

The Arctic as a Laboratory for Improving the Relations between the EU and Russia: Prospects for the Future

Tiziana Melchiorre

This article discusses the relations between the European Union (EU) and Russia in the Arctic in a scenario development context. Although the war in Ukraine of 2022 has dramatically worsened EU – Russia relations, this article argues that the Arctic could be a laboratory for improving them both regionally and internationally as it offers some opportunities for cooperation especially in three sectors, namely energy, environment and science. The EU and Russia have indeed strong geopolitical and economic interests in these sectors and could therefore benefit from cooperation. Theoretically, the analysis is conducted from a neoliberal institutionalist point of view with a focus on the concept of interdependence, which is a strong incentive to overcome the obstacles to cooperation in order to strengthen their relations.

Introduction

The European Union (EU) and Russia have been strategic partners for several decades since the end of the Cold War. Their geopolitical and economic ties are in fact very strong. Geography inextricably links them as they lie on the European continent (Russia also extends to Asia) and share a very long border with inevitable political and economic consequences. The EU and Russia founded their relations through the Partnership and Cooperation Agreement of 1997 for regulating political, economic and cultural sectors (Eur-Lex, 2016). In 2010, they launched the Partnership for Modernization, which was an ‘attempt to re-set the EU-Russia relationship’ (Flenley, 2014: 11) by reinvigorating and developing their cooperation on trade, economy and energy security (Larionova, 2014: 62). However, the good purposes contained in these documents have had a halt since 2014 when Russia annexed Crimea. More recently, the war that Russia initiated against Ukraine in February 2022 has drastically worsened relations with the EU. As a consequence, the sanctions imposed by the EU and the West more generally have thwarted the cooperative efforts made by the EU and Russia until then.

Against this background, this article discusses the relations between the European Union (EU) and Russia in the Arctic in the context of a scenario development analysis and on the basis of a neoliberal institutionalist approach. The scenario presented here has a fictional component, aiming at identifying possible results on the basis of some peculiar elements that at present are not relevant in the EU – Russia relations (e.g. renewables) but that could become so in the future. However, the scenario has been constructed by taking into consideration the real geopolitical and economic reality (e.g. the consequences of the war in Ukraine on the EU – Russia relations both geopolitically and economically, the EU’s plan to step away from its oil and gas dependence on Russia, Russia’s turn towards Asia) in order to imagine a possible result that is as realistic as possible. Foreseeing the future is not the goal of this article. By contrast, what this study will try to do is to analyse the geopolitical and economic reasons that might push the EU and Russia to follow the path of cooperation instead of the path of tension and mistrust that characterise their relations at present.

In particular, this article argues that the Arctic (defined as comprising Canada, Denmark, Finland, Iceland, Norway, Russia, Sweden and the United States) could be a laboratory for improving the relations between the EU and Russia regionally and internationally as it offers some opportunities for cooperation especially in three areas. The first one is energy, an issue that is crucial in their political and economic dialogue. The second area is environment, which is linked to energy and is a sector of common concern. The third area is scientific cooperation, an issue of utmost importance for both the EU and Russia to understand the impact of climate change on the region as this has political, economic and social consequences both inside and outside the region.

This article is divided into six sections. The first section outlines the methodology. The second section briefly discusses the theoretical approach that is at the basis of the analysis. The third, fourth and five sections are devoted each to one of the three dimensions taken into consideration in this study. Finally, the sixth section draws the main conclusions of the analysis.

Methodology

EU-Russia relations in the Arctic will be analysed on the basis of a scenario development analysis. In particular, the method that will be used is backcasting, which “makes use of future possibilities to better understand paths from the present to a preferred future” (Bendor et al., 2020). More specifically, “Backcasting is developing a *pathway* that connects a preferred future to the present and identifying *milestones* along the pathway that can be used by planners and policy – makers to track progress” (Bengston et al., 2020). The major concern of backcasting is how to attain desirable futures, not which future is more likely to occur (Tuominen et al., 2014). The steps of backcasting are the following. First, identify a clear endpoint or future goal. In the case analysed in this article, the improved relations between the EU and Russia are the endpoint that should be achieved in 2050. The reason behind the choice of this time target is the one explained by Kauppila and Kopra (2022) in their article on China’s rise in the Arctic, namely the fact that the Arctic Ocean is expected to be ice-free by the late 2030s (Heininen et al., 2017) and the Arctic autumn and winter temperatures are expected to rise by four or five degrees above the levels of the late twentieth century by 2050. Therefore, natural resources (e.g. energy) and transportation routes will be much more accessible than now. Also, 28 years is a sufficient and plausible timeframe for significant changes in relations between the EU and Russia.

Second, identifying the key dimensions of success is crucial in order to understand whether the future goal is fulfilled (Bengston et al., 2020). The three dimensions chosen here are energy, environment and scientific cooperation, which are key sectors for both the EU and Russia.

Third, signposts will be identified and constructed. Signposts are “recognisable future events that signal a significant change” (Bengston et al., 2020; Kauppila & Kopra, 2022). This means that the achievement of an endpoint is possible only if “a plausible and logical path connecting the future with the present is considered” (Kauppila & Kopra, 2022). Consequently, signposts will be constructed for each dimension (Bengston et al., 2020). Fourth, opportunities and obstacles to the achievement of the endpoint will be identified for each dimension (Bengston et al., 2020). Fifth, actions to overcome or avoid the obstacles and to take advantage of the opportunities will be identified (Bengston et al., 2020). Sixth, the data stemming from the previous steps will be used to construct the scenario.

Theoretical approach

This article uses Robert Keohane’s neoliberal institutionalism with a focus on the concept of interdependence. Neoliberal institutionalism argues that “patterns of cooperation and discord can be understood only in the context of the institutions that help define the meaning and importance of state action” (Keohane, 1989, 2). State actions are considerably influenced by institutions that affect “the flow of information and opportunities to negotiate, the ability of governments to monitor others’ compliance and to implement their own commitments – hence their ability to make credible commitments in the first place, and prevailing expectations about the solidity of international agreements” (Keohane, 1989: 2).

