ENERGY DEMOCRACY: A RESEARCH AGENDA

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ENERGY DEMOCRACY: A RESEARCH AGENDA

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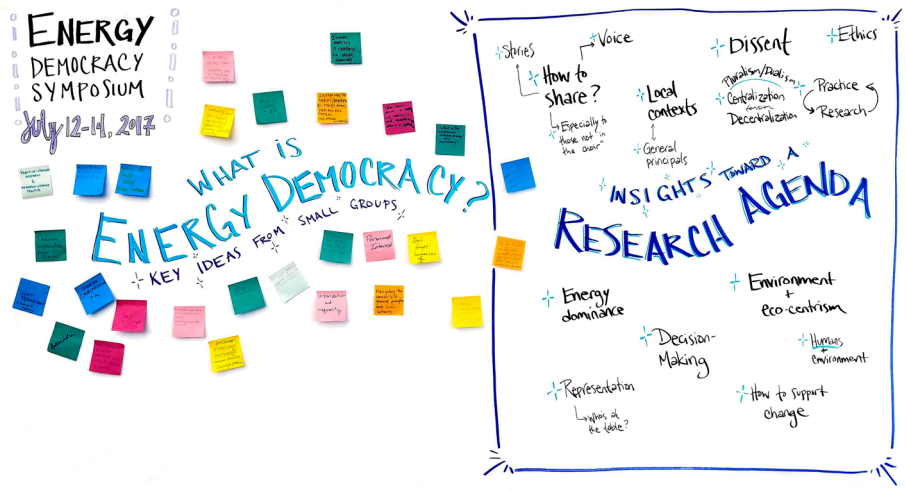

Graphical representation of discussions from the 2017 Energy Democracy Workshop in Salt Lake City, Utah. Image: Karina Branson, CoverSketch Graphic Recording and Facilitation.

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Editorial: A Research Agenda for Energy Democracy

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Editorial on the Research Topic

Energy Democracy

Understanding the full spectrum of research, development, and deployment of energy systems remains one of the most profound sustainability challenges facing society. This is compounded by the need to address climate change both from the perspective of climate mitigation to reduce the rate of change, as well as climate adaption as we seek to make our energy systems more resilient to potential climate-related disasters (Feldpausch-Parker et al., 2017). With energy system change at the crux of complex policy debates that are especially acute in nominally democratic regimes comes an unprecedented opportunity to experiment with new forms of participation and governance. The confluence of social and political upheaval with availability of new energy technologies throughout the world enables unparalleled possibilities for innovation. Although these possibilities are global, nowhere are energy system changes more clearly apparent than in the western democracies of North America and the European Union (Stephens et al., 2015). In response to this upheaval, scholars of science, technology and society (STS), communication, and interdisciplinary energy studies have an opportunity to develop new research pathways for discovering how and when energy system change draws upon democratic principles and how its discourses may, in turn, contribute to a deeper understanding of participatory democracy. Research on energy democracy seeks to (1) understand, critique, and theorize energy system transition from a lens of democratic engagement; (2) articulate energy democracy as a "transdisciplinary network" of engaged research that blends scholarly inquiry with practical action toward making a difference (Sprain et al., 2010); and (3) advocate for research-informed models and practices that contribute to making energy transitions and decisions as democratic as possible within a nexus of global patterns of energy extraction, production, and consumption.

This Research Topic grew from our collective research interests in energy communication (Endres et al., 2016; Cozen et al., 2017), which engages with questions about energy systems, the climate change/energy nexus, social movement, and public participation in energy decision-making. It emerged from our desire to produce engaged research that contributes to ameliorating and adapting to what we see as a crisis that can no longer be ignored: climate change. We seek to compose an engaged research agenda that might contribute to both democratizing energy and addressing the existential climate crisis. With these impulses guiding our collaboration, we hosted an Energy Democracy Symposium at the University of Utah in July 2017. That symposium formalized our engagement with developing a research agenda for energy democracy. The papers in this special topic, some of which were presented at the Energy Democracy Symposium, offer pathways to continue to expand and proliferate research in this area. Our intent is not to take ownership over or predetermine a particular research program. Rather, we hope this Research Topic will highlight ongoing research that falls within an energy democracy frame, catalyze an ongoing scholarly conversation about energy democracy, invite new ideas and perspectives into the conversation, and, ultimately, produce further research that enables scholars, advocates, activists, and policy-makers to contribute to the inevitable energy transition.

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In this introductory essay, we offer a working definition of *energy democracy*, or perhaps more appropriately *energy democracies* (see Chilvers and Pallett). Our definition not only draws from activist efforts to achieve energy democracy, but also reflects a synthesis of ongoing research that might fall under the moniker of energy democracy. Then, we lay out an initial conceptual framework for thinking about energy democracy, rooted in our own research interests, themes we saw emerging in scholarship, and the topics that came up during and after the Energy Democracy Symposium. This framework, which we offer in the hope that it will be challenged, expanded, and strengthened through the collective efforts of scholars and practitioners, positions *participation*, *justice*, and *power* as key components of energy democracy. After unpacking this framework, we highlight the papers included in this Research Topic. Finally, we close with reflections on future directions for a research program in energy democracy.

WHAT IS ENERGY DEMOCRACY?

Energy Democracy is fundamentally rooted in localized struggles and activism that seek to democratize energy systems, including extraction, production, consumption, and decision making. Indeed, we first encountered the term in the communication of activist groups, energy practitioners, and other groups outside of academia. For example, Angel (2016) wrote in *Towards Energy Democracy: Discussions and Outcomes from an International Workshop*:

> From energy access to climate justice and from anti-privatization to workers' rights, people across the world are taking back power over the energy sector, kicking-back against the rule of the market and reimagining how energy might be produced, distributed and used. For many (but not all) movements involved in struggles around energy, the concept of energy democracy is proving increasingly useful as a means of bringing together disparate but clearly linked causes under a shared discourse and, possibly, something of a common agenda (p. 3).

The term, along with emerging efforts to create an energy democracy agenda, sparked our curiosity and desire to understand energy democracy as both a movement and a possible research program. For us, the term represents an emergent social movement that re-imagines energy consumers as prosumers, or innovators, designers, and analysts who are involved in decisions at every stage, from energy production through consumption (see: Giancatarino, 2012; Stephens et al., 2015). As Angel (2016) notes, it "is not a future utopia to be won but, rather, is an ongoing series of multiple struggles over who owns and controls energy and how, where and for whom energy is produced and consumed" (p. 4). Building on this, Sweeny (2014) declares that energy democracy entails

> (1) resisting the agenda of large energy corporations, (2) reclaiming to the public sphere parts of the energy economy that have been privatized or marketized, and (3) restructuring the global energy system in order to massively scale up renewable and low-carbon energy, aggressively implement energy conservation, ensure job creation and local wealth creation, and assert greater community and democratic control over the energy sector (p. 218).

Energy democracy, then, cannot be separated from its roots in activism and enactment through a range of localized struggles. Chilvers and Pallett, in their article in this Research Topic, advocate for a terministic shift from energy democracy to energy democracies, eschewing a singular definition that would flatten the richness, complexity, and differences in energy democracies.

While energy democracy movements are increasingly asserting their role in energy decision-making, interdisciplinary energy systems scholarship is just beginning to substantively engage with this empirical phenomenon that has important consequences for energy policy, participatory democracy, and public participation in energy decision-making. Indeed, the term and the ideal behind it are seldom addressed in extant scholarship (Reinig and Sprain, 2016) (Although this is changing as we see more uptake of the concept in scholarship since 2016 when we prepared for the Energy Democracy Symposium and observed a palpable lack of research engagement with the emergent concept). Energy democracy is one research pathway that brings together scholarship in democratic theory, communication, interdisciplinary energy studies, rhetoric of science, and STS research. A sustained program of research in energy democracy could illuminate its empirical, theoretical, and practical underpinnings and suggest future possibilities. Similar to the ways environmental justice is both a movement and an area of scholarship with reciprocal relationships, developing research on energy democracy requires elucidating its normative commitments, an empirical research agenda, and practices and processes to support or constrain energy system transitions. This engaged research program would seek to not only understand and theorize energy democracy, but also develop research-informed pathways for mutual learning between energy practitioners, scholars, and activists (Sismondo, 2008). To be clear, we do not seek to influence the agenda of energy democracy movements. Rather, we seek to think through energy democracy as a potential Research Topic with its own agenda. This is not to say that the two—movement and research agenda—need be disconnected. Indeed, we envision the development of an energy democracy research agenda as responsive, provocative, and in conversation with energy democracy activism.

