

Environmental War, Climate Security, and the Russia-Ukraine Crisis

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I. INTRODUCTION

Russia's February 2022 Ukraine invasion continues to shock and horrify the world. This naked aggression—combined with Russia's continuing, appalling prosecution of the war—represents a direct challenge to the rules-based international legal order enshrined in the U.N. Charter.¹ Since Russia's brazen attack began, Russia has waged war on the Ukrainian people and the environment in violation of core international humanitarian law (IHL) principles of necessity, distinction, proportionality, and honor.² This includes attacks on Ukraine's energy infrastructure. Indeed, Russia's prosecution of the war includes indiscriminately attacking dams, nuclear power plants, and Ukrainian energy infrastructure—all clear violations of core *jus in bello* principles.³

¹ This rules-based order is enshrined in the U.N. Charter of 1945, the purpose of which is to “maintain international peace and security, and . . . to take effective collective measures for the prevention and removal of threats to the peace . . .” U.N. Charter art. 1, ¶ 1. Further, “[a]ll Members shall refrain in their international relations from the threat or use of force against the territorial integrity or political independence of any state, or in any other manner inconsistent with the Purposes of the United Nations.” *Id.* art. 2, ¶ 4; see also Oona A. Hathaway, Gerard C. and Bernice Latrobe Smith Professor of International Law, Yale Law School, Keynote Address at Ninth Annual Justice Stephen Breyer Lecture on International Law: Russia's Aggression Against Ukraine and the International Legal Order (Mar. 30, 2023) (stating that when “Russia launched its aggressive war against Ukraine, it violated the prohibition on the use of force in the United Nations Charter”).

² See G.A. Res. 77/104, at 5 (Dec. 7, 2022) [hereinafter ILC Principles] (explaining that the law of armed conflict includes the principles and rules on distinction, proportionality, and precautions); see also W. Casey Biggerstaff & Michael N. Schmitt, *Protecting the Environment in Armed Conflict: Evaluating the U.S. Perspective*, INT'L COMM. OF THE RED CROSS (2023); Mark Nevitt, *Environmental Law in Military Operations*, in U.S. MILITARY OPERATIONS 401, 425–26 (Geoffrey S. Corn, Rachel E. VanLandingham & Shane R. Reeves eds., 2016). For an explanation of how these IHL principles developed out of customary international law and treaty law, see INT'L COMM. OF THE RED CROSS, INTRODUCTION TO THE LAW OF ARMED CONFLICT 8–9, 12–13 (2002).

³ Russia has been accused of attacking dams in both 2022 and 2023. See, e.g., Mstyslav Chernov & Lori Hinnant, *Russia Had Means, Motive and Opportunity to Destroy Ukraine Dam, Drone Photos and Information Show*, ASSOCIATED PRESS (June 18, 2023), <https://apnews.com/article/ukraine-russia-war-kakhovka-dam-collapse-investigation-f5b76fe1ddb98aa5ff7e4dfd3199c38> [<https://perma.cc/2V7F-WXLF>]; see also Sana Noor Haq & Oleksandra Ochman, *Russia Hits Dam in Central Ukraine, in Latest Attack on Civilian Infrastructure*, CNN (Sept. 15, 2022), <https://www.cnn.com/2022/09/15/europe/russia-ukraine-kryvyi-rih-dam-strike-intl/index.html> [<https://perma.cc/656C-YBWE>]. For an account of Russia's attacks on Ukrainian energy infrastructure, see *Ukraine: Russian Attacks on Energy Grid Threaten Civilians*, HUM. RTS. WATCH (Dec. 6, 2022), <https://www.hrw.org/news/2022/12/06/ukraine-russian-attacks-energy-grid-threaten-civilians> [<https://perma.cc/4W2J-97MT>].

While the fighting has largely taken place on Ukrainian soil (and the adjacent Black Sea),⁴ the war's impacts are not limited to this geographic locus. Russia's aggression has geopolitical ripple effects for climate progress and the renewable energy transition around the world.⁵ Indeed, the Russia-Ukraine War is an international armed conflict and truly an "environmental war," with far-reaching implications for long-term environmental, energy, and climate-security progress.⁶

Nearly two years into the war, global energy markets have been rattled as Europe—at long last—cuts its energy umbilical cord from Russia.⁷ And Europe and much of the world have sped up their renewable energy transition.⁸ Two Russian energy trading partners—Sweden and Finland—have recently sought NATO membership, rewriting the security and energy map for Europe for decades to follow.⁹ Nations now have a newfound understanding of the need to develop energy sources independent of Russia and other "petrostates."¹⁰ This insight favors fostering renewable energy development within each nation's own sovereign territory.¹¹

⁴ See The Visual Journalism Team, *Ukraine in Maps: Tracking the War with Russia*, BBC NEWS (2023), <https://www.bbc.com/news/world-europe-60506682#> [https://perma.cc/HFH3-YEJ7].

⁵ See generally *Russia's War on Ukraine*, INT'L ENERGY AGENCY, <https://www.iea.org/topics/russias-war-on-ukraine> [https://perma.cc/5JBM-TQS6].

⁶ Professor Michael Schmitt has used the shorthand "Green War" to describe the environmental legal protections in wartime. See generally Michael Schmitt, *Green War: An Assessment of the Environmental Law of International Armed Conflict*, 22 YALE J. INT'L L. 1 (1997).

⁷ See generally *Russia's War on Ukraine*, *supra* note 5.

⁸ *Id.*

⁹ See North Atlantic Treaty art. 5, Apr. 4, 1949, 63 Stat. 2241, 34 U.N.T.S. 243. As of this writing, Finland has formally joined NATO, and a vote on Sweden's membership appears imminent. See *Relations with Sweden*, N. ATL. TREATY ORG., https://www.nato.int/cps/en/natohq/topics_52535.htm#top [https://perma.cc/69WD-HH7K].

¹⁰ See Mark Nevitt, *Climate Security, Energy Security, and the Russia-Ukraine War*, JUST SEC. (May 11, 2022), <https://www.justsecurity.org/81440/climate-security-energy-security-and-the-russia-ukraine-war/> [https://perma.cc/YMJ5-LBY5]. According to the 2022 National Intelligence Estimate published by the Office of the Director of National Intelligence, "More than 20 countries rely on fossil fuels for greater than 50 percent of total export revenues, and most will continue to struggle to diversify their sources of export revenue because of entrenched political interests, endemic corruption, and the lack of economic and legal institutions." See NAT'L INTEL. COUNCIL, NATIONAL INTELLIGENCE ESTIMATE CLIMATE CHANGE AND INTERNATIONAL RESPONSES INCREASING CHALLENGES TO US NATIONAL SECURITY THROUGH 2040 7 (2021), https://www.dni.gov/files/ODNI/documents/assessments/NIE_Climate_Change_and_National_Security.pdf [https://perma.cc/85N5-T3A].

¹¹ See, e.g., Maria Varenikova, *Ukraine Sees New Virtue in Wind Power: It's Harder to Destroy*, N.Y. TIMES (May 29, 2023), <https://www.nytimes.com/2023/05/29/world/europe/ukraine-russia-wind-power.html> [https://perma.cc/Q54A-VQNG].

Meanwhile, the Russia-Ukraine war continues to disrupt energy markets,¹² destabilize international climate negotiations,¹³ and challenge longstanding laws and norms governing environmental protections during armed conflict.¹⁴ Beyond Russia's infliction of environmental damage, Ukrainian citizens and soldiers alike suffer from unimaginable harm.¹⁵ Cross-border migration in Europe has surged, causing a humanitarian crisis far beyond the conflict's borders.¹⁶

In addition to the conflict's staggering environmental consequences, the war has caused massive global energy market disruptions. While the U.S and Europe have moved away from Russian oil and gas following the Russian invasion, Russia has found new, willing customers in China, India, Turkey, and many Global South nations.¹⁷

Tragically, there is no end in sight to the Russia-Ukraine War. Both sides appear far apart in negotiating a ceasefire or an armistice that would halt

¹² See *infra* Part III.

¹³ See *infra* Part IV.

¹⁴ See *infra* Part II; Schmitt, *supra* note 6, at 66–67, 69–70, 76–78 (describing treaty based *jus in bello*).

¹⁵ See, e.g., Press Release, Off. of the High Comm'r for Hum. Rts., War Crimes, Indiscriminate Attacks on Infrastructure, Systematic and Widespread Torture Show Disregard for Civilians, Says UN Commission of Inquiry on Ukraine, U.N. Press Release (Mar. 16, 2023); see also Yulia Gorbunova, 'I Lost Everything': Russia's War on Ukraine's Civilians, HUM. RTS. WATCH (Feb. 23, 2023), <https://www.hrw.org/news/2023/02/23/i-lost-everything-russias-war-ukraines-civilians> [<https://perma.cc/QH94-6H68>].

¹⁶ Operational Data Portal: Ukraine Refugee Situation, UNITED NATIONS HIGH COMM'R FOR REFUGEES, <https://data2.unhcr.org/en/situations/ukraine> [<https://perma.cc/AB3S-LBK9>].

¹⁷ See *Russia's War on Ukraine*, *supra* note 5. Russia is the world's largest exporter of oil and gas. Scott L. Montgomery, *War in Ukraine Is Changing Energy Geopolitics*, CONVERSATION (Mar. 3, 2022), <https://theconversation.com/war-in-ukraine-is-changing-energy-geopolitics-177903> [<https://perma.cc/FAN3-KQZU>]. Prior to the war, Russia had "direct energy relationships with more than two dozen European nations, as well as China, Japan, South Korea, Vietnam and others." *Id.* While Turkey is a NATO member, it has benefitted geopolitically from the Russian invasion, playing an outsized role in the conflict as an intermediary and increasing its trade with Russia. See Fatma Tanis, *Turkey Plays a Tough Balancing Act as It Strengthens Ties with Russia*, NPR (Dec. 10, 2022), <https://www.npr.org/2022/12/10/1142099362/turkey-plays-a-tough-balancing-act-as-it-strengthens-ties-with-russia> [<https://perma.cc/5Q2H-ZZCK>]. Under the Montreux Convention, Turkey has an outsized voice in controlling access to the Black Sea via the Turkish Straits. See Alpaslan Ozerdem, *What the Montreux Convention Is, and What It Means for the Ukraine War*, CONVERSATION (Mar. 1, 2022), <https://theconversation.com/what-the-montreux-convention-is-and-what-it-means-for-the-ukraine-war-178136> [<https://perma.cc/373S-XLKA>]. Finally, for a discussion of the role the Global South is playing in the Russia-Ukraine conflict and beyond, see Sarang Shidore, *The Return of the Global South: Realism, Not Moralism, Drives a New Critique of Western Power*, FOREIGN AFFS. (Aug. 31, 2023), <https://www.foreignaffairs.com/world/return-global-south-critique-western-power> [<https://perma.cc/DGX2-RG6R>].

hostilities.¹⁸ When the conflict finally does end, Ukraine must be rebuilt, a reconstruction poised to be the largest wartime reconstruction of a nation since the Second World War.¹⁹ Still, we must start to envision peace along the Russia-Ukraine border and look toward a transformed, post-conflict Europe.

This Article addresses the Russia-Ukraine conflict's broad implications for energy security, climate security,²⁰ and environment protections during wartime. I assert that in the short-term the Russian-Ukraine war is poised to hinder much-needed international climate progress. It will stymie international decarbonization efforts and cause greater uncertainty in other climate-destabilized parts of the world, such as the Arctic.²¹ While Russia has become a pariah in the eyes of the United States and other Western nations, it has forged new partnerships and capitalized on new, lucrative energy markets outside the West and Global South.²² But in the long term, the global renewable energy transition will accelerate as nations realize the economic and national security risk when relying upon Russia and similarly unreliable petrostates.²³ National security *is* energy security.

In Part II, I describe and analyze Russia's brazen attacks on the Ukraine environment and built infrastructure, applying these actions to environmental protections embedded within international humanitarian law (IHL) and the law of armed conflict.²⁴ My analysis focuses on Russia's wholesale disregard of IHL, as evidenced by its callous and indiscriminate attacks on Ukrainian civilians, energy infrastructure, dams, and Europe's largest nuclear power

¹⁸ See Susie Blann & Matthew Lee, *Blinken Warns Ukraine Cease-Fire Now Would Result in 'Potemkin Peace,' Legitimizing Russian Invasion*, ASSOCIATED PRESS (June 2, 2023), <https://apnews.com/article/russia-ukraine-war-kyiv-attack-16ee160a9ac7fc27b9974c2887b15a8d> [<https://perma.cc/5XD2-RSWH>].

¹⁹ See, e.g., Elliot Smith, *A Year Into the War, Ukraine and the West Prepare for the Biggest Reconstruction Since World War II*, CNBC (Feb. 23, 2023), <https://www.cnbc.com/2023/02/24/ukraine-prepares-for-the-biggest-reconstruction-since-world-war-ii.html> [<https://perma.cc/4G7A-Z5DE>].

²⁰ For an overview of how Russia's invasion affects future energy and climate security efforts, see Nevitt, *supra* note 10.

²¹ Thankfully, some progress has been made at the most recent Conference of Parties (COP), with nations agreeing to transition away from fossil fuels. See, e.g., Mark Nevitt, *Assessing COP28: The New Global Climate Deal in Dubai*, JUST SEC. (Dec. 18, 2023), <https://www.justsecurity.org/90710/assessing-cop-28-the-new-global-climate-deal-in-dubai/> (on file with the *Ohio State Law Journal*).

