, partly by saving measures initiated by the EU to reduce their the gas consumption of member states by 15 percent, and partly due to a relatively mild winter (2022/2023) that reduced demand for expensive gas even further.

On 23 June 2022 a joint EU-Norway statement on strengthening energy cooperation was presented in in Brussels.<sup>61</sup> Norway and the EU agreed to step up cooperation to ensure additional short-term and long-term gas supplies from Norway, to address the issue of high energy prices, and to develop long-term cooperation on offshore renewable energy, hydrogen, carbon capture and storage, and energy research and development with a view to developing an even deeper long-term energy partnership.

At the same time, however, Norway and its energy partners were aware that supplies of fossil fuels from Norway alone, with its relatively limited resources and transport capacities, will not be able to completely replace supplies of fossil fuels from Russia. Norway could however help the EU deal at least partly with the most acute problem – the expected shortage of gas on the EU market in the first months after the Russian invasion of Ukraine.

Gas export – almost all of which went to the EU – reached 117.7 standard cubic meters in 2022 and increased only 3.3 percent compared with 2021. This was the second highest volume of export of the Norwegian gas in history, the record year being 2017. In addition, and this also helped the EU deal with the shortage of energy exports from Russia, Norway exported 568.5 million barrels of oil in 2022 which was 3 percent lower than in 2021.

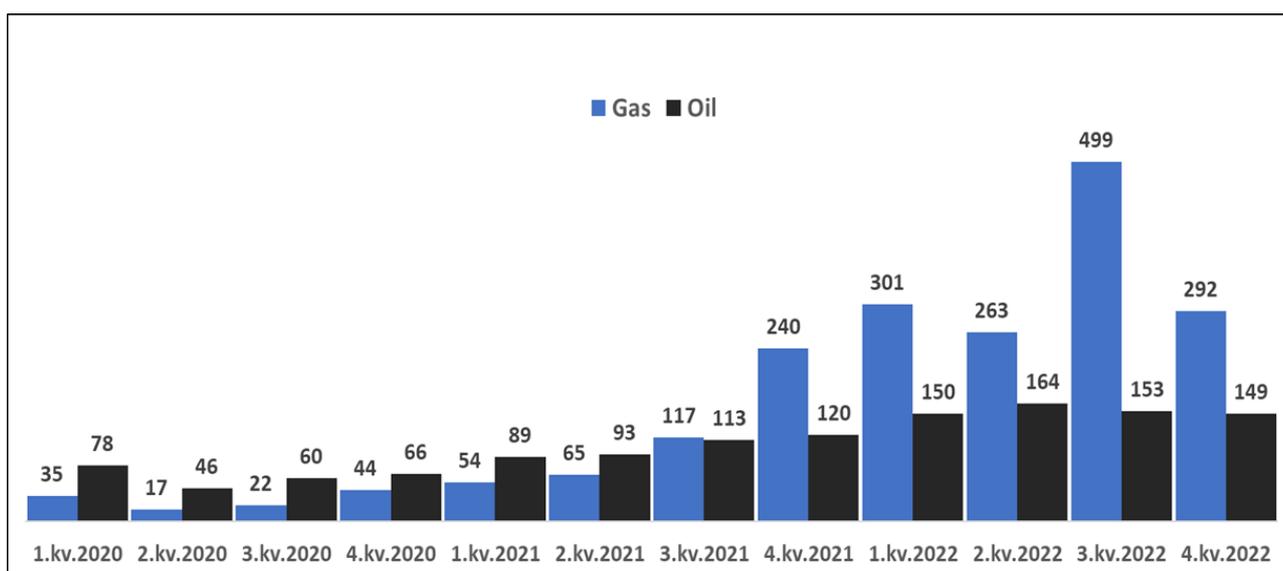


Figure 9. Norway gas and oil export revenues 2020-2022 per quarter (in billion NOK)<sup>62</sup>

<sup>61</sup> European Commission (2022). Joint EU-Norway statement on strengthening energy cooperation, European Commission at [https://ec.europa.eu/commission/presscorner/api/files/document/print/e%20n/statement\\_22\\_3975/STATEMENT\\_22\\_3975\\_EN.pdf](https://ec.europa.eu/commission/presscorner/api/files/document/print/e%20n/statement_22_3975/STATEMENT_22_3975_EN.pdf)

<sup>62</sup> Eidshagen, A.W and Alabay, I. (2023). Eksepsjonelt overskudd for handelsbalansen i 2022 at <https://www.ssb.no/utenriksokonomi/utenriksregnskap/statistikk/utenriksregnskap/artikler/eksepsjonelt-overskudd-for-handelsbalansen-i-2022>

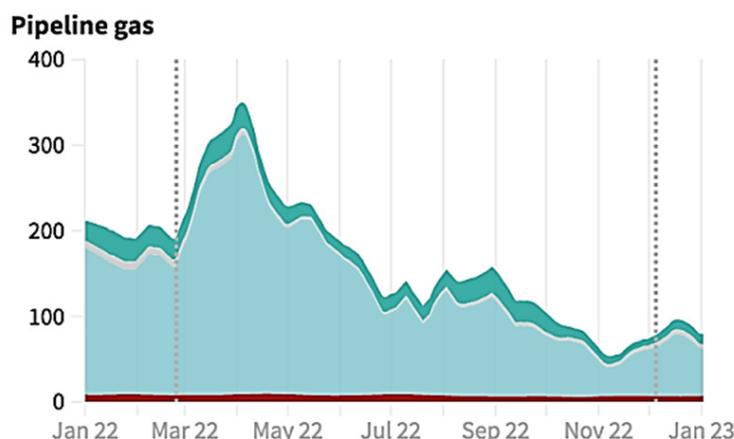
As these Norwegian gas and oil supplies reached mostly European market facing troubles caused by Russian invasion of Ukraine, Norway could also reap huge economic benefits from its sales of gas and oil. Gas export revenues skyrocketed to 1357 billion NOK (ca USD 130 billion), which was almost three times higher than in the previous year – and more than ten times higher than in the Covid year 2020. Oil export revenues reached less impressive 548.7 billion NOK (ca USD 54 billion) and were only slightly higher than in 2021 when the oil exported from Norway was worth 415 billion NOK.

### Norwegian gas in Europe: for how long?

As the main regional producer and exporter of gas, Norway has, in other words, benefited greatly in purely economic terms from the gas war between Russia and the EU and the resulting deep fall of Russia's export volumes and revenues. This gradual disappearance of the main competitor on the EU market could be viewed as positive by Norwegian policymakers and energy producers. Yet, the ability of Norway to strengthen its position on the European gas market by filling the gas vacuum left by Russia will also depend on how Norway is going to deal with some structural constraints on its actions. In addition, EU climate policy and domestic opposition against the development of new fossil resources will have an impact on the operations of the Norwegian petroleum sector and all other suppliers of fossil fuels to the EU market.<sup>63</sup>

Gas is and will remain the main Norwegian energy resource in many years to come and is also the most important commodity in the current situation. In the short-term perspective Norway will retain its key position as the major supplier of gas on the European market. Norway has already played a key part helping the EU survive the 2022/2023 winter and will continue to do so in a situation when the already reduced gas supplies from Russia through the Ukrainian network and via the TurkStream pipeline could be reduced even more – or disappear completely. It is also expected that the EU can face tougher competition for LNG supplies from Asia, which could complicate the situation in Europe even further.

However, it seems that Norway will not be able to increase the level of production of gas and to increase substantially its gas export in the mid- and long-term run due to a scarcity of available



resources. In addition, due to the recent addition of new elements of gas infrastructure linking Norway with EU gas markets and making the internal gas market more flexible, the same volume of Norwegian gas expected to reach the EU gas market will have to be 'shared' by a higher number of EU actors interested in securing gas supplies to their own customers given that Russian gas will no longer be available and/or acceptable.