As noted above, this collection emerged from the Energy Democracy Symposium hosted at the University of Utah (USA) in July 2017. The symposium brought together a transdisciplinary group of scholars, practitioners, and interested citizenry to discuss social dimensions of sustainable energy system transitions [1]. A total of 25 scholars and energy practitioners participated, with the first day of the 2-day symposium open to the public. The goals were to: (1) solidify the role of communication and STS in energy

[1]The symposium, sponsored by the National Science Foundation, National Communication Association, University of Utah's Communication Institute and College of Humanities, and University of Colorado's BoulderTalks, was held in the Salt Lake City Public Library and at the University of Utah.

democracy research; (2) further develop the emerging subfield of energy communication through its interconnection with energy democracy; (3) encourage interdisciplinary engagement with energy democracy across social sciences and humanities scholars interested in energy transitions; and (4) begin a conversation about developing a research program for energy democracy.

CREATING A CONCEPTUAL FRAMEWORK FOR ENERGY DEMOCRACY

Conceptual frameworks for energy transition often inadequately account for political dynamics, public engagement, and grassroots civil society, therefore, failing to translate ideas into effective governance strategies (Grin et al., 2010; Lawhon and Murphy, 2012; Chilvers and Longhurst, 2016). To increase its policy relevance, some energy systems researchers have highlighted social context as a crucial element (Einsiedel et al., 2013). For example, Laird (2013) notes, "collective analyses show the importance of broadening the concept of an energy transition or, failing that, finding a new vocabulary for these changes that brings their social and political features to the fore" (p. 155). Building from this effort, our focus on energy democracy moves from viewing the sociopolitical elements as context to seeing them as key starting points for investigation of sustainable energy transitions. In doing so, scientific and technical knowledge is not ignored, but is one part of a complex social, technical, political, cultural, and ecological system that recognizes that technical knowledge or feasibility alone cannot guarantee an energy system transition. This move foregrounds studying and theorizing a broad range of actors, democratic values, democratic functions, and energy governance sites that are inextricably linked with energy transition across a variety of energy types.

In examining energy systems literature, reflecting on our own research programs, and thinking through the abstracts we received for the Energy Democracy Symposium, we noticed three recurring and intersecting concepts, which we used to develop a conceptual framework for research in energy democracy. We contend that energy democracy works within the intersection of justice, participation, and power. In the spirit of considering the possibility of multiple energy democracies, we do not claim one ideal configuration of these components nor that these are the only three components, but instead argue that this framework provides a heuristic, enabling examination of theoretical models, empirical examples of ongoing struggles over energy, and practical recommendations for communities engaged in promoting energy democracy. As a social movement, energy democracy re-imagines energy consumers as prosumers. As a research agenda, energy democracy begins at the nexus of justice, participation, and power. This nexus provides researchers with a checkpoint for examining how energy democracy is a process of group decision making characterized by equity. The concept of justice should highlight the importance of equity; the concept of participation should highlight the importance of group decision making; and the concept of power should highlight the importance of recognizing extant structures of power and possibilities for resistance. While there is obvious overlap between these three components, we separate them out for the purpose of both highlighting the distinctive properties of each and understanding what happens with different configurations of power, justice, and participation in energy decision making. In practice, energy democracies perform a complex intermingling of these interrelated components that enable and constrain possibilities for energy system transformation. By focusing on this nexus, research on energy democracy has the potential to produce results that are directly relevant to the pressing issues faced by contemporary energy practitioners and policy makers. In the remainder of this section, we will analyze each of the three components of this framework.

Justice

Activists within the energy democracy movement assert that it is "rooted in the long-standing social and environmental justice movements" (Fairchild and Weinrub, 2017). Environmental justice refers to the rights of all people to benefit from a healthy environment, to be treated fairly in environmental decision-making, and to be meaningfully involved in environmental decision-making (Bullard, 2005). Environmental injustices are the inverse, wherein already underrepresented and historically marginalized communities experience disproportionate harms from the degradation of the environment (Bullard, 2005). From this perspective, justice is a component of energy democracy that calls attention to the distribution of risks and benefits in relation to energy decisions, who is participating in decision-making, whether there are equitable relationships, and the role of structural inequities—such as racism, colonialism, sexism, classism, and ruralism—on whom is served by energy decisions. Energy democracy also responds to concerns about climate change and climate injustice (Fairchild and Weinrub, 2017), noting that climate change and its damaging effects on human society disproportionately affect the most under-resourced and marginalized populations locally, nationally, and globally (Schlosberg and Collins, 2014). Related to climate injustice, energy injustice describes how energy extraction, production, and consumption also disproportionately harm the most under-resourced and marginalized populations, and the land and ecosystems upon which they lie, locally, nationally, and globally (Sovacool and Dworkin, 2014; Whyte, 2016). Walker and Day (2012) outline (1) income; (2) energy prices; and (3) housing and technology energy efficiency as distributional inequalities contributing to energy injustice. In response to these injustices, climate justice and energy justice, as derivatives of environmental justice, seek to articulate distributive and procedural justice with the pursuit of solutions and adaptations to climate change and the energy transition. Sovacool and Dworkin (2014) define energy justice "as a global system that fairly disseminates both the benefits and costs of energy services, and one that has representative and impartial energy decision-making" (p. 13). Justice, then, serves as a crucial element of energy democracy. As a heuristic, it encourages scholars to ask questions about, for example, who is served, what is the role of structural inequities, and how scholars and practitioners might factor justice into other sociotechnical factors that influence energy transitions. Yet,

while justice is a crucial component, energy democracy cannot be reduced to energy justice alone.

Participation

Energy democracy has the potential to recognize a wide range of ways of participating and doing democracy. Worldwatch Institute's Sweeny (2014) notes that "A timely and equitable energy transition can occur only with greater energy democracy, which requires that workers, communities, and the public at large have a real voice in decision making" (p. 217). Energy democracy opens up a wide terrain, informed by participatory democracy and participatory communication, for thinking about the range of ways that people and more than humans can meaningfully participate in energy decisions (e.g., Eberly, 2002; Peterson et al., 2007; Walker, 2007; Callister, 2013; Chilvers and Pallett). If we view participation as co-produced in emergent settings and contexts, then it cannot take one normative form but emerges in a variety of moments and settings, including cases of public dialogue, solar clubs, climate activism, and energy use pilots (Chilvers and Longhurst, 2016). The forms of public participation most commonly designated as part of energy democracy include protesting and public comment periods. Although communication scholars rarely consider the intersections between different forms of participation in environmental decision making—for example between public participation and social protest (Pezzullo, 2007; Hunt et al., 2016)—participation can come in many other forms spanning from local to national, formal to informal, unjust to just. Research on conventional forms of public participation in environmental decision-making focuses mainly on exposing the flaws of public hearings and public meetings, revealing them to be Decide-Announce-Defend (DAD) models that present only a guise of participation and deliberation (e.g., Senecah, 2004). As such, attention within energy democracy focuses on moving beyond these *de facto* forms of public participation to realize processes that can encourage deliberation and participation from affected communities early and frequently during energy decision making.

When official processes of public participation are limited, unavailable, or unresponsive to community concerns, publics turn to "alternative" modes of participation and enacting rights to participation. For example, the Dakota Access Pipeline water protectors also constitute participation within energy democracy (Johnson, 2019). Phadke (2013) argues that a focus on participation is also essential to examining how not only fossil fuel decisions can elide meaningful citizen participation but also how sustainable renewable energies also need to be open to democratic participation that considers the needs of a particular community. She notes,

> Citizen campaigns are drawing our attention to the unforeseen and unknowable consequences of the green energy revolution. Whether it involves consensus conferences, citizen juries or science shops, citizens can engage with the intricacies involved in energy planning decisions. Based on our research, the next step is for planning officials to implement models of public engagement that empower citizens to produce designs, mitigation techniques and conflict resolution protocols that protect landscape and livelihoods while producing responsible green energy (p. 254).

In other words, whether considering fossil fuels or solar energy, participation is an essential element in realizing a successful democratic energy transition. Focusing on participation, then, encourages inquiries about, for instance, what forms of participation are being used in energy decisions, are extant forms of participation sufficient, and are local communities and relevant stakeholders (both human and non-human) involved in decision-making. While democracy is not a perfect system, particularly as practiced in purported democratic countries, it offers an ideal toward which many energy democracy advocates strive because it can provide a mechanism for broad participation and involvement in decisions. Moving toward this ideal is fundamentally dependent on the forms and functions of participation used in energy decision making, which are linked in with structures of power.

