

Arctic Melting and Unconventional Energy Multi-Level Governance Challenges at the Mitigation-Adaptation Interface

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Abstract

The Arctic region serves a critical site for the complex interaction of climate change, energy transition, and multi-level governance structures. Due to the uneven physical geography of climate change impacts, the Arctic is experiencing more rapid warming than elsewhere in the world. This warming has caused sea ice coverage to decline by 40% since 2000, opening the Arctic to both commercial shipping and oil and gas exploration. On land, thawing permafrost damages infrastructure and releases contaminants. The indigenous peoples in the region, whose way of life has long been deeply interconnected with ice and snow, face a myriad of challenges. These changes raise important, interlinked mitigation and adaptation issues, as the choices made around how to approach new oil and gas opportunities in this region could help (1) to mitigate or exacerbate climate change and (2) assist or undermine communities' and ecosystems' ability to adapt over time.

These physical changes and the energy extraction opportunities that they create occur in the broader context of global and national energy systems in transition. Most relevant to this region, developments in deepwater drilling and hydraulic fracturing technology in recent years have made Arctic oil and gas more accessible. Current estimates indicate that the Arctic contains 13% of the global undiscovered oil and 30% of global undiscovered natural gas. Approximately 80% of these resources are offshore and some of them would be difficult to extract without fracturing techniques.

However, the low prices for natural gas due to hydraulic fracturing have made some natural gas projects in the Arctic no longer economically viable. More foundationally, the regulatory and technical problems highlighted by the BP *Deepwater Horizon* oil spill – in the less pristine Gulf environment with its easier accessibility for cleanup – have deepened concerns about how to manage exploration and spills in the Arctic environment. Even with less summer sea ice, conditions remain harsh during the accessible period due to rough seas, very cold temperatures, strong winds, fog, and floating ice. That summer is also short, only three to four months, with ice covering the Arctic Ocean the rest of the year and darkness in the winter months. Extraction and spill recovery in these conditions is far more difficult.

This article addresses the governance challenges raised by this confluence of climate change impacts with the expansion of unconventional energy. It argues that the combination of the cross-cutting substantive issues and the existing legal and institutional structures necessitate a polycentric, hybrid approach. Although all of the Arctic nations participate in international, regional, and bilateral agreements relevant to this transition, crucial aspects of addressing change and risk involve multiple components of national and subnational governments and the involvement of corporate and indigenous

representatives. A governance model focused centrally on treaties and other international agreements, which are functional if somewhat vague in this context, would not fully capture these important dynamics.

The article uses the evolving U.S. interactions with the international law and institutions relevant to this context to illustrate the value of polycentric, hybrid strategies. It provides a detailed analysis of the vertical (across levels) and horizontal (within a level) law and institutional structures, and the implications of these spatial arrangements for substantive progress. At an international level, most importantly, the United States recognizes the United Nations Convention on the Law of the Sea (UNCLOS), which it is not party to, as customary international law in order to establish its claim to its 200-mile exclusive economic zone in the Arctic; its failure to join UNCLOS limits its ability to participate in determinations of the outer limits of countries' continental shelves. The United States signed the 2008 Illulissat Declaration, which confirmed that UNCLOS's legal framework will govern the Arctic ocean. It also has been an increasingly active participant in the Arctic Council, which it will chair in 2015. The Council, established in 1996 by the Ottawa Declaration, not only brings together the eight Arctic states to resolve crucial regional issues through consensus, but also involves six indigenous organizations as permanent participants and 32 organizations and non-Arctic States as observers. The United States has been very active in the Council's work relevant to oil and gas, and the Council has helped facilitate important regional agreements in the past few years on maritime search and rescue and marine oil pollution preparedness and response.

However, the domestic fragmentation of U.S. approach to the Arctic and to the energy and environmental law relevant to this confluence, paired with the important roles of corporate and indigenous stakeholders, shapes possibilities for substantive progress. For example, six different agencies play a lead role for the United States in the Arctic Council's six working groups, with concerns about coordination and alignment arising at times. Moreover, because only one of its states – Alaska – is geographically located in the Arctic region, it sometimes addresses relevant issues in a subnational state law or federalism context. In addition, U.S. energy law itself is deeply fragmented, with multiple statutes and agencies governing interrelated issues, and relevant environmental law treated under separate laws and agencies. Finally, organizations of the region's indigenous peoples and of industry have created agreements and standards that influence supranational, national, and subnational behavior.

The article draws on this multi-scalar analysis to assess proposals made and steps taken in recent months by several U.S. federal agencies and leading think tanks, such as Brookings and Pew Charitable Trusts. It argues for the value of politically grounded strategies that reflect the polycentric dynamics across levels of governance and among key public and private stakeholders. Theoretically, the article contributes to literatures on polycentric climate change governance, global legal pluralism, and hybridity. Through a rich case study of crucial issues facing the Arctic region, it shows the need to go beyond treaty analysis in establishing governance approaches. Practically, its law and geography approach provides a novel perspective on how to address this increasingly important intersection of climate change with unconventional energy. It provides possibilities for

progress in the region's adaptation to rapid climate change as those changes open up new energy horizons and mitigation challenges.