Does Arctic governance hold the key to achieving climate policy targets?

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Abstract

Arctic feedbacks are increasingly viewed as the wild card in the climate system; but their most unpredictable and potentially dangerous aspect may lie in the human, rather than the physical, response to a warming climate. If Arctic policy is driven by agendas based on domestic resource development, the ensuing oil and gas extraction will ensure the failure of the Paris Agreement. If Arctic energy policy can be framed by the Arctic Council, however, its environmental agenda and fragmented governance structure offers the scientific community a fighting chance to determine the region’s energy future. Connecting Arctic climate science to resource economics via its unique governance structure is one of the most powerful ways the scientific community can protect the Arctic region’s environmental, cultural, and scientific resources, and influence international energy and climate policy.

Introduction

Over the past century, the Arctic has warmed at more than twice the global average [1], and future projections demonstrate a continued relationship between carbon emissions, global temperature change, and a broad range of physical, biological, and socio-economic impacts [2, 3]. Decades of research substantiate scientists’ concern over physical feedbacks in the Arctic system [3], including those related to the carbon and methane deposits under the permafrost and the continental shelf that have been likened to a ticking time bomb [4]. Most recently, analyses have showed how, as the Arctic warms, unrestrained access to its increasingly accessible and as yet untapped fossil fuel resources could sound the death knell for the Paris Agreement [5, 6].

The feedback cycle between Arctic warming, its climate response, and the potential for resource extraction poses a daunting and possibly even insurmountable challenge to preventing ‘dangerous anthropogenic interference with the climate system’ [7]. The full Arctic feedback cycle, however, includes one more critical component that has yet to be incorporated into feedback analyses: Arctic governance. Here, we argue that the scientific community’s best chance to influence the future of Arctic energy and climate policy, and thereby alter the likelihood of meeting international climate targets such as the Paris Agreement, lies in recognizing and acting on their position in the hierarchy of stakeholders who determine policy in the Arctic. This position is significantly higher in the Arctic as compared to the domestic arena, a direct result of the Arctic’s unique governance structure.

The Arctic Council

The Arctic Council is comprised of eight member states: Canada, Denmark, Finland, Iceland, Norway, Russia, Sweden, and the US. It also includes six permanent representatives of indigenous groups, all bound by a shared mission to preserve and protect the scientific and environmental integrity of the Arctic region(s). Unlike the Antarctic, the Arctic is ruled not by treaty but by agreement via the Rovaniemi Declaration on the Protection of the Arctic Environment (1991), the Nuuk Declaration (1993), and the 1982 United Nations Convention on the Law of the Sea. The fragmented nature of this governance has long been recognized as
being problematic [8]. Less recognized is the equally fragmented and potentially problematic influence of each Council member state’s domestic energy policy framework on leasing, permitting, and development. As stated in the Ottawa Agreement of 1996, nations composing the Arctic Council agree to seek ‘sustainable development.’ Does this mean fossil fuels, or scientific and environmental preservation? Contrasting the goals of energy development and economic growth with scientific integrity and environmental policy suggests that the Arctic Council’s governing bodies and their domestic counterparts are in conflict with each other. With uncoordinated legal mandates, economic agendas, and energy policy objectives, these governing conflicts already undermine the Arctic Council’s own stated mandate; and the eight Council nations are not the only entities that seek to influence policy in the Arctic. As the region warms, and access to its resources increases, interest grows: from nations that lack an Arctic footprint, and from large multinational corporations such as ExxonMobil, ConocoPhillips, Royal Dutch Shell, Rosneft (Russia), and China National Off-shore Oil Corporation. Participant indigenous tribal nations, technically sovereign states in their own right, may seek to derive some measure of economic benefit from energy development as well [8].

Failing to account for the region’s unique governance, and the many degrees of influence increasingly being exerted to decide the future of its natural resources, may lead to serious a underestimation of the potential for Arctic energy extraction and global carbon emissions. With an estimated ‘13% of the world’s undiscovered conventional oil resources and 30% of its undiscovered conventional natural gas resources’ [9, 10], short-term economic influence could trigger a modern-era energy boom the likes of which has not been seen since the discovery of Texas oil in 1901. Given that less than 300 GtC of carbon dioxide equivalent emissions can, barring advances in new sequestration technology, be emitted between 2011 and 2050 if the world is to attain the 2 °C target laid out in the Paris Agreement, and even less for the more ambitious 1.5 °C target [5], it is clear that even a modest Arctic energy boom would extinguish any chance the world has to limit warming below dangerous levels.

**Arctic policymaking environment: the governance feedback loop**

Policymaking environments are highly competitive, particularly during periods of political upheaval triggered by a shift or change in domestic agendas [11]. Warming of the Arctic in response to human-induced climate change is already triggering such a shift in the domestic agendas of governments that compose the Arctic Council. Instead of focusing on defending or serving the environmental and science-based mission of the Arctic Council, most governments are now investigating means by which energy development can occur at the expense of the Arctic’s environmental and scientific integrity [12]—in direct opposition to the mandate of the Council. In turn, this has heightened competition among stakeholder communities—including energy companies, environmental non-profits, and scientific researchers—that interact within the policymaking environment of the Arctic Council, as well as among the governments that compose the Council.

