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Amplifying “Keep It in the Ground” First-Movers: Toward a Comparative Framework

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ABSTRACT

This article offers a framework for analyzing and extending the recent wave of national “keep it in the ground” (KIIG) bans on fossil fuel exploration and production. We situate this discussion in new theoretical work on decarbonization acceleration and then present an overview of KIIG movement and policy development. Next, drawing on the burgeoning supply side climate policy literature, we outline major barriers to constraining fossil fuel development, then focus on identifying conditions most conducive for KIIG policy. These include locally-rooted campaigns, the development of a pro-KIIG constituency that is horizontally dense and vertically integrated, resonant message framing, and support by well-placed norm entrepreneurs. We argue that early national efforts to keep fossil fuels in the ground demarcate a critical juncture in global climate policy. Understanding the trajectory of these bans is a first step in extending these initiatives as part of the pathway to carbon neutrality by 2050.

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Introduction

In response to the mounting climate crisis, researchers and policymakers have primarily focused on demand-side policies to control emissions at the “end of the pipe,” where fossil fuels are consumed. However, over the last decade research has increasingly considered the source of emissions. This new body of work documents how fossil fuels are predominantly and increasingly responsible for the climate crisis, and demonstrates that two-thirds of existing reserves must remain in the ground to preserve some semblance of climate stability (Aykut and Castro 2017; Bauer, Brecha, and Luderer 2012; Davis, Caldeira, and Matthews 2010; Meinshausen et al. 2009; Ekwurzel et al. 2017; Kartha 2016; McGlade and Ekins 2015; Muttitt 2016; Rogelj et al. 2015). The urgency to curtail fossil fuel supply is growing. The average global temperature continues to rise, driven by fossil fuel emissions (Jackson et al. 2019). Meanwhile, large fossil fuel producers like the United States and Canada unrelentingly invest in oil and gas extraction. By 2024, fossil fuel firms globally plan to invest a further 1.4 trillion USD in new projects (Global Oil and Gas Network 2019). At this pace, by 2030 the global community will

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produce 120% more fossil fuels than is consistent with maintaining a 1.5 °C warming limit (SEI et al. 2019).

New supply-side climate policy research explores winding down and phasing out fossil fuel production through “supportive” instruments (for example providing funding to low carbon infrastructure) or “restrictive” ones (such as applying fossil fuel production quotas) (Green and Denniss 2018). Bans or moratoria on fossil fuel extraction enacted by governments feature among policies to constrain supply. Gaulin and Le Billon describe bans as “potentially the most effective supply-side initiatives” (2020, 8) because they stem the flow of fossil fuels at their point of origin. While they have become more widespread since 2010, the vast majority of bans have been local or subnational, often relating to banning a particular form of extraction (hydraulic fracturation). However, our focus here is on the recent wave of “keep it in the ground” (KIIG) policies enacted by nation states. Costa Rica moved first to implement a moratorium on oil exploration and extraction in 2002. But starting in late 2017, numerous other nation states implemented bans on oil and/or gas exploration or production, notably France, Belize, Denmark, New Zealand, and Ireland; meanwhile, Spain and Germany enacted coal mining bans.

Countries with large, emissions-intensive reserves are called to take a leadership role in phasing out fossil fuel supply (Green and Finighan 2012; Hoel 2013; Voorhar and Myllyvirta 2013), with the onus on wealthy states with high institutional capacity (Jewell et al. 2019). According to global distributive justice criteria developed by Lenferna (2018), the first countries to abandon fossil fuels extraction should be wealthy states with carbon-intensive fossil fuel reserves from which they have benefited historically. Yet major exporting countries are KIIG-recalcitrant. So the recent wave of national KIIG bans has been led instead primarily by rich developed states with the capacity to transition, but *without* significant reserves or high dependence on fossil fuel extraction.¹

Nonetheless, this new series of national bans is opening an avenue for confronting the climate crisis and re-imagining global energy futures. Seen from the perspective of theoretical research on triggering decarbonization acceleration, national KIIG policies are a core component of global climate policy reorientation. These first-mover countries are triggering a normative shift that may well be adopted by other states and in international climate governance to influence major producers.

While in theory we have a sense of the value of these new national bans on oil extraction, we know little about how they arise and might be amplified, either by being scaled up to international institutions or diffused across states. As a first step, we need empirical comparative studies documenting pathways to their implementation and extension. Therefore in this paper we propose a framework for explaining ban adoption, one that is now guiding our on-going international comparative case studies of national KIIG first-movers. First we situate our analysis in decarbonization acceleration and describe the development of the KIIG notion and movements. Next, surveying the growing supply side climate policy literature in conversation with more well-established social movement scholarship, we outline major barriers to constraining fossil fuel development, then focus on identifying conditions most conducive for KIIG policy.