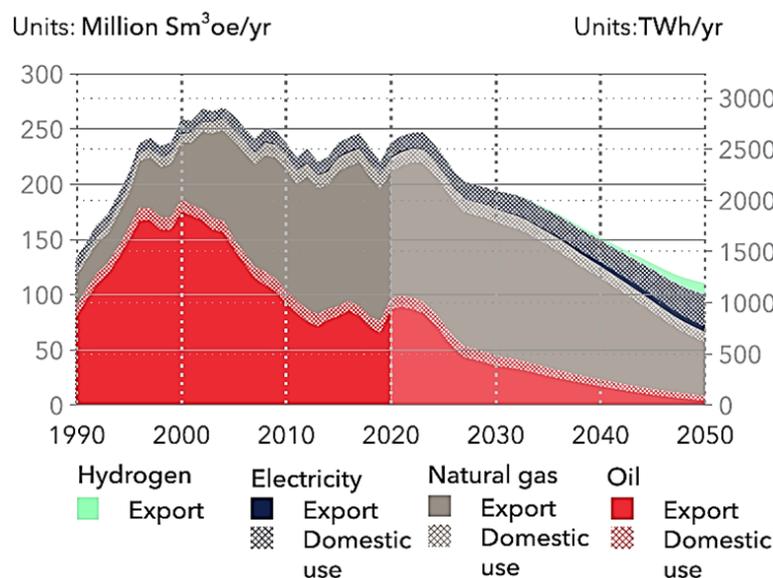
Figure 10. Disappearing gas competitor? Value of Russian piped gas exports to the EU (million Euro per day)<sup>64</sup>

<sup>63</sup> For more on the assessment of the future role of Norway as a gas supplier to the European markets published before the outbreak of the war see Godzimirski, J. M. (2022). Norwegian Gas in Europe in the 2020's. In K. Liuhto (Ed.), *The Future of Energy Consumption, Security and Natural Gas* (pp. 161-190).

<sup>64</sup> CREA. (2023). EU oil ban and price cap are costing Russia EUR 160 mn/day, but further measures can multiply the impact at <https://energyandcleanair.org/publication/eu-oil-ban-and-price-cap-are-costing-russia-eur160-mn-day-but-further-measures-can-multiply-the-impact/>

The opening in September 2022 of the Baltic Pipe through which as much as 10 bcm of Norwegian gas can reach markets in Central Europe can for instance lead to increased rivalry

### Norway's energy production allocated to domestic use and export



between Poland and Germany for access to Norwegian gas supplies. Other key European actors also show more interest in increasing their shares in the Norwegian gas exports, but these expectations are difficult to meet due to a limited resource base and lack of transport capacity to be used to export additional volumes of gas to Europe. The gap between the sometimes-unrealistic expectations of Norway's actual and possible gas customers in Europe and what can be actually produced in Norway and supplied to the European market can pose some political challenges to Norwegian decision makers who will have to make some difficult choices.

Figure 11. Norway's future as an energy supplier to external markets<sup>65</sup>

### CCS or a new lease of life for fossil fuels?

Being a major producer and exporter of fossil fuels Norway should welcome a working solution to the dilemma of how to reduce the negative impact of fossil fuels on the environment and climate. Finding a viable technological solution to this problem has been viewed as the silver bullet solution and there is still a hope that the carbon capture and storage (CCS) technology will address this key issue. However, it seems that for the time being, all the national and international efforts notwithstanding, there is no economically viable option to this question that could extend the lifespan of the Norwegian petroleum sector. A report published by Oslo Economics and Sintef for the Energy Commission listed CCS as one of the future industries in Norway, but it also concluded that "The technology for capturing, storing and using CO<sub>2</sub> is not commercially profitable today."<sup>66</sup> This report provided some details on what has been done in Norway in this field, referring amongst others to the notorious Mongstad project.

The future of CCS technology and the impact it may have on the extension of the life span of the Norwegian and global petroleum sector will therefore depend on whether an economically viable solution will be found. This is complicated by the fact there is simply no commercial market for this option.<sup>67</sup> As Szulecki argues in his recently published policy brief, "CCS remains a largely hypothetical solution which is burdened with high environmental risks. Whether the plans for pumping CO<sub>2</sub> from across north-western Europe to the Norwegian shelf can materialize, or even if Norway's own emissions can be captured and stored there on a scale, is still not certain."<sup>68</sup>

<sup>65</sup> DNV (2022). Energy Transition Norway 2022. A national forecast to 2050. p.40

<sup>66</sup> Oslo Economics and Sintef (2022). Industrien: Etterspørsel etter kraft, beslutningsfaktorer og energieffektivisering. Oslo Economics and Sintef p.29 at <https://www.regjeringen.no/contentassets/5f15f9cecae3143d1bf9cade7da6afe6e/no/sved/vedlegg3.pdf>

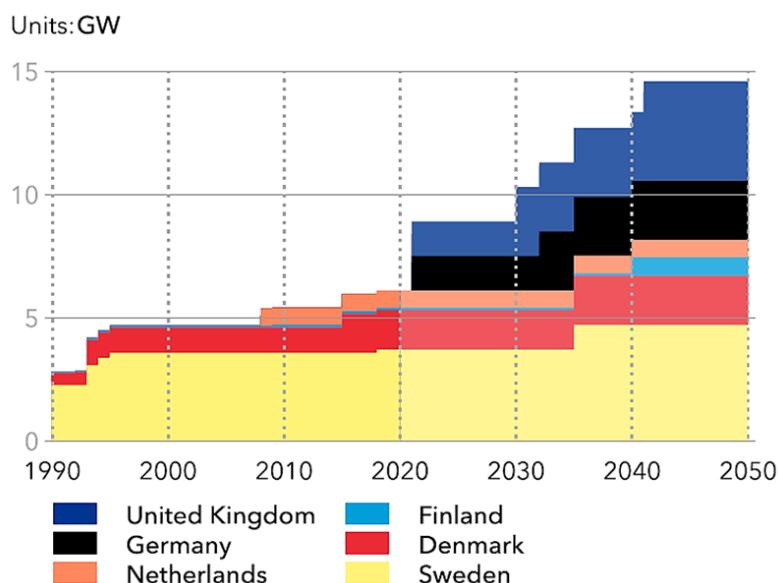
<sup>67</sup> Oslo Economics and Sintef 2022, p.49.

<sup>68</sup> Szulecki, K. (2023). More than just a petrol station: Norway's contribution to European Union's green strategic autonomy. NUPI Policy Brief 2/2023. NUPI, p.3 at [https://www.nupi.no/content/download/26359/file/NUPI\\_Policy\\_Brief\\_2\\_2023\\_Szulecki.pdf?inLanguage=nor-NO&version=2](https://www.nupi.no/content/download/26359/file/NUPI_Policy_Brief_2_2023_Szulecki.pdf?inLanguage=nor-NO&version=2).

### Norway as Europe's green battery?

In addition to the expectation that Norway can increase its production and export of gas and oil – which seems to be rather unrealistic in the short-term perspective – there are also those who express interest in turning Norway into what is sometimes labelled Europe's green battery. This could be done by making access to its vast hydropower resources available as a way of dealing with the problem of intermittence of the energy supply based

#### Norway net electricity transfer capacity



on renewable though unstable energy resources. By making the additional energy supplies available this way, Norway could also help the EU address the problem of gas supply, with the demand gap as approximately 30 percent of gas consumed in Europe is used for production of electricity. Norway could indeed play the role of a market balancer, but this would require further development of the necessary infrastructure, including adding new transmission capacity to the existing and planned power interconnectors, as illustrated in Figure 12.

Figure 12. Norway – net electricity transfer capacity in GW <sup>69</sup>

However, given Europe's huge energy needs, Norway's current and planned power production capacities and the political consequences of such development these plans seem to be unrealistic both in the short and long term. It is expected that Norway will need more electricity to cover its own needs because of the increased electrification of its transport and industry. For instance, one report delivered by the Norwegian Energy Commission in February 2023 states that all sectors using fossil energy products in Norway should replace these with electricity to meet the climate goals.<sup>70</sup> Consumption of electricity in Norway is to increase from approximately 140 TWh in 2021 to between 174 and 2013 TWh in 2040, and to between 190 and 232 TWh in 2050.<sup>71</sup> Although in 2021 Norway had a 20 TWh surplus of electricity, this situation is not going to continue because of the increased consumption in the domestic market.<sup>72</sup>

The issue of export of electricity has also become a sensitive issue in the Norwegian politics. High electricity prices have already caused a lot of trouble to the Norwegian political class. Also, the fact that the volumes of electricity that could be exported would not be able to compensate for potential disappearance of the Norwegian gas from the European market makes these plans unrealistic because the whole electricity production in Norway in 2022 represented only slightly more than 10 percent of energy generated by gas exported from Norway to the EU in the same year.

<sup>69</sup> DNV (2022). Energy Transition Norway 2022. A national forecast to 2050., DNV, p.42.

<sup>70</sup> Energikommisjonen. (2023). Mer av alt – raskere. Energikommisjonens rapport, Norges offentlige utredninger 2023: 3., OED, p.74.

<sup>71</sup> Energikommisjonen 2023 p.76.

<sup>72</sup> Energikommisjonen 2023, p.134.