Power

Although power can be synonymous with energy—such as wind power or nuclear power—it is used here to refer to a relationship between human actors and their capacities to act or not act freely. There are many definitions of power and intense theoretical debates about the concept. Our goal is not to choose one definition of power that is always at play in energy democracy, but to highlight that power—when thought about along a variety of different vectors—is an important aspect of energy democracy. Burke and Stephens (2017) argue that, "central to an energy democracy agenda is a shift of power through democratic public and social ownership of the energy sector and a reversal of privatization and corporate control" (p. 38). Two conceptions of power that are especially relevant to thinking about energy democracy are: (1) power as in a hierarchical exercise of power over others; and (2) power as a productive capacity to act (Foucault, 1990). Both of these conceptual frameworks underlie a structural perspective that focuses on the ability to use resources (e.g., money, social capital, sense of place) and rules (i.e., policies and laws) to exert pressure for system change (Feldpausch-Parker et al., 2012).

In the case of energy democracy movements, all of these perspectives come into play. For example, in terms of power over others, the practitioner report "Toward Energy Democracy: Discussions and Outcomes from an International Workshop" describes governments and energy corporations as having power over local communities to pursue energy agendas that lead to unequal distribution of costs and benefits. The report notes: "any kind of emancipatory energy transition would require a fundamental transformation of the existing geometries of power—and, as such, would demand a concrete and ambitious political strategy for how this kind of transformation might be achieved" (Angel, 2016, p. 4). In her research on Puerto Rico's energy transition, de Onís describes how energy colonialism "marks certain places and peoples as disposable by importing and exporting logics and materials to dominate various energy forms, ranging from humans to hydrocarbons" as a force that can impede the realization of energy democracy (p. 1). And Schneider

and Peeples identify how the rhetoric of energy dominance coming out of the Trump administration in the United States works at odds with energy democracy.

On the other hand, in terms of resistive power, calls for energy democracy depend on the hope that activism, grassroots democratic organizing, local governing structures, and public participation have the power to make changes in the status quo and possibly change existing hierarchies and relationships. As Angel (2016) notes, "it might be more productive to conceive of energy democracy as an ongoing process of democratization. Seen this way, energy democracy becomes the question of how we might go about organizing to craft a more socially just, sustainable and collectively controlled energy arrangements, within the historical and geographical circumstances we inhabit" (p. 4). And Sweeny (2014) similarly notes, "Energy democracy can and should be a call to arms for unions and other social movements. There is, it seems, no alternative" (p. 227). The complexities of power are crucial to any engagement with energy democracy. Some questions that address power include: how do we change the status quo in relation to who has power in the decision-making process? How does the dominant rhetorical situation constrain energy system narratives? What opportunities for resistance to the status quo are available to advocates for change? Where are there spaces to apply pressure to key people and institutional structures within the status quo? How is the more-than-human environment represented and by whom?

Taken together, justice, participation, and power are not simply words that appear frequently in the discourse of energy democracy advocates, they are necessary to the democratization of energy transition. Seeing energy democracy as being made up of the tension and consubstantiation between justice, participation, and power also serves as a framework with which scholars can examine the rhetorical performances of energy democracy.

PERSPECTIVES ON ENERGY DEMOCRACY

This Research Topic is an outcome of the 2017 Energy Democracy symposium described above, with papers from both symposium participants and others working in this burgeoning area of study. In addition to this editorial, there are nine articles, each seeking to address energy democracy from different theoretical and empirical lenses, but all drawing on the concepts of power, justice, and participation. Though most of the papers focus on the global north, this Research Topic also attempts to capture studies from the global south and a US territory still trapped in its colonialization.

In *Operationalizing Energy Democracy: Challenges and Opportunities in Vermont's Renewable Energy Transformation*, Stephens et al. offer the state of Vermont in the United States as a promising case study for sub-national implementation of energy democracy. In many ways, Vermont is in the vanguard of renewable energy transformation in the United States, with ambitious goals of achieving 90% renewables by 2050 that consider both energy innovation and democratic practice as espoused by the energy democracy movement. This article characterizes the primary challenges and opportunities as (1) attempting to resist legacy energy systems like nuclear and fossil fuels and exchange them for solar and wind; (2) reclaiming energy systems through the promotion of cooperatives and community-owned energy projects; (3) restructuring energy systems through policies including the state's Comprehensive Energy Plan, Greenhouse Gas Action Plan, and Clean Energy Development Fund; and (4) creating town energy committees as a space for community level energy discussions. Vermont also serves as a leader in utility and policy innovation as well as having the first city in the United States that is 100% run off of renewable energy. These achievements, however, have not come without opposition or their own logistical challenges. This article predominantly focuses on interactions between participation and power while also touching upon justice.

In *Shared Yet Contested: Energy Democracy Counter-Narratives*, Burke explores various energy transition narratives in eastern Canada and northeastern United States, respective regions in the two countries with active energy democracy initiatives. He notes how energy transition is seen as more than just technology and economics, but also has a strong political dimension with sometimes consistent, and sometimes competing, narratives. Burke outlines four narrative elements in particular: collective action, values and norms, sociotechnical imaginaries, and temporal stories of human agency and change. Through this analysis, Burke highlights how energy democracy as both a movement and an organizing principle is not a single vision, but a diversity of energy democracies that diverge in "problem framings, the form and specificity of solutions, the critical stance, the historical positioning, and importantly, the scale, agency and model of social organization" (p. 12). Shared goals amongst these efforts include shifting from fossil fuels to renewables, preferences toward public and local control, and energy system change involving "changes to communities, politics, and economies" (p. 10). Similar to the Stephens et al. article, it focuses most strongly on participation and power.

Chilvers and Pallett's *Energy Democracies and Publics in the Making: A Relational Agenda for Research and Practice* lays out the argument that energy transition policymaking and academic literature too often treat energy democracy and participation as "a fixed, pre-given and "residual realist" view of the public and of democratic engagement" (p. 2). They counter that this limited view fails to capture how publics are shaped by and also shape "material settings, technologies, infrastructures, issues, participatory procedures, and political philosophies with which they are associated" (p. 4). They note how social science scholars are bringing light to such complexities, citing scholarship from STS, geography, political/democratic theory, anthropology, and energy communication. However, they also note that such efforts are fragmented. In response to this fragmentation, Chilvers and Pallett propose an agenda, outlining four avenues of scholarship including (1) "understanding energy democracies and their publics as diverse, relational, and co-produced" (p. 6); (2) "valuing difference and symmetry in relational theories of energy participation" (p. 6); (3) "toward conceptualizing systems of energy participation" (p. 7); and (4) "attending to the

performativity and situatedness of theory in studies of energy democracy and participation (p. 7). They also address research challenges and implications for practice. This article likewise focuses on intersections between participation and power.

In *Energy Democracy and the City: Evaluating the Practice and Potential of Municipal Sustainability Planning*, Teron and Ekoh use a case study of Washington, D.C.'s (USA) sustainable energy utility to examine energy justice and democracy in the nation's capital city. Their article proceeds from the challenge that, "for energy democracy to reach its potential, it must emphasize access to, and the affordability of, energy services for marginalized communities" (p. 2). This includes acknowledgment of threats from climate change and local environmental hazards that disproportionately impact marginalized communities, thus serving as further justification for moving to sustainable fuels. In this case study, they found that planning and design processes, though progressive from a green jobs perspective, failed to think outside of the economics of creating green employment. Furthermore, the processes also ignored non-English speaking residents, thus further alienating them from the political system. A final critique is failure to include the transportation sector in energy planning. These concerns thus serve as spaces for improvement in governance, equality, and outreach. This article focuses mostly on justice, but also touches upon participation and power.

