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THE ARCTIC: DOES THE NORTH HOLD THE SOLUTION FOR THE ENERGY CRISIS?

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The current energy crisis was triggered by Russia's invasion of Ukraine in February 2022, but was preceded by an already tightening energy market in 2021 due to the rapid economic rebound following the global pandemic. This led to extraordinarily high price spikes for both natural gas and oil. As a result, many markets also saw spikes in electricity prices.[1] The crisis has heavily affected households all over the world, with families being pushed into poverty, factories closing and economies slowing.[2] To top it all off, whilst governments and households in the European Union (EU) were still facing the unforgiving negative effects of the global energy crisis, an Arctic blast was adding insult to injury.

Arctic air mass brought the coldest air of the season to continental Europe resulting in extreme, and sometimes prolonged, freezing conditions, which put a lot of stress on existing energy infrastructure.[3] Despite this, however, the northernmost area of our world can also be a place of opportunity. This paper will cover how the Arctic is currently put to use in the global energy crisis and how it can be of service in future crises.

First, it is important to take into account the operational context of the Arctic. The Arctic is not an area that can be claimed by a first-come-first-serve rule. Popular culture sometimes refers to an upcoming 'Arctic scramble', but this would be a false representation of the current situation. The Arctic is one of the world's oceans and thus falls under the United Nations Convention on the Laws of the Sea (UNCLOS). Even though Russia and the United States, both Arctic littoral states, are not a party to this convention, all Arctic states agreed to conform to the rules of the UNCLOS for the Arctic Ocean in the Ilulissat Declaration of 2008.[4] This has been experienced as successful, though small-scale disputes are still at play.[5]

The Arctic's current role: Fossil fuels

The share of fossil fuels in the EU energy mix was at 70% in 2020.[6] Fossil fuels thus play a significant role in EU economies and the day-to-day lives of their inhabitants. Furthermore, the importance of fossil fuels will stay for the next decades to come, despite global efforts to reduce consumption in response to climate change.

Policymakers thus need to keep the incoming flow of fossil fuels, for the EU is unprepared for a sudden reduction. Due to already existing infrastructure and large amounts of fossil fuel reserves, the Arctic played a role in tempering the current energy crisis by keeping up with the EU's demand, which it is more than capable of. Research by the U.S. Geological Survey in 2009 estimates that the Arctic is home to roughly 13%, or 160 billion barrels, of the world's undiscovered oil, and even 30% of undiscovered natural gas.[7]

However, the Arctic was already key in supplying large amounts of the EU's energy demand, only it was the Russian Arctic. Before the invasion of Ukraine, Russia was the largest gas supplier to Europe which led to a connection via several pipelines, which had its origin in the Russian Arctic.[8] Today, this number has been brought down significantly, due to the, long overdue, realisation that Moscow utilises these pipelines for malign purposes.

A key player in the EU's diversification policy was Norway, which has stepped up as one of the EU's main sources of fuel, which is no small way owing to their Arctic resources.[9] In light of their rising demand, Oslo was able to extend the life of one of their Arctic coal mines and has licensed new projects to drill for oil and gas in the Arctic to increase production and provide sufficient supplies now, and also in the future.[10] The license for Equinor's project in the northernmost oilfield, Wisting field, is valid until May 2049. Additionally on the 23rd of December, as an early Christmas present, the ENI-owned company Vår Energy discovered the largest gas field in the Barents Sea on the Norwegian Shelf.[11] Norway's, and additionally the Arctic resources of other EU partners fuel the EU and help fill up storage levels of member-states.

Last, as a result of the EU's efforts to divert from Russian energy sources, LNG became more important. The liquified natural gas dismisses the use of fixed pipelines, which tend to create a lock-in effect in favour of the supplier. As has been the case in the Russia-EU partnership. Paradoxically, most of the imported LNG has also been from Russia. Nevertheless, the melting Arctic ice, in combination with the impressive icebreaking capacity of Russia, has made it increasingly possible for LNG carriers to transit through the much shorter Arctic routes.

The Arctic's future role: Renewable Energy

Focusing on fossil fuels, however, is only a temporary solution. In addition, it is not the best solution, which is why the plea of this paper is centred around the transition to renewable energy, for which the Arctic can play a defining part. Renewable energy is not a recent phenomenon in the Arctic, but there has been a stark rise in projects in the last few years, and when looking at the benefits, it is easy to see why.

First, from an environmental point of view, the argument is clear. Renewable energy sources are more sustainable than fossil fuels and dismiss the greenhouse gas emissions which caused detrimental effects on our climate. The Arctic has been especially vulnerable to climate change as it warms three times faster than elsewhere, heavily affecting local biodiversity.[12] Furthermore, the melting ice and permafrost are releasing greenhouse gas emissions such as methane which are adding to global warming. The Arctic is also uniquely vulnerable to accidental spills or destruction of infrastructure since operators historically have difficulty responding to disasters in this remote area, with the Norilsk oil spill of 2020 serving as a great example.