²² See *Russia's War on Ukraine*, *supra* note 5.

²³ *Id.*

²⁴ The law of war is often termed the law of armed conflict and sometimes called international humanitarian law. The law of armed conflict "comprises treaties and customary international law as applicable to the United States." U.S. DEP'T OF DEF., DOD LAW OF WAR MANUAL, ¶ 1.3 (rev. 2023). In addition, there is some disagreement on whether international humanitarian law fully displaces international law during an armed conflict—a concept known as *lex specialis*. See *Lex Specialis*, INT'L COMM. OF THE RED CROSS, https://casebook.icrc.org/a_to_z/glossary/lex-specialis [<https://perma.cc/DEP9-SVD8>].

plant.²⁵ In Part III, I analyze the Russia-Ukraine conflict through the lens of energy security and environmental security. In Part IV, I address the war's broader implications for long-term climate progress and climate security. This includes a discussion of the normative implications for Arctic security, a part of the world warming two to three times the pace of the rest of the world.²⁶ The Arctic is also home to Russian militarization efforts, acting as a litmus test for Russia's geopolitical ambitions.²⁷

Throughout the Article, I look ahead to the post-conflict geopolitical order. While there is no current end in sight to hostilities, I offer recommendations for the U.S. and the rest of the world to make post-conflict climate progress and help guide long-term decarbonization efforts. I conclude on a cautiously optimistic note, arguing that the Russia-Ukraine crisis provides a generational opportunity to accelerate international decarbonization and climate efforts.

II. INTERNATIONAL HUMANITARIAN LAW AND THE ENVIRONMENT

In this section, I address Russia's failure to comply with international environmental legal protections during armed conflict. While *any* armed conflict has horrifying environmental impacts, international humanitarian law provides for environmental legal protections during armed conflict.²⁸ And core international humanitarian law principles of necessity, proportionality, honor, and distinction apply to belligerent military actions impacting the environment.²⁹ Russia's actions and prosecution of its war effort against Ukraine have violated many of these fundamental international humanitarian law protections.³⁰

Further, while climate change did not cause the underlying conflict with Russia and Ukraine, scholars are beginning to draw linkages between climate

²⁵ There are nascent efforts underway to hold Russia to account. See Gleb Bogush & Sergey Vasiliev, *The Brussels Declaration: Russian International and Human Rights Lawyers' Statement on Accountability*, JUST SEC. (June 12, 2023), <https://www.justsecurity.org/86911/the-brussels-declaration-russian-international-and-human-rights-lawyers-statement-on-accountability/> [<https://perma.cc/CYN4-33H9>] (highlighting the Brussels Declaration, which condemns Russia's war of aggression and calls for accountability).

²⁶ INTERGOV'TAL PANEL ON CLIMATE CHANGE, GLOBAL WARMING OF 1.5°C (2018), https://www.ipcc.ch/site/assets/uploads/sites/2/2022/06/SR15_Full_Report_LR.pdf [<https://perma.cc/CM39-3SBG>].

²⁷ See *infra* Part IV.C.

²⁸ See generally Schmitt, *supra* note 6.

²⁹ See, e.g., Nevitt, *supra* note 2, at 425–26; see also ILC Principles, *supra* note 2, at 5.

³⁰ See, e.g., *Russia, Ukraine & International Law: On Occupation, Armed Conflict and Human Rights*, HUM. RTS. WATCH (Feb. 23, 2022), <https://www.hrw.org/news/2022/02/23/russia-ukraine-international-law-occupation-armed-conflict-and-human-rights> [<https://perma.cc/7JAT-3H82>].

change and the rise in violent conflict in other parts of the world.³¹ Notably, climate change has exacerbated food insecurity in many African nations, many of whom rely upon Ukrainian grain shipments.³²

A. Russian Warfighting Violates Jus in Bello and Core International Humanitarian Law Principles

Russia's invasion of Ukraine violated international law when viewed through either a *jus ad bellum* (the law governing the use of force) or *jus in bello* (the law governing how force is employed) lens.³³ Russia's attack on Ukrainian sovereignty also failed the U.N. Charter's Article 51 self-defense test.³⁴ Instead, Russia relies upon a twisted version of humanitarian assistance, making several inchoate arguments to justify its military offensive. For example, in justifying its Ukraine invasion as a "Special Military Operation," Russia argued its actions were justified under international law as a means to protect Russian citizens residing in Ukraine territory.³⁵ But Russia's legal justification lacks a sound

³¹ Kendra Sakaguchi, Anil Varughese & Graeme Auld, *Climate Wars? A Systematic Review of Empirical Analysis on the Links Between Climate Change and Violent Conflict*, 19 INT'L STUD. REV. 622, 623 (2017).

³² See P.J. Gregory, J. S. I. Ingram & M. Brklacich, *Climate Change and Food Security*, 360 PHIL. TRANSACTIONS ROYAL SOC'Y 2139 (2005); see also *Putting Africans at the Heart of Food Security and Climate Resilience*, WORLD BANK (Oct. 17, 2022), <https://www.worldbank.org/en/news/immersive-story/2022/10/17/putting-africans-at-the-heart-of-food-security-and-climate-resilience> [<https://perma.cc/DH69-UVU2>] ("Sub-Saharan Africa is feeling the brunt of what has been coined 'the perfect storm'—a food, fuel, and fertilizer crisis exacerbated by the war in Ukraine, scarring effects from the COVID-19 pandemic, soaring inflation, rising debt, and extreme weather.").

³³ See Hathaway, *supra* note 1. For a discussion of these two legal regimes, see, for example, *What Are Jus ad Bellum and Jus in Bello?*, INT'L COMM. OF THE RED CROSS (Jan. 22, 2015), <https://www.icrc.org/en/document/what-are-jus-ad-bellum-and-jus-bello-0> [<https://perma.cc/FH2N-S6JJ>].

³⁴ U.N. Charter art. 51 ("Nothing in the present Charter shall impair the inherent right of individual or collective self-defence if an armed attack occurs against a Member of the United Nations, until the Security Council has taken the measures necessary to maintain international peace and security."). And the Security Council (of which Russia is a member alongside China, United States, France, and the United Kingdom) has not issued a resolution authorizing Russia's invasion under Chapter VII. See *Current Members*, UNITED NATIONS SEC. COUNCIL, <https://www.un.org/securitycouncil/content/current-members> [<https://perma.cc/BQS4-3G54>]; U.N. Charter art. 39; Press Release, Security Council, Security Council Fails to Adopt Draft Resolution on Ending Ukraine Crisis, as Russian Federation Wields Veto, U.N. Press Release SC/14808 (Feb. 25, 2022).

³⁵ See Heather Ashby, *How the Kremlin Distorts the 'Responsibility to Protect' Principle*, U.S. INST. OF PEACE (Apr. 7, 2022), <https://www.usip.org/publications/2022/04/how-kremlin-distorts-responsibility-protect-principle> [<https://perma.cc/G43J-DGU9>]. For a critique of Russia's argument that the "special military operation" was legal under international law, see Michael Schmitt, *Russia's "Special Military Operation" and the (Claimed) Right of Self-Defense*, LIEBER INST. (Feb. 28, 2022),

international law—a point eloquently critiqued by both Professors Michael Schmitt and Oona Hathaway.³⁶ Further, Putin initially predicted that this “Special Military Operation” would be over in a matter of days.³⁷ But we are approaching two years into the war with no end in sight.

In addition to the *jus ad bellum* violation, Russia has shown a complete disregard in its inability to follow IHL throughout the conduct of hostilities.³⁸ This includes failure to protect the environment. Environmental protections in wartime can be found in treaty law (e.g., the Hague Conventions and Additional Protocols I and II to the Geneva Conventions of 1949), and customary international law.³⁹ In recent years, the United Nations International Law Commission (ILC) has made progress in adopting emerging principles of environmental protections during wartime.⁴⁰ These principles were recently adopted by the U.N. General Assembly.⁴¹

Russia has inflicted atrocities on civilians, the Ukrainian-built environment, and critical infrastructure.⁴² This is in clear violation of the 1907 Hague Convention IV Respecting the Laws and Customs of War on Land (“Hague IV”), 1949 Geneva Conventions, and 1977 Additional Protocol I to the Geneva Conventions.

1. “Hague Law” of 1907: Protecting the Environment by Regulating the Means and Methods of Warfare

Hague IV applies to all belligerent nations throughout the conduct of hostilities, regardless of the particular phase of armed conflict.⁴³ Both Russia

<https://lieber.westpoint.edu/russia-special-military-operation-claimed-right-self-defense/> [https://perma.cc/PAG2-6JY4].

³⁶ Schmitt, *supra* note 35; Hathaway, *supra* note 1.

³⁷ Hathaway, *supra* note 1.

³⁸ Press Release, Off. of the High Comm’r of Hum. Rts., *supra* note 15.

³⁹ For an overview of the environmental considerations within international humanitarian law, see Nevitt, *supra* note 2, at 425–29.

⁴⁰ Jay E. Austin & Carl E. Bruch, *Existing and Emerging Wartime Standards*, in *THE ENVIRONMENTAL CONSEQUENCES OF WAR: LEGAL, ECONOMIC, AND SCIENTIFIC PERSPECTIVES* 39, 39 (Jay E. Austin & Carl E. Bruch eds., 2000). Relatedly, in response to U.S. transgressions during the Vietnam War, the international community adopted the 1976 Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques (known as the “ENMOD Convention”). *Id.*

⁴¹ ILC Principles, *supra* note 2.

⁴² See, e.g., *Estimated Total War Damage Value in Ukraine from February 24, 2022 to February 24, 2023 by Sector*, STATISTA (Apr. 5, 2023), <https://www.statista.com/statistics/1303344/ukraine-infrastructure-war-damage/> [https://perma.cc/DRK9-2S9E].

⁴³ Hague Convention No. IV, Respecting the Laws and Customs of War on Land, Oct. 18, 1907, 36 Stat. 2277, 205 Consol. T.S. 277, art. 1. [hereinafter Hague IV]. Hague IV also applies during occupation. *Id.* art. 42 annex.

and Ukraine are parties to the 1907 Hague Convention.⁴⁴ While the term “environment” is absent from the text, Hague IV marked the first international agreement providing some measure of environmental protection during armed conflict.

Article 22 of Hague IV states that the “right of belligerents to adopt means of injuring the enemy is not unlimited.”⁴⁵ This provision has been cited as the conceptual basis for environmental protection throughout armed conflict.⁴⁶ Article 23(e) protects the environment by prohibiting the employment of “arms, projectiles or material calculated to cause unnecessary suffering.”⁴⁷ Article 23(g) effectively codifies the military necessity principle as applied to the environment. It prohibits acts that “destroy or seize the enemy’s property, unless such destruction or seizure be imperatively demanded by the necessities of war.”⁴⁸ Article 25 prohibits the “attack or bombardment, by whatever means, of towns, villages, dwellings, or buildings which are undefended. . . .”⁴⁹ Russia has routinely attacked and bombarded civilian residents and buildings, in violation of Articles 22 and 25.⁵⁰ For example, the Russian Air Force bombed a hospital maternity ward in the conflict’s outset, a clear violation of military distinction and necessity principles that date back to Hague IV.⁵¹

2. “Geneva Law” of 1949: Protecting People, Properties, and the Environment

The Fourth Geneva Conventions of 1949 protects certain categories of individuals, properties, and objects. “Geneva law” should be read in concert

⁴⁴ Int’l Comm. of the Red Cross, Convention (IV) Respecting the Laws and Customs of War on Land and its Annex: Regulations Concerning the Laws and Customs of War on Land. The Hague, 18 October 1907, INT’L HUMANITARIAN LAW DATABASES, <https://ihl-databases.icrc.org/en/ihl-treaties/hague-conv-iv-1907/state-parties?activeTab=undefined> [<https://perma.cc/3ZEK-QHD5>].

⁴⁵ Hague IV, *supra* note 43, art. 22 annex.

⁴⁶ Schmitt, *supra* note 6, at 63.

⁴⁷ Hague IV, *supra* note 43, art. 23(e) annex. Professor Schmitt notes that this provision applies to the environment “in a manner analogous to the unnecessary suffering component of the humanity principle.” Schmitt, *supra* note 6, at 63.

⁴⁸ Hague IV, *supra* note 43, art. 23(g) annex.

⁴⁹ *Id.* art. 25 annex.

⁵⁰ *Id.* arts. 22, 25 annex; see Press Release, Off. of the High Comm’r of Hum. Rts., *supra* note 15. In addition, Russia has violated Article 27, which states, “[i]n sieges and bombardments all necessary steps must be taken to spare, as far as possible, buildings dedicated to religion, art, science, or charitable purposes, historic monuments, hospitals, and places where the sick and wounded are collected, provided they are not being used at the time for military purposes.” Hague IV, *supra* note 43, art. 27 annex.