### The hydrogen connection

Already in 2020, the Norwegian government published its Hydrogen strategy<sup>73</sup> that provided some useful insights in how the Norwegian policymaking community views the role hydrogen can play in Norway and in Norway's relations with its traditional energy partners. In January 2023 an agreement was signed between Norwegian and German companies that outlines the possibility of Norway becoming an important hydrogen player in Europe. Norway's renewable energy could be used for the production of green hydrogen in times of surplus that could then be exported to Europe. This would help the EU achieve the decarbonization of its energy mix. In addition, in the early phase hydrogen could be produced from gas – possibly with carbon capture – and exported to Europe via the existing pipeline network. However, there are many factors that influence the development of hydrogen production in Norway and, for the time being, there is a lot of uncertainty about the future of these ambitious plans. For instance, the Norwegian Energy Commission produced a study that described the future of hydrogen production in Norway:<sup>74</sup>

Hydrogen is referred to as the big joker in the long term, affecting both demand and flexibility/storage. For power market purposes, it is particularly the production of green hydrogen (hydrogen produced with power from renewable energy sources, e.g. electrolysis) that is relevant for the demand side. There is a lot of uncertainty related to all aspects of hydrogen, which are larger in the long term, but if ambitions are realised, we are talking about huge volumes.

### Critical materials, or how Norway can make a difference?

Another way Norway can make a difference in helping its partners to deal with energy-related challenges is by developing its vast mineral resources. According to various estimates, Norway can develop and supply many of the mineral resources needed for the transition from fossils to green economy. These potential resources are described in detail in a study published in 2019 by Norges geologiske undersøkelser<sup>75</sup> and they include the important copper deposits Nussir and Ulveryggen in Finnmark and the Skaland graphite mine at Senja, which is the most important producer of high-quality natural graphite in Europe. In addition, Norway has one of Europe's largest deposits of rare earth metals located in Ulefoss, Telemark.

In addition, Norway has huge deposits of quartz important in many areas, including production of solar power and is one of the key global producers of aluminium also important for securing the success of green energy transition. Norway's hydropower resources and natural gas can also play an important part in the production of green and blue hydrogen that can help decarbonize European industry and make energy consumption in Europe less dependent on fossil fuels.

In addition, it was recently announced that Norway will open for exploitation of various important minerals from the seabed in the Norwegian economic zone which also can help deal with resources-related challenges in the process of transition towards a green energy system.<sup>76</sup>

<sup>73</sup> Norwegian Government. (2020). The Norwegian Government's hydrogen strategy at <https://www.regjeringen.no/en/dokumenter/the-norwegian-governments-hydrogen-strategy/id2704860/>

<sup>74</sup> Multiconsult (2022). Drivere og usikkerhet i langsiktige energimarkedsanalyser, Multiconsult, p. 14 at <https://www.regjeringen.no/contentassets/5f15fcec3143d1bf9cade7da6afe6e/no/sved/vedlegg2.pdf>

<sup>75</sup> Heldal, T., Schiellerup, H., Aslaksen, A. (2019). Minerals for the green economy, Norges Geologiske Undersøkelser at [http://www.ngu.no/upload/Publikasjoner/NGU-Tema/NGU\\_thematicIssue1.pdf](http://www.ngu.no/upload/Publikasjoner/NGU-Tema/NGU_thematicIssue1.pdf)

<sup>76</sup> For more information on this see Norwegian Government. (2023). Havbunnsmineraler at <https://www.regjeringen.no/no/tema/energi/havbunnsmineraler/id2664074/>

## Part 4. What looms beyond the horizon: black swans and gray rhinos

### The Russia-Ukraine factor, or when and how will the war end and what will be the geopolitical consequences?

The outcome of the war between Russia and Ukraine supported by the collective West is one of the key factors shaping the close future. There are several possibilities when and how the war in Ukraine can end. The two extremes are Ukraine's or Russia's full victory.

A Ukrainian victory could trigger many changes in Ukraine, Russia and Europe and transform the political and energy landscape in the region as well as the global balance of power. Such a victory could provide a boost to pro-democratic forces in Europe and demonstrate the ability of the democratic world to stand against revisionist powers. Such a victory would also most probably spell disaster for the Putin regime in Russia and would also have sobering effect on the Chinese policy towards its surroundings. Such a victory could also resonate in the global South and influence global attitudes towards closer cooperation with the authoritarian or semi-authoritarian regimes, like the Chinese one or the Russian one. A complete Ukrainian victory would mean restoration of the country's pre-2014 borders recognized by the international community and Russia's paying reparations for war-related damages. Such a victory would also mean Ukraine receiving security guarantees from major powers, or possibly Ukraine's membership in Western organizations, such as the EU and NATO. Such a victory would also most probably mean the fall of the Putin's regime and possibly a new wave of centrifugal trends in Russia.

Russian victory would mean a complete or partial subjugation of Ukraine, the installation of a pro-Russian puppet government, the cutting of Ukraine's cooperation with the West and the de facto disappearance of Ukraine as an independent international actor. A possible Russian victory also could have a devastating effect on European security. At the same time, if this victory was to be achieved by persuading some major Western powers to stop their support for the Ukrainian cause, this victory could undermine the internal cohesion of the collective West and could even lead to the collapse of NATO and the EU cooperation. This could also undermine the attractiveness of the democratic path of development. Such a victory would also strengthen the position of the Putin regime in Russia and the Russian-Chinese anti-Western alliance, paving the way for remaking of the global order, an important strategic goal for both China and Russia.

The ability of Russia to avoid a complete defeat, to retain control of at least some parts of the Ukrainian territory and to prevent Ukraine from leaving completely the sphere of Russian influence will in turn depend on Russia's ability to mobilize its political, economic, military and human resources and get the support of other actors – first and foremost China – for its policy. Also, the reaction of the Russian society to this war can be a factor impacting the Putin's regime policy and the outcome of the war.

Table 2. Potential outcomes of the war in Ukraine

| Lower probability                                   |  | Higher probability   |   | Lower probability  |
|---|--|--|---|--|
| Complete Ukrainian victory                          | Partial Ukrainian victory                            | Draw/frozen conflict   | Partial Russian victory   | Complete Russian victory   |
| Russia's military defeat                            | Pre-24 February 2022 de facto borders re-established | Luhansk, Donetsk<br>Crimea lost to Ukraine/<br>won by Russia | Luhansk, Donetsk,<br>Zaporizhe, Kherson,<br>Crimea incorporated | Ukraine's military defeat and/or state collapse                  |
| Collapse of the Putin regime                        |  | Zaporizhe and Kherson back to Ukraine                        |   | Russia incorporates Luhansk, Donetsk, Zaporizhe, Kherson, Crimea |
| Return of all territories lost to Russia since 2014 |  |  |   | A pro-Russian regime installed in Kyiv                           |

When thinking about the possible outcomes of the war we also need to see which of the theoretically possible outcomes presented in Table 2 are most probable. Based on the current knowledge of the situation on the ground – and the situation on the battleground will most probably define the outcome more than any political processes – we must assume that the most realistic scenario for the end of the hostilities is something in between the two extremes – the complete Ukrainian victory or the complete Russian victory. What also will play a part in shaping the situation in Ukraine is the resilience of the Ukrainian society and state as well as the unity and cohesion of the West and continuation of its political, economic, and military support to Ukraine that has made it possible for Ukraine to successfully resist Russian aggression over the past 19 months. Although for the time being the West seems united and the USA leads the effort followed by Europe, there are some uncertainties concerning this unity. What seems to be at stake in Ukraine is however not only the future of the independent Ukraine but also the future of the global rules-based liberal-democratic order that both Russia and China want to undermine and replace with a new non-liberal one.

