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Energy policy for energy sovereignty: Can policy tools enhance energy sovereignty?

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ABSTRACT

The concept of energy sovereignty redefines the priorities for decision making regarding energy systems while encouraging increased reliance on renewable energy technologies like solar. Energy sovereignty involves centering the inherent right of humans and communities to make decisions about the energy systems they use, including decisions about the sources, scales, and forms of ownership that structure energy access. Current U.S energy policy does not center concerns of energy sovereignty, and in many cases may work against it. Policies to enhance energy sovereignty can accelerate electricity decarbonization while also empowering community scale decision making and offering communities control to reduce the myriad externalities associated with the fossil-fuel energy system.

1. Introduction

Energy sovereignty is an emerging concept that attempts to redefine the priorities for decision making regarding energy systems. Rather than promoting energy security (typically defined in terms of security of the supply of carbon intensive fuel sources for a nation, an understanding anchored in the geopolitics of past crises; see Kruyt et al., 2009; Winzer, 2012) or prioritizing decarbonization (the goal for most policy work emphasizing climate change action as the primary motivation for energy system transitions, see Grubler and Nakicenovic, 1996), energy sovereignty centers the rights of communities and individuals to make their own choices regarding the forms, scales, and sources of energy as well as the patterning and organization of energy usage (Laldjebaev and Sovacool, 2015). Arguably, current energy policy does not prioritize energy sovereignty, and in many cases may work against it.

Sovereignty is conceptualized and practiced in at least two different ways. For Tribal Nations in the U.S., legal sovereignty is inherent to the nation-to-nation relationship with the U.S. federal government (Bronin, 2016), consisting of rights, autonomy, and self-determination. For non-tribal communities, sovereignty may not be legally granted, but involves an inherent sense of the ability to make community-scale decisions about issues like food or energy system development. Both senses are important.

Electrical energy systems in the U.S. are primarily designed and deployed by large corporate entities with little opportunity for meaningful household or community-level input or decision-making (Lovins, 1976). Investor owned utilities are profit-driven electrical energy providers, and they can utilize political power to perpetuate utility structures that benefit their financial interests (associated with large scale and utility owned energy generation) at the expense of the interests of consumers, including both residents and other businesses (who could benefit financially from investment in distributed generation or DG); “utilities hinder DG proliferation through rate cases, legal maneuvers, shifting control from regulators, and selective modeling in the cost of service studies” (Prehoda et al., 2019a, 674; see also Geels, 2014;

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Newell and Paterson, 1998). This can slow the growth of distributed and renewable energy generation such as solar photovoltaic (PV) systems (Pearce and Harris, 2007; Prehoda et al., 2019a).

Energy sovereignty is about empowering people and communities to make decisions about energy systems. Tribal Nations, in particular, are increasingly focused on energy sovereignty (Powell, 2015; Royster, 2008; Stefanelli et al., 2019). Centering energy sovereignty in energy development can help to respect and protect diverse cultural values (Lawrence, 2014; McDonald and Pearce, 2013; Suagee, 2016; Tsosie, 2009, 2013).

Energy sovereignty also applies to community control over the myriad environmental, economic and psychosocial externalities associated with energy production and transportation. The environmental externalities of fossil fuel intensive energy systems are well known and are associated with climate impacts from emissions as well as localized pollution impacts. Environmental externalities can be exacerbated when they are not examined through the lens of sovereignty; for example, mercury pollution resulting from coal combustion has clear negative impacts for human health as it bioaccumulates in the food supply chain, but these impacts are compounded when that food supply (for example, wild harvested fish) has deep cultural and subsistence meanings for particular cultural groups such as Indigenous Americans (Gagnon, 2016; Hoover et al., 2012). Economic externalities include future loss of revenue from tourism or recreation or property taxes subsequent to environmental pollution, while psychosocial impacts include loss of access to culturally significant lands and multiple community and mental health impacts (Shandro et al., 2011; Hirsch et al., 2018). Externalities for Indigenous peoples include resource exploitation, loss of land, and disproportionate burdens of environmental harm, which result in increased health risks compared to the average population (Ranco et al., 2011; Vickery and Hunter, 2016). Externalities are exacerbated by the unique political status of Tribal Nations as having legal sovereignty and also by the cultural dynamics rooted in Indigenous relationships to the environment.