⁵¹ This was independently verified by the New York Times. Ainara Tiefertaler, *Videos Show Devastating Strike at Mariupol Hospital Maternity Ward*, N.Y. TIMES (Mar. 9, 2022), <https://www.nytimes.com/2022/03/09/world/europe/ukraine-mariupol-hospital-strike.html> [<https://perma.cc/7VD4-XXT7>].

with “Hague Law,” which focuses on regulating the means and methods of warfare.⁵² Geneva has two provisions—Article 53 (addressing duties that the occupying power owes to the citizens and property during the occupation phases of an armed conflict) and Article 147 (addressing grave breaches) that are of particular importance to the Russia-Ukraine War.⁵³ Article 53 of the Fourth Geneva Convention forbids destruction of property during occupation when destruction cannot be justified by military necessity. It states:

Any destruction by the Occupying Power of real or personal property belonging individually or collectively to private persons, or to the State, or to other public authorities, or to social or co-operative organizations, is prohibited, except where such destruction is rendered *absolutely necessary by military operations*.⁵⁴

While this provision only applies to occupied territory, Russia has illegally occupied Ukrainian-owned Crimea since 2014 and much of eastern Ukraine since February 2022.⁵⁵ While Article 53 provides an exception “where such destruction is rendered absolutely necessary by military operations,”⁵⁶ there is no evidence that Russia’s destruction of occupied Ukraine was “absolutely necessary by military operations.” Today, Russia currently occupies a large swath of Ukrainian territory and has violated Article 53 throughout its time as both a belligerent occupying power and belligerent throughout the conflict.⁵⁷

Under Article 147, a “grave breach” encompasses “extensive destruction and appropriation of property, not justified by military necessity and carried out unlawfully and wantonly.”⁵⁸ Some scholars have argued that Russia’s actions amount to “ecocide.”⁵⁹ This is an international criminal law concept that arose

⁵² See Schmitt, *supra* note 5, at 65–66. Professor Schmitt continues that “the four 1949 Geneva Conventions are the most universally recognized instruments in the law of armed conflict and are considered to have become in great part customary international law.” *Id.* at 66.

⁵³ See generally The Geneva Convention Relative to the Protection of Civilian Persons in Time of War, Aug. 12, 1949, 6 U.S.T. 3516, 75 U.N.T.S. 287, at art. 53, 147 [hereinafter Geneva Convention IV].

⁵⁴ *Id.* art. 53 (emphasis added).

⁵⁵ For a discussion of Russia’s invasion of Crimea and the importance of international law, see Hiruni Alwischewa, *Revisiting Crimea and the Utility of International Law*, OPINIO JURIS (Aug. 3, 2022), <https://opiniojuris.org/2022/03/08/revisiting-crimea-and-the-utility-of-international-law/> [https://perma.cc/LNQG-GVFM].

⁵⁶ Geneva Convention IV, *supra* note 53, art. 53.

⁵⁷ See *Russia, Ukraine & International Law: On Occupation, Armed Conflict and Human Rights*, *supra* note 30. Russia illegally invaded and annexed Crimea-Ukrainian territory—in 2014. For a discussion of Russia’s invasion of Crimea and the importance of international law, see Alwischewa, *supra* note 55.

⁵⁸ Geneva Convention IV, *supra* note 53, art. 147.

⁵⁹ See, e.g., Brian Sabbe, *The Ukraine War, Environmental Destruction and the Question of Ecocide*, INT’L PEACE INDO. SERV. (Oct. 17, 2023),

from the U.S.'s use of chemical defoliants and herbicides during the Vietnam War.⁶⁰ While it is beyond the scope of this paper to analyze the merits or likelihood of integrating ecocide into the International Criminal Court or other forum, there is growing interest in integrating ecocide within the confines of international criminal law.⁶¹ There will be an increasing call to hold Russia accountable for environmental destruction as Russia continues to inflict horrifying damage to Ukrainian dams, nuclear power plants, and physical landscape.⁶²

3. 1972 Stockholm Declaration & Rise of International Environmental Law

In 1972, the modern international environmental effort emerged with the attendance of 100 nations at the Stockholm Conference of 1972.⁶³ This produced the Stockholm Declaration on the Human Environment, an influential document that set the stage for follow on international environmental agreements and protocols.⁶⁴ While the Stockholm Declaration is not an international humanitarian law document and did not address armed conflict *per se*, principle 26 emphasized that “man and his environment must be spared the effects of nuclear weapons and all other means of mass destruction.”⁶⁵ The Stockholm Declaration’s influence began to shape international environmental agreements, to include Additional Protocol I to the Geneva Conventions.⁶⁶

<https://ipisresearch.be/weekly-briefing/the-ukraine-war-environmental-destruction-and-the-question-of-ecocide/> [<https://perma.cc/85N6-B525>].

⁶⁰ See, e.g., Giovanni Chiarini, *Ecocide: From the Vietnam War to International Criminal Jurisdiction? Procedural Issues In-Between Environmental Science, Climate Change, and Law*, 21 CORK L. REV. ONLINE 1 (2022).

⁶¹ For a discussion of efforts to make ecocide an international crime, see Anastacia Greene, *The Campaign to Make Ecocide an International Crime: Quixotic Quest or Moral Imperative?*, 30 FORDHAM ENV'T L. REV. 1, 1 (2019).

⁶² See Marc Santora, *Ukraine Is Building a Case of Ecocide Against Russia as Dolphins Keep Dying in the Black Sea*, N.Y. TIMES (Aug. 21, 2023), <https://www.nytimes.com/2023/08/21/world/europe/ukraine-is-building-a-case-of-ecocide-against-russia-as-dolphins-keep-dying-in-the-black-sea.html> [<https://perma.cc/VF9D-292G>]; Radina Gigova, *Russia Is Accused of ‘Ecocide’ in Ukraine. But what does that mean?*, CNN (July 3, 2023), <https://www.cnn.com/2023/07/02/world/ukraine-ecocide-dam-collapse-crime-climate-intl-cmd/index.html> [<https://perma.cc/QB77-DBUG>].

⁶³ See generally U.N. Conference on the Human Environment, *List of Participants*, U.N. Doc. A/Conf.48/INF.5/Rev.1 (Sept. 21, 1972).

⁶⁴ U.N. Conference on the Human Environment, *Report of the United Nations Conference on the Human Environment*, U.N. Doc. A/CONF.48/14/Corr.1 (1973).

⁶⁵ *Id.* at princ. 26.

⁶⁶ In 1992 the Stockholm Declaration was updated at the “Earth Summit,” resulting in the signing of the Rio Declaration. The Rio Declaration is technically nonbinding, but did squarely address the effects of warfare on the environment. Under principle 24, the Rio Declaration characterized warfare as “inherently destructive of sustainable development” and states must “respect international law providing protection for the environment in times

4. *Additional Protocols to the Geneva Convention: Codifying Environmental Protections*

From 1974 to 1977, the International Committee of the Red Cross convened four sessions addressing “Diplomatic Conference on the Reaffirmation and Development of International Humanitarian Law Applicable in Armed Conflicts.”⁶⁷ These sessions, attended by over one hundred nations and fifty nongovernmental organizations, resulted in the adoption of two “Protocols Additional” to the Geneva Conventions of 1949.⁶⁸ Russia withdrew from Additional Protocol I (AP I) to the Geneva Conventions Article 90 International Fact-Finding Commission in 2019.⁶⁹ Still, Russia remains party to the core AP I treaty today—as does Ukraine.⁷⁰ In contrast, the United States is not party to AP I, but does acknowledge that much of AP I is binding as reflecting customary international law.⁷¹ While much of AP I protects the environment indirectly, there are some specific provisions that protect the environment.⁷² For example, Article 35 (3) provides specific protections for the environment under basic rules for methods and means of warfare.⁷³ It prohibits the employment of means

of armed conflict and cooperate in its further development, as necessary.” U.N. Conference on Environment and Development, *Rio Declaration on Environment and Development*, princ. 24, U.N. Doc. A/CONF.151/Rev.1 (1992).

⁶⁷ Schmitt, *supra* note 6, at 68–69.

⁶⁸ *Id.*

⁶⁹ Protocol Additional to the Geneva Conventions of 12 August 1949, and Relating to the Protection of Victims of International Armed Conflicts (Protocol I), 8 June 1977—Russian Federation (Sept. 29, 1979), <https://ihl-databases.icrc.org/en/ihl-treaties/api-1977/state-parties/RU> [<https://perma.cc/2EP2-UCHQ>].

⁷⁰ Marten Zwanenburg, *Common Article 1 and the Conflict in Ukraine*, LIEBER INST. (Mar. 10, 2022), <https://lieber.westpoint.edu/common-article-1-conflict-ukraine/> [<https://perma.cc/WZR9-PK74>].

⁷¹ See THEODORE T. RICHARD, UNOFFICIAL UNITED STATES GUIDE TO THE FIRST ADDITIONAL PROTOCOL TO THE GENEVA CONVENTIONS OF 12 AUGUST 1949 3 (Donna Budjenska ed. 2019). Mr. Michael Matheson, U.S. Department of State Deputy Legal Advisor, presented an overview of the U.S.’s position on the applicability of Additional Protocols I and II to a conference at American University in 1987. See Martin P. Dupuis, John Q. Heywood & Michele Y.F. Sarko, *The Sixth Annual American Red Cross-Washington College of Law Conference on International Humanitarian Law: A Workshop on Customary International Law and the 1977 Protocols Additional to the 1949 Geneva Conventions*, 2 AM. U. INT’L L. REV. 419, 420–21 (1987) (summarizing Mr. Matheson’s comments). However, according to Mr. Michael Matheson, Article 56’s prohibition on targeting dams, dikes, and nuclear power stations is not reflective of customary international law. *Id.* at 427; see INT’L COMM. OF THE RED CROSS, *supra* note 2; Schmitt, *supra* note 6, at 69.

⁷² Schmitt, *supra* note 6, at 69.

⁷³ Protocol Additional to the Geneva Conventions of 12 August 1949, and Relating to the Protection of Victims of International Armed Conflicts (Protocol I), of 8 June 1977, art. 35(3), Dec. 12, 1977, 1125 U.N.T.S. 3 [hereinafter Additional Protocol I] (emphasis added).

or methods of warfare which are intended or may be expected, to cause *widespread, long-term and severe damage* to the natural environment.⁷⁴

Article 54 of AP I goes even further, providing environmental protections to objects and resources necessary for survival. It prohibits attacking or destroying “objects indispensable to the survival of the civilian population.”⁷⁵ This includes drinking water installations, foodstuffs, and agricultural areas.⁷⁶

Article 55 of AP I is titled “Protection of the natural environment.” It states that “care shall be taken in warfare to protect the natural environment against widespread, long-term, and severe damage.”⁷⁷ This prohibits the “use of methods or means of warfare which are intended . . . to cause damage to the environment to prejudice the health or survival of the population.”⁷⁸

Finally, Article 56 provides specific protections for “works and installations containing dangerous forces.”⁷⁹ It reads:

Works or installations containing dangerous forces, namely dams, dykes and *nuclear electrical generating stations*, shall not be made the object of attack, even where these objects are military objectives if such attack may cause the release of dangerous forces and consequent severe losses among the civilian population. Other military objectives located at or in the vicinity of these works or installations shall not be made the object of attack if such attack may cause the release of dangerous forces from the works or installations and consequent severe losses among the civilian population.⁸⁰

Article 56(2) contains a qualification, stating that the prohibition against attacks ceases if a “nuclear electrical generating station . . . provides electric power in regular, significant and direct support of military operations and if such attack is the *only feasible way* to terminate such support.”⁸¹

How do these IHL prohibitions apply to Russia’s prosecution of the war? Two examples exemplify Russia’s horrific wartime prosecution. First, Russia’s 2022 attack on Ukraine’s Zaporizhia power plant—the largest nuclear power plant in Europe—represents a clear violation of international humanitarian law.⁸² Under the plain meaning of Article 56, a nuclear power plant is a work

⁷⁴ *Id.*

⁷⁵ *Id.* art. 54, ¶ 2.

⁷⁶ *Id.*

⁷⁷ *Id.* art. 55, ¶ 1.

⁷⁸ *Id.*

⁷⁹ Additional Protocol I, *supra* note 73, art. 56.

⁸⁰ *Id.* art. 56, ¶ 1 (emphasis added).

⁸¹ *Id.* art. 56, ¶ 2(b).

⁸² See Mark Hibbs, *What Comes After Russia’s Attack on a Ukrainian Nuclear Power Station?*, CARNEGIE ENDOWMENT FOR INT. PEACE (Mar. 17, 2022), <https://carnegieendowment.org/2022/03/17/what-comes-after-russia-s-attack-on-ukrainian-nuclear-power-station-pub-86667> [<https://perma.cc/DY2W-JSKF>].

or installations containing dangerous forces.⁸³ An attack on a nuclear generating station is permitted only “if it provides electric power in regular, significant and direct support of military operations and if such attack is the only feasible way to terminate such support.”⁸⁴ Russia’s attack on Zaporizhia shocked the world, with one scholar exclaiming that prior to Russia’s attack, “the direct targeting of nuclear power plants . . . was largely unimaginable in armed conflict.”⁸⁵ Second, the Ukrainian city of Bakhmut has been decimated by Russian forces in violation of Protocol I and core principles found throughout the Hague and Geneva Conventions.⁸⁶

Legal scholars and political leaders alike have called for Russian military officials to be held accountable for war crimes for attacking civilians, civilian infrastructure, and violating these core IHL principles.⁸⁷ As of this writing, such efforts have not materialized, although Professor Harold Koh and others have made powerful arguments at the International Court of Justice that Russia was in violation of two international treaties, and Russia should provide “full reparations” for its illegal conduct to the Ukrainian people.⁸⁸

B. International Law Commission and Environmental Protection Principles

In 2019, the International Law Commission (ILC) of the UN General Assembly drafted 28 principles that clarify how international environmental

⁸³ Commentators from the International Committee of the Red Cross have argued the protections afforded to nuclear power plants may be lost “under very exceptional and narrow circumstances.” Abby Zeith & Eirini Giorgou, *Dangerous Forces: The Protection of Nuclear Power Plants in Armed Conflict*, INT’L COMM. OF THE RED CROSS: HUMANITARIAN L. & POL’Y (Oct. 18, 2022), <https://blogs.icrc.org/law-and-policy/2022/10/18/protection-nuclear-power-plants-armed-conflict/> [<https://perma.cc/SNW6-QDME>].