## The end of the global liberal order and the trans-Atlantic challenges?

As signalled earlier, the outcome of the war in Ukraine can be one of the key factors shaping the future global balance of power. The possible victory of Ukraine supported by the West can give an important boost to the global liberal-democratic project and make the collective West more attractive to other powers. Ukraine's defeat and Russian victory on the other hand can undermine the credibility of the West and demonstrate its inability to coordinate its policies even in the situation when its non-Western competitors implement policies threatening the basic principles and norms of the liberal global order the West decided to build after WWII.<sup>77</sup>

Russia and China are the main actors working together to undermine the global rules-based liberal order in close cooperation with other actors, such as Iran or Venezuela. One of the approaches they have adopted is establishment of a set of institutions, organizations, and cooperation networks parallel to the ones established over the past decades by the West and representing what is often referred to as the Bretton Woods institutions, such as the International Monetary Fund, the World Bank or the World Trade Organization. These

<sup>77</sup> Mattlin, M., Wigell, M., (2016). Geoeconomics in the context of restive regional powers. *Asia Europe Journal* 14, 125–134.

institutions established in the aftermath of the war were to help “overcome the destabilizing effects of the previous global economic depression and trade battles” that according to Henry Morgenthau were “the breeders of fascism, and finally, of war”. The main aim of the Bretton Woods system was to maintain international peace and security as they would, in the words of Morgenthau to facilitate, “[the] creation of a dynamic world community in which the peoples of every nation will be able to realize their potentialities in peace.”<sup>78</sup>

Russia and China are often described as revisionist powers and they have been working together, joined by other less prominent revisionist powers, such as Iran or Venezuela, to undermine the global liberal order and to create a sort of parallel institutional reality. Such a revisionist approach is not a new phenomenon as illustrated by Goddard in her examination of the previous attempts by powers that wanted to change the rules of the international cooperation and to carve for themselves a more prominent place in the international system.<sup>79</sup> For various historical and other reasons Russia and China lead today the revisionist work on creation of an alternative non-Western dominated global order they believe would better serve their strategic interests, increase their influence and put an end to what they present as an American hegemony.<sup>80</sup> They both have adopted various strategies to achieve their objectives<sup>81</sup> and although they do not necessarily share the same vision of what this order should be<sup>82</sup>, they have joined forces to achieve their strategic objective of diminishing the role the collective West in the international system.<sup>83</sup>

One of the strategies adopted by both Russia and China has been called the de-dollarization of the global economy. The aim is to create an alternative financial system that would be less dependent on the US dollar and weaken the ability of the US to influence the global economic developments to retain its dominant place in the international system.<sup>84</sup> By reducing the role of the US dollar in the international exchange the two countries could achieve two goals at the same time: to weaken the US politically and economically, and to reduce their own exposure to America’s instruments of economic statecraft.<sup>85</sup> Although these Russian and Chinese policies aiming at reducing the role of dollar in the international system have their prehistory, the war in Ukraine has speeded up these attempts in response to economic and political sanctions introduced by the collective West.<sup>86</sup> As a result, in March 2023 the yuan became the most widely-used currency for cross-border transactions in China, overtaking the dollar for the first time in history. However, although two-thirds of trade between China and Russia

<sup>78</sup> Bretton Woods Project. (2019). What are the Bretton Woods Institutions? at <https://www.brettonwoodsproject.org/2019/01/art-320747/>

<sup>79</sup> Goddard, S. E. (2018). Embedded Revisionism: Networks, Institutions, and Challenges to World Order. *International Organization*, 72(4), 763–798.

<sup>80</sup> For more on this see Grygiel, J. J., & Mitchell, A. W. (2017). *The Unquiet Frontier: Rising Rivals, Vulnerable Allies, and the Crisis of American Power*. Princeton University Press and Cooley, A., & Nexon, D. H. (2020). *Exit from hegemony: the unraveling of the American global order*. Oxford University Press.

<sup>81</sup> Puri, S. (2017). The Strategic Hedging of Iran, Russia, and China: Juxtaposing Participation in the Global System with Regional Revisionism. *Journal of Global Security Studies*, 2(4), 307–323. See also Schmitt, O. (2020). How to challenge an international order: Russian diplomatic practices in multilateral security organisations. *European Journal of International Relations*, 26(3), 922–946.

<sup>82</sup> For more on that see Schweller, R. L., & Pu, X. (2011). After Unipolarity: China’s Visions of International Order in an Era of U.S. Decline. *International Security*, 36(1), 41–72 and Sakwa, R. (2019). *The International System and Models of Global Order. Liberal Internationalism vs Conservative Internationalism*. *Russia in Global Affairs*, 17(3), 9–31.

<sup>83</sup> Lo, B. (2015). *Russia and the new world disorder*. Brookings Institution Press/Chatham House, Titarenko, M., & Petrovsky, V. (2015). *Russia, China and the New World Order* *International Affairs. A Russian Journal of World Politics, Diplomacy and International Relations*, 61(3), 13–29, Boyle, M. J. (2016). *The Coming Illiberal Order*. *Survival*, 58(2), 35–66, Radin, A., & Reach, C. B. (2017). *Russian Views of the International Order* RAND Corporation.

<sup>84</sup> For more on the issue of de-dollarization and the current situation in this field see Bromberg, M. (2023). *De-Dollarization: What Is It and Is It Happening?* published on 16 August 2023 at <https://www.investopedia.com/what-is-de-dollarization-7559514>. See also Andermo, E., & Kragh, M. (2021). Sanctions and dollar dependency in Russia: resilience, vulnerability, and financial integration. *Post-Soviet Affairs*, 37(3), 276–301.

<sup>85</sup> For a more general discussion on possible weaponization of economic interdependence in Farrell, H., & Newman, A. L. (2021). *Weaponized Interdependence. How Global Economic Networks Shape State Coercion*. In H. Farrell, A. L. Newman, & D. W. Drezner (Eds.), *The Uses and Abuses of Weaponized Interdependence* (pp. 19–66). Brookings Institution Press.

<sup>86</sup> For more on that see Aizhu, Ch., Reuters. (2023). *Vast China-Russia resources trade shifts to yuan from dollars in Ukraine fallout* at <https://www.reuters.com/markets/currencies/vast-china-russia-resources-trade-shifts-yuan-dollars-ukraine-fallout-2023-05-11/>

were in the first half of 2023 settled in roubles or yuan, the share of the Chinese currency as a global payments' currency remained small at 2.5 percent, according to SWIFT, compared with 39.4 percent for the dollar and 35.8 percent for the euro. The Russian currency is not even mentioned on the World Bank list of the nine most important currencies in which reserves are held<sup>87</sup> which means that its role is very marginal. In addition, there are no credible signs that a common currency could be launched by the New Development Bank established by BRICS.<sup>88</sup> This may mean that the efforts aiming at de-dollarization will most probably take much more time than the revisionist powers could wish for and that the USA will remain a power to be reckoned with all these Russian and Chinese attempts notwithstanding.

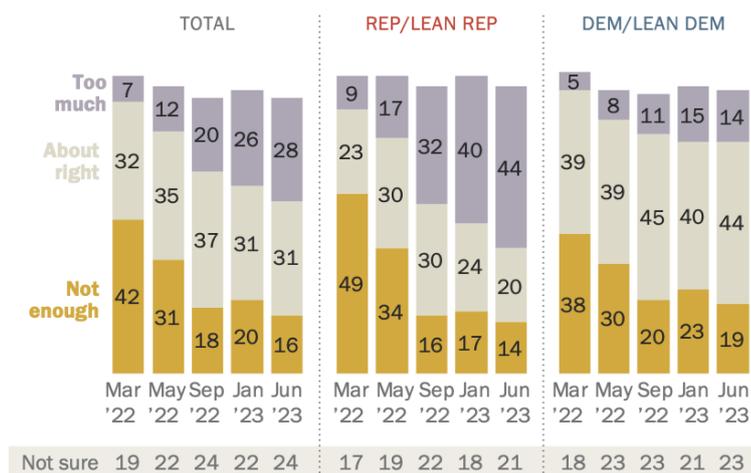
However, it should be understood that threats against the existing rules-based liberal order can come not only from some of the revisionist powers but also from the West itself whose unity and cohesion, and thus its ability to defend this liberal order, can be undermined from within. Two of these developments deserve closer attention.

### The return of the MAGA project?

One of the uncertainties concerning the possible outcome of the war in Ukraine, but also in the global context, is the possible re-election of Donald Trump as a new-old US president in 2024. Signals coming from Trump – and the experience of living with Trump during his first period – can indicate that he will be willing to change course in relations with Ukraine and Russia and reduce US support for Ukraine.

### Since Russia's invasion, Republicans have grown increasingly skeptical of U.S. aid level to Ukraine

% who say, when it comes to Russia's invasion of Ukraine, the U.S. is providing \_\_\_\_ support to Ukraine



Note: No answer responses not shown.  
Source: Survey of U.S. adults conducted June 5-11, 2023.

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Trump is a political opportunist and can “read” the mood in America. The recent public opinion polls show that the support for Ukraine is going down in the USA and it could be therefore expected that Trump will use it to try to beat Joe Biden.