Strategically, renewable energy sources are less prone to cause certain dependencies between countries, which proved to be a defining factor of the European energy crisis. Fossil fuels are stocks which are scattered around the world, meaning that most countries have to continuously buy them from other countries, which is not the case with renewables. Renewables come in the forms of flows, such as wind and solar power, which cannot be exhausted and are harder to disrupt.[13] Even though most of the necessary natural resources to make renewable energy technologies are scattered around the world, once the hardware is made it can be used over and over again until it eventually breaks of course. In addition, technological innovation has been able to generate some products without minerals, such as lithium-free batteries.[14] Relieving the EU from fossil fuel dependencies and moving on to renewable energy would thus be very beneficial as independence was a strong factor in this energy crisis.

But also after a closer look at the economics, it is best to phase out fossil fuel production in the Arctic. The EU suddenly needed more Norwegian oil and gas, but in this ongoing energy transition, it is not sure whether this need will stay and what the requested amounts will be. In light of the energy

transition, it is believed that fossil fuels demand will reach a plateau and even drop, in all likelihood resulting in stranded assets.[15] From the point of discovery, it takes an average of 15-20 years until these resources can enter production. Calculating from now it is rather likely the energy transition will be well underway by then. This is especially of concern for the Russians as they are seeing one of their biggest customers, the EU, turn away from them. Keeping up with current fossil-fuel exploration will most definitely lead to sunk costs.

All of these aspects have created a willingness among countries and non-state actors to invest in renewable energy in the Arctic. Even though the current scale of investments is substantially lower, the potential for renewable energy should not be underestimated. Which in large part is because of the melting ice. Take, for example, the energy that comes from windmills. The rise in temperatures has made it more feasible for windmills to operate because their rotors are not prone to icing anymore. Still, in most places, the used material must withstand temperatures below -40°C, but this share is reducing. Furthermore, there are opportunities for geothermal, solar energy, and large-scale hydropower projects.[16]

This does not at all mean that the energy transition in the Arctic is exempt from any challenges. For some, Norway and Russia in particular, much of their national wealth stems from revenues made from oil and gas resources. Thus, giving up these resources by phasing out production is a hard sell. Norway has also become more of an important energy supplier to Europe and wants to keep it that way in the name of energy security. In addition, most of the technologies still need to be adapted to Arctic conditions which can significantly drive up costs and can come with environmental risks. Hydropower plants, for example, need a powerhouse, which in some cases is a large lake, where the environmental risk is more severe. Lastly, most indigenous communities rely heavily on fossil fuels to power their villages. Bringing the energy transition to them will prove difficult since their remote conditions pose a challenge.

A future with, not without Russia

One of the biggest changes the invasion brought forth was a sudden stop in scientific and part of commercial relations with Russia. Keeping in mind the horrifying actions of the Russian government it is difficult to continue cooperation, so any halt in the relationship was seen as a logical response. European states, companies and people who continued their relations with Russia were heavily criticized as supporters of a terrorist state. However, to round up my plea for a transition to renewable energy it seems essential to involve the Russian scientific community in our Arctic endeavours. Russia is and will remain the biggest Arctic state. The EU can capitalize on their knowledge, capabilities, and geographical reach Russia takes up the lion's share of the Arctic. To exclude them from any kind of cooperation seems irrational in the long run. Besides, it contradicts the EU's preferred end-state of an Arctic where cooperation is the norm. Simultaneously, however, it is evenly essential to not step down from strong critiques of the Russian invasion of Ukraine.

Conclusion

As already mentioned in the introduction, at the time of writing this paper, an Arctic blast has been testing the resilience of households in the European Union. It is in these times, that next to the mesmerising beauty, the brutality of winter becomes clear. The EU can surely be criticised today for choosing to push forward on fossil fuels, but it is more appropriate to disapprove of what the EU didn't do in the past, which led to this situation in the first place.

Moving forward, the EU needs to keep itself in line with the commitments made in the 2021 Arctic strategy, where the EU does not "allow any further hydrocarbon development in the Arctic" and push for renewable energy sources in the Arctic.[17] This is for the better of our environment, but also our energy security.

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[1] International Energy Agency, "Global Energy Crisis," n.d., https://www.iea.org/topics/global-energy-crisis.

[2] International Energy Agency, "World Energy Outlook 2022 Shows the Global Energy Crisis Can Be a Historic Turning Point towards a Cleaner and More Secure Future," 27 October 2022, https://www.iea.org/news/world-energy-outlook-2022-shows-the-global-energy-crisis-can-be-a-historic-turning-point-towards-a-cleaner-and-more-secure-future.