Energy sovereignty is linked to both the supply of energy for legitimate needs (whatever the community would take those to be) as well as the implications of the associated externalities. This brief note describes how the concept of energy sovereignty can be utilized to evaluate the impact of existing energy policy and begins to define priorities for energy policy that promotes solar technology development while simultaneously attending to energy sovereignty. While we cannot fully answer the very large question posed in the title, our hope is that this note offers insight to develop more comprehensive answers through future research.

2. Energy colonialism in rural communities and Tribal Nations

Rural communities throughout the U.S are often directly exposed to the negative consequences of the current carbon intensive energy system through both environmental degradation and negative health impacts (Kelly-Reif and Wing, 2016; Healy et al., 2019). For example, air pollution from coal-fired electricity production is responsible for about 52,000 premature deaths per year, many of whom are in rural communities (Prehoda and Pearce, 2017). Rural communities also have their income directly affected by coal pollution as well, as it reduces farm yields; Burney (2020) found that coal use reductions saved 26,610 American lives and 570 million bushels of corn, wheat, and soybeans between 2005 and 2016. However, these communities often still lack different types of capital – including social, knowledge, cultural, political, and financial capital – that would enable them to participate in energy systems decision making (Bourdieu, 1986; Uphoff, 2000). Historically, this has often resulted in rural communities being dependent on polluting energy resources, to their economic detriment, while also acting as dumping grounds for externalities (Bodley, 2016). Fossil fuel-dependent communities without energy choices are not granted the sovereignty to decide the sources or scales or forms of energy they utilize.

The same is true for Tribal Nations in the U.S., although in even more complex ways. Many members of Indigenous Nations continue to live with the negative economic, educational, and health consequences caused by centuries of colonization and colonized systems of oppression (Center for Native American Youth, 2012). Tribal Nations land can be used to provide the resources necessary to support the ever-hungry carbon intensive fossil fuel-based energy system of the U.S (Cree Dunn, 2019). However, Tribal Nations are limited in their ability to make use of the policy incentives available to support a renewable energy transition because they are limited to entities with taxable status. Cultural, economic, and other structures of inequity also limit the resources available to participate in energy systems transitions decision making. Solar energy, however, has long been promoted as a means of enhancing Tribal Nation sovereignty (Suagee, 1991) as it provides a means of sustainable and self-determined economic development for Tribal Nations (Dreveskracht, 2011, 2013; Hitch et al., 2020).

Energy sovereignty requires that communities are empowered to decide whether to host a pipeline, a coal mine, or a nuclear waste disposal site for which the energy benefits accrue only to those outside the community. For example, at the time of this writing, the Wet'suwet'en are being invaded by Canadian mounted police, and the prime minister has stated that First Nations do not have veto power over energy infrastructure projects (CBC, 2020; Jago, 2020). Given that their territory has never been sold or ceded, this community has a greater claim to sovereignty than most. Yet the existing energy policy regime denies this inherent right.

3. A path forward: energy policy for energy sovereignty

Leveraging the concept of energy sovereignty could accelerate solar energy deployment. Because it is inattentive to issues of energy sovereignty, current energy policy (in the United States and across the globe) does not enhance and in many cases may limit opportunities for energy sovereignty. For example, because the current federal investment tax credit for solar is only available to taxable entities actively limits community-scale ownership of solar energy systems while benefiting large corporations. Because municipalities (and Tribal Nations) are not taxed and therefore are not eligible for the tax credit, they are at a financial disadvantage, which means they seek out private investment firms who can take advantage of the investment tax credit as solar system owners. Lack of ownership limits the ability to control system design and investment decisions.