⁸⁴ Additional Protocol I, *supra* note 73, art. 56, ¶ 2(b).

⁸⁵ Erika Weinthal & Carl Bruch, *Protecting Nuclear Power Plants During War: Implications from Ukraine*, 53 ENV’T L. REP. 10285, 10285 (2023).

⁸⁶ John Hardie, *War in Ukraine Update: Battle for Bakhmut Continues; Iran Helps Russia*, FOUND. FOR DEF. OF DEMOCRACIES (Apr. 28, 2023), <https://www.fdd.org/analysis/2023/04/28/war-in-ukraine-update-battle-for-bakhmut-continues-iran-helps-russia/> [<https://perma.cc/5UDK-FCWD>] (explaining that Russian forces have showered the already decimated city of Bakhmut with artillery fire and air strikes). For an overview of Russia’s environmental harms caused in Ukraine, see *One Year In, Russia’s War on Ukraine Has Inflicted \$51 Billion in Environmental Damage*, YALE ENV’T 360 (Feb. 22, 2023), <https://e360.yale.edu/digest/russia-ukraine-war-environmental-cost-one-year> [<https://perma.cc/GKM8-N7AR>].

⁸⁷ See Press Release, White House, Fact Sheet: On One Year Anniversary of Russia’s Invasion of Ukraine, Biden Administration Announces Actions to Support Ukraine and Hold Russia Accountable (Feb. 24, 2023); see also Bogush & Vasiliev, *supra* note 24.

⁸⁸ Professor Koh Argues at the International Court of Justice on Behalf of Ukraine, YALE L. SCH. NEWS (June 13, 2023), <https://law.yale.edu/yls-today/news/professor-koh-argues-international-court-justice-behalf-ukraine> [<https://perma.cc/6JRP-RQRX>].

protections apply in armed conflict.⁸⁹ In 2022, the U.N. General Assembly adopted 27 of these principles.⁹⁰ These principles, labeled “Protection of the environment in relation to armed conflicts,” state:

States shall, pursuant to their obligations under international law, take effective legislative, administrative, judicial and other measures to enhance the protection of the environment in relation to armed conflicts . . . States should take further measures, as appropriate, to enhance the protection of the environment in relation to armed conflicts.⁹¹

While these principles are not legally binding, they nevertheless represent leading UN experts’ international legal views on environmental protection during wartime.⁹² Not surprisingly, the ILC contains several provisions relevant to the Russia-Ukraine conflict. First, it reaffirms that the Occupying Power (Russia) owes several core obligations to the Occupied Power (Ukraine).⁹³ It states that the “occupying Power shall respect and protect the environment of the occupied territory in accordance with applicable international law and take environmental considerations into account in the administration of such territory.”⁹⁴ Second, it states that “the law of armed conflict, including the principles and rules of distinction, proportionality, and precautions shall be applied to the environment, with a view to its protection.”⁹⁵

Sadly, the ILC’s work has had limited effect in deterring Russia’s wartime prosecution and wholesale disregard of environmental protections during wartime. While there are efforts underway to hold Russia accountable for war crimes—including environmental crimes—it remains to be seen how and when this will ever occur.⁹⁶

⁸⁹ See generally ILC Principles, *supra* note 2.

⁹⁰ *Id.*

⁹¹ *Id.* at 3 annex princ. 3.

⁹² See G.A. Res. 174 (II), Statute of the International Law Commission, art. 1 (Nov. 21, 1947) (explaining that the object of the ILC is to promote the development of international law); see also *id.* arts. 2–3 (explaining that the members of the ILC have recognized competence in international law and are elected by the General Assembly).

⁹³ ILC Principles, *supra* note 2, at 6 annex princ. 19. This includes Crimea, which has been occupied by Russia since 2014.

⁹⁴ ILC Principles, *supra* note 2, at 6 annex princ. 19.

⁹⁵ *Id.* at 5 annex princ. 14.

⁹⁶ See Ian Anthony & Jiayi Zhou, *Environmental Accountability, Justice and Reconstruction in The Russian War on Ukraine*, STOCKHOLM INT’L PEACE RSCH. INST. (June 25, 2023), <https://www.sipri.org/commentary/topical-background/2023/environmental-accountability-justice-and-reconstruction-russian-war-ukraine> [https://perma.cc/K72S-YSR5] (explaining that Ukraine and its international partners are considering holding Russia accountable for environmental harm through the International Criminal Court, International humanitarian law, and U.N. Resolutions).

III. ENERGY AND ENVIRONMENTAL SECURITY

When Russian troops entered Ukraine in February 2022, European nations were heavily reliant on Russian oil and natural gas.⁹⁷ In contrast, the United States was far less dependent on Russian fossil fuel than the bulk of its European and NATO allies.⁹⁸ Despite Russia's illegal invasion of eastern Ukraine in 2018 and its illegal annexation of Crimea in 2014, many European nations became even *more reliant* on Russian fossil fuels.⁹⁹ For example, Europe's largest economy, Germany, strengthened its energy ties with Russia in the runup to the February 2022 invasion.¹⁰⁰ Energy infrastructure investment—such as the Gazprom 2 natural gas pipeline linking Germany with Russia—demonstrated that Germany (and much of Europe) was placing its energy security in Russian hands.¹⁰¹

Russia's invasion of Ukraine has demonstrated the folly of relying on fossil fuel energy sources originating from petrostates. Today, Germany and much of Europe is in the process of disinvesting from Russian sources and reevaluating its energy strategy.¹⁰² As the European energy market closed to Russia, Russia forged ahead with new customers and markets in India, China, and beyond.¹⁰³

⁹⁷ See Jeff Tollefson, *What the War in Ukraine Means for Energy, Climate and Food*, NATURE (Apr. 5, 2022), <https://www.nature.com/articles/d41586-022-00969-9> [<https://perma.cc/R6GU-6MJT>] (“The EU imported around 40% of its natural gas, more than one-quarter of its oil and about half of its coal from Russia in 2019.”).

⁹⁸ *Id.*

⁹⁹ *Id.* (explaining that the amount of Russian oil and gas entering Europe has increased since the war in Ukraine began). Finland, Estonia, and many eastern European nations were entirely reliant on Russia for their natural gas needs. *Id.*

¹⁰⁰ *GDP of European Countries in 2022*, STATISTA (June 20, 2023), <https://www.statista.com/statistics/685925/gdp-of-european-countries> [<https://perma.cc/ZG2N-UDTX>]; see Katrin Bennhold, *The Former Chancellor Who Became Putin's Man in Germany*, N.Y. TIMES (Apr. 23, 2022), <https://www.nytimes.com/2022/04/23/world/europe/schroder-germany-russia-gas-ukraine-war-energy.html> [<https://perma.cc/8DPC-7M7E>] (explaining how Germany's recent chancellors have “collectively engineered Germany's dependency on Russian energy”).

¹⁰¹ See Bennhold, *supra* note 100. Germany's ex-chancellor Gerhard Schroeder served as the chairman of the supervisory board of Nord Stream, which is a pipeline company that is mostly owned by Gazprom, a Russian majority state-owned energy corporation. *Id.* Gazprom even asked Schroeder to join its board, which highlights the close energy connection between Germany and Russia. *Id.*

¹⁰² *Frequently Asked Questions on Energy Security*, INT'L ENERGY AGENCY (Nov. 16, 2022), <https://www.iea.org/articles/frequently-asked-questions-on-energy-security> [<https://perma.cc/7W8F-3G36>].

¹⁰³ *Id.*

A. United States' Energy Security Strategy

At the time of Russia's invasion, the U.S. relied upon Russia for just eight percent of its energy supplies.¹⁰⁴ Due to the shale revolution and technological advances in fracking, the United States has achieved net energy exporter status.¹⁰⁵

Dating back to Russia's invasion of Ukrainian territory in Crimea, the U.S. has consistently sanctioned Russian oil and gas imports across presidential administrations. When Russia invaded Crimea in 2014, for example, President Obama declared the situation in Ukraine a national emergency and invoked congressionally delegated authority to punish Russia through a series of executive actions.¹⁰⁶ Using his authorities under the National Emergencies Act (NEA) and International Emergency Economic Powers Act (IEEPA), Obama commenced a series of sanctions against Russia.¹⁰⁷ This national emergency declaration has been renewed every year throughout the Obama, Trump, and Biden presidencies.¹⁰⁸

To counter U.S. sanctions against Russia and the influx of American oil and natural gas on the global market, Russia partnered with the international oil cartel OPEC in 2016 to form OPEC+.¹⁰⁹ In doing so, Russia sought to control a massive swath of the international oil supplies with the world's leading oil exporters.¹¹⁰ While the newly imagined OPEC+ has had *some* success in capturing energy markets and increasing revenue, its long-term ability to shape global energy markets remains uncertain.¹¹¹

At the outset of Russia's invasion on February 21, 2022, President Biden expanded the scope of the Obama-era national emergency declaration by prohibiting any *new* American investment in Donetsk and Luhansk, Ukraine.¹¹² In the executive order, Biden stated that the Russian Federation's recognition of

¹⁰⁴ *Id.*

¹⁰⁵ *Cf. What Is OPEC+ and How Is It Different from OPEC?*, U.S. ENERGY INFO. ADMIN. (May 9, 2023), <https://www.eia.gov/todayinenergy/detail.php?id=56420> [<https://perma.cc/V44Q-V8VM>] (explaining that the U.S. has experienced years of increased shale oil output and was the world's largest oil producer in 2022).

¹⁰⁶ Exec. Order No. 13,660, 79 Fed. Reg. 13491 (Mar. 10, 2014).

¹⁰⁷ *Id.*; *see also* Exec. Order No. 14,065, 3 C.F.R. 341 (2022) (expanding the scope of the national emergency that was declared in Executive Order No. 13,660 and expanded in a series of subsequent executive orders).

¹⁰⁸ *See* Continuation of the National Emergency with Respect to Ukraine, 2023 DAILY COMP. PRES. DOC. 1 (Mar. 1, 2023) (continuing for one year the national emergency declared in Executive Order 13,660); *cf.* National Emergencies Act § 1622, 50 U.S.C. § 1622 (1976) (explaining that national emergencies will automatically terminate unless the President annually continues the emergency).

¹⁰⁹ *See What Is OPEC+ and How Is It Different from OPEC?*, *supra* note 104.

¹¹⁰ *See* Montgomery, *supra* note 17.

¹¹¹ *Id.*

¹¹² Exec. Order No. 14,065, 3 C.F.R. 341 (2022). This is part of eastern Ukraine where Russia attacked and sought to conquer as part of Russia. *Id.*

the “so-called Donetsk People’s Republic . . . or Luhansk People’s Republic . . . threatens the peace, stability, sovereignty, and territorial integrity of Ukraine, and thereby constitutes an unusual and extraordinary threat to the national security and foreign policy of the United States.”¹¹³ Specifically, the emergency declaration prohibited the importation of any goods, services, or technology from the affected regions while eliminating any new investment in the regions.¹¹⁴

On March 8, 2022, President Biden completely banned the importation of Russian oil and coal into the United States.¹¹⁵ In forceful language, the Biden Administration stated that “the Russian Federation’s unjustified, unprovoked, unyielding, and unconscionable war against Ukraine . . . [violates] international law.”¹¹⁶ It also prohibited any “new investment in the energy sector in the Russian Federation by a United States person, wherever located.”¹¹⁷ Three days later, on March 11, 2022, Biden took even more expansive action, prohibiting the importation of numerous Russian products such as Russian vodka and caviar.¹¹⁸

Meanwhile, President Biden took actions to reinvigorate renewable energy production within the U.S. On March 31, Biden invoked a Cold War-era statute, the Defense Production Act, to boost critical mineral supplies and battery technology—a key component for electric vehicles.¹¹⁹ The presidential memorandum referenced “unreliable foreign sources” that the U.S. depends on for the strategic materials needed for the clean energy transition.¹²⁰ The memorandum tasked the Secretary of Defense with supporting feasibility studies for new critical materials projects, with the goal of modernizing or increasing production at domestic mines for lithium, cobalt, nickel and other critical materials.¹²¹

¹¹³ *Id.*

¹¹⁴ *Id.*

¹¹⁵ Exec. Order No. 14,066, 3 C.F.R. 344 (2022).

¹¹⁶ *Id.*

¹¹⁷ *Id.* This empowered the Secretary of the Treasury to “employ all powers granted to the President by the IEEPA, as may be necessary to carry out the purposes of this order.” *Id.* at 345.