Keohane and Nye define interdependence as “mutual dependence” (Keohane & Nye, 2012: 7) where dependence is “a state of being determined or significantly affected by external forces” (Keohane & Nye, 2012: 7). Therefore, interdependence refers to “situations characterized by reciprocal effects among countries or among actors in different countries” (Keohane & Nye, 2012: 8). Interdependence occurs when the interaction produces reciprocal costs and constraints (Özpek, 2013: 362).

In this context, Keohane and Nye link the concept of interdependence to the one of power that they define as “the ability of an actor to get others to do something they otherwise would not do (and at an acceptable cost to the actor). Power can be conceived in terms of control over outcomes” (Keohane & Nye, 2012: 10). In order to understand the role of power in interdependence, Keohane and Nye identify two dimensions. The first one is sensitivity that “means liability to costly effects imposed from outside before policies are altered to try to change the situation” (Keohane & Nye, 2012: 11). The second dimension is vulnerability that is defined as “an actor’s liability to suffer costs imposed by external events even after policies have been altered” (Keohane & Nye, 2012: 11).

EU-Russia energy cooperation

In the energy sector, the starting point to build the scenario is the strong EU-Russia interdependence, which is asymmetrical especially because of the dependence of the EU on Russian energy. Russia is indeed the main EU supplier of crude oil, natural gas and solid fossil fuels (Eurostat, 2021) and the EU is Russia’s first energy export destination globally (EEAS, 2021). In 2020, the EU imported from Russia 29% of its crude oil, 43% of natural gas and 54% of solid

fossil fuel (mostly coal) (Eurostat, 2021). Additionally, during the first two months of the Ukrainian war (24th February – 24th April 2022), the EU accounted for almost 70% of Russia's fossil fuels revenues globally (Guy, 2022). The EU imported 10% more gas and 20% more liquified natural gas from Russia but 20% less oil and 40% less coal if compared to the same two-month period last year, with a consequent increase of Russian revenues that were also due to the increase of prices though (Guy, 2022). The price rise is affecting the EU member states as bills are increasing revealing the economic sensitivity of the EU to the increase of the prices of the Russian gas (sensitivity dimension of interdependence). Also, the EU is vulnerable to eventual disruptions of the gas supply from Russia (vulnerability dimension of interdependence). During the current war between Russia and Ukraine, the former has threatened the EU to halt gas supplies if the EU member states don't pay it in rubles, which is a measure adopted by Russia to save its economy as the value of its currency has enormously decreased since the beginning of the war (Carter, 2022). A shut-down of gas supplies would be extremely costly for the EU (Øisten & Claes, 2013: 787).

The war in Ukraine, with the consequent economic sanctions imposed on Russia by the EU (and the West more broadly) that have seriously deteriorated the political and economic relations between them, are highlighting the EU's sensitivity and vulnerability to Russian energy supplies. This is why the EU is trying to diversify its energy supplies and to speed up its shift to green energy (Fisher, 2022). At the same time, Russia is not immune from vulnerability to the EU sanctions. Indeed, the loss of the EU market would be detrimental to Russia as it represents the bulk of its exports, as DaDalt and Park correctly argue (2021: 108). This is why Russia is turning to China, which already imports gas through the Power of Siberia pipeline going from Yakutia in the Russian Far East to China (Aizhu, 2022). DaDalt and Park very interestingly reevaluate Hirschman's concepts contained in his study on the effects of asymmetrical interdependence entitled *National Power and the Structure of Foreign Trade* in light of the deepening of the economic interdependence in European gas trade. Hirschman distinguishes between 'supply effect' and 'influence effect' (Hirschman, 1945: 31). Hirschman defines 'supply effect' the situation in which the supplier cuts off or weakens supply if the interruption of trade is a more serious concern to the supplied trade partner than to itself (DaDalt & Park, 2020: 105). 'Influence effect' is the situation in which the supplier indirectly influences the political environment of the supplied trade partner in ways that are conducive to the supplier's goals (DaDalt & Park, 2020: 105). DaDalt and Park argue that asymmetric interdependence has weakened the 'supply effect' (DaDalt & Park, 2020: 108) as it is evident in the case of the EU-Russia energy relations. By contrast, the influence effect is still quite strong because "globalization makes supplying countries more vulnerable to international criticism and increases their incentives for maintaining a positive reputation as trustworthy suppliers" (DaDalt & Park, 2020: 108). Indeed, "countries that constantly disrupt supply for political reasons are likely to lose credibility in the international market and face repercussions such as economic sanctions and severing trade" (DaDalt & Park, 2020: 108).

The EU sanctions imposed on Russia both in 2022 and in 2014 as a consequence of the war in Ukraine are good examples. These sanctions have halted cooperation between western and Russian energy companies in the Arctic (Schreiber, 2022; Graznitz, 2022). Indeed, some energy companies like British BP and Dutch Shell have recently decided to stop their cooperation with Russian companies on common projects (Nie, 2022). Other companies like Italian State Hydrocarbons Authority (ENI) already suspended their joint ventures with Russian Rosneft in the Arctic in 2014 (Nie, 2022). More recently, in March 2022, French company Total made it clear that it would halt

its new investments in Russia (Staalesen, 2022). The halt of cooperation between EU and Russian energy companies in the Arctic affects both of them. EU companies, obliged to withdraw from joint projects with the Russian ones, are excluded from the possibility of tapping oil and gas fields that were previously inaccessible and thus from the economic benefits deriving from it. At the same time, Russian companies can't rely on the western technology on which they are dependent to develop and follow up their projects in the Arctic (Staalesen, 2022). For instance, the Yamal Liquefied Natural Gas (one of the biggest gas projects worldwide) and the Arctic LNG projects are fully built with western technology (Staalesen, 2022). Therefore, improving their relations would allow the EU and Russia to benefit from their partnership in the energy sector although by founding it on a new basis, which is the endpoint or future goal identified in this analysis.