For instance, in a poll conducted for CNN in August 2023, 55 percent said that the US Congress should not authorize additional funding to support Ukraine while 45 percent supported the idea. While in February 2022 62 percent of polled Americans believed the US should support Ukraine, in August 2023 51 percent thought the US had already done enough to help Ukraine and 48 percent said it should do more.<sup>89</sup>

Figure 13. Evolution of the US support to Ukraine<sup>90</sup>

<sup>87</sup> <https://data.imf.org/regular.aspx?key=41175>

<sup>88</sup> Sguazzin, A., Bloomberg. (2023). BRICS Bank CFO Sees No Move Any Time Soon Toward Common Currency at <https://www.bloomberg.com/news/articles/2023-07-05/brics-has-no-immediate-plan-for-a-currency-cfo-of-its-bank-says>

<sup>89</sup> See for instance Agiesta, J. (2023). CNN Poll: Majority of Americans oppose more US aid for Ukraine in war with Russia at <https://edition.cnn.com/2023/08/04/politics/cnn-poll-ukraine/index.html>

<sup>90</sup> Cerda, A. (2023). More than four-in-ten Republicans now say the U.S. is providing too much aid to Ukraine. Pew Research Center at <https://>

There was also, as demonstrated in Figure 13, a clear difference in attitudes towards the US support to Ukraine between supporters of the Democratic Party and those supporting Republicans. This may mean that to win the presidency, Trump will try to appeal to his own constituency by making the question of support to Ukraine one of the important markers in his brutal anti-Biden campaign.

This could appeal to many American voters even more if the European allies do not do what the USA – and Trump personally – want them to do in terms of Ukraine war-related burden sharing. For the time being the US help provides the overwhelming share of the combined military, economic and political support to Ukraine and this is an issue than can easily be manipulated during the US presidential campaign of 2024. It should also be expected that the activity of various anti-Ukrainian and anti-Western troll farms directly or indirectly supported by Russia will also implement various measures in the information space to undermine the cohesion of the collective West and its will to continue to provide support to Ukraine. The US presidential campaign 2024 will provide many opportunities to play this card and to use it to strengthen political polarization in the US, to weaken US resilience and to undermine the cohesion of the trans-Atlantic community – goals that have been traditionally on the Russian and to a lesser degree on the Chinese strategic agenda.

### The IRA project and the end of the transatlantic alliance?

Another question that may also have a detrimental effect on trans-Atlantic relations and thus undermine the Western cohesion vis a vis more aggressive strategic competitors – Russia and China – is the introduction by Biden administration of the ambitious US Inflation Reduction Act in 2022. This project has two complementary objectives – to curb inflation and to invest in the US clean energy production. The project is viewed as the largest effort into addressing climate change related questions in US history and will also have huge implications for green transition in the US. It aims to reduce greenhouse gas emissions by 40 percent in 2030 compared to 2005, which represents a radical departure from the politics of the Trump era. Due to the current high level of polarization in US politics this policy remains highly controversial, with Democrats mostly supporting the idea and Republicans adopting a more reluctant or on many occasions very hostile approach to this ambitious plan. Although many European policymakers and activists welcome the launching of this project as it will boost global energy transitions, some argue that certain aspects, such as local-content requirements (LCRs) and 'Made in America' requirement for cars and batteries, pose a challenge to other actors trying to achieve the same objectives without direct and indirect state subsidies.

According to a study published by the European Parliament,<sup>91</sup> IRA plans have sparked a severe trans-Atlantic dispute, and that might have consequences not only for bilateral trade relations and direct foreign investments, but also for EU policies, including a shift in the balance between the Single Market and industrial policy. It is also warned that these economic competitiveness and trade related tensions can have a negative impact on the political alliance between the USA and the EU and thus undermine the Western cohesion. The same study argued that “the amounts involved as well as several of the instrument’s specifications sent shock waves through the EU” and this plan was viewed as possibly causing a new, major shock that was about to hit the EU, after those of COVID-19 and the Russian invasion of Ukraine. The main point of contention causing the shock in the EU was

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[www.pewresearch.org/short-reads/2023/06/15/more-than-four-in-ten-republicans-now-say-the-us-is-providing-too-much-aid-to-ukraine/](https://www.pewresearch.org/short-reads/2023/06/15/more-than-four-in-ten-republicans-now-say-the-us-is-providing-too-much-aid-to-ukraine/)

<sup>91</sup> European Parliament. (2023). EU's response to the US Inflation Reduction Act (IRA) at [https://www.europarl.europa.eu/RegData/etudes/IDAN/2023/740087/IPOL\\_IDA\(2023\)740087\\_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/IDAN/2023/740087/IPOL_IDA(2023)740087_EN.pdf)

the introduction of protectionist elements in the form of local content requirements (LCRs). It is feared in the EU that the introduction of IRA will cause problems stemming from trade distortions, and by fueling an ongoing subvention race. One of the consequences can be that the US will attract investors who could be tempted to relocate to the US to get preferential treatment, for instance when investing in producing car batteries or microchips.

There are also other factors – some of them directly related to the war in Ukraine – that can make European companies relocate to the US. For instance, the war in Ukraine resulted in much higher energy prices globally and the EU was hit especially hard as the lack of access to relatively inexpensive Russian gas has contributed to skyrocketing gas and electricity prices in Europe while energy prices in the US remained much lower as most of the energy was produced locally. The COVID crisis illustrated in turn that globalization cannot solve all economic problems because long value chains were very much exposed and turned out to cause some problems. Also, the trend to produce in the proximity of the markets – and the US market is still very attractive – is a factor considered by those who could decide to invest in the US and not in the EU.

As the European Parliament's study on the impact of the IRA on relations between the USA and the EU clearly stated, "The biggest issue with the IRA are its local content requirements (LCR), the embodiment of an 'America First' mentality". LCRs are viewed as a gross violation of the international trade architecture that is enshrined in the WTO statutes, of which the most-favoured-nation principle is blatantly disregarded. However, this study also concluded that introduction of IRA should not be viewed as a crisis but rather as a political issue to be dealt with in cooperation with the US authorities.

Another comprehensive study on the impact of IRA<sup>92</sup> concluded that "The IRA will likely harm Europe through its competitiveness effect, while it will likely benefit climate transition in Europe and most of the rest of the world". In addition, the IRA will induce substitution away from Chinese inputs and through forcing the reorganization of supply chains, may make the EU and other economies more competitive relative to China.

However, it is important to underline that the debate on the future shape of economic and political relations between the USA and the EU does not take place in a political vacuum. The skepticism of some European circles towards the IRA more specifically and the anti-Americanism present in many circles in Europe in more general terms can be fueled by various information measures taken by those who can have an interest in driving a wedge in relations between the USA and the EU.

For instance, Russian official propaganda presents the war in Ukraine as a US-led project that is to make Europe (European NATO and the EU) more dependent on the USA in strategic terms and help the US to outcompete Europeans in economic terms. The imposition of restrictions on import of and trade in Russian energy commodities is presented in this propaganda as being driven by the US interest in replacing Russia as the main supplier of gas to Europe, a market that is willing to pay much higher price for the US gas because of this American proxy-war against Russia fought, as the Kremlin puts it, "to the last Ukrainian"<sup>93</sup>. Both the Soviet Union's and Putin's Russia strategic wet dream is the withdrawal of the USA from Europe and

<sup>92</sup> Kleimann, D., N. Poitiers, A. Sapir, S. Tagliapietra, N. Véron, R. Veugelers and J. Zettelmeyer (2023) 'How Europe should answer the US Inflation Reduction Act', Policy Contribution 04/2023, Bruegel <https://www.bruegel.org/policy-brief/how-europe-should-answer-us-inflation-reduction-act>

<sup>93</sup> For instance, on 26 August 2023 the former Russian president D. Medvedev said that the US does not fear to fight the war to the last Ukrainian because the country's military industrial complex has a lot to do and deliver – for details see [https://lenta.ru/news/2023/08/26/usa\\_ukr/](https://lenta.ru/news/2023/08/26/usa_ukr/)

growing competition or conflict within the collective West. For instance, Russian ultimatums presented to the US and NATO in December 2021 sought to force the US to reduce its strategic engagement in Europe and reverse the effects of the NATO enlargement. It should therefore be expected that Russia will provide direct and indirect support to anti-American circles that, for various reasons, share the Russian vision of US-free Europe. The debate about IRA's impact on trans-Atlantic relations resembles in many ways similar previous debates on this relationship in which some anti-American tones could be easily detected.