¹¹⁸ Exec. Order No. 14,068, 3 C.F.R. 357 (2022).

¹¹⁹ Memorandum on Presidential Determination Pursuant to Section 303 of the Defense Production Act of 1950, 2022 DAILY COMP. PRES. DOC. 1 (Mar. 31, 2022) [hereinafter Section 303 Memorandum]; see also Ana Swanson, *Biden Invokes Cold War Statute to Boost Critical Mineral Supply*, N.Y. TIMES (Mar. 31, 2022), <https://www.nytimes.com/2022/03/31/business/economy/biden-minerals-defense-production-act.html> (on file with the *Ohio State Law Journal*) (explaining that the Defense Production Act will provide support for the mining of materials necessary to make batteries for electric cars and clean-energy storage systems).

¹²⁰ Section 303 Memorandum, *supra* note 119, at 1.

¹²¹ *Id.* at 1–2; see also Swanson, *supra* note 119. On April 6, 2022, Biden prohibited any new investment in the Russia by any U.S. person. Exec. Order No. 14,071, 3 C.F.R. 362

Most recently, the Biden Administration worked with Congress to pass the Inflation Reduction Act (IRA) on August 16, 2022.¹²² The IRA represents the most ambitious piece of climate legislation passed in the United States to date, and has enormous implications for energy and climate security.¹²³ While it is beyond the scope of this Article to fully unpack the IRA's energy and climate implications, the IRA has several provisions that incentivize U.S. domestic renewable energy production and electrification of the transportation network.¹²⁴

B. Europe's Energy Security Response to Russia's Invasion

While the U.S. began to distance itself from Russian energy supplies following the 2014 Crimea invasion, several European nations actually strengthened their reliance on Russian energy sources.¹²⁵ Indeed, many European nations actually *increased* their reliance on Russian natural gas following Russia's invasion and illegal annexation of Crimea.¹²⁶ By one estimate, at the beginning of the war, on February 24th, Germany had relied on Russia natural gas for 55% of its natural gas.¹²⁷ Since the invasion, Germany has lowered Russian natural gas reliance to 35% of its overall natural gas usage.¹²⁸ Other European nations—including Hungary, Finland, and Bulgaria—rely on Russia for more than 75% of their “natural gas on gross available energy” from Russia.¹²⁹

By the time Russia invaded Ukraine in 2022, the European economy was heavily dependent on Russian oil and natural gas imports. Indeed, Russia supplied Europe with almost 40% of its natural gas imports, almost 50% of its coal, and 25% of its oil.¹³⁰ Meanwhile, the United States' economy has shifted from being a net oil importer to becoming a net oil exporter.¹³¹ The United

(2022) (“Prohibiting New Investment in and Certain Services to the Russian Federation in Response to Continued Russian Federation Aggression.”).

¹²² See Inflation Reduction Act of 2022, Pub. L. No. 117–169, 136 Stat. 1818.

¹²³ For a discussion of the IRA, see WHITE HOUSE, BUILDING A CLEAN ENERGY ECONOMY: A GUIDEBOOK TO THE INFLATION REDUCTION ACT'S INVESTMENTS IN CLEAN ENERGY AND CLIMATE ACTION 5 (2023).

¹²⁴ See *id.* at 9–11, 46–48.

¹²⁵ See *Russia's War on Ukraine*, *supra* note 5.

¹²⁶ *Id.*

¹²⁷ See Melissa Eddy, *Germany Is Preparing to Forgo Russian Gas. But a Quick Cutoff Would Hurt*, N.Y. TIMES (Apr. 28, 2022), <https://www.nytimes.com/2022/04/28/business/germany-russian-gas.html> [<https://perma.cc/X85B-JSNU>].

¹²⁸ *Id.*

¹²⁹ KINGA HAT ET AL., REGI COMM., THE IMPACT OF THE GAS SUPPLY CRISIS ON THE JUST TRANSITION PLANS 20 (2023).

¹³⁰ Tollefson, *supra* note 97.

¹³¹ See, e.g., Andrew Ross Sorkin, *Russia's Invasion Raises Questions About Energy Policy*, N.Y. TIMES (Feb. 26, 2022),

Kingdom likewise quickly banned the import of Russian oil following the 2022 invasion.¹³² But by some estimates, Russian oil and natural gas entering Europe actually *increased* in the immediate aftermath of the invasion.¹³³

While many European nations relied upon nuclear energy to fulfill their domestic energy needs, Germany and other European nations shifted away from investment in domestic nuclear energy production following the 2011 Fukushima nuclear disaster in Japan.¹³⁴ Germany accelerated its efforts to close down several nuclear power plants but still was Gazprom's main buyer.¹³⁵ Following Russia's 2022 invasion of Ukraine, Germany decreased its Russian crude oil consumption from thirty-five percent to twelve percent.¹³⁶

Russia's invasion has spurred some positive developments, effectively serving as a shot in the arm to the European Green New Deal—an ambitious project that seeks to make Europe climate neutral by 2050.¹³⁷ It also forced two nations—Finland and Sweden—off the geopolitical sideline as each sought NATO membership.¹³⁸ This reversed decades of historical reluctance to join NATO.¹³⁹

<https://www.nytimes.com/2022/02/26/business/dealbook/russia-ukraine-energy-policy-yergin.html> [<https://perma.cc/8XG4-H4D6>] (noting that the U.S. at one point imported sixty percent of its oil). For an overview of shifting energy markets, see generally DANIEL YERGIN, *THE NEW MAP: ENERGY, CLIMATE, AND THE CLASH OF NATIONS*, at xiv (2021).

¹³² Tollefson, *supra* note 97.

¹³³ *Id.*

¹³⁴ Henry Paillere & Jeffrey Donovan, *Nuclear Power 10 Years After Fukushima: The Long Road Back*, INT'L ATOMIC ENERGY AGENCY (Mar. 11, 2021), <https://www.iaea.org/newscenter/news/nuclear-power-10-years-after-fukushima-the-long-road-back> [<https://perma.cc/62GH-4HR6>].

¹³⁵ Constanze Stelzenmuller, *Putin's War and European Energy Security: A German Perspective on Decoupling Russian Fossil Fuels*, BROOKINGS (June 7, 2022), <https://www.brookings.edu/articles/putins-war-and-european-energy-security-a-german-perspective-on-decoupling-from-russian-fossil-fuels/> [<https://perma.cc/K4JU-D78G>].

¹³⁶ Kerstine Appunn, *Germany One Step Away from Ending Dependence on Russian Oil*, CLEAN ENERGY WIRE (Apr. 28, 2022), <https://www.cleanenergywire.org/news/germany-one-step-away-ending-dependence-russian-oil> [<https://perma.cc/V7SD-J7BZ>].

¹³⁷ Ken Silverstein, *Russia's Invasion of Ukraine Triggers Renewable Energy Rush, Say World Leaders in Abu Dhabi*, FORBES (Jan. 15, 2023), <https://www.forbes.com/sites/kensilverstein/2023/01/15/russias-invasion-of-ukraine-triggers-renewable-energy-rush-say-world-leaders-in-abu-dhabi/?sh=42dc0b522217> [<https://perma.cc/TGS5-HYJK>].

¹³⁸ Adam Taylor & Mikhail Klimentov, *Why Finland—but Not Sweden—is in NATO*, WASH. POST (Apr. 4, 2023), <https://www.washingtonpost.com/world/2023/04/04/finland-sweden-nato-membership/> [<https://perma.cc/R832-XX7L>]; *Enlargement and Article 10*, N. ATL. TREATY ORG. (Aug. 3, 2023), https://www.nato.int/cps/en/natohq/topics_49212.htm [<https://perma.cc/KE4X-5BN4>].

¹³⁹ Taylor & Klimentov, *supra* note 138. Finland's accession was particularly noteworthy as it doubled Russian's land border with NATO members. Emily Rauhala & Missy Ryan, *Finland Joins NATO, Double Alliance's Land Border with Russia*, WASH. POST (Apr. 4, 2023), <https://www.washingtonpost.com/world/2023/04/04/finland-joins-nato/#> [<https://perma.cc/V5SG-SSK6>].

C. Energy Supply Chain Shifts: A Resurgence in Russia-India and Russia-China Trade

As the U.S. and Western European nations shifted away from Russian oil and gas, Russian oil and gas exports to India and China skyrocketed.¹⁴⁰ Future international climate mitigation progress is increasingly in the hands of China and India, the two most populous nations whose emissions represent a growing share of overall global emissions.¹⁴¹ China's emissions now surpass the United States and Europe, and Chinese aggregate emissions are poised to emit "more total carbon dioxide than all of Europe by 2039 and more than the United States by 2050."¹⁴²

China and India's interests have effectively been aligned during key moments of recent international climate negotiations. At the Glasgow Conference of Parties (COP-26), for example, India and China both argued for softer language addressing future coal use.¹⁴³ India and China fought against efforts to "phase out" coal power.¹⁴⁴ Both nations insisted that the Glasgow Climate Pact text be changed to the more muted "phase-down" of coal.¹⁴⁵ China and India's continued reliance on coal and other fossil fuels is poised to undermine future climate progress. Europe and the United States achieved peak emissions in 1979 and 2005, respectively.¹⁴⁶ But as India and China soak up

¹⁴⁰ See Clyde Russell, Commentary, *Asia Crude Imports Hit High as China, India Gorge on Russian Oil*, REUTERS (Aug. 3, 2023), <https://www.reuters.com/markets/commodities/asia-crude-imports-hit-high-china-india-gorge-russian-oil-russell-2023-08-03/> [<https://perma.cc/CP2Q-JFMB>]; see also Kiran Sharma, *India's Russian Imports Soar 400% as U.S. Offers Little Resistance*, NIKKEIASIA (Feb. 17, 2023), <https://asia.nikkei.com/Economy/Trade/India-s-Russian-imports-soar-400-as-U.S.-offers-little-resistance> [<https://perma.cc/9RLN-7M8P>].

¹⁴¹ NAT'L INTEL. COUNCIL, *supra* note 10, at 5.

¹⁴² Harry Stevens, *The United States Has Caused the Most Global Warming. When Will China Pass It?*, WASH. POST (Mar. 1, 2023), <https://www.washingtonpost.com/climate-environment/interactive/2023/global-warming-carbon-emissions-china-us/> (on file with the *Ohio State Law Journal*); see also Yang Liu, Fang Wang & Jingyun Zheng, *Estimation of Greenhouse Gas Emissions from the EU, US, China, and India up to 2060 in Comparison with Their Pledges Under the Paris Agreement*, in SUSTAINABLE TOURISM AND CLIMATE CHANGE: IMPACT, ADAPTATION AND MITIGATION 1, 5–6 (2017).

¹⁴³ Mark Nevitt, *Key Takeaways from the Glasgow Climate Pact*, LAWFARE (Nov. 17, 2021), <https://www.lawfaremedia.org/article/key-takeaways-glasgow-climate-pact> [<https://perma.cc/2Z2B-SBNK>].

¹⁴⁴ *Id.*

¹⁴⁵ *Id.*

¹⁴⁶ EUR. ENV'T AGENCY, TRENDS AND DRIVERS OF EU GREENHOUSE GAS EMISSIONS 9 (Mar. 2020), <https://www.eea.europa.eu/publications/trends-and-drivers-of-eu-ghg> [<https://perma.cc/847T-N32P>]; Zeke Hausfather, *Analysis: Why US Carbon Emissions Have Fallen 14% Since 2005*, CARBONBRIEF (Aug. 15, 2017), <https://www.carbonbrief.org/analysis-why-us-carbon-emissions-have-fallen-14-since-2005/> [<https://perma.cc/Q64L-MSWP>].

cheap Russian oil and gas, a geopolitical energy shift appears to be underway that may well undermine international climate mitigation efforts.

By one estimate, in the aftermath of Russia's invasion, India and China increased its Russian crude oil and natural gas imports by 400% and 100%, respectively.¹⁴⁷ India and China are nations increasing their overall Greenhouse Gas (GHG) emissions.¹⁴⁸ Ultimately, future global climate mitigation progress will depend on China, India, and other nations' capacity to reduce their emissions and reliance on fossil fuels.

D. Renewable Energy Decentralization: Military Advantages

Russia's repeated attacks on Ukraine's grid and centralized energy infrastructure has forced Ukraine to rethink its own energy strategy and turn to a more decentralized approach.¹⁴⁹ In the last 15 months, Russia has launched a barrage of attacks against Ukrainian power plants, hydroelectric dams, nuclear power plants, and substations.¹⁵⁰ These types of centralized energy facilities stand in contrast to renewable facilities like wind turbines and solar farms, which are more decentralized energy platforms.¹⁵¹ From a military perspective, solar and wind farms are dispersed-energy objects that are much more difficult to attack.¹⁵² This battlefield advantage has spurred Ukraine to invest in wind energy in the middle of an international conflict.¹⁵³ This includes a new wind farm in Tyligulska, Ukraine—just a few dozen miles from Russian artillery.¹⁵⁴

¹⁴⁷ Ailing Tan, *China Buys a Record Amount of Russian LNG as Oil and Coal Purchases Also Surge*, BLOOMBERG (Dec. 20, 2022), https://www.bloomberg.com/news/articles/2022-12-21/china-buys-a-record-amount-of-russian-lng-as-oil-and-coal-purchases-also-surge?in_source=embedded-checkout-banner#xj4y7vzkg [<https://perma.cc/3W2L-ZDYB>]; Sharma, *supra* note 140. The geopolitical situation is multi-layered—military alliances do not guarantee that nations will decrease their reliance on Russian oil and gas. For example, Turkey—a key NATO member—increased its reliance on Russian fossil fuels following the conflict. Mirela Petkova, *Russia's War in Ukraine Inspires Turkish Gas Dreams*, ENERGY MONITOR (Mar. 28, 2023), <https://www.energymonitor.ai/policy/russias-war-in-ukraine-inspires-turkish-gas-dreams/> [<https://perma.cc/T5FM-A4RT>].