Accelerating Decarbonization

New theoretical research on accelerating decarbonization is motivated by the failure of standard demand-side solutions—carbon pricing and trading and technological developments—to deliver deep emission reductions. At the same time, this work is inspired by advances in highly interdisciplinary critical transitions research (i.e., Scheffer 2009). Researchers contributing to this new vein explore what interacting socio-cultural, political-economic, and technological interventions can trigger broad transformations that ensure climatic stability by 2050, with noteworthy contributions emphasizing the *politics* of deep decarbonization (Bernstein and Hoffmann 2019; Geels et al. 2017; Roberts et al. 2018; Otto et al., 2020).

The burgeoning decarbonization acceleration literature identifies an array of elements that foster or block widespread decarbonization, notably: coalitions (a broad-based constituency pressing for change, counterposed against coalitions protecting fossil fuel-based systems); ideational or cultural notions that align more readily with decarbonization or make it more difficult (the latter created via historical dependency on extractive-based development); and government policies fostering coalitions or political consensus that support or block decarbonization. These interacting factors are couched in wider structural or systemic conditions such as economic circumstances, available technology, natural resource endowments, and forms of socio-political-economic development histories and regimes (for instance, particular varieties of capitalism). Moreover, decarbonization is theorized to be aided by unpredictable and often exogenous conditions, such as pressure for ambitious emissions reductions arising from external actors, the rise of politically or culturally powerful norm entrepreneurs, or changing conditions (citizens' experience of an abrupt ecological crisis, for instance) that can provide an opening for shifts in coalitions' comparative power, the evolution of ideas, and new spaces for innovative policy.

This literature aligns with a now classic analytical approach in comparative political economy (Lichbach and Zuckerman 1997; Hall 1997), which builds comprehensive, multidimensional understandings of change (or stasis) by weaving together analysis of institutional structure, the interplay of rational actors, and dominant societal ideas. However the decarbonization acceleration literature offers intriguing insights on how particular initiatives can trigger tipping points resulting in cascading change across interconnected systems. Otto et al. (2020), for example, have begun to isolate social tipping points that, if adopted by an influential group of early adopters could unleash an “avalanche effect” (7) toward decarbonization—if these interventions are stabilized via government policy. Small interventions can result in big change via three mechanisms. They can scale up to other levels of analysis (from national sites to international governance levels, for instance), or be diffused across similar jurisdictions (from one state to another). Alternatively, they can create momentum for other decarbonization initiatives, each with ripple effects of their own, by boosting ambition within the given jurisdiction (Bernstein and Hoffmann 2018).

As decarbonization acceleration research has been largely theoretical, scholars call for research on the “trajectories and functioning” (Bernstein and Hoffmann 2018, 252) of initiatives that can be leveraged to spark widespread change. National KIIG bans are one example of altering socio-political and financial conditions and opening policy

spaces to hasten decarbonization. Indeed, these bans involve multiple tipping points identified by Otto et al. as central to a “decarbonization breakthrough” (2020, 8). Bans on fossil fuel extraction at the state level involve (1) turning away from fossil-based energy systems toward renewable ones, (2) fostering financial market shifts away from fossil fuels—seen most obviously in the link between KIIG bans and divestment campaigns, and (3) seeking new patterns of human settlement—states that are no longer dependent on fossil fuels. Further, KIIG bans are (4) motivated by new conceptions of fossil fuels as immoral, and (5) they boost public awareness about the climate crisis and the responsibility of the fossil fuel sector for that crisis, channeling public energy into campaigns to end fossil fuel extraction through regulatory changes. National KIIG bans are emerging as a decarbonization acceleration focal point focused on fossil fuel supply with potentially transformative impact.

Origins of Keeping Fossil Fuels in the Ground

The call to keep fossil fuels in the ground to preserve a safe climate that national governments are now implementing originates from longstanding community resistance to fossil fuel extraction and non-governmental research and advocacy. While one of the earliest recommendations for limiting fossil fuel extraction to restrain global warming came from a 1989 report by the Netherlands government (Krause 1989),² the KIIG notion developed more so via landmark community movements against fossil fuel extraction arising in the mid-1990s in Nigeria and Ecuador. These movements motivated the creation of Oilwatch, a non-governmental organization advocating moratoria on fossil fuel extraction in local communities and at international climate negotiations since the 1997 Kyoto Protocol. That year, Greenpeace released a report documenting that the consumption of known fossil fuel reserves would exceed, by twofold, a global carbon budget based on keeping global warming at 2 °C (Hare 1997). It took ten years for that argument to rise to public prominence, in the form of a 2007 article in the *Guardian* by journalist George Monbiot. Frustrated by the lack of progress at the United Nations COP-13 meetings, Monbiot declared he had found a “radical new kind of carbon capture and storage,” to solve the climate crisis: “leaving fossil fuels in the ground” (Monbiot 2007).