McKasy and Yeo examine strategic communication of net-metering in *A Comparative Case Study of Electric Utility Companies' Use of Energy Democracy in Strategic Communication*. This study is based on utilities' use of communication strategies outlined in *The Future of Energy: A Working Communication Guide for Discussion*, a document created by the Edison Electric Institute and Maslansky & Partners (a communication firm) to help reorient state-level discussions of net-metering policy to favor utilities. McKasy and Yeo looked specifically at NV Energy (Nevada) and Rocky Mountain Power's (Utah) implementation of communication strategies outlined in the Guide. Through their analysis of utility company websites and press releases, they found that these companies used key terms that seemingly aligned with energy democracy and social justice tenets to push utility-scale renewable projects over, for example, private solar installations. Such efforts are seen by many as counter to energy democracy, where energy consumers can become prosumers (producers and consumers). Though both utilities took a page from the Guide, they each tailored their communications to specific state-level discussions, implementing different strategies based on whether they used the Guide proactively vs. reactively. This article focuses predominantly on strategic communication as power, and suggests a new turn on greenwashing.

State-Level Renewable Energy Policy Implementation: How and Why Stakeholders Participate, by Rountree and Baldwin, examines stakeholder participation in Renewable Portfolio Standards (RPS) policy implementation in the states of Colorado and Nevada in the United States. Though both states have RPS policies, their "histories of RPS adoption, modification, and implementation" (p. 5) differ. The article focuses on different mechanisms for participation as well as various incentives, or in some cases disincentives, to engage in energy decision-making processes. Rountree and Baldwin note that, although public participation in decision-making is often mandated, that participation does not have to be meaningful, which they define as "stakeholder inputs that inform or shape...decisions" (p. 2). As the electrical grid changes from a system dominated by fossil fuels and centralized energy production by utility companies to smaller scale renewable power generation that is often distributed in nature, stakeholder participation is also changing with the insertion of new players. The authors of this article attempt to capture this potentially changing participation landscape. Through the use of stakeholder interviews, they determine that many of the stakeholders found the opportunities to participate to be superficial and reactive in nature, but continued to participate for the sake of coalition building and a greater chance to influence long-term policy processes. They also determined that stakeholders, especially those more seasoned in such processes, found multiple ways to participate. Finally, they concluded that the regulatory environment often dictated the types of participation processes and incentives used, thus impacting outcomes of such processes. Rountree and Baldwin focus almost exclusively on participation, although they also address shifting power configurations, noting that certain stakeholders have greater access to decision-makers and knowledge of participation options.

Schneider and Peeples focus on the Trump Administration's use of dominance in U.S. energy policy rhetoric in *The Energy Covenant: Energy Dominance and the Rhetoric of the Aggrieved*. Focusing specifically on now former Secretary of Interior Ryan Zinke's September 2017 speech at the Heritage Foundation, a conservative think tank, the authors examine the use of energy dominance as a covenant renewal to American exceptionalism and, by extension, the fossil fuel industry. The authors argue that Zinke's speech moves away from energy security and energy independence rhetoric, replacing it with energy dominance, whose grievances include (1) "too much environmental regulation"; (2) "attack on the free market"; and (3) the working and middle classes have suffered as fossil fuels have suffered" (p. 6). They argue that the Trump administration has attempted to equate fossil fuels with "social order, justified through the exceptionalism of chosen Americans, who if they again renew their covenant with the values of neoliberalism will raise America to a position of superiority with unrestrained expressions of global power" (p. 6). They point out that such rhetoric also frames environmental efforts by the Obama Administration as causing economic suffering to the white middle and working classes. Schneider and Peeples note that energy dominance is framed by the Trump Administration as restoring the covenant, moving energy policy back to privileging industry voices over all others, and effectively silencing energy democracy movements. This article focuses on the use of rhetoric as a means to exert power over others, to justify injustice, and to limit participation of those who would reshape the narrative of energy policy.

In *Can Energy Democracy Thrive in a Non-Democracy?*, Delina answers this question with a resounding yes by making the case that energy democracy *is* possible at the community level in non-democratic nations such as Thailand. Focusing

on a community in the town of Pa Deng in the Phetchaburi province near Kaeng Krachan national park, Delina conducted interviews, small group discussions, and observations to examine efforts at localized energy transitions. He found that roughly a hundred households in the community had self-organized into a communal network focused on "resiliency, cohesiveness, local economy, livelihoods, and capacity building," drawing from King Bhumibol Adulyadej's ideals of a sufficiency economy (p. 3). Energy transitions were included as the community sought to move away from more traditional fuel sources (e.g., charcoal, kerosene, and firewood) to renewables such as biogas and solar. From his qualitative data, Delina found overlap between concepts used in energy democracy and the case study community's efforts, such as collective action and co-production. Public participation, which Delina posits as basic to democracy, was the main focus of this article. Considerations of justice and power are implied, particularly when considering collective action and co-production, although not explicitly discussed.

Finally, de Onís addresses the longstanding impacts and challenges of being a colonial territory in *Energy Colonialism Powers the Ongoing Unnatural Disaster in Puerto Rico*. This article addresses the impact of Hurricane Maria, a category 5 hurricane that made landfall on September 20, 2017, on a US island territory already suffering from economic, environmental, and energy crises in addition to recent damage from Hurricane Irma just weeks before. Maria caused massive damage and loss of life to the islands, with long term issues of access to electricity and potable water. The issues post-Hurricane Maria, as de Onís notes, are endemic of the territory's colonialist history and continuing experience with energy colonialism. She explains how legislation including the Jones Act, Operation Bootstrap, and the Puerto Rico Oversight Management and Economic Stability Act have created major hurdles to restructuring energy infrastructure on the islands (the territory is comprised of one large island, known as the Big Island, and several small islands). Even with such daunting challenges, she points to energy democracy efforts led by academic institutions that "sought to disrupt Puerto Rico's electric energy system and the 'energy *status quo* social network' by creating a framework for a sustainable energy ethic committed to deliberation and decision-making among diverse actors" (p. 3) as well as grassroots solar advocacy. Though this case study is particular to Puerto Rico, as de Onís points out, it is also generative for other entities struggling with colonial and post-colonial politics, and any efforts to transition away from a carbon-based economy. This article predominantly focuses on justice while also noting interstices with participation and power.

FUTURE DIRECTIONS FOR ENERGY DEMOCRACY RESEARCH

The justice, participation, and power framework opens new pathways for a research agenda in energy democracy. Within this collection, three themes dominate and suggest directions for continued study. First, participation emerged as the crucial process for reconfiguring power relations in ways that enable greater justice. Second, focusing on the interplay between justice, participation, and power highlights an inherent tension between collective (e.g., national-level) and individualistic (e.g., local) action addressing energy and climate. Although we recognize that local action enables exploiting fissures in systems by offering creative alternatives, the danger is losing sight of the national-level (or equivalent) governance structures that are ultimately needed for collective action. As several of the chapters highlight, we must be aware that both collective and individual level decision-making can be unjust and reify problematic power dynamics, highlighting why simultaneously attending to justice, participation, and power is crucial for energy democracy. Scholars need to be willing to work at the crux between collective (national) and individual (local) change, recognizing and maintaining the tension because solely focusing on either is exclusionary. Third, energy democracy research must be responsive to and engaged with the energy democracy movement. The research should have heuristic value to the energy democracy movement and energy prosumers. Energy democracy is about power sharing, rather than power over others.

Beyond the justice, participation, and power framework we presented, we also see a variety of other topics, terminologies, and tensions that might be fruitfully engaged in future research. Terms that need further definition and exploration include energy justice vs. energy democracy, environment vs. sustainability, energy coloniality vs. resource colonialism, energy transition vs. renewable energy transition, and energy poverty. Further, we encourage examination of these touchstone concepts that play into energy democracy: voice, scale, location, stakeholders, inclusivity, temporality (e.g., crisis mentality), and violence (e.g., intimidation, coercion).

In sum, energy democracy is a transdisciplinary networked area of study at the intersection of practitioners and researchers that avoids extractive models of research (Sprain et al., 2010). This engaged research agenda seeks to be a part of envisioning and then demanding a more democratic energy transition that is responsive to appropriate levels of governance. It bridges between social and technical knowledge as well as between practice and research. Given contemporary climate and energy exigencies, including our impending energy transition and the need for solutions grounded in research, we call for scholars to critically engage with an energy democracy research agenda. It is not our intention to set an agenda for the energy democracy *movement*, but to encourage conversation about a research agenda between scholars and on-the-ground energy democracy practitioners.

AUTHOR CONTRIBUTIONS

AF-P, DE, and TP all contributed to the conceptualization and writing of this manuscript.