In order to achieve it, in the period immediately after the end of the war in Ukraine (the result of the war is secondary here as it is in the geopolitical and economic interests of both to improve their relations in the energy sector), the EU and Russia could stipulate an Energy Cooperation Agreement (ECA) – the signpost – that would outline the main aims and features of cooperation between them. The current instruments regulating their relationship like the Partnership and Cooperation Agreement of 1997 and the Modernization for Partnership of 2010, can be the basis for making the ECA. In this context, the idea that was at the basis of the EU – Russia Energy Dialogue can be applied to ECA. The Dialogue “arose from the notion that the European continent constitutes a broad geopolitical area linked culturally, historically and economically, and that the complementarity in terms of energy between the eastern and western parts of the continent should be developed in a sustainable way for the future” (Talseth, 2012: 3). The primary goal of the Dialogue was to resolve “all questions of common interest relevant to [the energy sector]” (Talseth, 2012: 3; European Commission, 2011: 2). Both the EU and Russia aimed at energy security, meaning investment and secure markets for Russia and a stable legal regime for the Russo-European energy trade for the EU (Talseth, 2012: 3).

Energy security can be the goal of the ECA with the aim to invert the current situation in the energy relations between the EU and Russia. Nevertheless, there would be some obstacles to the stipulation of this agreement. First, in spite of the definition of energy security contained in the documents mentioned above, the EU and Russia see it differently. The EU aims “to secure [its] energy supply at affordable prices in the current geopolitical context and to phase out dependency on Russian gas” (European Commission, 2022a). For Russia, energy security, defined in relation to internal and external risks, is “the stability of supply both internally [the risks concern the security of supply and production] and externally [the risks are associated to diversification of production in foreign countries and sanctions imposed on the Russian energy sector]” (Romanova, 2021: 208; Novikau, 2021: 105). While both the EU and Russia stress the importance of guaranteeing energy supply, they don't share the urgency of the transition to renewable energy. The EU considers it as essential for ensuring energy supply as demonstrated by the Green Deal, which was adopted in 2019 not only to reduce greenhouse gas emissions but also to ensure “a secure and affordable EU energy supply” (European Commission, 2020). By contrast, although Russia's interest in renewable energy has been increasing during the last decade, it has not seriously committed to its production.

The reason is that non-renewable energy sources such as oil and natural gas are “the flagship industries that make up the bulk of the country foreign economy” (Gobuleva et al, 2022: 1). For instance, according to the Report on the Results of the Expert Analytical Event Analysis of the

Reproduction of the Mineral-Raw Material Base of the Russian Federation in 2015-2019, prepared by the Accounts Chamber in 2020, 61% of the federal budget of the Russian Federation revenues come from activities related to the exploitation, transportation and use of minerals base (Gobuleva et al, 2022: 1). 82% of these revenues come from the oil and gas sector, which means that Russia has no urgency to diminish its oil and gas production in favor of an increase of renewable energy (Gobuleva et al, 2022: 1).

Second, in 2050 the geopolitical asset would have changed in the region. In 2022, the relations between Russia and the western states or Arctic 7 (Canada, Denmark/Greenland, Finland, Iceland, Norway, Sweden, United States – Denmark, Finland and Sweden are EU members) that are members of the Arctic Council (AC), the most important intergovernmental forum guiding cooperation in the region, have frozen their relations. As a consequence, also the EU–Russia relations have come to a halt. However, at least in the very near future, interrupting completely their energy relations would be very difficult as each of them has always been the backbone of the energy sector for the other. Therefore, although the EU would be successful in diversifying its energy supplies over time, at present it would not manage to completely step away from Russian energy, especially gas.

According to a plan presented by the European Commission, the EU aims at becoming independent from Russian fuels before 2030 (European Commission, 2022b) by increasing purchases of liquefied natural gas from other producers (Chapa and Shiryayevskaya, 2022). Nevertheless, it “isn’t yet equipped to receive enough of the fuel to replace Russian gas entirely” (Chapa & Shiryayevskaya, 2022). At the same time, it would be difficult for Russia to totally renounce to its sale of energy to the EU even though Russia has been strengthening its energy relations with China since 2014 by exporting oil and gas to it and importing technology from it. Indeed, the loss of the EU as a main destination for its energy resources even only partially would result in a drastic reduction of its economic rewards. Additionally, the technology that China can provide to follow up Russia’s LNG projects is not as advanced as the EU’s. Consequently, although coming back to the status of their relations before 2022 would be quite difficult, it would be in the interests of both the EU and Russia to find a way to cooperate in the energy sector. In order to do this, some actions would be required. In particular, the ECA should include the strategy to follow by identifying the milestones essential to reach the endpoint. For instance, milestones would be important for the re-definition of the Arctic oil and gas trade between the EU and Russia by indicating the specific commitments of both parties to transparency and reliability. Also, particular attention should be given to cooperation between EU and Russian energy companies in joint projects in the Arctic, especially in the renewables sector. Meetings (once or twice per year) in Brussels or Moscow to discuss and evaluate the progress of cooperation would be necessary.

Therefore, the new scenario in the Arctic in 2050 could be one in which the EU and Russia need to re-define their relations as the war in Ukraine is expected to be ended by then. As a new Cold War is not in the economic interest of either the EU/West and Russia, they should try to re-establish their energy trade on a cooperative basis, which would have an impact on their energy relations in the Arctic. Indeed, the ECA would contain two important elements. First, it would include the main features of the EU–Russia energy cooperation by identifying the main aims (e.g. a common vision of energy security) and the rules that they should follow in order to establish solid and long-lasting relations in the sector. Second, it would foresee the involvement of the EU