Furthermore, Tribal Nations face another challenge in seeking private investment firms for solar development, which is not faced by municipalities. Contracts for such investment will be subject to tribal sovereign immunity, with disputes settled through tribal courts, not state courts or binding arbitration. This can be daunting for a private investment in equipment with a 20+ year useful life.

Renewable Portfolio Standards (RPS) typically apply more stringent requirements for private investor owned utilities, because of their status as regulated monopolies, than for public municipal or rural electric cooperative utilities. An RPS allows utilities to meet these requirements with renewable energy production anywhere, not necessarily in the communities (or even the states) that will use that electrical energy. Thus, while an RPS may promote whole energy system decarbonization, it does not enhance energy sovereignty and may even reduce it, potentially robbing communities of the ability to drive decision making regarding the form, design, and use of energy systems.

Finally, tax categorizations based on zoning limit the potential for mixed-use solar energy development combined with community scale agricultural production (called agrivoltaics). This form of solar development has myriad benefits (Dinesh and Pearce, 2016), but because agricultural land must be rezoned to allow solar energy development, effectively increasing the tax burden on these lands, it is often not financially feasible for farmers to develop solar energy systems on their agricultural lands. These are examples of how current energy policy

operates against energy sovereignty.

Energy policy that centers energy sovereignty would promote community level decision making about the sources, scales, and forms of ownership that characterize the energy services system. Promotion of community solar is one example of a technological configuration that could align with principles of energy sovereignty, if they are designed as community-owned solar energy systems for the purpose of community use. Community solar can be designed in multiple ways with benefits for communities and utilities alike (Funkhouser et al., 2015); community solar designed using community engaged research processes that provide for community input can align with principles of energy sovereignty by allowing for community-driven decision making (Prehoda et al., 2019b).

The concept of energy sovereignty emerges from new models of transdisciplinary research in energy policy. Establishing best practices from related cases in sustainability science, some social scientists studying energy policy now emphasize the importance of deep partnerships of collaboration (Hampton and Parker, 2011; Parker et al., 2016) in communities of practice (Cundill et al., 2015). To be productive, such communities must build shared commitments among researchers, policy makers, and citizens, in accordance with standards of data sharing, community-based research, and communication strategies that appreciate the expertise of all involved. Following understood definitions of "transdisciplinarity" (Halvorsen et al., 2019; Jahn et al., 2012), energy policy in Indigenous Nations and rural communities must engage to listen to community experiences and become cognizant of the broader principles of sovereignty. Energy sovereignty therefore follows from and supports an understanding of energy policy as a complex, community-based endeavor.

4. Conclusion

A concept cannot single-handedly define policy priorities, but it can highlight the potentially unintended consequences of policy and areas of opportunity for improvement. Energy policy intended to promote solar energy technology (through, for example, additional add-on incentives or set-aside requirements) can also be designed to enhance energy sovereignty; policy mechanisms for this may, for example, require community engagement as an essential first step in any siting permit considerations or incentivize development that begins with an examination of community energy priorities. Furthermore, the intention of this discussion is to highlight the ways in which the concept of energy sovereignty can become more than a concept, but also a practice; practicing energy sovereignty would require reformulating policy tools to center community decision making regarding their energy futures, and given the clear economic and environmental advantages of renewable energy technology such as solar, energy policy could be formulated to simultaneously promote solar technology and energy sovereignty.

Energy policy designed based on the concept of energy sovereignty would prioritize community voices in energy system decision making, ensuring that communities are given an opportunity to express their right to self-determined sovereignty in energy systems transitions and energy system use. Energy sovereignty is an inherently place-based practice, and policy tools that center energy sovereignty would enhance community capacity to plan for transitions while embracing considerations of the health and wellbeing of communities, both human and non-human, now and in the future. The policy tools most effective for enhancing energy sovereignty may not yet exist, but they are essential for promoting a just energy transition that benefits all communities based on their own understanding of energy transition priorities and values.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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