The following year marked a turning point in resistance to fossil fuel extraction in major producing states, as seen in the initiation of major opposition to pipeline projects in the US, and to coal extraction in Germany and Australia. Many of these efforts were consolidated in 2011 via the “Leave it in the Ground Coalition” (now LINGO). Inspired by Carbon Tracker’s “Unburnable Carbon” report (2011), 350.org’s Bill McKibben launched a global divestment movement aiming to undermine fossil fuel companies’ extraction plans (Hulac 2018). Meanwhile, by 2012, an international movement against fracking had emerged.

Independent research institutes continued to contribute to KIIG policy. Notably, Environmental Justice Organizations, Liabilities and Trade and Oilwatch (Temper et al. 2013) recommended a global moratorium on oil exploration and extraction in Indigenous territories and protected areas, just as the Stockholm Environmental Institute began releasing research on the impact of fossil fuel supply and infrastructure

on the climate crisis, research that developed into a clear call for KIIG (Lazarus, Erickson, and Tempest 2015). Then, in 2016, a new Oil Change International report demonstrated that *existing* coal mines and oil and gas fields exceeded Paris Agreement targets (Muttitt 2016) as Oxfam delineated which fossil fuel assets should be phased out on the basis of countries' responsibility for climate change and their capacity to transition (Caney 2016).

Globally intensifying KIIG movements and policy research were consolidated in the 2016 "Lofoten Declaration for a Managed Decline of Fossil Fuel Production around the World." The KIIG notion began to be reflected in United Nations Framework Convention on Climate Change (UNFCCC) discussions at this time as well.³ The Intergovernmental Panel on Climate Change (IPCC) had drawn attention to the climate/fossil fuel quandary in its 2014 assessment report, showing global fossil fuel reserves far exceeded a climate-safe carbon budget. Even so, the 2015 Paris Agreement, while it was historic in establishing a legally binding agreement with a 2-degree warming limit and a 2050 deadline for reaching net zero global emissions, made no mention of fossil fuels. State and non-state actors therefore continued to press the UNFCCC regime to foreground the implications of this agreement on fossil fuel supply. Oilwatch recommended the UNFCCC Secretariat create "Annex 0" states—a group committed to KIIG (Oilwatch 2015). Kiribati's President Anote Tong urged world leaders to ban new coal mines and extensions. Pacific Island leaders created the Suva Declaration calling on UNFCCC parties to initiate fossil fuel moratoria, especially on coal mining. The international community has begun to make progress on coal, as exemplified in the 2017 Powering Past Coal Alliance (Blondeel, Van de Graaf, and Haesebrouck 2020).⁴ Even so, the 47 least developed countries emphasized at COP 23 that the global response to the climate crisis must foreground a managed phase-out of all fossil fuels (Democratic Republic of Ethiopia 2017).

National governments, however, have been quicker to adopt policy to prevent fossil fuel extraction. In 2002, Costa Rica implemented a moratorium on oil exploration and extraction—the first national KIIG policy, which was extended in 2011 and 2014. In 2007, Ecuador attempted to prevent oil extraction given climate and local biodiversity and Indigenous community concerns. The Yasuní-ITT Initiative asked the international community to compensate Ecuador for preventing oil extraction and fund decarbonization efforts (Sovacool and Scarpaci 2016), but it folded in 2013 due to a lack of support. Partial KIIG legislation has also arisen in national and subnational bans on hydraulic fracturing since the 1990s (Carter and Eaton 2016), and formal initiatives to wind down some aspect of fossil fuel extraction have appeared even in the world's most entrenched fossil fuel producers and consumers.

Yet the development of the KIIG notion entered a new phase in late 2017 when national governments began to enact policies to keep fossil fuels in the ground. In December 2017, France announced it would phase out oil and gas exploration and production, a move quickly followed by Belize (which announced a moratorium on all offshore oil activity in late December 2017), Denmark (implemented a ban on onshore oil and gas exploration in February 2018), New Zealand (banned new offshore oil exploration licenses in April 2018), and Ireland (enacted a ban on future oil exploration licenses in September 2019). We identify these countries, plus Costa

Rica, as global first movers to implement national policy to keep oil in the ground. Meanwhile, country-level bans are arising to stop the flow of coal. Spain committed to close most of its coal mines in October 2018 and Germany initiated plans to end coal mining and phase out coal-fired plants in January 2019 (see Gaulin and Le Billon (2020) evolving database tracking these bans).