and Russian energy companies in common projects in the Arctic. In this context, renewable energy projects would be of utmost importance as the climate change impact on the Arctic would have worsened its negative consequences on the ecosystem in the region. Cooperation on renewable energy projects would be in the interest of both the EU and Russia although for different reasons. The EU would pursue the objectives of the Green Deal aiming at “cutting greenhouse gas emissions, to investing in cutting-edge research and innovation, to preserving Europe’s natural environment” (European Commission, 2021). By engaging in the Arctic environmental protection through the Green Deal, the EU could pursue its aim to affirm itself as a geopolitical actor in the Arctic even more strongly than now. Also, an energy transition would mean the possibility of making its energy sector more independent and to move away from Arctic oil and gas by “pushing for oil, coal and gas to stay in the ground” (European Commission, 2021a), as stated in the EU’s Arctic Policy of 2021. Russia would have two reasons for cooperating on energy renewable projects with the EU. First, an energy transition would mean committing to environmental protection, which would contribute to Russia’s affirmation as a ‘Great Ecological Power’ on the international scene, confirming what Russian politicians and scholars emphasize, namely that “in global environmental politics Russia demonstrates ‘ecological potential’ (a source of environmental solutions)” (Tynkkynen, 2010: 182). Second, an energy transition is important for Russia “in relation to the supply of internal market and the affect it has on exports” (Romanova, 2021: 210). Russia’s Energy Security Doctrine (ESD) of 2019 recognises that the change in the global energy structure due to moves towards energy efficiency, energy saving and new energy sources (including renewables and LNG) are a challenge to its energy security (Romanova, 2021: 210). The ESD also stresses that competition in global energy markets has increased also because of the entry of new suppliers (Romanova, 2021: 210). Additionally, in spite of the fact that in Russia debates about clean energy remain modest, “debates around the 2019 ESD demonstrate a gradual shift in attitude towards renewables and clean energy at large. They have become much more central in Russian energy discussions and an increasing number of Russian specialists stress their role in the energy transition, which will have serious implications for Russian exports and budgetary receipts” (Romanova, 2021: 213).

In this context, it is interesting to note that the ESD acknowledges the fact that in Russia gas and oil reserves are increasing while their production is decreasing (Gobuleva et al, 2022: 1-2). Therefore, in order to ensure the economic development of Russia, it is necessary to increase its energy potential by introducing renewable energy sources widely (Gobuleva et al, 2022: 5). Developing renewable energy is an opportunity for Russia to become more competitive on the global energy markets while expanding its energy production in the Arctic at the same time. Consequently, Russia could take advantage of cooperating with the EU because this latter opportunity could provide advanced technology necessary to develop renewable energy. This would be particularly valuable for Russia as the implementation of renewables has a low potential because of the vast area covered, the uneven distribution of solar days, wind speed, water resource location and geothermal sources (Gobuleva et al, 2022: 5). Gaseous biofuels are the most promising renewables as they do not depend on climatic conditions and can be applied almost everywhere in Russia (Gobuleva et al, 2022: 5). Nevertheless, Russia has constructed the world’s first Arctic station powered by hydrogen and renewables, which should be launched in 2024 (Gertcyk, 2021; Vella, 2022). Snezhinka (Snowflake), which is located on the Yamal Peninsula, “is an important step for Russia to begin minimizing its carbon footprint” (Vella, 2022).

EU–Russia cooperation would facilitate cooperation also between non–EU western and Russian energy companies. Furthermore, a strengthened EU/western–Russian cooperation in the energy sector would have geopolitical consequences in the Arctic with inevitable consequences internationally. The EU would indeed become a more important actor in the Arctic than in the early decades of the century as it would acquire more geopolitical and economic leverage on the region. At the same time, Russia would increase its competitiveness in the energy sector, which would benefit its aim to keep its great power status internationally.

EU–Russia environmental cooperation

Unlike in the case of the energy sector, environmental interdependence between the EU and Russia is less evident, but not less relevant. In this case, EU–Russia interdependence is mainly due to two factors. First, the economic activities (e.g. industries) of the EU and Russia have shared environmental consequences in the Arctic as environmental issues are transboundary. This is why the EU–Russia environmental interdependence is more symmetrical than in the case of the energy sector. The EU, which is the northernmost industrial region close to the Arctic, contributes to Arctic warming by producing 8% of the global greenhouse gas emissions (Koivurova et al., 2019: 5). It is also responsible for about 36% of Arctic deposition of black carbon and a considerable source of marine litter (Koivurova et al., 2019: 5). Russia, which is the world’s fourth largest emitter (Digges, 2021; Crippa et al., 2021), produces 5% of the world’s carbon (Hill, 2021) and is a big polluter in the Arctic. Second, bilaterally the EU and Russia have been cooperating on environmental questions since 1995 (European Commission, 2021c). The EU has supported several projects aimed at improving environmental standards in Russia (European Commission, 2021c). In 2006, the EU and Russia launched an Environmental Dialogue, which is conducted every year by the EU DG Environment and the Russian Ministry of Natural Resources and Ecology (European Commission, 2021c; Permanent Mission of the Russian Federation to the European Union, 2016). However, the EU Environmental Dialogue is currently frozen because of the Ukrainian case (European Commission, 2021c). Multilaterally, the EU and Russia cooperate through multilateral environmental agreements (MEAs). Examples are the Paris Agreement (2015) and the Kyoto Protocol (1997), aimed at reducing greenhouse gases emissions. Although MEAs do not address the Arctic directly, they apply to it. Additionally, the EU and Russia cooperate within the Northern Dimension Environmental Partnership (NDEP), which is “a result-focused initiative responding to calls from the international community, in particular Russia and Belarus, for concerted action to tackle the most pressing environmental problems in the Northern Dimension area – a broad area around the Barents and Baltic seas” (European Commission, 2021c). Like the EU–Russia Environmental Dialogue, the NDEP is also paused and under threat in the long term (Raspotnik et al., 2022).

Additionally, the EU and Russia cooperate within the Arctic Council (AC) of which Russia is a full-fledged member while the EU is an ad hoc observer. Environment is a key sector of cooperation in the AC, the leading intergovernmental forum guiding cooperation in the region. The EU finances some activities of the AC. For instance, it funds the Action on Black Carbon in the Arctic, which is an initiative aiming to “contribute to the development of collective responses to reduce black carbon emissions in the Arctic and to reinforce international cooperation to protect the Arctic environment. It provides and communicates knowledge about sources and emissions of black carbon and supports relevant international policy processes” (AMAP, 2022). Also, the EU

and Russia cooperate on the environment within the Barents Euro– Arctic Council (BEAC) as well. In this case, both the EU (through the Commission) and Russia are members. Nevertheless, the AC's and BEAC's activities are currently suspended because of the war in Ukraine.