## The dragon butterfly effects – or the China factor

There are several good reasons to study how developments in China and China's relations with other centers of global economic and political power can influence global developments in a more general and energy markets in a narrow sense. Rapid economic growth in China and the country's almost insatiable appetite for energy as well as its dependence on energy imports coming from various directions have made China an important factor and actor shaping global energy markets<sup>94</sup> also having implications for China's cooperation with Russia as well as for energy consumers in Europe.<sup>95</sup>

Also China's policy of economic and political expansion exemplified by China's One Belt, One Road initiative<sup>96</sup> and by the country's huge investments spree in other parts of the world give the country a better control of various crucial resources and thus improves its political standing on the international stage. These developments deserve some closer attention to better understand the possible evolution of global and regional energy markets in the wake of the Russian war in Ukraine.<sup>97</sup>

The Russian invasion of Ukraine has had serious implications for China. Once the war was not won in the scope of days or weeks China had to take a clear position without alienating Russia and giving up for Western pressure. China treats Russia as a strategic partner as they share some strategic interests. The main shared strategic interest is the containment or even complete undermining of what both authoritarian regimes perceive as the Western hegemony. They also aim to get rid of the world order labelled by both as the rules-based liberal order promoted by the West and replace it with a new order in which they will be able to set rules of the game.<sup>98</sup> During the first year of war China provided political support to Russia, abstained from condemning Russia's war in the UN General Assembly and even supported Russia when the UN voted on the post-war reparations in November 2022.

However, on 24 February 2023 the Chinese MFA published a proposal on the way out from the crisis in which the need to respect the UN Charter and sovereignty of all actors was mentioned as the key principle.<sup>99</sup> This document called also for abandoning the Cold War mentality,

<sup>94</sup> Lind, J., & Press, D. G. (2018). Markets or Mercantilism? How China Secures Its Energy Supplies. *International Security*, 42(04), 170-204. [https://doi.org/10.1162/isec\\_a\\_00310](https://doi.org/10.1162/isec_a_00310)

<sup>95</sup> Zachmann, G. (2019). The EU–Russia–China energy triangle. *Russian Journal of Economics*, 5(4), 400-411. <https://doi.org/10.32609/j.ruje.5.49472>

<sup>96</sup> Baltensperger, M., & Dadush, U. (2019). The Belt and Road turns five. *Russian Journal of Economics*, 5(2), 136-153. <https://doi.org/10.32609/j.ruje.5.38704>

<sup>97</sup> See for instance this on the Chinese understanding of energy security Daojiong, Z. (2006). China's energy security: Domestic and international issues. *Survival*, 48(1), 179–190. <https://doi.org/10.1080/00396330600594322> and this one on the Chinese energy policy in more general terms Meidan, M., Andrews-Speed, P., & Xin, M. (2009). Shaping China's Energy Policy: actors and processes. *Journal of Contemporary China*, 18(61), 591–616. <https://doi.org/10.1080/10670560903033885>

<sup>98</sup> For more on this see Layne, C. (2018). "The US–Chinese power shift and the end of the Pax Americana", *International Affairs* 94(1) 89–111 and Bordachev, T., Kashin, V., Potashev, N., Prokhin, E., Smirnova, V., Yankova, A. (2022). "Russia–China Strategic Partnership in the Context of the Crisis in Europe", *Valdai Club*, September 2022 at <https://valdaiclub.com/files/38772/>. For the impact of the war on this relationship see Lo, B. (2023). The Sino-Russian Partnership Assumptions, Myths and Realities, *Russie.Nei.Reports*, No. 42, Ifri at [https://www.ifri.org/sites/default/files/atoms/files/bobo\\_lo\\_russia\\_china\\_mars2023.pdf](https://www.ifri.org/sites/default/files/atoms/files/bobo_lo_russia_china_mars2023.pdf).

<sup>99</sup> Ministry of Foreign Affairs of the People's Republic of China. (2023). China's Position on the Political Settlement of the Ukraine Crisis at [https://www.fmprc.gov.cn/mfa\\_eng/zxxx\\_662805/202302/t20230224\\_11030713.html](https://www.fmprc.gov.cn/mfa_eng/zxxx_662805/202302/t20230224_11030713.html)

ceasing hostilities, resuming peace talks, resolving the humanitarian crisis, protecting civilians and prisoners of war, keeping nuclear power plants safe, reducing strategic risks, facilitating grains exports, stopping unilateral sanctions, keeping industrial and supply chains stable and for promoting post-conflict resolution. Several of the proposals in this document, such as the call for ending sanctions, favoured Russia, but others, such as the condemnation of potential use of nuclear weapons in this conflict could be interpreted as putting some limits on what Russia could do in Ukraine without alienating its Asian strategic partner.

This document outlining China's approach to the war and other steps taken by Beijing, such as discussions on the war behind the closed doors during the official visit of the Chinese leader Xi Jinping in Moscow in March 2023, as well as China's participation in talks on the solution of the Ukrainian crisis in Jeddah in August 2023, demonstrate that, although China continues its strategic cooperation with Russia, its support is not unconditional. The main reason is that Russia's and China's strategic interests do not always overlap – Russia presents its war in Ukraine as a way of dealing with an existential threat while the Chinese leadership is most interested in securing stability in China and a relatively high pace of the economic growth in which trade with the broadly understood West is the main economic locomotive.

Even though China's trade with Russia has grown over the past years, the West remains China's main economic partner. In 2022 Russia's trade with China reached USD 185 billion but the China's trade with the EU and the USA reached USD 1.5 trillion in the same year. Chinese leadership that also must deal with serious challenges and problems at the domestic front does not seem to be willing to risk any Western retaliations that most probably would come if China were to provide any direct military support to Russia. In addition, it could also be in China's long-term strategic interest to see Russia weakened by the war because a weakened Russian bear without Western support could be an easier prey to the Chinese dragon.

There are several good reasons why China is not very keen to provide more support to Russia facing problems on the battleground. Russia is in the process of redrawing its map of strategic interests and partnerships in which China is expected to play a major part as a counterbalance to the West with which Russia's relations seem to be damaged almost beyond the point of no return. However, China has its own map of strategic interests and partnerships, and Russia is only one point of reference on this mental map. The problems and challenges that preoccupy the Chinese leaders, more than what is happening to Russia, as well as how China deals with these problems can affect Norway's status as a major regional energy player by influencing developments on the global energy market.

### The Taiwan conundrum?

The question that makes many in the West – but also in China – worry the most is the question of how China is going to deal with the issue of Taiwan. China treats Taiwan as an inseparable part of the Chinese state and aims at unification, but the Taiwanese are much less interested in this process and are supported by the West, and first and foremost by the USA that wants this reunification to be a process in which both China and Taiwan have some positive stakes.

The Russian war in Ukraine can provide China with some answers to questions related to the Taiwan question. The Chinese leadership follows developments in Ukraine and must have drawn some lessons from the developments in this conflict. One of lessons is that invading a neighboring country is not necessarily a good idea, especially if this country can count on help to be provided by some powerful international actors. This could make the Chinese policymakers think twice before launching an operation against Taiwan because the outcome of such an operation seems to be less predictable after the failed Russian attempt at removing the Ukrainian

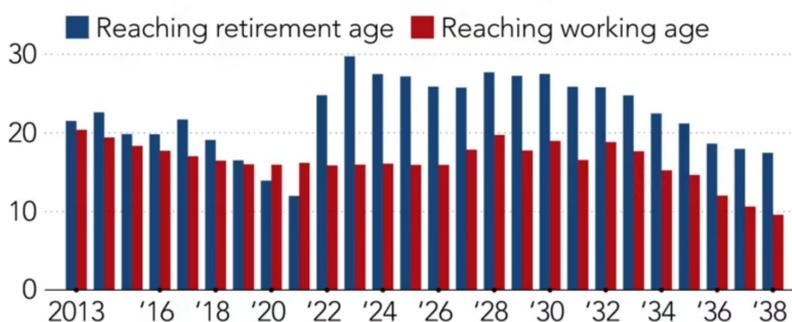
political leadership and get control of the country by launching a special military operation. However, a completely failed attempt to occupy Taiwan would have direct negative impact on the economic development of China and its economic cooperation with its most important economic partners. A successful military occupation of Taiwan could have even more detrimental effects on China’s relations with the collective West because of the economic importance of Taiwan in the global value chains as a globally crucial producer of semi-conductors. A failed intervention, similar to the one Putin has launched in Ukraine, could also undermine the stability of the regime and even its survival. This is definitely something that the newly elected Chinese leadership must be more interested in than in the outcome of war in Ukraine. This, combined with some mixed signals coming from Washington, can mean that the threat of an imminent confrontation between the two global superpowers over the Taiwan issue is maybe less serious today than many fear. However, such a confrontation cannot be completely ruled out, because there are also those who argue that the Chinese regime facing other domestic problems that can undermine its legitimacy will be willing to take action against Taiwan expecting the West to intervene, which can help the Chinese trigger a sort of rally around the flag effect that will – at least in the short-term perspective – give it a renewed legitimacy, especially if the Taiwan operation were to succeed.