Barriers to National KIIG Policy

As predicted by Benedikter et al. (2016a), within just the last three years a powerful transnational movement for KIIG has begun to coalesce, with important policy impact. Since the end of the 2000s, scholarly research on the need to confront fossil fuel supply has also been growing steadily. Notable early examples include work by Meinshausen et al. (2009), who lent support to Hare's (1997) argument that fossil fuel reserves far outstripped a 2-degree warming limit carbon budget. In 2010, Davis et al. extended the supply side analysis to warn against additional fossil fuel infrastructure. By 2011, Nishimura and Yasumoto argued the UNFCCC Secretariat ought to create "a single global upstream carbon market" to curtail the right to extract (Nishimura and Yasumoto 2011). The scholarly literature on supply side and KIIG policy intensified starting in 2015, as seen in key contributions by Benedikter et al. (2016a), Blondeel, Van de Graaf, and Haesebrouck (2020), Collins and Mendelevitch (2015), Erickson and Lazarus (2015), Erickson, Lazarus, and Piggot (2018), Faehn et al. (2017), Frumhoff, Heede, and Oreskes (2015), Gaulin and Le Billon (2020), Green (2018a, 2018b), Green and Denniss (2018), Harrison (2015), Lazarus and van Asselt (2018), Lazarus, Erickson, and Tempest (2015), Le Billon and Kristoffersen (2019), Lenferna (2018), Newell and Simms (2019), Piggot (2018), Piggot et al. (2018), Princen, Manno, and Martine (2015), and Strauch, Dordi, and Carter (2020). These researchers have established supply control policy as a fundamental policy tool alongside demand-side policies to address climate change.

Supply side literature identifies formidable and interconnected barriers to national KIIG policy, echoing Unruh's (2000) "carbon lock-in" concept, which describes how industrial economies become committed to fossil fuel-based energy systems via multifaceted, path-dependent processes of the "co-evolution of technological systems and institutions" (827). It is under these conditions that policy and market failures abound and the development and propagation of renewable energies is hindered, despite commercial and environmental benefits.

Entrenched Fossil Fuel Firms

Large fossil fuel firms, or associations representing them, have significant political power that they actively deploy through lobbying or campaign financing (Downie 2017). The fossil fuel sector, especially in countries with significant extractive resources, is well-resourced to undertake continual political interventions (Brulle 2018). Moreover, these firms coordinate with each other and with policy-makers more easily than a disparate and decentralized decarbonization movement (Carroll 2017, 2020; Hess 2016; Trencher et al. 2019).

Fossil Fuel Dependent Governments

In countries without a nationalized oil and gas sector, private sector firms pressure governments to ensure continued access to resources. Meanwhile, governments in states or regions where fossil fuels are extracted rely on revenues from fossil fuel activity to fund public services. This dual dynamic of industry pressure and government dependence has widespread institutional impact. Industry actors have preferential access to government decision-making and regulatory authorities, raising concerns about regulatory capture—that governance decisions are based not on the public interest but rather on industry priorities (Carpenter and Moss 2013; Portman 2014). Alongside the possibility of regulatory capture and economic dependence on high-carbon energy production, there are other institutional benefits extended by governments to support continued fossil fuel activity, such as subsidies (Coady et al. 2019).

Fossil Fuel Dependent Regions or Communities

At the same time as this pro-fossil fuel synergy develops between firms and governments, communities experience their own form of lock-in,⁵ given the employment opportunities, royalties that are crucial for government spending, economic activity associated with the industry at a regional or local level, as well as other public interventions (donations and public relations campaigns) made by companies. These pressures have institutional repercussions, with local governments actively retooling policy frameworks to welcome fossil fuel activity (Enoch and Eaton 2018).

Infrastructure Lock-In

The fossil fuel activity on which firms, governments, and communities become reliant is dependent on infrastructure that, in itself, also contributes to the high-carbon energy entrenchment dynamic. Extraction facilities, refineries, pipelines, and transmission infrastructure all incur significant upfront investment. Given the expense of these infrastructure projects, energy firms expect to recuperate investment costs through long-term operation (Unruh 2000; Trencher et al. 2019). Governments and communities that support the infrastructure construction signal their commitment to long-term fossil energy consumption. Additionally, certain types of technologies (often those that serve the dominant industry activity, in this case the pipelines and refineries that support oil and gas extraction) are often privileged over newer or less certain innovations (Erickson, Lazarus, and Tempest 2015).

Petrocultures

More broadly, the cultural embeddedness of oil and gas production presents an overarching obstacle to national KIIG policy. States and communities dependent on the industry come to associate industrial activities with cultural identity—an impression actively fostered by governments and firms. The literature on the rise of the “petroculture”—a society where values and beliefs are impacted by the central role of fossil fuels—underscores the difficulty of decarbonization in working against some of these deeply ingrained beliefs, especially in states with a long history of fossil fuel dependence (Szeman 2017, 2019;

Bridge 2013; Haley 2011; Huber 2013). Rich-world major fossil fuel producing states even employ morally charged rhetoric to protect fossil fuel extraction. Proponents of the Australian coal sector, for example, argue that expanded coal extraction is required for “the energy-poor of the developing world” (Lucas 2016, 64). In Canada, tar sands proponents argue bitumen is a more “ethical” fossil fuel than reserves from authoritarian states with weaker environmental regulations and human rights protections (Levant 2010). Norwegian Oil and Energy Ministry officials argue their oil production will benefit the global climate, given Norway’s oil emissions are lower than the global average and it can easily replace higher-emitting coal in Europe (Bang and Lahn 2018).