¹⁴⁸ Today, China is the largest GHG emitter on an annualized basis and has yet to achieve “peak emissions.” See, e.g., Ian Tiseo, *Distribution of Carbon Dioxide Emissions Worldwide in 2021*, STATISTA (Sept. 12, 2023), <https://www.statista.com/statistics/271748/the-largest-emitters-of-co2-in-the-world/> [<https://perma.cc/SE29-CYBP>]; Liu, Wang & Zheng, *supra* note 141.

¹⁴⁹ Varenikova, *supra* note 11.

¹⁵⁰ *Id.*

¹⁵¹ John Farrell, *The Challenge of Reconciling a Centralized v. Decentralized Electricity System*, INST. FOR LOCAL SELF-RELIANCE (Oct. 17, 2011), <https://ilsr.org/challenge-reconciling-centralized-v-decentralized-electricity-system/> [<https://perma.cc/6J92-ZARN>].

¹⁵² See Varenikova, *supra* note 11. Of course, the wind and solar projects likely feed into a centralized grid. And it remains unclear how the Russian attack on the Zaporizhia power plant will affect this calculus.

¹⁵³ Varenikova, *supra* note 11.

¹⁵⁴ *Id.*

This Tyligulska wind farm is set to include 85 wind turbines constructed by Vestas, a Danish energy company.¹⁵⁵ Although it will represent less than one percent of the Ukrainian power sector, it nevertheless represents a step forward for Ukrainian energy security, a topic that I turn to below.¹⁵⁶

Finally, our energy and climate crises may force nations to look at the role that nuclear energy can play in alleviating energy and climate security concerns.¹⁵⁷ Of course, nuclear energy is not risk-free, as bona fide environmental concerns remain about nuclear waste disposal.¹⁵⁸ Still, an increasing chorus of energy experts are calling for the construction of small modular nuclear reactors as a way to close the emissions gap (the difference between the Paris Climate Agreement's stated goals and actual progress in reducing emissions).¹⁵⁹ Nuclear power allows countries to increase energy resilience while making strides toward the Paris Agreement's goals.¹⁶⁰ This point was highlighted by the International Atomic Energy Agency which stated that "[a]ll low-carbon energy technologies, including nuclear power, are needed to meet the Paris Agreement goal[s]."¹⁶¹ A White House study looked at different scenarios for the United States to achieve net-zero emissions, and includes nuclear electricity generation as party of that calculus.¹⁶²

IV. CLIMATE–SECURITY CHALLENGES

Beyond energy and environmental challenges, the Russia-Ukraine War has broad implications for international climate progress. Climate change is, after

¹⁵⁵ *Id.*

¹⁵⁶ *Id.*

¹⁵⁷ See Off. of Nuclear Energy, *Advanced Small Modular Reactors (SMRs)*, DEP'T OF ENERGY <https://www.energy.gov/ne/advanced-small-modular-reactors-smrs> [https://perma.cc/XDP3-RMKU].

¹⁵⁸ Martina Igini, *The Nuclear Waste Disposal Dilemma*, EARTH (Sept. 12, 2022), https://earth.org/nuclear-waste-disposal/?gclid=Cj0KCQjwz8emBhDrARIsANNJJS5oWZZd6La3hkiHXBIXScNht9VKEQfWu32aPj8xTFB9LTykTC4FewsAmV7EALw_wcB [https://perma.cc/6USX-3BNU].

¹⁵⁹ For a convincing policy diagnosis of the role that nuclear will play in achieving the Paris Agreement's goals, see Nikolaus Muellner et al., *Nuclear Energy – The Solution to Climate Change?*, 155 ENERGY POLICY, at 8 (May 16, 2021). While the authors see substituting carbon neutral, low carbon energy sources (such as nuclear) as a necessary predicate to achieve the Paris Agreement's goals, they highlight that a "substantial expansion of nuclear power will not be possible because of technical obstacles and limited resources." *Id.* at 1.

¹⁶⁰ INT'L ATOMIC ENERGY AGENCY, NUCLEAR POWER AND THE PARIS AGREEMENT 1 (2016), <https://www.iaea.org/sites/default/files/16/11/np-parisagreement.pdf> [https://perma.cc/29NQ-99SC].

¹⁶¹ *Id.*

¹⁶² EXEC. OFF. OF THE PRESIDENT, LONG-TERM STRATEGY OF THE UNITED STATES: PATHWAYS TO NET-ZERO GREENHOUSE GAS EMISSIONS BY 2050, at 9, 14 (2021), <https://www.whitehouse.gov/wp-content/uploads/2021/10/US-Long-Term-Strategy.pdf> [https://perma.cc/2FGL-2G2R].

all, the “mother of all global commons problems” and it is impossible to disaggregate international climate progress from the Russia-Ukraine conflict.¹⁶³ By many scientific accounts, worldwide emissions must decrease dramatically by 2030 to avoid irreversible climate harm.¹⁶⁴ The clock continues to tick, and the Russia-Ukraine conflict complicates any future international climate progress.

In addition, climate change has enormous implications for both national and human security.¹⁶⁵ In what follows, I highlight how Russia’s invasion is poised to affect three aspects of climate change: (1) The U.N. Framework Convention on Climate Change (“Framework Convention”); (2) climate-security initiatives at the U.N. Security Council; (3) and emerging Arctic security challenges arising from the fact that climate change is warming the Arctic Ocean far faster than the rest of the world.

A. International Climate Law: U.N. Framework Convention on Climate Change

In 2019, the U.S. intelligence community released a report highlighting the role that “petrostates”—nations that rely on fossil fuels for an outsized role in their economies—would play in the renewable energy transition.¹⁶⁶ The National Intelligence Council exclaimed that petrostates (such as Russia) fear transition risk and effort to decarbonize.¹⁶⁷ While Russia is responsible for five percent of global greenhouse gas emissions, the Russian economy has an outsized dependence on fossil fuels.¹⁶⁸ The U.S. National Intelligence Council estimated that in 2020, “Russia generated almost 30 percent of state revenue from fossil fuel companies, including \$40 billion in gas sales to Europe.”¹⁶⁹ For “petrostate” nations like Russia, international climate mitigation efforts present an enormous economic challenge.¹⁷⁰ What’s more, many petrostates face major

¹⁶³ Daniel Bodansky, *Climate Change: Reversing the Past and Advancing the Future*, 115 AM. J. INT’L L. UNBOUND 80, 80 (2021).

¹⁶⁴ See, e.g., *Summary for Policymakers of IPCC Special Report on Global Warming of 1.5°C approved by governments*, INTERGOV’TAL PANEL CLIMATE CHANGE (Oct. 8, 2018), <https://www.ipcc.ch/2018/10/08/summary-for-policymakers-of-ipcc-special-report-on-global-warming-of-1-5c-approved-by-governments/> [<https://perma.cc/M98K-36BA>].

¹⁶⁵ Mark Nevitt, *On Environmental Law, Climate Change, and National Security Law*, 44 HARV. ENV’T L. REV. 321, 324 (2020); Maryam Jamshidi, *The Climate Change Crisis Is a Human Security, Not a National Security Issue*, 93 S. CAL. L. REV. POSTSCRIPT 36, 37 (2019).

¹⁶⁶ NAT’L INTEL. COUNCIL, *supra* note 10, at 7.

¹⁶⁷ *Id.*

¹⁶⁸ Tollefson, *supra* note 97.

¹⁶⁹ NAT’L INTEL. COUNCIL, *supra* note 10, at 7 (finding that “Russia generated almost 30 percent of state revenue in 2020 from fossil fuel companies, including \$40 billion in gas sales to Europe”).

¹⁷⁰ See Mark P. Nevitt, *The Climate–Security Nexus*, AM. BAR ASSOC. (Jan. 6, 2023), https://www.americanbar.org/groups/law_national_security/publications/aba-standing-

governance and instability challenges. The National Intelligence Estimate (NIE) stated:

We assess most countries that rely on fossil fuel exports to support their budgets will continue to resist a quick transition to a zero-carbon world because they fear the economic, political, and geopolitical costs of doing so. U.S. and Western efforts to push these countries to speed up the energy transition could complicate bilateral relations and force tradeoffs with other national security priorities.¹⁷¹

Russian President Vladimir Putin has acknowledged the potential economic damage to his country from international climate efforts.¹⁷² The scientific basis to reduce GHG emissions has clarified that international decarbonization efforts must accelerate—an effort that threatens Russia’s fossil fuel-based economy.¹⁷³ As the world is off-track to meet its collective climate goals, international pressure will build to meet the Paris Climate Agreement goals of keeping the earth’s temperature below 1.5 degrees Celsius.¹⁷⁴

Both Russia and Ukraine are members of the U.N. Framework Convention on Climate Change and participate in the follow-on negotiations and agreements at the annual climate Conference of Parties.¹⁷⁵ Climate negotiators met in Sharm-el Sheikh, Egypt for COP-27, nine months following the Russia

committee-on-law-and-national-security-60-th-anniversary-an-anthology/the-climate-security-nexus/ [https://perma.cc/HRZ3-8GFD].

¹⁷¹ NAT’L INTEL. COUNCIL, *supra* note 10, at 7.

¹⁷² *Id.*

¹⁷³ *Id.*

¹⁷⁴ *COP27 Reaches Breakthrough Agreement on New “Loss and Damage” Fund for Vulnerable Countries*, UNITED NATIONS CLIMATE CHANGE (Nov. 20, 2022), <https://unfccc.int/news/cop27-reaches-breakthrough-agreement-on-new-loss-and-damage-fund-for-vulnerable-countries> [https://perma.cc/VV2J-ZCS2].

¹⁷⁵ *See Parties to the United Nations Framework Convention on Climate Change*, UNITED NATIONS CLIMATE CHANGE, https://unfccc.int/process/parties-non-party-stakeholders/parties-convention-and-observer-states?field_parties_date_of_ratifi_value=All&field_parties_date_of_signature_value=All&field_parties_date_of_ratifi_value_1=All&field_parties_date_of_signature_val [https://perma.cc/4TGJ-TTQ5].

invasion.¹⁷⁶ COP-28 took place in December 2023 in Dubai, United Arab Emirates, with nations agreeing to transition away from fossil fuels.¹⁷⁷

Despite Russia's invasion, COP-27 in Sharm-el Sheikh achieved a breakthrough on loss and damage negotiations. For the first time, the U.S. climate delegation formally joined negotiations over so-called "loss and damage."¹⁷⁸ Negotiators at COP-27 made substantive progress on loss and damage—compensating nations for climate change's unavoidable consequences.¹⁷⁹ Loss and damage encompasses the adverse impacts of climate change that occur despite efforts to mitigate and adapt to climate change.¹⁸⁰ "Loss" encompasses the irrevocable loss of human lives, culture, and biodiversity.¹⁸¹ This can include both an economic and noneconomic component, such as the loss of cultural heritage.¹⁸² "Damage" refers to negative climate impacts where repair or restoration is still possible.¹⁸³

Questions remain about implementing and fully funding the loss and damage fund. Still, the establishment of a loss and damage mechanism nevertheless represents a breakthrough on a topic of immense importance to Small Island Developing States and other developing nations.¹⁸⁴ As the world looks ahead to COP-28 in Dubai, additional questions remain about whether the Russia-Ukraine War's shift in global energy trade will forestall greater ambitions.

Despite progress on loss and damage in Egypt, it is increasingly clear that the world's "mitigation ambition" and race to reduce GHG emissions must accelerate and make substantive progress to avert irreversible, catastrophic

¹⁷⁶ See Aruna Chandrasekhar et al., *COP27: Key outcomes agreed at the UN climate talks in Sharm el-Sheikh*, CARBONBRIEF (Nov. 21, 2022), <https://www.carbonbrief.org/cop27-key-outcomes-agreed-at-the-un-climate-talks-in-sharm-el-sheikh/> [https://perma.cc/4FAD-CE82]. The Russia invasion cast a shadow over COP-27 and President Putin was absent from the climate negotiations. Somini Sengupta & Jenny Gross, *Here's What Happened on Monday at the COP27 Climate Summit*, N.Y. TIMES (Nov. 6, 2022), <https://www.nytimes.com/live/2022/11/08/climate/cop27-climate-summit> [https://perma.cc/MU8X-YJRR].

¹⁷⁷ COP28, EMBASSY OF THE U.A.E. WASHINGTON, D.C., <https://www.uae-embassy.org/discover-uae/climate-energy/cop28> [https://perma.cc/6LAZ-PANU]; see also Nevitt, *supra* note 21.

¹⁷⁸ Chandrasekhar et al, *supra* note 176.