### The demographic challenge

The second challenge that the political leadership in Beijing must deal with is the result of the failed demographic policy implemented by the Chinese authorities in previous decades. The policy of one child per one family has contributed to changing the demographic structure of the Chinese society and China faces dire demographic issues. 2022 was the first year in the recent history of the country to record a shrinking population. This is, however, only one of the demographic problems the Chinese authorities will have to deal with in the coming years. The two others are the aging of the country’s population as well as skewed gender balance with more men than women. According to many observers these demographic problems present serious challenges for the political leadership as China can face problems with its labour force, an important precondition for continued economic growth that is related to securing political stability in the country, which is the top priority of the Chinese regime. In addition, China will face serious problems of how to take care of its elderly population in a situation when families that traditionally took care of the older generations are no longer able or willing to provide this care.

These demographic problems can therefore have serious negative implications for the economic development of the country as well as for domestic stability. An economic slowdown in China

**New retirees in China set to far outnumber new workers for the next 15 years** *(Estimated number of people reaching retirement age of 60\* and working age of 16, in millions)*



\*Men and women retire at different ages in China, but all genders are legally retired by the age of 60  
 Source: National Bureau of Statistics of China, Nikkei Asia research

will most probably reduce demand for all types of fuels and the result can be lower demand for commodities that are the main source of export revenues in Norway and have traditionally played a key part in securing the extension of the Norwegian model of the welfare state. This can, in turn, have a disturbing effect on economic and social developments in Norway in both mid- and long-term perspective.

Figure 14. China’s demographic challenge<sup>100</sup>

<sup>100</sup> Yiu, P., Li, G., Tan, C. and Obe, M. (2023). China’s aging population threatens a Japan-style lost decade at <https://asia.nikkei.com/Spotlight/The-Big-Story/China-s-aging-population-threatens-a-japan-style-lost-decade>

### Economic slowdown and/or stagnation – the Japanese path?

What seems to bother the Chinese political leadership more and more in the wake of the COVID crisis is what many observers describe as China following possibly the path of Japan.<sup>101</sup> According to some observers China faces the greatest economic challenge in its recent history. In July 2023 Chinese exports slumped by 14.5 percent compared with 2022 and the country has now entered deflation phase with credit growth reaching the lowest level since 2009 and with youth unemployment reaching new heights. Many of the key companies in China's property sector seem to be on the brink of collapse. Also measures taken by the US administration aiming at limiting China's access to state-of-the-art technology as well as other trade related restrictions can have an impact on the economic growth in China, on the volume of external trade and on political stability.

Some observers even argue that China's economic development model resembles that of Japan over 30 years ago. This was a situation characterized by relatively high savings, and high investment, but with restrained consumption and rigid institutions influencing macroeconomic developments negatively. Another important feature mentioned by observers following current situation in China is over-investment and misallocation of capital, particularly in the property sector. It is believed to pose a greater challenge to economic development – and stability of the political regime – than the crisis in Japan's banking sector in the 1990s. Comparatively speaking, China seems to have some advantages over Japan. Its state-owned financial system can prevent significant banks from failing and its closed capital account can protect the country's banking system and the economy from the risk of significant capital flight. Nonetheless, these advantages do not ensure that China is not going to take the same economic trajectory Japan has<sup>102</sup> especially given the demographic crisis that the country is already facing. Also there are growing tensions in China's relations with the collective West. The West is more reluctant to deepen economic ties with an increasingly authoritarian Chinese regime that is suspected of using its economic strength to reap political benefits and increase its global influence, for instance by launching the Belt and Road Initiative.

### Black swans and gray rhinos

Black swans are commonly known as unpredictable events with high impact. Recently published McKinsey study lists the political implosion of a major economy, the forcible removal of a leader or a government, a significant regional military conflict, an unprecedented climate event that results in mass casualties, waves of migration, and famine, as well as another pandemic, as the most probable black swans.<sup>103</sup>

Another category of events examined in this study that also can make a difference are gray rhinos that are described as probable events with high impact. Regional conflicts in Asia escalating amid broader strategic competition and major escalation in the Middle East, such as the ongoing war between Israel and Hamas that broke out after the Hamas terrorist attack on Israel on 7 October 2023, as well as cooling relationships and international and domestic pressure against specific regimes are listed in this study as potential developments in this category.

<sup>101</sup> For a more detailed examination of this question see for instance Yuxuan, J. Liaojie, Y. and Jiang J. (2023). Will China's economy follow Japan's path? <https://www.gingerriver.com/p/will-chinas-economy-follow-japans>

<sup>102</sup> Magnus, G. (2023). Is China turning Japanese at <https://blogs.lse.ac.uk/cff/2023/03/08/is-china-turning-japanese/>

<sup>103</sup> Grant, A., Haider, Z. and Raufuss, A. (2023). Black swans, gray rhinos, and silver linings: Anticipating geopolitical risks (and openings), McKinsey at <https://www.mckinsey.com/capabilities/risk-and-resilience/our-insights/black-swans-gray-rhinos-and-silver-linings-anticipating-geopolitical-risks-and-openings>

The Russian full-scale war of aggression launched against Ukraine can be said to belong to both categories. First, when it came as a big surprise on 24 February 2022 many were taken aback as the perspective of a full-fledged interstate kinetic conflict involving two of the biggest European countries was deemed almost improbable. However, when it happened, it had indeed high impact on many directly and indirectly affected countries and societies as well as serious implications for many sectors, including energy and military technology.

However, this war also could be interpreted as a gray rhino-like event as Russia was in a way charging against both Ukraine and the West at least since 2014 when it annexed Crimea and provided direct military support to separatists in Donbas.

One of the indirect implications of this war is renewed focus on new energy technologies that could help address some of the energy-related short-, mid-, and long-term energy challenges caused by the Russian aggression and reactions to it. Some of the relatively new energy technologies have apparently played a crucial part in this process. For instance, the ability of the USA to supply huge volumes of the LNG to Europe in a situation when access to Russian gas became problematic was the result of a shale gas and oil revolution in the USA that opened access to huge reserves of shale gas and oil in the country turning the USA into the biggest energy producer in the world.

However, the war and the need to replace Russian energy commodities also have provided stronger incentives to develop other technological solutions. It seems therefore that we can expect some technological energy black swans and gray rhinos to loom beyond the horizon that can contribute further to reshaping energy markets and policies in years to come. It is important to identify at least some of them to understand what impact they may have on Norway's status as a major energy power in the region.

In the field of energy, many important black swans can "land" from the technological sphere, but also other events can be very impactful.<sup>104</sup> The Covid 19 pandemic, although not directly related to energy, had a huge impact on energy markets. The same can be said about the war in Ukraine that created a lot of uncertainty on the global and on the European energy market, as it involved the most important external supplier of energy to Europe and an important transit country. The result was skyrocketing energy prices and enormous windfall revenues for major energy producers and exporters, including Russia<sup>105</sup> and Norway.<sup>106</sup>

However, this war also can help trigger development of new energy technologies that will help address new set of challenges caused by green energy transition. Since one of the challenges energy systems based on renewable energy must cope with is the problem of intermittence of the green energy system one could hope that a technological solution improving the ability to store huge volumes of energy locally can be a major technological breakthrough facilitating a quicker departure from the fossil fuels. The search for new energy storage technology has been most probably boosted by the ongoing war and although it is hard to predict which of the technological solutions will be decisive it seems that hydrogen-related solutions can attract most attention and are most promising.

<sup>104</sup> See for instance Krupa, J., & Jones, C. (2013). Black Swan Theory: Applications to energy market histories and technologies. *Energy Strategy Reviews*, 1(4), 286-290. <https://doi.org/https://doi.org/10.1016/j.esr.2013.02.004>.

<sup>105</sup> Centre for Research on Energy and Clean Air. (2022). Financing Putin's war: Fossil fuel exports from Russia in the first six months of the invasion of Ukraine. at [https://energyandcleanair.org/wp/wp-content/uploads/2022/09/Final\\_-\\_Financing-Putins-war\\_-\\_Fossil-fuel-exports-from-Russia-in-the-first-six-months-of-the-invasion-of-Ukraine.pdf](https://energyandcleanair.org/wp/wp-content/uploads/2022/09/Final_-_Financing-Putins-war_-_Fossil-fuel-exports-from-Russia-in-the-first-six-months-of-the-invasion-of-Ukraine.pdf)

<sup>106</sup> On the impact of the war on Norway's energy revenues see Hjalte, E. and Gaasland, I. (2023). Norway: A War Profiteer or Equitable Market Participant? NHH Master Thesis.