United Nations’ Demand-Side Focus

Looking above the level of the nation state and particular fossil fuel-dependent regions, a final feature of carbon lock-in is the lack of international leadership on curtailing fossil fuel extraction. This is notable in the UNFCCC regime, the governance body focused on the global response to the climate crisis. Since its inception in 1992, it has focused entirely on controlling emissions where fossil fuels are consumed, and been silent on fossil fuel supply, leaving the question of extraction to the market (Aykut and Castro 2017; Muttitt 2016). The UNFCCC Secretariat has entertained selective supply side measures; for example, the 1998 Kyoto Protocol urged Annex 1 parties to reduce subsidies supporting sectors that conflicted with the Convention’s emission reduction goal. Yet to date, international climate agreements have not provided support for member states or nonparty stakeholders to keep fossil fuel reserves in the ground.

Taking these barriers together, KIIG policy is impeded by a multifaceted carbon lock-in dynamic, where fossil fuel firms protect access to extraction and governments and communities retool institutions to foster the carbon extraction activities on which they are dependent—influenced also by the long lifespan and significant costs of fossil fuel infrastructure. These interactions unfold in an overarching cultural context that is accepting of and even promotes fossil energy dependence, as well as within an international institutional setting that does not yet confront fossil fuel supply.

Pathways to National KIIG Bans

The power of carbon lock-in is formidable. Nonetheless, a set of countries has avoided or effectively countered “carbon entanglement” (Gurría 2013) and proposed national bans on fossil fuel exploration or extraction. What combination or interaction of conditions made national KIIG policy possible in these cases? Based on well-established social movement literature, new theoretical work on supply side climate policy, and our ongoing research in France and Ireland (two of the global first-mover cases), we identify several conditions conducive for national KIIG policy. This is a foundation for future case analysis and perhaps the beginning of a roadmap to ban diffusion.

Rooted Locally

Bans on fossil fuel exploration or extraction are likely to originate in locally-oriented campaigns that scale up to create pressure for more encompassing bans on extraction.

Mounting very focused campaigns against fossil fuel extraction or transportation projects is a training ground for movement participants. Networks created to resist one project can be turned toward subsequent proposals (Boudet and McAdam 2012). Success in one area, on one issue—one pipeline stalled, one local ban on fracking—builds a feeling of political efficacy that is diffused to other sites of resistance, setting the stage for calls for broader bans (Green 2018a, 2018b). Campaigns focused on local impacts, such as community water quality, can help foster engagement with what is sometimes perceived as the less directly felt issue of the climate crisis (Fusco and Carter 2017; Harrison 2018).

This transition from local campaigns against specific instances of fossil fuel extraction or transportation to more encompassing bans appears to be replicated in several of the KIIG policy first-mover cases. Our research on first-mover cases is revealing that many of these ground-breaking bans began as broad-based, locally driven civil society mobilizations—aided by better resourced and more experienced international civil society organizations (CSOs)—triggered by community concerns about the impact of oil exploration on fisheries or tourism sectors, or well contamination and health impacts. These initial oppositional movements were not necessarily focused on the climate crisis; however, local contestation of fossil fuel projects can easily be linked to confront that broader global issue (Cheon and Urpelainen 2018).

Put simply, mobilization against individual projects sparked in response to very local concerns appears to be a gateway to more generalized KIIG activism pressing for policy for keeping fossil fuels in the ground. Spreading local community resistance can also reveal the high local costs of economic activity associated with fossil fuels, which can begin to undermine support for the sector in extractive communities.

Supported by Horizontally and Vertically Integrated Constituencies

The entrenched fossil fuel coalition—a daunting force that draws on extensive financial resources, legal expertise, lobbying power, political and media access—is a primary barrier to KIIG policy. However, local or subnational organizations working with larger CSOs can become a counterweight to fossil fuel interests and carbon-entrenched governments (Benedikter et al. 2016b; Sovacool and Scarpaci 2016) if constituencies opposing fossil fuels and proposing decarbonized energy systems develop along both horizontal and vertical axes. Both horizontally-dense and vertically-resourced alliances appear pivotal in resisting entrenched fossil fuel interests and opening space for KIIG policy development.

Horizontal integration is needed across traditional silos in the political context, taking the form of a diverse and integrated alliance between groups that may not yet have joined the climate policy debate. Such a broad-based movement could include green sector or non-fossil fuel sector firms and workers invested in decarbonization (i.e., renewable energy) or those threatened by the industry (for example tourism operators, ranchers, or fishery workers), alongside environmental organizations, Indigenous communities, faith groups, and more (Piggot 2018; Steinman 2019). This counter-fossil-fuel constituency can be facilitated by governments offering subsidies or incentives to non-oil sector actors to bolster their position relative to the fossil fuel sector (Green and Denniss 2018; Seto et al. 2016).