¹⁷⁹ *Parties to the United Nations Framework Convention on Climate Change*, *supra* note 175.

¹⁸⁰ Adelle Thomas, April Baptiste, Rosanne Martyr-Koller, Patrick Pringle & Kevon Rhiney, *Climate Change and Small Island Developing States*, 45 ANN. REV. ENV'T RES. 1, 16 (2020) (stating "climate-induced migration can be viewed as a response to loss and damage that would be incurred after limits to adaptation have been surpassed").

¹⁸¹ Maxine Burkett, *Loss and Damage*, 4 CLIMATE L. 119, 120–21 (2014).

¹⁸² *Id.*

¹⁸³ *Id.*; see also Rosemary Lyster, *A Fossil Fuel-Funded Climate Disaster Response Fund Under the Warsaw International Mechanism for Loss and Damage Associated with Climate Change Impacts*, 4 TRANSNAT'L ENV'T L. 125, 125–6 (2015).

¹⁸⁴ See generally Thomas, Baptiste, Martyr-Koller, Pringle & Rhiney, *supra* note 180.

harm.¹⁸⁵ While the COVID-19 pandemic caused a massive drop in world climate emissions, the world economy has since recovered.¹⁸⁶ So, too, have carbon emissions.¹⁸⁷ Today, emissions are rising, particularly in China, India, and other nations have newfound ties to Russian energy resources.¹⁸⁸ Indeed, Russia has forged closer energy and diplomatic ties with many developing nations and nations in the Global South, leading to an uptick in global emissions.¹⁸⁹ Developing nations face a paradox. On one hand, they face the brunt of climate impacts and lack the resources to adapt to climate-driven disaster. On the other hand, developing nations desire to grow their economies via affordable fossil fuels, much like the West has done since the Industrial Revolution.¹⁹⁰ Russia's energy shift to the Global South further complicates climate negotiations. The Russia-Ukraine conflict is a sobering reminder that Western sanctions against Russia (and other petrostates) often shift the energy trade to other nations who benefit from cheaper oil and gas.

B. Possible Security Council Action on Climate Change

Outside of the U.N. Framework Convention on Climate Change, in recent years the U.N. Security Council has taken a series of steps to address climate-security matters.¹⁹¹ For the past decade, the Security Council has demonstrated increased willingness to tackle climate change via a combination of Arria-Formula meetings and open climate debates.¹⁹² Under the U.N. Charter, the

¹⁸⁵ For a discussion of future climate harm if the world does not dramatically reduce its emissions, see generally David Wallace Wells, *Beyond Climate Catastrophe: A New Climate Reality Is Coming into View*, N.Y. TIMES (Oct. 26, 2022), <https://www.nytimes.com/interactive/2022/10/26/magazine/climate-change-warming-world.htm> (on file with the *Ohio State Law Journal*).

¹⁸⁶ *Global CO₂ Emissions Rebounded to Their Highest Level in History in 2021*, INT'L ENERGY AGENCY (Mar. 8, 2022), <https://www.iea.org/news/global-co2-emissions-rebounded-to-their-highest-level-in-history-in-2021> [<https://perma.cc/C8FD-3CCN>].

¹⁸⁷ *Id.*

¹⁸⁸ *See id.*

¹⁸⁹ *See id.*; see also Felix K. Chang, *China's and India's Relations with Russia After the War in Ukraine: A Dangerous Deviation*, FOREIGN POL'Y RSCH. INST. (Apr. 5, 2023), <https://www.fpri.org/article/2023/04/chinas-and-indias-relations-with-russia-after-the-war-in-ukraine-a-dangerous-deviation/> [<https://perma.cc/P8Z8-MDYP>].

¹⁹⁰ Amar Bhattacharya, Homi Kharas & John W. McArthur, *Developing Countries Are Key to Climate Action*, BROOKINGS (Mar. 3, 2023), <https://www.brookings.edu/articles/developing-countries-are-key-to-climate-action/> [<https://perma.cc/XG2N-3VZJ>].

¹⁹¹ *See, e.g.*, Press Release, Security Council, Security Council Fails to Adopt Resolution Integrating Climate-Related Security Risk into Conflict Prevention Strategies, U.N. Press Release SC/8926 (Dec. 13, 2021).

¹⁹² Mark Nevitt, *Is Climate Change a Threat to International Peace and Security?*, 42 MICH. J. INT'L L. 527, 556 (2021). Arria-Formula meetings are UN Security Council closed debates and more informal sessions, so it can be difficult to weigh their efficacy. *Id.* at 556, n.177.

Council possesses broad, delegated authorities under Chapter VI and VII to address matters that threaten international peace and security.¹⁹³ In recent years the Council has demonstrated an increased willingness to use its awesome powers to address non-traditional security threats, such as the Ebola health crisis.¹⁹⁴ But in the aftermath of the Russian invasion, Security Council progress on climate change appears to be stalled.¹⁹⁵ Russia, one of the five permanent members of the Security Council has vetoed Council resolutions that condemned the Russian invasion and called upon Russia to withdraw.¹⁹⁶

Perhaps not surprisingly, Russia has historically fought Security Council efforts to address climate change. This posture is likely to increase. Often joined by China—another Security Council permanent member—Russia has consistently insisted that the Security Council was not the proper venue to address climate-security matters and has repeatedly efforts to bring climate change to the Security Council agenda.¹⁹⁷

The Council's actions on climate culminated in a formal proposal by Niger and Ireland to declare climate change a "threat to the peace" under Article 39 of the U.N. Charter.¹⁹⁸ Making such a determination would tap into the Council's broad Chapter VII authorities. This encompasses the imposition of economic sanctions or use of military force.¹⁹⁹ Professor Craig Martin has suggested that the Council could tap into its authorities to sanction "climate rogue states" by stopping the international flow of harmful climate products.²⁰⁰

As the Russia-Ukraine war rages on, efforts to make climate change a core part of the Council's agenda appear to be weakening, and broader Security

¹⁹³ U.N. Charter art. 39. ("The Security Council shall determine the existence of any threat to the peace, breach of the peace, or act of aggression and shall make recommendations, or shall decide what measures shall be taken in accordance with Articles 41 and 42, to maintain or restore international peace and security."); *see also* Nevitt, *supra* note 192, at 527.

¹⁹⁴ S.C. Res. 2177, ¶ 6 (Sept. 18, 2014).

¹⁹⁵ Russia is a member of the Security Council, Permanent five Members (P5). U.N. Charter art. 23. Decisions on all non-procedural matters require the concurring votes of all the permanent members. U.N. Charter art. 27.

¹⁹⁶ Farnaz Fassihi, *As World Changes, Not Much Has at U.N.*, N.Y. TIMES (Sept. 28, 2023), <https://www.nytimes.com/2023/09/27/world/middleeast/united-nations-security-council-reform.html> [<https://perma.cc/RJ8Z-F338>].

¹⁹⁷ Ken Conca, *Is There a Role for the UN Security Council on Climate Change?*, 61 ENV'T: SCI. & POL'Y FOR SUSTAINABLE DEV. 4, 9 (2018). In addition, the P5 members emit more than half of all GHG emissions, with the U.S. currently the largest historical emitter and China the largest emitter on an annual basis. *See Global Emissions*, CTR. FOR CLIMATE & ENERGY SOLS., <https://www.c2es.org/content/international-emissions/> [<https://perma.cc/QDS9-NLHN>].

¹⁹⁸ *See* Mark Nevitt, *Is it Time to "Climatize" the Security Council?*, INT'L MIL. COUNCIL ON CLIMATE & SEC., <https://climateandsecurity.org/2021/12/is-it-time-to-climatize-the-un-security-council/> [<https://perma.cc/CJG2-TKW7>].

¹⁹⁹ Nevitt, *supra* note 192, at 538.

²⁰⁰ Craig Martin, *Atmospheric Intervention? The Climate Change Crisis and the Jus Ad Bellum Regime*, 44 COLUM. ENV'T L. REV. 331, 335 (2020).

Council reform effects appear bleak.²⁰¹ Any member of the Permanent Five (“P5”) can veto any proposed Council action.²⁰² While the climate security discussion continues in some fashion on the Council, Russia is poised to stymie any substantive climate action originating from the Council. This reaffirms the Framework Convention’s role as the central governing international forum to address climate change.

C. Climate Change and the Arctic: Energy Security Challenges

Outside of the Russia-Ukraine battlefield, climate change is warming the Arctic region two to three times the pace of the rest of the world.²⁰³ As the polar ice sheets melt, climate change is opening the possibility for both natural resource extraction on the Arctic continental shelf as well as increased Arctic maritime passage through the Russian Northern Sea Route (NSR) and Canada’s Northwest Passage.²⁰⁴

With a massive maritime border in the Arctic Ocean, Russia already plays an outsized role in the Arctic.²⁰⁵ Russia’s coastline and continental shelf encompasses about half of the Arctic Ocean, while the remaining coastline is abutted by four other nations—United States, Canada, Denmark (via Greenland), and Norway—all of which are NATO members.²⁰⁶ In recent years, Russia has made large investments in military capabilities in the Arctic.²⁰⁷ Russia remains a formidable Arctic power with several naval bases, nuclear-

²⁰¹ See Fassihi, *supra* note 196.

²⁰² See U.N. Charter art. 27, ¶¶ 2–3.

²⁰³ INTERGOV’TAL PANEL ON CLIMATE CHANGE, *supra* note 25. Don Walsh, *The Arctic Ocean—Hot Times in a Cold Place*, U.S. NAVAL INST. PROC. (July 2017), <https://www.usni.org/magazines/proceedings/2017/july/arctic-ocean-hot-times-cold-place> [<https://perma.cc/TFB3-6TLL>] (stating that the Arctic is warming twice as fast as the rest of the planet and detailing the rate of ice loss and decrease in ice thickness).

²⁰⁴ See Mark P. Nevitt & Robert V. Percival, *Polar Opposites: The State of Environmental Law in the World’s Polar Regions*, 59 B.C. L. REV. 1655, 1656, 1663 (2018). Of note, the Arctic Council does not deal with matters related to military security. *Id.* at 1665, n.52.

²⁰⁵ See generally EUGENE RUMER, RICHARD SOKOLSKY & PAUL STRONSKI, CARNEGIE ENDOWMENT FOR INT’L PEACE, RUSSIA IN THE ARCTIC—A CRITICAL EXAMINATION (Mar. 2021), https://carnegieendowment.org/files/Rumer_et_al_Russia_in_the_Arctic.pdf [<https://perma.cc/4Y5F-75KB>].

²⁰⁶ See *id.* at 7–8.

²⁰⁷ See *id.* at 9–10. Former Secretary of the Navy, Ray Mabus, in testimony to the U.S. Senate Committee on Environment and Public Works, stated that, “In direct military terms, Russia has built almost 500 military facilities across the Arctic, many with radars and weapons that work in extreme cold . . . Russia wants to be able to control which shipping passes through the Arctic.” *Hearing on Promoting American Energy Security by Facilitating Investments in Climate Solutions Before the Comm. on Env’t and Pub. Works*, 117th Cong. (2022) (statement of Ray Mabus, former United States Secretary of the Navy).

powered ice breakers, and nuclear capabilities in the Arctic.²⁰⁸ Culturally, Russia has a strong Arctic identity with a sizable amount of its economy derived from oil, gas, and timber in the Arctic.²⁰⁹

The pace of Arctic warming was reaffirmed in 2021 when *Nature* reported that “the coverage of sea ice in the Arctic during the late summer has been lower over the past decade than it has been in at least 1,000 years.”²¹⁰ How will the Russia-Ukraine conflict, coupled with a rapidly changing climate, impact Arctic security matters? In the short-term, the conflict has stymied Arctic Council progress. NATO is poised to add two Arctic members (Finland and Sweden), shifting the Arctic geopolitics to NATO. Finland, which shares an enormous land border with Russia, was heavily reliant on Russian natural gas.²¹¹ Despite this outsized energy reliance, Finland sought NATO membership after Russia invaded Ukraine.²¹² This increased NATO’s land border with Russia by more than half.²¹³

Long-term Arctic progress appears murky, particularly as Russian militarization continues apace and Russia continues to assert broad authorities over the Northern Sea Route. Russia has historically taken a strong leadership role in international Arctic governance matters. At the tail end of the Cold War, Soviet President Mikhail Gorbachev proposed that Arctic nations work together to developing a governance body to discuss Arctic matters.²¹⁴ The Arctic

²⁰⁸ Steven Erlanger, *Arctic Risks Loom Large as Blinken Tours NATO’s North*, N.Y. TIMES (May 31, 2023), <https://www.nytimes.com/2023/05/31/world/europe/blinken-arctic-nato-russia.html> [<https://perma.cc/5R7N-QENS>].

²⁰⁹ See SASCHA GLAESER, DEF. PRIORITIES, IMPLICATIONS OF A MELTING ARCTIC 6 (2022), <https://www.defensepriorities.org/explainers/implications-of-a-melting-arctic> [<https://perma.cc/3TQP-9MML>].

²¹⁰ Jeff Tollefson, *Earth Is Warmer Than It’s Been in 125,000 Years, Says Landmark Climate Report*, 956 NATURE 171, 172 (2021). According to the most recent U.N. Intergovernmental Panel on Climate Change (IPCC) report, scientists assess that the Arctic is warming two to three times the pace of the rest of the world. INTERGOV’TAL PANEL ON CLIMATE CHANGE, *supra* note 25, at 4 (“Warming greater than the global annual average is being experienced in many land regions and seasons, including two to three times higher in the Arctic. Warming is generally higher over land than over the ocean.”).