Another way of addressing the current energy challenges in Europe is through diversification of not only routes for energy supply or energy suppliers but also diversification of forms of energy supplied to the market. Here it seems that the most impactful black swans would be a new more efficient CCS technology that would allow expanding the lifespan of the fossil fuels by limiting their harmful impact on environment.

Also new developments in nuclear technology such as much safer but still not available cold fusion and smaller scale nuclear technology such as Small Modular Reactors (SMR) or Micro Modular Reactors (MMR) that are being currently developed and tested can have a major impact. What can delay the development of new nuclear technologies is however the fact that Russia plays a major part in the current nuclear business and being again more dependent on Russia can be less tempting to those who experienced directly or indirectly what Russia's weaponization of energy means for one's energy security.<sup>107</sup>

The new energy technologies that were historically viewed as the most promising are those focusing on energy storage, including fuel cells, lithium-air batteries, hydrogen energy storage & transport and thermal storage. Also smart grids technologies were expected to play a major role in the future. In addition, the list of promising new technologies included those related to electricity generation, such as tidal turbines, solar panel positioning robots, photovoltaic transparent glass, third-generation biofuels, space-based solar power, and micro- and small-scale nuclear reactors, the inertial confinement fusion and thorium reactor that some years ago attracted a lot of attention in countries richly endowed with this resource, including in India and Norway.<sup>108</sup> The utility of these new or improved energy technologies in the process of energy transition will depend on several factors such as production and exploitation costs, the availability of natural resources needed for implementation of these ambitious energy transition plans as well as the possible emergence of new even more revolutionary technologies that will make some of the above listed technologies obsolete or less relevant. Also, purely geopolitical aspects need to be factored in the discussion on the pace and depth of the planned energy transition because the war in Ukraine has most probably taught an important lesson – that being too dependent on resources coming from authoritarian states poses a serious risk.

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<sup>107</sup> See for instance Szulecki, K. and Øverland, I. (2023). Russian nuclear energy diplomacy and its implications for energy security in the context of the war in Ukraine. *Nature Energy* <https://doi.org/10.1038/s41560-023-01228-5>

<sup>108</sup> For more details on how these new technologies are going to contribute to energy transition see DNV. (2023). *Energy Transition Outlook 2023* at <https://www.dnv.com/energy-transition-outlook/>.

## Conclusion

The war in Ukraine is one of the watershed events that have over the past years influenced developments on the regional and global energy markets and changed the pattern of interactions among the key global and regional powers. It also has had a sobering effect on those who believed that energy cooperation with Russia characterized by a strong energy interdependence between Russia and the EU could have a conflict mitigating effect and prevent the outbreak of the full-fledged war in Europe. In addition, the war revealed that the strategic calculations of both Russia and the collective West were based on false assumptions. Russia expected Ukraine to collapse in the scope of days or weeks, and believed the West was to be taken aback and paralyzed by Russian swift actions. Moscow also expected the West to be not willing and able to implement any coherent policies against Russian aggression considering the high level of the EU energy dependence on Russia. But the West also was wrong in its strategic calculations as it expected that Russia would not be willing to risk losing access to the very attractive European energy market in response to its aggression against its Ukrainian neighbor. The collective West in general, and the EU in particular, have however shown an amazing unity when confronted with the Russian aggression, provided political, economic and military support to Ukraine and decided to sever its strong energy relations with Russia. Russia on the other hand has not only managed to prepare for the economic sanctions by increasing the level of its reserves generated mostly from its energy trade with the collective West but also has found alternative markets for its most lucrative oil supplies.

This war has provided additional motivation to push Europe harder in the direction of building a green economy as the best way of making it less dependent on unreliable exporters of fossil fuels. As such, this war strengthened the trend visible even before its outbreak, namely the interest in finding a viable solution to what could be described as an energy-climate dilemma. One of the ideas informing the EU's – and others' – long-term policies aiming to eliminate the negative impact of the use of fossil fuels on climate and environment was the idea of the complete phasing out of fossil fuels from energy mix. Because Norway is one of the major producers and exporters of fossil fuels and the EU is the main export market for Norwegian energy commodities the effects of this war, combined with the implementation of the EU climate policy, will sooner or later be also felt in Norway. Norway should therefore prepare for this coming energy transition by adopting policies that will make this deep transition less painful. As Szulecki put it, Norway faces a broader problem of how to avoid being locked-in on a carbon-intensive path which will expose the country to greater risks in the 2040s and 2050s. Although he argues that it is likely that the last fossil methane molecule to be burned in Europe will originate from the Norwegian Continental Shelf, he also adds that the extension of the lifetime for oil and gas production may be a mixed blessing. He argues that a more innovative policy should be implemented in Norway and that Norway must strive to be more than the EU's petrol station, due to close in 20-40 years' time.<sup>109</sup>

When making any preparations for this post-fossil fuels world it is important to bear in mind what one of the leading international experts on energy transitions wrote about this important phenomenon.<sup>110</sup> In his 2016 short study on energy transitions<sup>111</sup>, Smil argued that although progress of specific energy transitions on national level has ranged from very slow (more than a century) to very rapid (just a few years), all global energy transitions have been always gradual, prolonged affairs, and that we still live in an overwhelmingly fossil-fueled world.

<sup>109</sup> Szulecki, K. (2023). More than just a petrol station..., p.3.

<sup>110</sup> Smil, V. (2016). Examining energy transitions: A dozen insights based on performance. *Energy Research & Social Science*, 22, 194-197. <https://doi.org/https://doi.org/10.1016/j.erss.2016.08.017> and Smil, V. (2017). *Energy Transitions. Global and National Perspectives*. Praeger.

<sup>111</sup> Smil 2016

He recognized the fact that the main *raison d'être* for the ongoing transition is the prevention of excessive rise of average tropospheric temperature that can be achieved only by the decarbonization of the global energy supply. However, he also sent what could be considered a calming message to producers and exporters of fossil fuels saying that there is no evidence that the global primary energy transition has been accelerating – which is somehow confirmed by the 2023 DNV study on the same topic.<sup>112</sup> He shared the opinion that global energy transition has been overwhelmingly a shift in electricity generation that has had only a small effect on the decarbonization of the overall primary energy supply and argued that global growth of new renewables has not been extraordinarily rapid, making a reference to the German experience and relatively slow implementation of the German's policy of *Energiewende*.

In addition, Smil underlined that intermittency of wind and solar generation has required countries to maintain large fossil-fueled reserve capacities and that even the fastest conceivable adoption of non-carbon energies will fall far short from eliminating fossil fuel combustion by the middle of the 21st century. He also added that replacing thermal electricity generation by new renewables is much easier than displacing liquid fossil fuels in transportation. The next two conclusions drawn by Smil in his study concern the challenges faced by those who will have to displace fossil carbon used in the production of primary iron, cement, ammonia and plastics which is not going to be easy. Also, the decommissioning of the largest, and the most expensive anthropogenic infrastructure that cannot be either written-off or displaced rapidly will pose a serious challenge and influence the pace of energy transition.

There are today relatively clear signs that at least some of the conclusions on the pace and depth of the current energy transition drawn by Smil some years before the outbreak of the war in Ukraine are still valid. In addition, the war has had a direct and major impact on energy policy in Europe. The war involved directly the major energy producer and exporter Russia that had over the past decades has been the main supplier of fossil energy to the EU; and the EU, the most important global actor driving energy transition faced a sudden dilemma of how to survive the coming winter with strongly reduced and also (geo)politically incorrect supplies of the Russian gas, a dilemma that forced the EU and other actors to implement short-term ad hoc solutions not always in line with its long-term goals. For instance, some recent decisions taken by the British authorities on slowing down the pace of energy transition to avoid high social, economic, and political costs of adaptation to the new energy realities or the reopening of some coal power plants in Germany seem to confirm that what could be interpreted as the relentless drive toward building a greener energy system is about to slow down. This slowing down of the pace of transition can be explained at least partly by the fear that the short-term costs of the transition are too high and that in the extraordinary situation caused by the war one should act more cautiously to avoid any unrest caused by the high costs of transition, problems that could be exploited in anti-Western propaganda campaigns launched by Moscow and other actors interested in weakening the collective West.

In Norway it also is clear that the growing appetite for investing more in fossil fuels, as demonstrated by decisions taken recently by the Norwegian authorities, can be understood in this broader energy transition context examined by Smil. The main conclusion to be drawn is that the energy transition will indeed take place and will have direct and indirect implications for the position of Norway as an energy nation, but the pace of the transition will be slower than expected giving more time for adaptation.

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<sup>112</sup> DNV 2023.

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