Collaborative efforts to develop “just transition” policies exemplify the broad-based movement needed to foster national KIIG policies. Implementing strategies to equitably and sustainably manage a shift toward a low-carbon economy without placing undue burdens on those communities that stand to lose the most (Green and Gambhir 2019) involves participation from a wide cross-section of society. It also offers an opportunity to transform communities committed to the extractive sectors into green transition proponents (Delina and Sovacool 2018; Goddard and Farrelly 2018; Healy and Barry 2017).

The efficacy of local KIIG movements is simultaneously enhanced when they reach up to draw on external organizations—to more “distant allies” (Nicholls 2009)—for support (Boudet and McAdam 2012). These vertical connections are likely to be strengthened as long “chains of energy injustice” are revealed, extending from fossil fuel extraction to combustion and on to disposal (Healy, Stephens, and Malin 2019, 220). National or international CSOs provide clear goals and structure to a developing KIIG movement, share insights on effective framing, and channel resources such as funds as well as communications and legal expertise (McCarthy 1996; McCarthy and Zald 2015). One of the most visible forms of support offered by larger CSOs is planning and coordinating actions, linking local actions to national or international events that can establish legitimacy and credibility as well as demonstrate the breadth of the constituency, and using “repertoires” of contention (Tarrow and Tilly 2015) that draw policymakers’ attention and recruit movement participants. With the support of larger organizations, KIIG movements employ a range of tactics including acts of civil disobedience, divestment/boycotts, litigation, lobbying, and public education and research (Piggot 2018).

Fostered by Seizing Leverage Points

KIIG bans are also effectively promoted by movements that seize (or create) key political opportunities to pressure political leaders more effectively. These openings can be routine and predictable, like elections, budget releases, or consultative processes. Or they can be more random and unpredictable, coming as a result of exogenous shocks like climate-induced disasters, accidents at fossil fuel sites, or new research exposing the risks of status quo extraction. Political opportunities reveal new allies, or expose the vulnerability of fossil fuel entrenched firms and governments, which signal that collective action might have a chance of succeeding—they create “institutional plasticity” that allows groups to press effectively for fossil fuel bans (Seto et al. 2016; Piggot 2018).

KIIG movements are indeed taking advantage of significant institutional shifts that are underway in unlikely sites of climate leadership, for example major financial and insurance firms withdrawing from fossil fuel projects, moves that provide financial legitimacy to the KIIG movement. They are also creating institutional openings, as seen in the example of McKibben translating Carbon Tracker Initiative reports into a campaign, sparking divestment and KIIG initiatives across the US and Canada.

Aided by Well-Placed Allies

KIIG policy is also bolstered by prominent policy or “norm entrepreneurs” (Green 2018a) within the state or outside it that work independently from, but in tandem with,

KIIG-advocating CSOs at a variety of levels, from local contexts to international institutions. These individuals, attuned to the climate implications of growing fossil fuel supply, have prominent standing in institutions and so can lend legitimacy to KIIG movements and create openings for them to advocate KIIG policy (Finnemore and Sikkink 1998; Piggot et al. 2018). Prominent examples include President Rafael Correa of Ecuador who championed the Yasuni-ITT initiative, Bank of England Governor Mark Carney who has worked for institutional reform in the financial sector to encourage net-zero investing and accounting of climate risks, and Pope Francis who supported winding down fossil fuels in his 2015 encyclical letter.

Sparked and Sustained by Resonant Ideas

If organizational capacity is the muscle of national KIIG movements that are fostering ground-breaking policy to ban extraction, issue framing is the motivation driving this innovative policy. Social movement scholars have long noted how movement organizers must define the problem to be confronted in a way that resonates with mobilization participants and targeted political leaders. Describing an issue as contrary to shared identities or an injustice, for example, “dignifies” (Tarrow, Tilly, and McAdam 2001) collective action and can sustain social movements. Presenting a clear vision for a future when the problem is overcome and justice delivered is likewise a powerfully motivating frame (McAdam 1982; McCarthy, Smith, and Zald 1996).

KIIG bans are justified based on convincing narratives that challenge entrenched petro-cultures (Piggot 2018). As Green (2018a) argues, the “anti-fossil fuel norms” on which KIIG advocates draw are compelling. Focusing on fossil fuel extraction and infrastructure is a very tangible and easy way to understand the solution to the climate crisis—far more so than highly complex demand side solutions that place burdens on individual consumers with a limited agency to confront entrenched fossil fuel-based energy and transportation systems (see also Green 2018b). Proponents of KIIG policy also identify a clear “enemy” (fossil fuels and those who explore for and extract them) (Mangat, Dalby, and Paterson 2018), and a straightforward demand: stop extracting. At its root, the call to keep fossil fuels in the ground is an appeal to rectify a clear injustice: to prevent those who have gained extreme benefit while causing climate change from doing more harm (Heede 2014; Frumhoff, Heede, and Oreskes 2015; Oreskes and Frumhoff 2015).