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Operationalizing Energy Democracy: Challenges and Opportunities in Vermont's Renewable Energy Transformation

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As the social movement promoting "energy democracy" expands, analysis of how the principles of energy democracy are being operationalized is increasingly valuable. The state of Vermont provides a unique case of a United States jurisdiction intentionally promoting multiple ideals of energy democracy as the state commits to transitioning toward renewable energy. This research explores how energy democracy principles are being operationalized in the state of Vermont. Collaboration among stakeholders state-wide has resulted in a variety of social innovations that advance energy democracy goals, yet there are limited examples of community ownership and there is strong community opposition to some renewable projects. A diverse set of stakeholders in this small state has developed and promoted the adoption of a comprehensive energy plan with a goal of achieving 90% renewables in all sectors (electricity, heating, and transportation) by 2050. These stakeholders are aligned toward achieving this goal, and a socially innovative, networked effort seeks to establish a creative and inclusive environment for individuals, communities and organizations to benefit in the renewable energy transformation. A collaborative culture has created a protected environment where social innovation and experimentation are supported and encouraged, yet tension and community opposition surrounds some wind and solar projects. Reviewing social innovations in Vermont highlights challenges and opportunities of operationalizing energy democracy and emphasizes the importance of local community and public ownership to distribute the economic and political power associated with renewable energy.

Keywords: energy democracy, renewable energy, Vermont, energy innovation, social innovation

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INTRODUCTION

The transition away from fossil fuels toward more renewable-based energy systems is underway taking shape differently in different communities, states, and countries throughout the world (Brown et al., 2015; Princen et al., 2015). Although there is a common tendency to view the renewable transition in technical and economic terms, current energy system changes involve much more than a technical substitution from fossil fuels to renewable electricity generation; this transition also involves social, institutional, and cultural innovations (Stephens et al., 2015).

Energy democracy is an emergent social movement focused on advancing renewable energy transitions by resisting the dominant energy agenda while reclaiming and democratically restructuring energy regimes (Burke and Stephens, 2017; Van Veelen and Van Der Horst, 2018). By integrating technological change with the potential for socioeconomic and political change, the movement links social justice and equity with all kinds of innovation in energy (both social and technical innovations). The energy democracy movement seeks to create opportunities for destabilizing power relations (Angel, 2016a), reversing histories of dispossession, marginalization (Duda, 2015; Farrell, 2016) and social and environmental injustices (EDANY, 2016), and replacing monopolized fossil fuel energy systems with democratic and renewable structures (Kunze, 2014). Above all, energy democracy offers a set of visionary organizing principles that provide guidance for democratically restructuring the energy and electricity sectors through the processes of shifting from fossil fuel-based systems to renewable energy systems (Sweeney, 2014; Angel, 2016b).

Given the culturally and politically embedded nature of fossil-fuel based energy systems, energy democracy principles threaten the status quo so resistance is strong and operationalizing energy democracy remains challenging. Despite the powerful intensity of this resistance, facilitating the renewable energy transition is becoming a political priority in jurisdictions throughout the world (Busch and Mccormick, 2014; Geels et al., 2017; Stokes and Breetz, 2018). The German "Energiewende" is among the most ambitious and comprehensive national-level energy policies promoting the renewable energy transition (Maatsch, 2014), and its grassroots community ownership approach to the transition provides examples of energy democracy (Morris and Jungjohann, 2016). Although the United States does not have a similar comprehensive national-level energy transition policy (Stokes and Breetz, 2018), at the sub-national level several states have made policy commitments to the renewable energy transition and are intentionally attempting to support principles of energy democracy.

As the energy democracy movement expands and multiple different narratives emerge to describe what the phrase means (Burke, 2018), exploring the operationalization of energy democracy, i.e., the tangible innovative initiatives that are developing to implement its principles, provides insights on the evolution of both the concept and the movement. Multiple meanings and narratives of what energy democracy is or could be co-exist and are evolving differently among different organizations and communities (Burke, 2018). A recent review of policies that align with energy democracy principles highlights the limited empirical research on the implementation and practice of operationalizing energy democracy in different jurisdictions (Burke and Stephens, 2017). A recent mapping of the usage of the term "energy democracy" outlines the concept as both an analytical and decision-making tool, operationalized along three dimensions: popular sovereignty, participatory governance, and civic ownership (Szulecki, 2018). Empirical research exploring how energy democracy is being operationalized in different jurisdictions is limited, yet valuable.

With a focus on the state of Vermont, this research asks how energy democracy principles are being operationalized, and what are the challenges and opportunities of operationalizing energy democracy. Vermont provides a unique case of a United States jurisdiction intentionally promoting multiple ideals of energy democracy as the state commits to transitioning toward renewable energy. Vermont provides a particularly interesting case because of their progressive and participatory approach to governance and their adoption of a comprehensive energy plan that includes a goal of achieving 90% renewables in all sectors (electricity, heating/cooling, and transportation) by 2050 (Vermont Public Service Department, 2016). While a few other states have been striving for similar goals, Vermont was a first-mover and leader in embracing such an ambitious goal that acknowledges transformation. Although, the Vermont Comprehensive Energy Plan is not a legal statute, it serves to articulate expectations that provide protective and supportive space for energy innovations; both technological and social innovations some of which attempt to redistribute economic and political power (Smith and Raven, 2012; Vermont Public Service Department, 2016).

Review and analysis of energy innovations in the state of Vermont provides valuable insights on operationalizing energy democracy principles and policies as part of the renewable energy transition (Levine, 2016). Vermont, one of the smallest states in the United States with a total population of only 626,560 people, has integrated social and technical innovation in its efforts to move toward the climate-justified goal of achieving 90% renewable energy by 2050 (Clegg, 2014; Reed, 2015). This goal includes electricity, heating/cooling in buildings, and transportation (Vermont Public Service Department, 2016), and stakeholders throughout the state recognize the social change potential involved in achieving this goal (EAN, 2016). To facilitate this transition, progressive cross-sectoral coalitions of Vermonters are working toward various social, political, and institutional innovations that can be viewed as examples of operationalizing energy democracy goals. Some of these innovations include a new model for electric utilities (Parker and Huessy, 2014), sophisticated energy efficiency programs that serve low income communities, and local and regional energy planning.

Although the term "energy democracy" is not widely used within the state of Vermont, multiple social innovations in energy within the state are based on energy democracy principles (Farrell, 2014; Burke and Stephens, 2017). Within the United States, Vermont is a clear leader in renewable energy innovation and operationalizing energy democracy goals. Despite this leadership role in energy innovations, the state has received limited out-of-state and international recognition for the extent and diversity of its energy innovations. An important goal of this paper, therefore, is to showcase to the international community the unique innovative environment in Vermont with respect to energy transitions and energy democracy.

To explore the challenges and opportunities of operationalizing energy democracy, this paper reviews multiple energy innovations in Vermont. The paper will first introduce the concept and emerging social movement of energy democracy,

review the goals/ideals of the energy democracy movement, and then review and discuss several specific social innovations that can be categorized as operationalizing energy democracy.

THEORETICAL CONTEXT

The term *energy democracy* is being used increasingly by grassroots activists in the United States, parts of Europe, and elsewhere (Burke, 2018; Burke and Stephens, 2018; Szulecki, 2018). Energy democracy is a concept that is used to call for and justify integrations of policies linking social justice and economic equity with renewable energy transitions (Burke and Stephens, 2017). Energy democracy is one approach to guiding energy transitions which are increasingly recognized to involve an integrated perspective that includes economic development, technological innovation, and policy changes (Cherp et al., 2018). This empirical review of a set of innovative energy initiatives in Vermont that operationalize energy democracy principles embraces this integration. This focus on initiatives in one small state provides a specific context within which to explore challenges and opportunities of operationalizing energy democracy.

Energy Democracy[1]

Energy democracy is a novel concept, an emergent social movement, and a decision-making tool that connects energy infrastructural change with the possibilities for deep political, economic, and social change (Szulecki, 2018). The term is used in climate justice, trade unions, academic communities, and political parties, while also recently becoming more mainstream in some regional and national level discourses (Angel, 2016b; Szulecki, 2018).

Energy democracy has been characterized as involving three related but discrete approaches to facilitating renewable energy transformation; energy democracy includes efforts to *resist*, *reclaim,* and *restructure* energy systems (Sweeney, 2012, 2014). Resisting the legacy centralized fossil and nuclear dominated energy systems is key to the energy democracy movement, as is reclaiming energy systems for more distributed economic and political benefits and restructuring energy systems to support the types of democratic relationships necessary for community-based decision-making authority (Hoffman and High-Pippert, 2005; Weinrub and Giancatarino, 2015).