As the EU and Russia are important actors in the environmental decision-making processes globally, cooperation in the Arctic in this sector is in the interest of both of them for two reasons. First, the Arctic is one of the world's most sensitive regions to pollution. It is warming four times as fast as the rest of the world (Harvey, 2022) with consequences for the whole earth as the Arctic helps to regulate its temperature. Second, by cooperating to protect the Arctic environment, the EU and Russia could pursue their geopolitical objectives more efficiently. While the EU could be more deeply involved in the Arctic affairs, Russia could exploit the environmental cooperation with the EU to be considered a 'Great Ecological Power', as mentioned in the previous section. Thus, the EU could take advantage of its leading position in environmental issues internationally by profitably exploiting its expertise in the protection of the Arctic environment especially through the implementation of the Green Deal. This latter is at the core of its engagement in the region, as it is explicitly stated in the Arctic Policy of 2021 (European Commission, 2021a). Indeed, the protection of the environment is the driving force behind the EU's policy towards the region (Pieper et al., 2011: 234).

Russia is also an important actor in global environmental politics (Martus, 2021: 870). Indeed, as it is one of the world's largest contributors to greenhouse gas emissions, Russia's role in climate change politics is significant (Martus, 2021: 870). For instance, its ratification of the Kyoto Protocol in 2004 was key to bring the agreement into force (Martus, 2021: 870; Tynkkynen & Tynkkynen, 2018: 1103). Very interestingly, Russia's decision to ratify the agreement was dictated by political and economic incentives as in exchange for ratification the EU ensured its support for Russian membership in the World Trade Organisation (WTO) (Tynkkynen, 2010: 1103). However, although political and economic incentives play a role, participation in MEAs are of utmost strategic importance to Russia to be considered a great power internationally.

Therefore, reinvigorating and strengthening the EU–Russia environmental cooperation both bilaterally through the Environmental Dialogue and multilaterally through a deeper involvement of the EU in the AC activities – the signpost – would be a valuable strategy to achieve the endpoint. Nevertheless, the path to follow would not be without obstacles. In particular, the tensions due to the war in Ukraine and the consequent sanctions imposed by the EU and the west would cause reciprocal mistrust that might lead to misunderstandings making cooperation unlikely.

In order to overcome these obstacles, the actions required would consist in intensifying the number of the Environmental Dialogue yearly meetings in order to increase the exchange and share of information. For instance, scientific data, best practices and lessons learned can be shared in order to more effectively work to protect the Arctic environment while strengthening cooperation at the same time. This would be very important for both the EU and Russia. Cooperation would be valuable for the EU as it could access scientific data about the Arctic environment most of which are available in the Russian territory that is the largest state with the longest coast in the Arctic. At the same time, Russia could take advantage of the expertise and the experience of the EU in the sector in order to apply more advanced methods and technology to protect the environment, which the EU owns. The need to clean up environmental damage with the Arctic is considered crucial and was mentioned as a priority by President Vladimir Putin in his speech to the Duma already in

2012 (President of Russia, 2012; Martus, 2021: 876). In 2014, Putin stressed the need for the best technology policy as part of the government's effort to introduce stringent environmental standards (President of Russia, 2012; Martus, 2021: 876).

Furthermore, another important action would consist of making more stringent the measures that energy companies should adopt in order to protect the Arctic environment. The EU legislation has already established high environmental standards that energy companies are obliged to respect (European Commission, 2021b). Although Russia does not have the EU high environmental standards, it has been paying more attention to the environmental issues since the 1990s. For instance, in 2006, Putin identified energy efficiency "as a primary concern for Russia's environmental security, indicating that environmental reforms are closely linked to the broader modernization agenda" (Martus, 2021: 876). Therefore, cooperation with the EU would be very useful for Russia to adopt more effective measures and technologies to protect the environment in its Arctic territories.

Thus, in the new Arctic scenario of 2050 the EU and Russia would actively cooperate to protect the Arctic environment. They would establish close ties based on regular meetings aiming at exchanging knowledge and competences. In doing so, the EU and Russia would follow a common way to face the challenges to the Arctic environment and to fight against climate change. The current channels of cooperation, both bilateral and multilateral, namely the Environmental Dialogue, the AC, the BEAC and the NDEP, would be reinforced and reinvigorated. Also, given the environmental risks of extracting oil and gas in the Arctic, a strengthened cooperation between EU and Russian energy companies on the basis of more stringent environmental rules would make their commitment to the protection of the Arctic environment stronger and more effective. This would encourage the western non – EU energy companies to cooperate with the Russian ones. In this context, geography would play a key role. Indeed, although Russia would keep close relations with China especially in the energy sector, the proximity between the EU and Russia would make them irreplaceable partners in environmental cooperation. Additionally, their strengthened relations in the environmental sector, whose importance would be constantly growing over time, would increase their geopolitical relevance both regionally and globally. The EU's increased power in the Arctic would be reflected at the international level as its relations with Russia would be positively affected from regional developments. At the same time, cooperation with the EU would increase Russia's power both regionally and internationally.

EU–Russia scientific cooperation

The EU and Russia have a mutual interest in cooperating on scientific matters. In 2000, they reached the Agreement on cooperation in science and technology between the European Community and the Government of the Russian Federation. This agreement explicitly stresses that the EU and Russia "are pursuing research and technological activities in a number of areas of common interest, and that participation in each other's research and development activities on a basis of reciprocity will provide mutual benefits" (Official Journal of the European Communities, 2000). Also, this agreement states that science and technology are very important for the economic and social development of the EU and Russia (*ibid*). Among other areas, this document includes cooperation on the environment and climate research, industrial and production technologies, non-nuclear energy, and science and technology policy (*ibid*).