Support for KIIG policy is also built from local environmental justice concerns revolving around the ecological, health, and community consequences (not least of all the infringement of Indigenous rights and sovereignty) across the full chain of fossil fuel extractive activities (O’Rourke and Donnelly 2003; Healy, Stephens, and Malin 2019). In addition, those advocating fossil fuel bans emphasize the hypocrisy of governments contradicting lofty international emission reduction pledges by fostering fossil fuel development, urging them to align fossil fuel sector policy with international commitments (Cheon and Urpelainen 2018).

KIIG proponents can also challenge fossil fuel extraction promoters’ insistence on the economic benefits of fossil fuel-based development, reinterpreting fossil fuel extraction and infrastructure as economically risky given environmental liability left to

communities, impacts on other more sustainable sectors (fisheries, tourism), and the treat of fossil fuel reserves becoming “stranded assets” (Bang and Lahn 2018; Carter and Fusco 2017). As argued by Blondeel, Colgan, and Van de Graaf (2019), campaigns against fossil fuels can be more easily implemented when justified in terms of economic stability as well as environmental ones.

Beyond highlighting injustice and economic risk, fostering national KIIG policy depend on advocates presenting appealing visions of low carbon lifestyles, after fossil fuels (Benedikter et al. 2016b, Princen, Manno, and Martine 2015). Using Klein’s (2017) formulation, the movement needs imagination: a vision of a place to leap toward, away from fossil fuel entrenchment.

To summarize, we understand bans on fossil fuel extraction as more likely to be implemented when locally-grounded movements, horizontally and vertically organized into a KIIG constituency, communicate resonant anti-fossil fuel and pro-decarbonization ideas, seize (or create) political opportunities, and are bolstered by institutional legitimacy and openings provided by credible, well-placed allies. Each of these elements responds to carbon lock-in dynamics impeding fossil fuel curtailment, with the exception of the reluctance of the UNFCCC to foreground supply side measures. Yet there are early signals that the UNFCCC Secretariat may be convinced to provide international institutional support for state-led KIIG initiatives.

Pressure is growing on the UNFCCC regime to encourage bans on new production or phase out production, exerted by international non-governmental organizations and scholars (van Asselt 2014; Newell and Simms 2019; Asheim et al. 2019; Blondeel and Van de Graaf 2018). Notably, Oil Change International has underscored that preventing new fossil fuel extraction and infrastructure and winding down existing production were necessary to align global emissions with the UNFCCC’s 2015 Paris Agreement targets (Muttitt 2016). The Stockholm Environment Institute has also urged the UNFCCC Secretariat to end its silence on the need to wind down fossil fuel production to meet international emission reduction targets and described how UNFCCC agreements and Parties could address fossil fuel supply, which included phasing down fossil fuel production via moratoria on new exploration, extraction, and infrastructure (Piggot et al. 2017; Verkuijl et al. 2018). Meanwhile the International Institute for Sustainable Development has underscored opportunities, such as the 2018 Talanoa Dialogue, for boosting climate action by “putting fossil fuel phase-out on the international climate agenda” (Gerasimchuk et al. 2018), and urged the UNFCCC Secretariat to encourage parties to include fossil fuel phase-out targets as part of new 2020 Nationally Determined Contributions, which could include moratoria on new fossil fuel projects. Member states also press for change, notably the Least Developed Countries Group has argued that a discussion of managing a fossil fuel phaseout is integral to fostering more ambitious emission reductions for future negotiations (Democratic Republic of Ethiopia 2017).

Stark warnings from the scientific community are making the UNFCCC Secretariat’s avoidance of this supply side tool increasingly untenable as well. The IPCC’s fall 2018 report identified fossil fuels as a significant challenge to mitigation and cited the need for supply reduction policy, recommending that to stay within 1.5 degrees of warming, a “Rapid and profound near-term decarbonisation of energy supply” (29) was required, involving the removal of fossil fuel subsidies, decoupling economic growth from fossil

fuels, and decreasing fossil fuel consumption—all with the assumption of phasing out fossil fuels. The groundwork has been laid from multiple sources, from member states, nonmember stakeholders, and scientific advisors alike, for future UNFCCC negotiations to include KIIG policy. International institutional support for sunseting fossil fuels would reinforce existing, and support additional, state-level KIIG policy.

Conclusion: Cascade Potential?

Based on the framework presented here, a constellation of conditions increases the likelihood of national KIIG policy implementation. We anticipate proposals for national KIIG policy to arise from smaller-scale, locally-oriented campaigns that are turned toward advocating more comprehensive bans. Moreover, pressure for policy to keep fossil fuels in the ground is likely organized through diverse, broad-based coalitions that are connected to better-resourced international organizations. These horizontally and vertically coordinated coalitions seize—or create—political openings that improve policy influence. National KIIG bans are meanwhile fostered by norm entrepreneurs who lend legitimacy and credibility to calls for the bans and provide KIIG movements with enhanced political access. And essential throughout is emotionally resonant framing that appeals to a collective sense of (in)justice, emphasizes directly relevant risks, identifies a clear enemy and straightforward solutions, and presents a vision of a positive post-fossil fuel future.