Energy democracy has emerged in the context of an increasing sense of urgency regarding global anthropogenic climate change, although the primary motivation for energy democracy is social justice rather than climate change (Islar and Busch, 2016). Despite a growing recognition of the inherent unsustainability and injustice of fossil fuel civilization (Healy and Barry, 2017), an inability to adequately reduce fossil fuel dependency persists. The issue of and need for shifting away from fossil fuel-dominant systems toward renewable-based energy has therefore become a central theme for science, politics, and public discourse worldwide (Jacobson and Delucchi, 2011; Markard et al., 2012; Araujo, 2014; Boyer, 2014; Brown et al., 2015; IRENA, 2017). How the decline in fossil fuel reliance plays out is likely to be among the most contested areas of policy and politics over the coming decades (Meadowcroft, 2009; Boyer, 2014; Stirling, 2014; Arent et al., 2017; REN21, 2017).

Energy democracy requires a re-imagining of energy politics (Miller et al., 2013; Burke and Stephens, 2018). The energy democracy movement seeks to create opportunities for destabilizing power relations (Angel, 2016b), reversing histories of dispossession, marginalization (Duda, 2015; Farrell, 2016) and social and environmental injustices (EDANY, 2016), and replacing monopolized fossil fuel energy systems with democratic and renewable structures (Kunze, 2014). Above all, energy democracy offers a set of visionary organizing principles that provide guidance for democratically restructuring the energy and electricity sectors through the processes of shifting from fossil fuel-based systems to renewable energy systems (Sweeney, 2014; Angel, 2016a).

Drawing from sociotechnical transition theory, the energy democracy movement may represent an example of a de-alignment/re-alignment transition pathway, an ideal-type pathway for energy transition that is conceived as developing in response to serious contextual pressures (Verbong and Loorbach, 2012). This transition pathway is characterized by a significant presence of actors who have lost faith in the existing governing systems, the emergence of new guiding principles, beliefs and practices, the co-existence of multiple innovations and widespread experimentation, and a shift to more local- or regional-based systems and decentralized technologies and management structures (Verbong and Loorbach, 2012). Such an agenda is intentionally incongruent with the governing systems in effect in most jurisdictions, thus deliberately lacking a goodness of fit with many current contextual pressures (Howlett and Rayner, 2013). Further, a strategy of de-alignment and re-alignment is inherently uncertain regarding the best path forward (Verbong and Loorbach, 2012), and may lead to ineffective combinations of policy instruments that fail to achieve the desired outcomes even if adopted (Kern and Howlett, 2009). In such a situation, policy tradeoffs and conflicting goals are arguably inevitable (Quitzow, 2015).

The energy democracy movement advances a vision that includes communities powered by 100 percent renewable energy (Angel, 2016b; EDANY, 2016) while asserting greater ownership and control of the energy sector in response to needs defined by communities, with the majority of energy coming from decentralized systems (Sweeney, 2012, 2014; Weinrub and Giancatarino, 2015). Energy democracy aggressively promotes energy conservation and the functioning of ecosystems (CSI, 2013; Sweeney, 2014). Ecological interdependence is respected and a project or policy is not to be pursued if the risks to humans and environment are high or poorly understood (Weinrub and Giancatarino, 2015). Energy is considered a public good or commons before a commodity (Lohmann and Hildyard, 2014; Angel, 2016b) requiring informed and conscientious communities that strive to conserve and protect all material

[1]This section providing background on Energy Democracy is adapted from Burke and Stephens (2017).

resources (Weinrub and Giancatarino, 2015). Energy democracy provides a new model of economic development and key elements of a new economy. Electricity represents a multi-billion-dollar industry (Farrell, 2014). Energy democracy works to keep these financial resources within the communities (Van Der Schoor et al., 2016) by establishing a clear link between local generation and local use (Hoffman and High-Pippert, 2005), potentially transforming poor and neglected communities into energy producers (CSI, 2010). Host communities, including citizens acting as *prosumers* (in Toffler's term; Morris, 2001) and energy citizens (Byrne and Taminiau, 2016), are to realize substantially greater economic opportunity and benefit (Farrell, 2014, 2016). Energy finance builds shared ownership and community-based resources rather than facilitating wealth accumulation (Lohmann and Hildyard, 2014; Weinrub and Giancatarino, 2015).

Energy democracy also aims to create green jobs and supports union leadership. Energy democracy seeks to protect workers' rights and generate secure and meaningful work. Achieving this objective requires that workers co-lead the energy transition and that jobs in the renewable energy sector be primarily unionized (Angel, 2016a). Central to an energy democracy agenda is a shift of power through democratic public and social ownership of the energy sector and a reversal of privatization and corporate control (Sweeney, 2014; Weinrub and Giancatarino, 2015) Energy democracy seeks to shift control over all stages of the energy sector, from production to distribution, and extending to infrastructure, finance, technology, and knowledge (Angel, 2016a) while reducing the concentration of political and economic power of the energy sector, particularly within the electricity industry (Farrell, 2016). While governance of renewable energy assets would favor public or community ownership and control (Farrell, 2014), diverse forms of ownership are needed (Farrell, 2016) that respect the political, economic and social requirements, and challenges of a specific location or community (CSI, 2013; Thompson and Bazilian, 2014). Decision-making procedures and processes would give primacy to values expressed by local communities over conventional approaches (e.g., cost-benefit analysis) (Agustoni and Maretti, 2012). Mechanisms for widespread, meaningful, and democratic participation would be ensured and receive the necessary support (Weinrub and Giancatarino, 2015; EDANY, 2016). Energy policies would therefore support community-scale innovations (CSI, 2013) that serve to increase community capacity (Duda et al., 2017).

States as Laboratories

While the principles of energy democracy can be operationalized at multiple scales, in the USA the importance of states as "policy laboratories" is well recognized in the policy literature, as is the influence that state actions can have on the policy making process; this literature is rich, encompassing economic, political, and group theory frameworks (Gray, 1973; Barkenbus, 1982; Erikson et al., 1993; Andrews, 1994; Burstein and Linton, 2002; Fredriksson and Millimet, 2002; Ka Teske, 2002; Strumpf, 2002). Recognizing the critical role of state-specific innovation in policy, this research focuses on Vermont which is one of the smallest states in the country in both population and land area.

There is also a strong literature examining the impact of states on national level environmental policy and regulation (Wise and O'leary, 1997; Strumpf, 2002; Levinson, 2003; List et al., 2003; Millimet, 2003; Scheberle, 2004) and on energy policy (Barkenbus, 1982; Andrews, 1994, 2000; Ka Teske, 2002; Rabe, 2004, 2008; Wilson and Stephens, 2009). This literature encompasses both economic and political framings with which to examine the role of regulation, response to organized interests, state capacity to formulate and execute environmental and energy policy (Ringquist, 1993; Engle, 1997). Acknowledging the unique impact that state-level innovations in energy and environment can have far beyond the individual state where the innovation is occurring, case-study research reviewing specific states and specific state-level innovations has value for other states, as well as for national and international level consideration of energy transformation and environmental policy.

METHODS

To explore the challenges and opportunities of operationalizing energy democracy principles, this research focuses on empirical details of social innovations in the state of Vermont. The state of Vermont was selected as a unique and under-studied jurisdiction within the United States providing a classic example of the state as a laboratory for change and innovation. The empirical research incorporates engaged, collaborative participatory data collection involving participant observation of each of the researchers and co-authors (Yin, 2013), i.e., the researchers have drawn on their participation and experiences with energy innovations in Vermont. A compilation of multiple innovative Vermont-specific energy initiatives was selected by the authors to represent policy innovation, business innovation, and community innovation involving the government, the private sector and communities. The initiatives selected also represent examples of all three of the energy democracy priorities of resisting, reclaiming and restructuring energy systems. Diversity in scale of the different initiatives was also a goal in selecting the specific initiatives to include; the nine individual innovative initiatives range from community, town and city level to state level. Nine specific initiatives were selected and then analyzed by the research team for degree of alignment with energy democracy goals defined in a previous publication (Burke and Stephens, 2017).