²¹¹ *Petroleum Gas in Finland*, OBSERVATORY OF ECON. COMPLEXITY, <https://oec.world/en/profile/bilateral-product/petroleum-gas/reporter/fin> [<https://perma.cc/8JSJ-PPYG>].

²¹² Rauhala & Ryan, *supra* note 139.

²¹³ *Id.* This stands in contrast to Europe’s tepid response to the run up of the Russian invasion. For example, in response to a request for aid from President Zelensky, Germany sent 5,000 helmets to Ukraine. Christopher F Schuetze, *Germany Draws Mockery for Promising 5,000 Helmets to Help Ukraine Defend Itself*, N.Y. TIMES (Jan. 27, 2022), <https://www.nytimes.com/2022/01/27/world/europe/germany-5000-helmets-ukraine.html> [<https://perma.cc/A39L-VPXH>].

²¹⁴ See *Declaration on the Establishment of the Arctic Council*, 35 I.L.M. 1387 (1996) [hereinafter *Ottawa Declaration*]. During the Soviet Union, Soviet-leader Mikhail Gorbachev played an instrumental role in developing the Arctic Environmental Protection Strategy (AEPS) laying the groundwork for the Ottawa Declaration and the Arctic Council’s

Council was established as a “high level forum” for “promoting cooperation, coordination, and interaction among the Arctic states . . .”²¹⁵ Russia has served as a key member of the Arctic Council since the Ottawa Declaration’s signing in 1996.²¹⁶ Critically, the Arctic Council is prohibited from dealing with “matters related to military security.”²¹⁷ There are eight voting members within the Arctic Council and several nations and indigenous tribes have observer status.²¹⁸ Each voting member serves as Chair of the Arctic Council on a rotating, two-year basis.²¹⁹ Unlike Antarctica, which is governed by the comprehensive Antarctic Treaty System, the Arctic lacks an analogous treaty.²²⁰

The Arctic Council has been able to find consensus among nations in recent years, but the Russian invasion of Ukraine has begun to change that calculus. Instead, the Arctic Council has played an important role in addressing an expanding menu of international governance issues within the Arctic. While China is not a member of the Arctic Council, it has nevertheless declared itself a “near Arctic state” and Arctic Sea lane passage is part of its broader “Polar Silk Road” initiative to transport Chinese goods.²²¹

Russia’s invasion spurred two Arctic Council voting members—Finland and Sweden—to seek NATO membership.²²² With Sweden’s formal accession

establishment. *See, e.g.,* Heather Exner-Pirot, *How Gorbachev Shaped Future Arctic Policy 25 Years Ago*, ANCHORAGE DAILY NEWS (Oct. 1, 2012), <https://www.adn.com/arctic/article/how-gorbachev-shaped-future-arctic-policy-25-years-ago/2012/10/01/> [<https://perma.cc/WLA8-BNBY>].

²¹⁵ Ottawa Declaration, *supra* note 214, art. 1(a).

²¹⁶ The Ottawa Declaration established the Arctic Council in 1996. Critically, the Arctic Council is prohibited from dealing with “matters related to military security.” *Id.* at n.1. There are eight voting members of the Arctic Council, all of whom serve as Chair to the Arctic Council on a rotating basis, and who worked on several agreements with Arctic Council states. This includes Denmark, United States, Norway, Canada, Finland, Iceland, and Sweden. *Id.* art. 2. Outside the Arctic Council, the United Nations Convention on the Law of the Sea (“UNCLOS”) serves as the core international treaty governing Arctic maritime matters. *See generally* United Nations Convention on the Law of the Sea, Dec. 10, 1982, 1833 U.N.T.S. 397.

²¹⁷ Ottawa Declaration, *supra* note 214, at n.1.

²¹⁸ *About the Arctic Council*, ARCTIC COUNCIL, <https://arctic-council.org/about/> [<https://perma.cc/L7TW-FYXR>] (In addition to the five Arctic coastal states (Denmark, Russia, United States, Norway, and Canada) there are three additional voting members (Finland, Iceland, and Sweden)).

²¹⁹ *Id.*

²²⁰ For a comparison of Antarctica and the Arctic, see generally Nevitt & Percival, *supra* note 204.

²²¹ BRYAN J.R. MILLARD & P. WHITNEY LACKENBAUER, CANADIAN GLOB. AFFS. INST., TROJAN DRAGONS? NORMALIZING CHINA’S PRESENCE IN THE ARCTIC 10 (June 2021), https://www.cgai.ca/trojan_dragons_normalizing_chinas_presence_in_the_arctic [<https://perma.cc/RS2C-7MAA>].

²²² Mariana Alfaro & Emily Rauhala, *Biden Meets with Swedish Prime Minister to Bolster Country’s Bid to Join NATO*, WASH. POST (July 5, 2023),

to NATO imminent, seven out of the eight Arctic Council voting members will be party to NATO.²²³ With the Arctic Council prohibited from addressing military security matters, NATO is poised to play a growing role in the Arctic in the face of growing NATO membership and Russian militarization.

Russia was serving as the Chair of the Arctic Council in 2022 when it invaded Ukraine, forcing the Arctic Council's work to come to an immediate standstill.²²⁴ In May 2023, Norway took over as Arctic Council chair.²²⁵ It remains to be seen how much the Arctic Council will accomplish while hostilities are underway.

In prior cases of Russian aggression in Europe—including Russia's invasion of Georgia in 2008 and Crimea in 2014—the Arctic Council's work continued with members finding areas of mutual agreement and collaboration. For example, in May 2011, the Arctic Council signed an Arctic Search and Rescue Agreement designed to assist lost mariners in the Arctic and in 2013 the Arctic Council signed an agreement on oil spill pollution preparedness and response.²²⁶

Russia's invasion has placed Arctic Council progress and many new initiatives on pause.²²⁷ Meanwhile, climate impacts continued to melt the North Pole icecap and opened up navigation along the Northern Sea Route bordering Russia's coastline.²²⁸ Russia is poised to reap enormous benefits from the opening of the Northern Sea Route.²²⁹ In the interim, Russia has asserted additional authorities over foreign ships making the passage.²³⁰ Unfortunately, the Russia-Ukraine War has prevented any progress on resolving interpretive

<https://www.washingtonpost.com/politics/2023/07/05/biden-sweden-nato-membership/> [https://perma.cc/8JYA-79KD].

²²³ *Id.*

²²⁴ Timo Koivurora & Akiho Shibata, *After Russia's Invasion of Ukraine in 2022: Can We Still Operate with Russia in The Arctic?*, 59 POLAR REC., Mar. 17, 2023, at 4, 6.

²²⁵ *Id.* at 4.

²²⁶ See generally Agreement on Cooperation on Aeronautical and Maritime Search and Rescue in the Arctic, May 12, 2011, T.I.A.S. No. 13-119; Agreement on Cooperation on Marine Oil Pollution Preparedness and Response in the Arctic (May 15, 2013).

²²⁷ Emilie Canova & Pauline Pic, *The Arctic Council in Transition: Challenges and Perspectives for the New Norwegian Chairship*, ARCTIC INST. (June 13, 2023), <https://www.thearcticinstitute.org/arctic-council-transition-challenges-perspectives-new-norwegian-chairship/> [https://perma.cc/Y5AY-ESJH].

²²⁸ Irene Ivanaj, *The Arctic: A New Frontier in the Shift Towards a Multipolar World*, STRATEGY, DEF. & FOREIGN AFFS. (May 22, 2023), <https://www.sdafo.co.uk/the-arctic-a-new-frontier-in-the-shift-towards-a-multipolar-world> [https://perma.cc/N4WX-GG46].

²²⁹ See *id.*

²³⁰ See, e.g., Andrey Todorov, *New Russian Law on Northern Sea Route Navigation: Gathering Arctic Storm or Tempest in a Teapot?*, HARV. BELFER CTR. FOR SCI. & INT'L AFFS. (Mar. 9, 2023), <https://www.belfercenter.org/publication/new-russian-law-northern-sea-route-navigation-gathering-arctic-storm-or-tempest-teapot> [https://perma.cc/94L6-TZPE]. Freedom of navigation operations in the Arctic challenging Russia's excessive claims have not yet taken place. This is due, in part, to the difficult operational climate in the Arctic.

differences over the Northern Sea Route. This has the potential to escalate into an armed conflict, if “foreign militaries continued to operate in what Moscow views as its territorial waters.”²³¹

Outside the work of the Arctic Council, the International Maritime Organization (IMO) has developed safety and design standards in the Arctic. For example, IMO developed and promulgated Polar Codes for vessels operating in polar waters.²³² The Polar Codes provide heightened environmental restrictions for vessels operating in the Arctic and South Pole waters.²³³ Beyond the stricter ship design, the Polar Codes ban discharge of oil residues from ship engines and have heightened protection from disposal of food waste.²³⁴

In sum, the Russia-Ukraine War has effectively “frozen” the Arctic Council’s work while shifting two key Arctic nations’ (Sweden and Finland) alliances toward NATO. Regardless of any future progress or increased militarization, the Arctic physical environment is undergoing massive changes. Increased cooperation is needed to deescalate rising tensions and disagreements over the Northern Sea Route and increased interest in natural resource extraction. As of this writing, it remains to be seen whether the Arctic Council’s work can continue in a meaningful way and overcome the geopolitical fissures exposed by Russia-Ukraine conflict.

V. CONCLUSION

The Russia-Ukraine war has inflicted unimaginable horrors to the Ukrainian people and environment. It also threatens progress on international climate efforts. But if we squint our eyes, the Russia-Ukraine war offers a unique opportunity for nations to accelerate their renewable energy transition. This bodes well for longer-term, global efforts to reduce our collective worldwide emissions. While this clean energy acceleration is far from assured, Russia’s recent aggression nevertheless underscores the danger of nations placing their energy future in the hands of authoritarian “petrostates.”²³⁵

Still, the geopolitical and energy security landscape remains fraught. Increasing tensions between the U.S. and China over Taiwan’s future and the

²³¹ NAT’L INTEL. COUNCIL, *supra* note 10, at 16.

²³² See generally Int’l Maritime Org. [IMO], *International Code for Ships Operating in Polar Waters*, Res. MSC.385(94) (Nov. 21, 2014) [hereinafter *Polar Code*], <http://www.imo.org/en/MediaCentre/HotTopics/polar/Documents/POLAR%20CODE%20TEXT%20AS%20ADOPTED%20BY%20MSC%20AND%20MEPC.pdf> [https://perma.cc/WK5B-3VSJ].

²³³ See *id.* at 9.

²³⁴ *Id.* at 40, 42.

²³⁵ I borrow the term “petrostates” from the Office of Director of National Intelligence. NAT’L INTEL. COUNCIL, *supra* note 10, at 7 (noting that “[m]ore than 20 countries rely on fossil fuels for greater than 50 percent of total export revenues, and most will continue to struggle to diversify their sources of export revenue because of entrenched political interests, endemic corruption, and lack of economic and legal institutions”).

ongoing Russia-Ukraine conflict may well distract world leaders from making substantive progress on climate change.²³⁶ After all, there is only so much political bandwidth to address international crisis—particularly complex collective action problems.

Today, the United States is far more energy resilient than its European and NATO allies. This has afforded the United States greater flexibility in its response to Russian aggression.²³⁷ But Russia has found new energy markets with other powers—China, India, and part of the Global South. This massive shift in the international energy supply market is poised to shape international climate negotiations, where it has been difficult to find common ground between wealthier, developed nations and developing nations.

Finally, when the conflict ends, Ukraine's broken pieces will need to be put back together. And the climate crisis will only be more acute. All nations should develop plans to rebuild Ukraine, taking a page from the enormously successful Marshall Plan that rebuilt Europe in the Second World War's aftermath.²³⁸ Meanwhile, as the world waits for peace, the Ukrainian people and environmental suffer from unimaginable harm.

²³⁶ See Richard Haass, *The Dangerous Decade: A Foreign Policy for a World in Crisis*, 101 FOREIGN AFF. 25, 26, 38 (2022).

²³⁷ For a comparison of U.S. actions with other nations in the Russian aftermath, see Jin-Li Hu & Tien-Yu Chang, *Energy Resilience: A Cross Economy Comparison*, 16 ENERGIES 1, 11, fig.1 (2023).

²³⁸ Some experts have called for a "Green Marshall Plan." Such a plan would invest in green reconstruction that is characterized by sustainable policies and climate resilient investment. Such an effort could favor a clean energy transition that accelerates broader decarbonization efforts. Hannah Abdullah, *Ukraine Needs a "Green Marshall Plan" That Empowers Cities and Civil Society*, GERMAN MARSHALL FUND (May 16, 2023), <https://www.gmfus.org/news/ukraine-needs-green-marshall-plan-empowers-cities-and-civil-society> [https://perma.cc/K86G-FRKW]; Hugo Dixon, *War Boosts Need for "Green Marshall Plan,"* REUTERS (Mar. 11, 2022), <https://www.reuters.com/breakingviews/dixon-war-boosts-need-green-marshall-plan-2022-03-11/> [https://perma.cc/ARV7-E76Z].