Navigating Competing Priorities in a Changing Arctic – My Experience at the Arctic Circle Assembly 2024

By Manjulika Das, MGA Candidate at The Fletcher School

I was elated to find myself back in the Land of Fire and Ice after almost seven years since my undergraduate study abroad tour to Iceland in 2017. At the time, I delved into the climate science of the region, learning about ice cores and climate warming trends, while hiking the majestic Svínafellsjökull glacier and witnessing its melting in real time. Years later, having cultivated a deep interest in the Arctic's climate, energy, and geopolitical landscape, I was eager to attend the Arctic Circle Assembly as part of the Fletcher delegation in my final semester. In fact, I found myself drawn back to the Arctic after taking Professor Rocky Weitz's Global Maritime Affairs class, where we debated the economic, energy, and security implications of a warming Arctic. Separately, as a senior editor to *The Fletcher Forum of World Affairs,* I was exposed to a variety of topic areas tied to this region as I solicited and edited articles for our Winter edition, *Beyond the Ice: Emerging Issues in the Arctic Arena*.

Central to my interests in attending the annual convening of Arctic and Observer states, was the opportunity to learn about cutting edge energy innovations, as well as clean energy projects that have been successfully deployed in different Arctic nations. Landsvirkjun, Iceland's national power company, spoke of its success in meaningfully harnessing hydropower and geothermal energy to power and heat homes in Iceland. Iceland, being the first country to successfully transition to 100% renewable energy, is also looking to mobilize renewable energy development in neighboring countries like Greenland. Having little to no knowledge of Greenland's renewable energy landscape, I was curious to learn from NunaGreen, a government-owned Greenlandic hydropower developer with ambitious project plans for the country. The company's CEO, Aviaaja K. Knudsen, spoke of the 20 terawatts (TW) of hydropower potential in the country, made possible by glacial melt that will only increase in volume as global temperatures rise. Presently, 75% of Greenland's cities are supplied by renewable energy, signaling a significant commitment from Greenland's government to transition its reliance away from oil.

In line with new-age energy innovations was a fascinating presentation put forth by Nordic hydrogen stakeholders and industry representatives to discuss the deployment of zero emission heavy-duty hydrogen trucks in Nordic nations. Within this discussion, companies such as MAN Truck & Bus SE (Germany), Vireon (Norway), and Blær (Iceland) celebrated the fact that such trucks were already up and running in Norway, but acknowledged the need for long-term policy support for hydrogen infrastructure build out in other parts of Scandinavia. Because single-technology approaches like battery-powered electric vehicles are typically vulnerable to supply chain bottlenecks, hydrogen internal

combustion engine (ICE) trucks were proposed as a promising solution when considering diverse ways to electrify heavy-duty vehicles.

From the standpoint of critical minerals, I was especially interested to attend a panel discussion titled, *Arctic Critical Minerals: Challenges and Perspectives for Nordic Countries*. Particularly impressive was a detailed analysis given by the Swedish National China Centre of China's long-term policy planning with regards to the mining of rare earth elements (REEs). The extraction of REEs is essential to producing magnets that are, in turn, necessary components for the manufacture of everything from hard drives, and smart phones, to washing machines, wind turbines, and more. China's REE policy classifies rare earth elements as "strategic" and "protected" resources and maintains a strict quota system for the mining and processing of critical minerals to ensure its market influence over this important commodity.

China's stark dominance of critical mineral supply chains, including the production, processing, and refining of critical minerals like lithium, cobalt, and aluminum, has prompted diversification efforts on the part of the U.S. and EU. How were these countries planning to diversify their supply chains in their efforts to decrease reliance on China and avoid supply chain bottlenecks? This was my question to the EU Commissioner for Energy H.E. Kadri Simson during a plenary session. The Commissioner spoke of the EU's focus on setting up dedicated partnerships with key countries in Latin America, as well as Australia, to address the growing demand of critical minerals for the energy transition. President of the European Commission, Ursula von der Leyen, would also address the scale up of clean tech production outside of China's production chain that dominates the markets in her Clean Industrial Plan. Despite best efforts for supply chain diversification, the question remained as to whether many countries could achieve a clean energy transition without China. Professor Gørild Heggelund of the Fridtjof Nansen Institute in Norway remarked that, while not impossible, it would be more expensive and take more time. The panel discussion ended with the larger question of future mining impacts on indigenous populations and the ecological landscape – a question that evoked a deep sense of reflection in balancing the needs of indigenous communities and ecosystems with the scaling up of renewable energy technologies.

"Climate change is rapidly reshaping the Arctic, which is warming almost four times faster than the rest of the world. Reduction in sea ice due to climate change means that new shipping routes come into play, making them economically and militarily significant." These were impactful words spoken by Admiral Rob Bauer, Chair of NATO's Military Committee at the Arctic Circle Assembly, who delivered a powerful speech on the security implications of the High North in a rapidly warming Arctic. As part of my MGA practicum this semester with NATO, which seeks to understand the conditions under which foreign port ownership affects NATO's military mobility in Allied countries, understanding potentially vulnerable dimensions of NATO's Allies in the High North was significant. The cooperation between China and Russia on shipping routes and the transport of critical minerals was also of particular importance in the discussions.

The Arctic Circle Assembly provided me with a richer comprehension of the climate, energy, and geopolitical dimensions that are rapidly evolving in this region. Undoubtedly, the Arctic is becoming an increasingly significant arena for many countries, balancing efforts to preserve its fragile ecosystem and capitalize on its resources. I came away with much to ponder about, as I look move into the clean energy space post-graduation. I'm deeply appreciative to the Center for International Environment and Resource Policy (CIERP) for making this trip possible, as well as to Prof. Rocky Weitz for organizing such a fantastic experience – one that I hope to revisit as an alumni next year!


ARCTIC CRITICAL MINERALS:
CHALLENGES AND
PERSPECTIVES FOR
NORDIC COUNTRIES


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