The EU invests significant amounts of money into scientific cooperation with Russia. Under Horizon 2020, which was the EU's research and innovation funding programme running between 2014 and 2020 with a budget of about €80 billion, there are 86 active projects involving 78 different Russian organisations (European Commission, 2022). Russia “is the most important Science, Technology & Innovation (STI) actor in the neighbourhood of the EU” (European Commission, 2018). The EU recognizes that “scientific relations with Russia are based on a long tradition of excellence, a large network between scientists and scientific institutions, and they are underlined by important and well-known achievements in diverse areas of science and their applications” (ibid). Therefore, for the EU, cooperation with Russia is a priority (ibid). At the same time, the EU “is the most important scientific partner of the Russian Federation, and its main instrument of science policy is the specialized EU scientific framework programs which until recently provided direct funding to Russian scientists” (Prytkov et al., 2017: 340). Indeed, for Russia, the EU is the main economic partner in international scientific cooperation (Prytkov et al., 2017: 340). They also cooperate on space through the Russia-EU Dialogue on space cooperation that was established in 2006. Soyuz at Kourou is an example of a project developed within the Dialogue, which also includes a joint Mars exploration project as well as cooperation on the Cosmic Vision programme to explore Jupiter (Permanent Mission of the Russian Federation to the European Union, 2016).

With particular regard to scientific matters in the Arctic, the EU and Russia mainly cooperate within the AC and the BEAC. In the context of the AC, the issues concerning biodiversity, climate, ocean and pollutants are particularly important for cooperation in the region (Arctic Council, 2022). In the context of the BEAC, some key issues are biodiversity conservation, protected areas, sustainable forestry management, sustainable management of water resources and water use, transboundary water bodies, mitigation and adaptation to climate change and ecosystem approach (BEAC, 2022).

In the Arctic region, the EU–Russia interdependence in the scientific sector is quite asymmetrical because of geography. As Russia is the largest state with the longest coast in the Arctic, most scientific data is collected in the Russian territory. This is why Russia’s participation in scientific projects funded by the EU like the EU-funded Action on Black Carbon mentioned above are of utmost importance.

Given this background, re-starting and reinforcing their scientific cooperation is in the interests of both the EU and Russia. The EU would have the possibility to be more involved in the Arctic affairs by considerably contributing to scientific research. Ice melting due to climate change is opening new opportunities for conducting interesting research in the region. Thus, the EU’s scientists could access areas in the Russian Arctic that would be probably inaccessible for them and acquire more knowledge and experience. Russia would have more funds at its disposal to conduct scientific research in its Arctic territory as well as access to western scientific tools. Thus, an agreement on scientific cooperation in the Arctic – the signpost – similar to that which exists through the Arctic Council, would be highly valuable for both of them. Nevertheless, some obstacles to the stipulation of such an agreement should be overcome. In particular, like in the case of energy and environment, the war in Ukraine has strongly affected the EU–Russia cooperation as all activities and projects have been suspended (European Commission, 2022; Berger, 2022). Another obstacle is the rapprochement of Russia and China that began jeopardizing Russia’s cooperation with the west before the Ukraine war, and that is changing the geopolitical balance

both in the Arctic and internationally. As it has been explained in the case of energy, Russia is turning to China for technology although it is less advanced than western ones. Russia is therefore strengthening its cooperation in space with China. In order to overcome these obstacles, the actions required should include a specific strategy aimed at increasing trust between the EU and Russia, which is at the basis of a profitable cooperation. To this aim, yearly ministerial meetings should be held. This would help them to find common views and goals on which they could work.

Consequently, the scenario for the Arctic in 2050 would include cooperation on science. This is a crucial sector that is of utmost interest to the EU and Russia as it brings economic and social benefits. Additionally, it would have important geopolitical implications because it would help make their scientific relations closer both regionally and internationally. In particular, cooperation in space related to the Arctic is especially valuable, as “a big benefit of using the Arctic as a stand-in for an extraterrestrial environment is that it adds a sense of realism and fidelity when preparing for space exploration: it is challenging to get to and far removed from human settlements, while specific locations (...) provide scientists with conditions similar to what would be experienced on Mars” (McGwin, 2021).

While EU-Russia cooperation would continue within the institutional context of the AC and the BEAC, an agreement would be necessary in order to establish exclusive and direct links for exchanging knowledge and expertise. Also, it would be the basis for re-starting the projects that have recently been interrupted and for initiating new ones. In this context, it is good to stress that although the current dialogue on space cooperation is a useful tool for collaboration, an agreement is a legally binding contract that is therefore more committing and demanding than a dialogue. This is why an agreement would be necessary.

Conclusion

This article has tried to demonstrate the potential of EU-Russia cooperation in the Arctic. Their interdependence, which is essentially due to strong geopolitical and economic interests in the sectors of energy, environment and science, make their cooperation necessary and desirable at the same time. The energy sector is the one in which the EU-Russia interdependence is stronger and asymmetrical while in the environmental one it is less visible but not less important. Differently from the environmental sector and more similarly to the energy one, interdependence in science is quite asymmetrical.

In the very near future, the EU and Russia can't step away from each other for geopolitical and economic reasons (of course, it remains to be seen if they will realise this intent in the far future). However, it is in the interests of both of them to overcome the obstacles that currently make their relations extremely tense and difficult, namely the war in Ukraine (that is expected to end in a few years) and the consequent increased tensions in the region. In this way they could take advantage of their interdependence and strengthen their position both regionally and internationally. The EU could pursue its geopolitical goal of being more involved in the Arctic affairs, which would have positive implications also at the international level because it would strengthen its relations with Russia that is one of the major actors both regionally and globally. Russia would economically benefit from its cooperation with the EU while increasing its power and leverage of the EU internationally. Consequently, the 2050 scenario could see a rapprochement between the EU and Russia that could in a way reverse the current tendency to step away from each other. Therefore,

the EU and Russia could reinvigorate and strengthen their cooperation by stipulating a new agreement as well as by using the existing channels.

Acknowledgements

This project has received funding from the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No 897084.