While this is a helpful scaffold for directing research, it needs nuance. Is there evidence of particularly effective combinations of these factors, or their sequencing over time? How precisely are locally-oriented “one-off” campaigns scaled up to broader movements calling for national KIIG policy? How are diverse, broad pro-KIIG coalitions best developed horizontally? What is the most effective method for vertical organizing, where “distant allies” support “on the ground” organizations? Which political opportunities are the most efficient for ban proponents to seize, or to create? What is the optimal dynamic between KIIG movements and key, well-placed individuals in advancing this policy initiative? How can those advocating bans on fossil fuel supply imagine and spread a vision of a viable, appealing future that is no longer reliant on fossil fuels? Analysis of national first-movers’ KIIG policy trajectories is needed to answer these questions.

Yet critics might question the significance of these bans, remarking that they amount to few reserves being kept in the ground in global comparative terms. Few of these bans target the primary sources of fossil fuel supply to be curtailed, as assessed by McGlade and Ekins (2015). Beyond Germany, as noted by Gaulin and Le Billon (2020), to date “no national government among major fossil fuel producers has taken effective supply-side initiatives to cut down production for the main purpose of reducing emissions” (10). What is more, these first bans might be temporary—they can be easily reversed by new governments—and merely result in fossil fuel development investment shifting elsewhere. Fossil fuel firms and their associations continue to resist KIIG movements. Indeed, in major producing states like Canada, a coherent “regime of obstruction” has formed to ensure status quo fossil fuel extraction (Carroll 2020). Moreover, many of these bans are arguably piecemeal, or with delayed impact. Denmark’s ban, for example,

applies only on land and in inland waters—not to the petroleum-rich North Sea. Ireland’s ban covers only future exploration for admittedly uncertain reserves of oil. New Zealand’s ban similarly applies to future exploration licenses in a nearly-depleted oil field; current contracts are permitted to play out. To date, national KIIG policies alone, while showcasing countries’ climate policy leadership, are not reducing fossil fuel supply that is driving global climate crisis (Jewell et al. 2019; Le Billon and Kristoffersen 2019).

Even so, national KIIG bans are opening new terrain in climate policy that may come to influence major fossil fuel producers. These bans have an immediate, powerful symbolic impact: they reinforce the growing perception that fossil fuel extraction is so risky as to merit outright prohibition by states, thereby signaling a new global norm—one that is being noticed by the financial sector. Further, as seen particularly since 2017, bans are spreading. We might be at the early stage of a much larger transition. As Green (2018a) hypothesizes, “once a ‘critical mass’ of states adopts a norm [...] a ‘cascade’ will be triggered, whereby many other states adopt it in rapid succession,” driven by social/reputational benefits (desiring to belong to a select group of climate-progressive states), or by material risks (wanting to avoid losses associated with stranded assets). Should this occur, major fossil fuel producing countries will increasingly face criticism and pressure to align with new global norms introduced by this set of first-mover countries (112–13). Perhaps the next stage in the diffusion of national KIIG bans is the establishment of a coalition of states leading fossil fuel supply restrictions (Gaulin and Le Billon 2020), committing to wind down fossil fuel production to align with 1.5°C warming limits through an agreement such as a Fossil Fuel Nonproliferation Treaty (Newell and Simms 2019).

New theoretical work on decarbonization acceleration urges researchers to explore the development of initiatives that are breaking up climate policy gridlock by confronting fossil fuel dependence, the “fundamental core” of the climate crisis (Bernstein and Hoffmann 2018, 248), and presenting opportunities for rapid, widespread change (Bernstein and Hoffmann 2019; Roberts et al. 2018). National KIIG bans are a striking new example of initiatives with the potential to help trigger a transformative decarbonization leap. Understanding the trajectory of national efforts to keep fossil fuels in the ground is a first step in extending these initiatives as part of the pathway to carbon neutrality by 2050.

Notes

1. This aligns with analysis of Powering Past Coal Alliance membership that found countries were most likely to join if they did not have a strong coal sector (Blondeel, Van de Graaf, and Haesbrouck 2020).
2. As early as a decade prior, industry actors were also aware of the need to limit extraction to mitigate climate change, leaving as much as 80% of reserves in the ground (Song, Banerjee, and Hasemeyer 2015).
3. Note that in 2013 Ecuador urged the UNFCCC to account for “net avoided emissions” and provide international financing to compensate developing countries for leaving fossil fuels in the ground (as in Ecuador’s Yasuní National Park); however, this mechanism was not formally implemented (República de Ecuador 2011).

4. Although this coalition is concerned largely with coal-based electricity generation rather than extraction explicitly, it indicates a rhetorical shift aligned with more explicit KIIG movements and policies.
5. Bernstein and Hoffmann (2019) describe the “fractal” nature of the carbon trap, noting parallel forms of fossil fuel entrenchment at multiple scales.

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