EXAMPLES OF OPERATIONALIZING ENERGY DEMOCRACY IN VERMONT

This section reviews a diverse set of nine different initiatives that serve as examples of social innovations in energy in the state of Vermont. This review of these exemplar initiatives provides empirical details to explore challenges and opportunities of operationalizing energy democracy. The state of Vermont represents a unique political environment that has prioritized some key goals of energy democracy, so reviewing specific innovative energy initiatives in Vermont provides insights on operationalizing energy democracy. This section reviews several key initiatives within the Vermont context that represent

a diversity of social innovations that operationalize energy democracy principles including initiatives to resist, reclaim, and restructure energy systems within the state. The first three of the initiatives reviewed below were selected to explicitly represent resisting, reclaiming, and restructuring of energy systems, while the latter six initiatives represent innovations that are more integrative incorporating components of all three of these energy democracy goals.

Closing of Vermont Yankee—Resisting Legacy Energy Systems

The closing of Vermont Yankee, the state's only nuclear power plant in 2014, can be viewed as an example of operationalizing energy democracy because it demonstrates powerful resistance of the legacy centralized energy system. The state of Vermont experienced widespread citizen activism that contributed to the closing Vermont Yankee. Beyond the specific impact of closing the largest central power plant in the state, the energy activism associated with the closing of Vermont Yankee has had huge influence on growing resistance to other forms of non-renewable energy including fossil fuel divestment activism and strong opposition to natural gas pipelines.

The politically supportive environment for renewables in Vermont is related to the closing of Vermont Yankee which was shut down after years of intense state-wide debate, anti-nuclear activism, and protests (Watts, 2012). A powerful coalition of citizens of Vermont urged lawmakers and the legislature to deny re-certification of Vermont Yankee and transition to clean, renewable wind and solar energy. In addition to the public opposition to nuclear, low electricity prices driven down by fracked gas also contributed to the decision to close Vermont Yankee. A further requirement of the closing of Vermont Yankee included providing additional funding to the Vermont Clean Energy Development Fund.

Community Solar—Reclaiming Energy Systems

The development of community solar projects in Vermont is operationalizing energy democracy by reclaiming energy systems by promoting alternative ownership models. Cooperative ownership is a key component of the energy democracy movement. Community solar projects were made possible when the Vermont legislature approved group net metering that allowed multiple customers to own a single renewable generation unit and share the output. A variety of ownership models have been promoted as representing "community solar," despite stark differences among these models with respect to the community of owners and allocation of benefits of ownership. Genuine community energy projects, such as the Boardman Hill Solar Farm, the Randolph Community Solar Farm, and White River Community Solar, take an approach that prioritizes full community ownership and careful long-term stewardship of the land.

In addition to benefitting from the policy framework described above, these projects share several innovative characteristics supporting broad community acceptance and ownership of renewable energy infrastructure in Vermont. First, these community solar projects were planned and financed by the participants. This approach encourages broader access and opens opportunities to those who might not have sufficient land or financial resources to participate independently in renewable energy generation. By not using renewable energy credits for financing, these projects can unambiguously contribute toward the state's goals for renewable energy generation. Second, each of these projects is owned and managed locally and collectively. The basic approach employs a non-profit limited liability company (LLC), using a model developed in connection with the Institute for Energy and the Environment at Vermont Law School and further facilitated by the Vermont Energy and Climate Action Network's Community Solar Toolbox. The LLC owns the technology, the tax credits, and the renewable energy credits, in addition to the electricity. This serves to change the communities' relationships to the energy system, away from simply consumers of electricity and toward relating as citizens and *prosumers*, while ensuring long-term participation. The commitment of these projects to local production also extends to the choice of locally-based businesses as the installers, which further extends the local economic benefits and supports employment opportunities. Finally, these community solar projects take seriously the responsibility for long-term land stewardship. The sites have been carefully chosen, the relationships with the landowner are integral to the project, and the commitment to the health of the land beyond the lifetime of the project is a core concern to the members. Together, these models of community solar serve to advance renewable energy democracy in Vermont by leveraging the transition in support of broadly-shared social, economic and environmental benefit.

Ambitious State-Level Renewable Goals and Policy—Restructuring Energy Systems

The state of Vermont and its participatory democracy encouraged and supported Vermont's Comprehensive Energy Plan, which lays out an ambitious structure for state-level energy system change. The state's ambitious state-level renewable goals and policy represents operationalizing energy democracy by restructuring the future energy systems as renewable-based. This early articulation of state-level goals resulted from an intensive state-wide process of negotiation. In 1989, then Governor Madeleine Kunin called for a review of all forms of energy used in Vermont as well as a plan to modify Vermont's energy use to improve environmental quality, affordability, and renewability. This mandate resulted in the original 1991 *Vermont Comprehensive Energy Plan*. The Vermont Legislature further required for periodic updates to the state energy plan (30 V.S.A. §202b) (Vermont Department Of Public Service, 1991). The Comprehensive Energy Plan of 1998 additionally included the first edition of the *Vermont Greenhouse Gas Action Plan*, presenting policies to reduce greenhouse gas emissions. The Comprehensive Energy Plan was then updated through an intense engaged public process in 2011 and then again in 2015–2016. The statute requires regular updating of the plan and a participatory process consisting of public hearings, forums, and

stakeholder workshops throughout the state (Vermont Public Service Department, 2014).

In 2005, the Vermont legislative General Assembly moved to enable financing for renewable energy generation through Act 74, creating the Vermont Clean Energy Development Fund (CEDF) (Vt Department Of Public Service, 2016a). Coordinating with other state agencies and private industry, the primary goal of the CEDF is to increase renewable thermal and electrical energy generation in Vermont, supported through three objectives: (1) increase the economic development of Vermont's renewable energy sector, (2) increase the cost effectiveness/market maturity of renewable energy technologies in Vermont, and (3) decrease greenhouse gas emissions and other environmental impacts of Vermont's energy use (Vt Department Of Public Service, 2016b). The CEDF initially received funding through an agreement with Entergy Nuclear Vermont, and has also received revenue from state and federal funds and interest and principal repayments from CEDF issued loans, although the fund has yet to secure reliable funding from the state. The CEDF currently focuses on wood heating systems, particularly bulk wood pellets, that are advanced in their emissions, efficient, and use locally and sustainably harvested wood. The fund additionally supports a variety of efficiency and renewable energy programs including the Small Scale Renewable Energy Incentive Program (Vermont Dps, 2016).

The 2011 Comprehensive Energy Plan led to a two-year Total Energy Study (required by Act 170 of 2012 and modified by Act 89 of 2013), completed by the Department of Public Service in December of 2014, which identified and evaluated promising policy and technology pathways and raised questions for further analysis and consideration. A concluding claim of this study was that the state could achieve its GHG emission reduction goals and its renewable energy goals while maintaining or increasing the state's economic prosperity.

Another important policy innovation focused on net metering. Act 125 of 2012 doubled the size of solar PV systems eligible for the simple registration process to systems up to 10 kW from 5 kW and allowed customers with demand or time-of-use rates to take greater advantage of the ability to net meter (Vermont Department Of Public Service, 2013). Act 99 of 2014 raised the program capacity to 15% of utilities' peak demand, from 4%. Additionally, it raised the registration process threshold for solar PV up to 15 kW while it lowered the solar credit by one cent per kWh for systems over this new threshold to 19 cents per kWh (State Of Vermont, 2014).

Burlington: First US City to Be 100% Renewable Electricity

The city of Burlington has recently received international fame for becoming one of the first cities to achieve 100% renewable electricity. This was achieved by the municipal utility, Burlington Electric Department, by prioritizing local renewables including a biomass power plant, the McNeil Generating Station. Also, conservation and efficiency have been prioritized in Burlington. In July 1991, the City of Burlington adopted a set of energy efficiency standards based on nationally recognized standards for new residential, commercial, and industrial construction and for substantial renovations. With regard to energy democracy, this innovation represents an effort to successfully restructure the cities energy toward renewables and resist the previous fossil-fuel reliance. Given that Burlington Electric Department is a municipal utility owned and managed by the municipality, this also integrates the reclaiming component of energy democracy.

The McNeil Generating Station was constructed and connected to the New England grid in 1984. The generating station is jointly owned by Burlington Electric Department, Green Mountain Power and Vermont Public Power Supply Authority. The 40 employees are made up of a maintenance crew, equipment operators, fuel handlers, foresters, and support personnel. The plant uses 76 tons of wood chips to generate 50 MW-hours of electricity. The generator is equipped with air quality control devices that measure and limit stack emissions, generating one-tenth of the level acceptable by Vermont state regulation. The generator installed a Regenerative Selective Catalytic Reduction system and since its installation in 2008 it has cut nitrogen oxide emissions to one-third of the state's regulations. The majority of the wood that is burned comes from within 60 miles of the generator. The wood chips are from logging residue which is harvested under strict environmental standards required by the Vermont Public Service Board. The water comes from four wells around the generating station with the waste water being treated and pumped back into the Winooski River.