Bibliography

- Aizhu, C. (2022). *Russia, China agree 30-year gas deal via new pipeline, to settle in euros*. Reuters. <https://www.reuters.com/world/asia-pacific/exclusive-russia-china-agree-30-year-gas-deal-using-new-pipeline-source-2022-02-04/>
- AMAP (2022). *An EU Initiative to Support International Policy to Reduce Black Carbon*. <https://eua-bca.amap.no/>
- Arctic Council (2022). *Our work*. <https://www.arctic-council.org/>
- Barents Euro – Arctic Council (2022). *Nature protection and water issues*. <https://www.barents-council.org/working-groups/environment/nature-and-water>
- Bendor, R., Eriksson, E., & Pargman, D. (2020). Looking backward to the future: On past-facing approaches to futuring. *Futures*, 125, 1-12. <https://doi.org/10.1016/j.futures.2020.102666>
- Bengston, D., Westphal, L., & Dockry, M. (2020). Back from the Future: The Backcasting Wheel for Mapping a Pathway to a Preferred Future. *World Futures Review*, 12(3), 270-278. 10.1177/1946756720929724.
- Berger, E. (2022). *Russia pulls out of European spaceport, abandoning a planned launch*. ArsTechnica. <https://arstechnica.com/science/2022/02/russia-pulls-out-of-european-spaceport-abandoning-a-planned-launch/>
- Carter, D. (2022, April 2). Russia demands gas payments in rubles: What does this mean?. *The Brussels Times*. <https://apastyle.apa.org/style-grammar-guidelines/references/examples/newspaper-article-references>
- Chapa, S., Shiryayevskaya, A. (2022). What LNG Can and Can't Do to Replace Europe's Imports of Russian Gas. *The Washington Post*. https://www.washingtonpost.com/business/energy/what-lng-can-and-cant-do-to-replace-europes-imports-of-russian-gas/2022/08/26/b21d8a56-2536-11ed-a72f-1e7149072fbc_story.html
- Crippa, M., Guizzardi, D., Solazzo, E., Muntean, M., Schaaf, E., Monforti-Ferrario, F., Banja, M., Olivier, J.G.J., Grassi, G., Rossi, S. & Vignati, E. (2021). *GHG emissions of all world countries. JRC SCIENCE FOR POLICY REPORT*. European Commission. <file:///C:/Users/TMELCHI/Downloads/KJNA30831ENN.en.pdf>
- DaDalt, A., Park, S. (2021). Asymmetric Interdependence and the politics of energy in Europe: Hirschman's influence effect' redux. *Journal of International Relations and Development*, 24, 101-127. <https://doi.org/10.1057/s41268-020-00184-x>

- Digges, C. (2021). *Where Russia's new emissions strategy goes wrong – and right*. Bellona. <https://bellona.org/news/climate-change/2021-09-where-russias-new-emissions-strategy-goes-wrong-and-right>
- EEAS (2021). *Facts and Figures about EU – Russia relations*. https://www.eeas.europa.eu/sites/default/files/eeas-eu-russia_relation-en_2021-07.pdf
- Eur-Lex (2016). *EU–Russia partnership and cooperation agreement*. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=LEGISSUM%3A28010102_2
- European Commission (2011). *EU – Russia Energy Dialogue*. https://ec.europa.eu/energy/sites/ener/files/documents/2011_eu-russia_energy_relations.pdf
- European Commission (2018). *Roadmap for EU - Russia S&T cooperation*. https://ec.europa.eu/info/sites/default/files/research_and_innovation/strategy_on_research_and_innovation/documents/ec_rtd_russia-roadmap_2018.pdf
- European Commission (2020). *Energy and the Green Deal*. https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal/energy-and-green-deal_en
- European Commission (2021). *European Green Deal*. https://ec.europa.eu/clima/eu-action/european-green-deal_en
- European Commission (2021a). *Joint Communication to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. A stronger EU engagement for a peaceful, sustainable and prosperous Arctic*. https://www.eeas.europa.eu/sites/default/files/2_en_act_part1_v7.pdf
- European Commission (2021b). *Energy efficiency directive*. https://energy.ec.europa.eu/topics/energy-efficiency/energy-efficiency-targets-directive-and-rules/energy-efficiency-directive_en
- European Commission (2021c). *Bilateral and regional cooperation*. [https://ec.europa.eu/environment/international_issues/relations_russia_en.htm#:~:text=The%20EU%20and%20Russia%20cooperate,UNECE\)%20and%20its%20associated%20conventions.](https://ec.europa.eu/environment/international_issues/relations_russia_en.htm#:~:text=The%20EU%20and%20Russia%20cooperate,UNECE)%20and%20its%20associated%20conventions.)
- European Commission (2022). *Commission suspends cooperation with Russia on research and innovation*. https://ec.europa.eu/commission/presscorner/detail/en/ip_22_1544
- European Commission (2022a). *EU Energy Platform*. https://energy.ec.europa.eu/topics/energy-security/eu-energy-platform_en
- European Commission (2022b). *REPowerEU: Joint European action for more affordable, secure and sustainable energy*. https://ec.europa.eu/commission/presscorner/detail/en/IP_22_1511
- Eurostat (2021). *From where do we import energy?*. <https://ec.europa.eu/eurostat/cache/infographs/energy/bloc-2c.html>
- Flenley, P. (2014). The Partnership for Modernisation: Contradictions of the Russian Modernisation Agenda. *European Politics and Society*, 16(1), 11-26.
- Gertyck, O. (2021). *Work underway to create the world's first Arctic station powered by hydrogen and renewables*. <https://siberiantimes.com/other/others/news/work-underway-to-create-the-worlds-first-arctic-scientific-station-powered-by-hydrogen-and-renewables/>