[3] Sam Meredith, "Europe's Energy Grids Face First Major Winter Stress Test as Arctic Blast Takes Hold," 8 December 2022, https://www.cnbc.com/2022/12/08/winter-cold-temperatures-pose-first-test-for-europes-energy-grids.html.

[4] "The Ilulissat Declaration," (Arctic Ocean Conference, Greenland, 2008), https://arcticportal.org/images/stories/pdf/Ilulissat-declaration.pdf.

[5] Marie-Anne Coninsx, 17 March 2022; Martin Breum, "Canada Extends Its Arctic Ocean Seabed Claim All the Way to Russian Waters," *Arctic Today*, n.d., https://www.arctictoday.com/canada-extends-its-arctic-ocean-seabed-claim-all-the-the-way-to-russian-waters/.

[6] Eurostat, "Fossil Fuels in Gross Available Energy: 70% in 2020," 16 February 2022, https://ec.europa.eu/eurostat/web/products-eurostat-news/-/ddn-20220216-1#:~:text=In%202020%2C%20Malta%20(97%25),%2C%20and%20Poland%20(86%25).

[7] United States Energy Information Administration, "Arctic Oil and Natural Gas Potential," 19 October 2009, https://www.eia.gov/analysis/studies/archive/2009/arctic/index.html.

[8] Georg Riekeles and Philipp Lausberg, "Tackling the Energy Crisis: 8 Considerations on How Europe Can Get through This Winter," Commentary (European Policy Centre, 8 September 2022), https://www.epc.eu/en/Publications/Tackling-the-energy-crisis-8-considerations-on-how-Europe-can-get-thr~4a95c0.

[9] Lisa Jucca, "Norway Gas Lifeline for Europe Is the Smart Move," n.d., https://www.reuters.com/breakingviews/norway-gas-lifeline-europe-is-smart-move-2022-09-09/; Richard Milne, "Norway Prolongs Life of Arctic Coal Mine as Energy Crisis Bites," *Financial Times*, 2 September 2022, https://www.ft.com/content/2f84b922-6d8a-4cc9-9440-f697c7c40103.

[10] Terje Solsvik, "Norway Plans to Expand Arctic Oil and Gas Drilling in New Licensing Round," 17 March 2022, https://www.reuters.com/business/energy/norway-plans-expand-arctic-oil-gas-drilling-new-licensing-round-2022-03-17/; Tsvetana Paraskova, "Equinor To Develop Arctic Gas Project To Boost Exports To Europe," 22 November 2022, https://oilprice.com/Energy/Energy-General/Equinor-To-Develop-Arctic-Gas-Project-To-Boost-Exports-To-Europe.html.

[11] Thomas Nilsen, "This Year's Biggest Barents Sea Gas Discovery," 23 December 2022, https://thebarentsobserver.com/en/industry-and-energy/2022/12/big-barents-sea-gas-discovery.

[12] Christina Larson, "Starving Seabirds on Alaska Coast Show Climate Change Peril," 13 December 2022, https://apnews.com/article/science-arctic-sheffield-bering-strait-climate-and-environment-e4111a9c3ced963f63f9d33e9f366490; The Arctic Council, "THE ARCTIC IN A CHANGING CLIMATE," 2022, https://www.arctic-council.org/explore/topics/climate/#:~:text=The%20temperatures%20in%20the%20Arctic,and%20the%20global%20climate%20system.

[13] Thijs Van De Graaf and Benjamin Sovacool, *Global Energy Politics* (Cambridge, UK ; Medford, MA: Polity, 2020).

[14] Maurizio Die Paolo Emilio, "Lithium- and Cobalt-Free Batteries? Alsym Energy Bets on Sustainability," 8 July 2022, https://www.powerelectronicsnews.com/lithium-and-cobalt-free-batteries-alsym-energy-bets-on-sustainability/.

[15] Olivia Rosane, "Wind and Solar Are Proving Themselves: Renewables Met Rise in Electricity Demand During First Half of 2022,", 17 October 2022, https://www.weforum.org/agenda/2022/10/wind-and-solar-proving-themselves-renewables-rise-in-electricity-demand-2022/.

[16] Magnus De Witt, Hlyner Stefánsson, and Ágúst Valfells, "Energy Security in the Arctic: Policies and Technologies for Integration of Renewable Energy," (Arctic Yearbook, 2019), https://arcticyearbook.com/arctic-yearbook/2019/2019-briefing-notes/329-energy-security-in-the-arctic-policies-and-technologies-for-integration-of-renewable-energy#:~:text=Several%20renewable%20energy%20sources%20can,geothermal%20and%20current%20%2F%20tidal%20power.

[17] High Representative of the Union for Foreign Affairs and Security Policy, "A Stronger EU Engagement for a Peaceful, Sustainable and Prosperous Arctic," (European Commission, 13 October 2021), https://www.eeas.europa.eu/eeas/joint-communication-stronger-eu-engagement-peaceful-sustainable-and-prosperous-arctic_en.