The influence of this ‘governance feedback loop’ on the energy and climate drama poised to unfold in a warming Arctic can be understood and even potentially predicted, though not by scientific frameworks or natural resource economics. It is subgovernment policy theory that can identify typologies among stakeholders and communities, and hierarchical arrangements among those stakeholders and communities. Stakeholders compete to control the policymaking environment, and those incapable of controlling or dominating the policymaking environment of subgovernments often form alliances to counter the dominant power [e.g. 13–15]. Identifying the actors and their strengths and weaknesses, determining how they are bounded by existing domestic and international laws, articulating their typology, and ranking them in the hierarchical power arrangement are all significant factors in determining the capacity of the scientific community to shape and influence the policy outcomes of the Arctic Council’s decision-making in the context of Arctic energy resource exploration and development (figure 1).

Within domestic natural resource agency policymaking environments, scientific and environmental communities are currently situated at the rock bottom of the hierarchical arrangement of stakeholders competing for influence [15]. Stakeholders are typically defined by the political and financial resources they have at their disposal to influence/shape policy outcomes and, put bluntly, scientists and non-governmental organizations have few of those resources at their disposal. As a result, fossil fuel-based energy development stakeholders dominate any domestic policymaking environment where their interests compete or conflict with environmental protection interests at national and state levels of governance. This hierarchical arrangement is exacerbated by the fact that, unlike the mission and mandate of the Arctic Council, natural resource administrative agencies are charged with protecting natural resources for ‘use’ by the public. Within these agencies, the scientific community serves as ‘experts’ for the purpose of informing administrative regulatory decision-making guiding those ‘uses,’ which often consist of energy extraction.

Given this conflict between agency-based mission and mandate, the scientific community’s ability to impact national climate policy, particularly in the US, has proven marginal at best. Therefore, if Arctic policy is driven by individual domestic agendas
Based on domestic natural resource mandates, the problems associated with climate change—particularly in the Arctic Region—will continue unabated, as energy superpowers race to drop the deepest straw into the Arctic’s untapped energy resources. In contrast, the fragmented nature of Arctic governance, and the potential for a very different hierarchical structure of power brokers if the Arctic is governed by its Council mandate, offers a unique potential for the scientific community to impact, and/or be impacted by, how the Arctic is governed in ways that are not available at the level of an individual nation or corporation.

At the domestic level, the scientific community is currently ill-equipped to challenge the political and economic power of the energy development community. Across the governing bodies of the Arctic Council, however, scientists from member nations compose the vast majority of policymaking positions (www.arctic-council.org). This unprecedented level of involvement does not occur anywhere else in the world. Thus, understanding and acting on their role in the ‘governance feedback loop’ of policymaking would give the scientific community a fighting chance to influence the energy and climate policy of the Arctic Council, with its unique mission and mandate to protect the environmental and scientific integrity of the Arctic Region.

**Conclusion**

While there is no prescriptive formula by which the scientific community can take on this challenge, a number of important questions are raised by using subgovernance theory to identify and rank the scientific community among all of the actors who will ultimately determine Arctic regional policy, and its implications for energy and climate. As each nation takes its turn to lead the Arctic Council, are there specific resource development proposals that have been made, or should be made, on which that nation’s scientists might offer legal or regulatory comment? What of nations designated with observer status to the Council: might they hold the key for positively influencing resource development proposals deliberated by the standing member nations? And is there reason to believe that policy decisions made by the Arctic Council would be honored and enforced, given that the record of success from other international bodies on other issues beyond national jurisdiction is mixed?

When energy superpowers such as the US and Russia lead the Arctic Council, it is an open question whether those states will defend and adhere to the Arctic Council’s mission, or defer to the political and economic power that corporate and national energy development interests currently wield over their respective domestic governments. However, there is legal precedence in international law/treaty enforcement suggesting the agreed-upon mission of the Arctic Council would supersede any attempts by members of the Arctic Council to develop the Arctic’s energy resources without the Council’s approval (at best) or without adhering to the Council’s legal and regulatory conditions (at worst). And if energy resource development entities—including both nations and corporations—were required to navigate an Arctic Council-derived body of law or regulations to develop its resources, there is potential for the scientific community to rise further in influence, perhaps even to the top of the Arctic Council’s subgovernment policymaking hierarchical power arrangement. If this were...
to occur, it is not inconceivable that energy-developing entities would then be in deference to the scientific community, rather than the other way around, as they are domestically.

Scientists’ hierarchical position of influence is much higher within the Arctic Council’s subgovernment policymaking environment than at the domestic level within the nations that make up the Council. By incorporating governance into the Arctic climate/resource feedback loop, the scientific community can begin to explore potential strategies to counterbalance those employed by the energy development community to dominate the Arctic Council’s subgovernment policymaking environment. Specifically, scientists have the potential to exert a negative or dampening influence on what may be otherwise a nearly uncontrollable positive feedback cycle between global change, Arctic warming, and resource economics.

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