- Gobuleva, A. S., Pavlova, E. A., Volkov, A. R. (2022). Perspectives on Energy Security in the Russian Federation: A Comparative Analysis of Renewable Energy Sources. *IOP Conf. Series: Earth and Environmental Science* (990), 1-7.
- Granitz, P. (2022). *Major oil companies pull out of once-promising Russia*. National Public Radio. <https://www.npr.org/2022/03/01/1083659975/oil-majors-pull-out-of-once-promising-russia?t=1654631448257>
- Guy, J. (2022). *Europe has bought \$46 billion worth of Russian energy since the Ukraine war began*. CNN. <https://edition.cnn.com/2022/04/28/business/eu-fossil-fuel-exports-russia-ukraine-energy-intl/index.html#:~:text=Higher%20prices%2C%20rather%20than%20volumes,in%20th e%20two%2Dmonth%20period>
- Harvey, C. (2022). *The Arctic Is Warming Four Times Faster Than the Rest of the Planet*. Scientific American. <https://www.scientificamerican.com/article/the-arctic-is-warming-four-times-faster-than-the-rest-of-the-planet/#:~:text=Scientists%20have%20known%20for%20years,times%20the%20global%20average%20rate>.
- Heinone, S., Ruotsalainen, J., & Kariäläinen, J. (2017). *Transformational Energy Futures 2050. Neo – Carbon Energy Societal Scenarios*. Finland Futures Research Centre. <https://www.amap.no/documents/download/2987/inline>
- Hill, I. (2021). *Is Russia finally getting serious on climate change?*. The Lowi Institute. <https://www.lowyinstitute.org/the-interpretor/russia-finally-getting-serious-climate-change>
- Kaupilla, L. & Kopra, S. (2022). China's rise and the Arctic region up to 2049 – three scenarios for regional futures in an era of climate change and power transition. *The Polar Journal*, 1-23.
- Keohane, R. (1989). *International institutions and state power*. London: Westview Press.
- Keohane, R. & Nye, J. (2012). *Power and Interdependence*. London: Longman.
- Koivurova, T., Hoel, A., Humpert, M., Kirchner, R., Raspotnik, A., Śmieszek, M. & Stępień, A. (2019) *Overview of EU actions in the Arctic and their impact. Final Report*. European Commission. EPRD: Poland. <https://eprd.pl/wp-content/uploads/2021/06/EU-Policy-Arctic-Impact-Overview-Final-Report.pdf>
- Larionova, M. (2014). Can the Partnership for Modernisation Help Promote the EU–Russia Strategic Partnership?. *European Politics and Society*, 16(1), 62-79. 10.1080/15705854.2014.965896.
- Martus, E. (2021). Policymaking and Policy Framing: Russian Environmental Politics under Putin. *Europe – Asia Studies*, 5, 62-79. 10.1080/09668136.2020.1865275.
- McGwin, K. (2021). *How two space-exploration projects are using the Arctic to stand in for extraterrestrial environments*. Nunatsiaq News. <https://nunatsiaq.com/stories/article/how-two-space-exploration-projects-are-using-the-arctic-to-stand-in-for-extraterrestrial-environments/>
- Nie, S. (2022). *Exit or Stay? The Decisions of International Oil Companies Involved in Russia After its Invasion of Ukraine*. Center on Global Energy Policy. <https://www.energypolicy.columbia.edu/research/qa/qa-exit-or-stay-decisions-international-oil-companies-involved-russia-after-its-invasion-ukraine>

- Novikau, A. (2021). What does energy security mean for energy-exporting countries? A closer look at the Russian energy security strategy. *Journal of Energy & Natural Resources Law*, 39(1), 105-123. [10.1080/02646811.2020.1794108](https://doi.org/10.1080/02646811.2020.1794108)
- Official Journal of the European Communities (2000). *Agreement on cooperation in science and technology between the European Community and the Government of the Russian Federation*. [https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:22000A1128\(01\)&from=en](https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:22000A1128(01)&from=en)
- Permanent Mission of the Russian Federation to the European Union (2016). *Sectoral dialogues*. <https://russiaeu.ru/en/sectoral-dialogues>
- Pieper, M., Winter, M., Wirtz, A., Dijkstra, H. (2011). The Actorness of the European Union in Arctic Governance. *European Foreign Affairs Review*, 16(2), 272-242.
- President of Russia (2012). *Address to the Federal Assembly, 12 December*. <http://en.kremlin.ru/events/president/news/17118>
- President of Russia (2014). *Presidential address to the Federal Assembly, 4 December*. <http://en.kremlin.ru/events/president/news/47173>
- Prytkov, G., Tsvetus, Natalia, Balyakin, A., Malyshev, A. & Taranenko, S. (2017). Scientific Cooperation between Russia and the EU in the Development and Use of Large Research Infrastructure. *European Research Studies Journal*, vol. XX, issue 3A, 338-353
- Raspotnik, A., Stępień, A., Koivurova, T. (2022). *The European Union's Arctic Policy in the Light of Russia's War against Ukraine*. <https://www.thearcticinstitute.org/european-union-arctic-policy-light-russia-war-against-ukraine/>
- Romanova, T. (2021). The 2019 Energy Security Doctrine and Debates around It in Russia. Buchanan, E. (ed.), *Russian Energy Strategy in the Asia-Pacific, Implications for Australia*. ANU Press, 201-217.
- Özpek, B. B. (2013). Securing energy or energising security: the impact of Russia's energy policy on Turkey's accession to the European Union. *Journal of International Relations and Development*, 16, 358 – 379. 10.1057/jird.2012.21.
- Øisten, H., Claes, D. H. (2013). The interdependence of European – Russian energy relations. *Energy Policy*, 59, 784-791.
- Schreiber, M. (2022). *Major oil companies and investors pull back from Russian Arctic oil and gas*. Arctic Today. <https://www.arctictoday.com/major-oil-companies-and-investors-pull-back-from-russian-arctic-oil-and-gas/>
- Staalesen, A. (2022). *Big collapse looms over Russian Arctic policy*. The Barents Observer. <https://thebarentsobserver.com/en/industry-and-energy/2022/03/big-collapse-looms-over-russian-arctic-policy>
- Talseth, L. (2012). *The EU – Russia Energy Dialogue. Travelling Without Moving. Working Paper FG 5*. German Institute for International and Security Affairs.
- Tuominen, A., Tapio, P., Varho, V., Järvi, T., Banister, D. (2014). Pluralistic backcasting: Integrating multiple visions with policy packages for transport climate policy. *Futures*, 60, 41-58.
- Tynkkynen, N. (2010). A Great Ecological Power in Global Climate Policy? Framing Climate Change as a Policy Problem in Russian Public Discussion. *Environmental Politics*, 19(2), 179-195. 10.1080/09644010903574459.

- Tynkkynen, V., Tynkkynen, N. (2010). Climate Denial Revisited: (Re)contextualizing Russian Public Discourse on Climate Change during Putin 2.0. *Europe-Asia Studies*, 70(7), 1103-1120. 10.1080/09668136.2018.1472218.
- Vella (2022). *Arctic exploration: developing green energy technology in an extreme region*. <https://www.power-technology.com/analysis/russia-arctic-renewable-power-wind-green-hydrogen/>