In September 2014, Burlington bought Winooski One Hydroelectric Facility after voters approved the purchase. The purchase reflects Burlington's mission to supply clean renewable energy to people living in the city. Winooski One is a hydroelectric generating station that generates 7.4 MW of electric power that directed into BED's distribution system. Annually the dam generates 30 million kWh. The dam contains a fish lift that allows the US Fish and Wildlife service to closely monitor the fish supply in the Winooski River and Lake Champlain.

Leader in Utility Innovation

Green Mountain Power (GMP), the largest utility in Vermont, developed a vision for the Energy City of the Future that focuses on the potential for energy innovation to contribute to economic development and revitalization. The focus of this effort was the City of Rutland which GMP dubbed the solar capital of New England because it has more solar generation per capita than any other city in New England. Rutland has been held up as an example for the rest of the state and the country of how renewable generation can have transformative impact on community renewal. Rutland's transition was instigated by multiple different members of the community, and GMP has been a key organization promoting renewable deployment, home efficiency retrofits, and improved efficiency (GMP, 2016)

Green Mountain Power is arguably the most innovative electric utility in the country. GMP is the only utility in the United States that has been designated a B-Corp, which is a business that is certified to meet rigorous standards of social and environmental performance, accountability, and transparency. The CEO of Green Mountain Power proudly claims that GMP

is an energy services company, rather than an electric utility (Mckibben, 2015). Among GMP's A Rutland couple who live in a 100-year-old two-story house was approached by GMP to take part in their new energy efficient program (Mckibben, 2015). The program included retrofitting the home with cellulous insulation, solar panels, and efficient heating pumps to ultimately lower the families heating bill and make their home more comfortable. The program was issued through NeighborWorks of Western Vermont, a local non-profit housing agency that worked with the family through the entire retrofitting process. The $15,000 cost for the program was financed by GMP and the savings realized from the homes increased efficacy covers the monthly loan payments. GMP is expanding this deep home retrofit program with a goal of another 100 homes in Rutland County with the desire for it to spread across the state (GMP, 2016). Another innovative utility program is the eVolve Panton program which is a rapid energy transformation in the small town of Panton Vermont resulting from a partnership between GMP and Efficiency Vermont. By offering residents technical assistance, financial incentives and financing toward energy transformation, Panton is set to become the first town to monitor its total energy use, know the full cost of that energy use, and measure the carbon impact. These innovations in electric utilities integrate resisting, reclaiming, and restructuring.

Town Energy Committees

The state of Vermont has a unique history and structure of local energy governance. Over one hundred communities in Vermont have active "Town Energy Committees" demonstrating a high level of public engagement on energy within the state (Rowse, 2014). In addition to providing a democratic space for local conversations about energy planning and energy innovations, these town energy committees are networked and provide input on the state-level conversation about Vermont's energy future. The focus of these committees is on both renewable energy and energy efficiency initiatives. These town energy committees are supported by the Regional Planning Commissions as well as the Vermont Energy and Climate Action Network (VECAN), an organization whose mission is to support and strengthen town energy committees throughout the state enhancing the statewide network of community-level engagement and innovation (Vecan, 2007; Vecan., 2016). Town energy committees represent a high level of local, engaged, active citizenry in Vermont.

Vermont's Act 174 of 2016 supports an approach to energy planning that aligns municipal and regional planning with statewide commitments to renewable energy development and greenhouse gas emissions. Although specific recommendations and standards are still under development by the Vermont Department of Public Service, this legislation opens the potential for greater local- and regional-level participation in renewable energy in Vermont (Vermont Dps, 2016). This act further advances previous grassroots efforts to build capacity for town-level planning. For example, the Vermont Energy and Climate Action Network, and others have worked closely with town energy committees, hosting annual organizing and educational meetings and developing published resources to empower citizens, and local planners to engage in energy planning (Vecan, 2007; VNRC/VLCT, 2011). This local level planning and organization integrates both reclaiming and restructuring the energy systems.

Innovative Energy Efficiency Policy

Vermont energy policy has also been innovative in terms of encouraging efficiency and reducing energy consumption through creative, systematic institutional change. Among Vermont's most innovative policy creations was the creation of the nation's first state-wide energy efficiency utility—Efficiency Vermont, created in 1999 through legislation following a settlement among all Vermont electric utilities and the Vermont Department of Public Service (the City of Burlington Electric Department operates under a similar, independent agreement) (Vermont Public Service Board., 2016). An efficiency utility is a third party service provider who is charged with carrying out efficiency programs on a statewide basis. The focus on energy efficiency in Vermont began much earlier in the 1970s and 1980s with several strong advocates for energy efficiency pushing for efficiency and conservation initiatives and a 20 year electric energy plan. Administered by the Vermont Energy Investment Corporation (VEIC), an independent nonprofit energy services organization, Efficiency Vermont provides both technical assistance as well as financial incentives to support energy-efficient building design, construction, renovation, equipment, lighting, and appliances. Efficiency Vermont prioritizes the reduction of the need for future power, transmission and distribution infrastructure, and greenhouse gas emissions (DSIRE, 2015). The Vermont Energy Efficiency Utility Program is funded by a volumetric energy efficiency charge on customers' bills, collected by the electric distribution utilities (Vermont Public Service Board., 2016), with additional funding provided through the Regional Greenhouse Gas Initiative and the ISO New England Forward Capacity Market (DSIRE, 2015). The idea of an electric efficiency utility was novel as it decoupled the conflicting incentives of asking electric utilities who want to sell customers electricity to promote efficiency and consume less power. The efficiency utility model has been since replicated outside of Vermont. Also Act 89 of 2013, which emerged from the work of the Thermal Efficiency Task Force, advanced informational tools such as a "clearinghouse" for thermal efficiency information and building energy labels for development. This innovation focused on energy consumption integrates resistance, reclaiming, and restructuring by reducing energy demand.

The Nation's First Integrated Renewable Energy Standard

In June of 2016 the state of Vermont became the first state to enact an integrated renewable energy standard (S. 260) which requires the distribution utilities to procure a defined percentage of their total retail electric sales from renewables. This makes utilities responsible for both supplying renewable electricity and also for supporting reductions in customers' fossil fuel use (Vermont, 2015; EIA, 2016; Vt Public Service Board, 2016). The associated Act 56 of 2015: Renewable Energy Standard (RES) establishes a requirement that electric power be: 55% renewable

in 2017, rising 4% every three years to 75% in 2032 (Tier 1); and 1% from distributed generators (less than 5 mW) connected to Vermont's electric grid in 2017, rising 0.6% per year, to 10% in 2032 (Tier 2). The RES is unique in that it also requires electric utilities to reduce fossil fuel use by their customers by an amount equivalent to 2% of retail electric sales in 2017, rising two-thirds of a percent per year to 12% by 2032 (Tier 3). A utility can meet this requirement through energy transformation projects that result in net reduction of fossil fuel consumption by the utility's customers or through additional distributed renewable energy generation. Examples include electric vehicles and related infrastructure; building weatherization; and increased use of biofuels. Act 56 in its passing, also addressed the siting of electric generators by establishing the Solar Siting Task Force, which has been tasked to study the design, siting, and regulatory review of solar facilities.

An additional recent policy innovation aligned with the energy democracy goal of resisting the fossil fuel regime is the carbon pollution tax. A strong current coalition advocating for a state-wide carbon pollution tax has recently broadened to include multiple different proposals involving different priorities for how to use the additional tax revenue (Energy Independent Vermont, 2017). The current Vermont Governor is not in favor of a carbon pollution tax so this has become quite controversial representing growing tensions within the state.

Networks and Organizational Innovations

Vermont is home to a number of non-profit and for-profit energy policy and programmatic organizations that have had a great impact on the state's innovative energy policy. These organizations innovations have contributed to a highly networked state energy landscape. For example, the Regulatory Assistance Project (RAP), founded in the 1980s, provides consulting services to public entities around the world and has grown into an internationally known and trusted voice to support energy efficiency and renewable energy policy and legislation. The establishment of the Energy Action Network (EAN) in 2009 is another innovation that facilitates communication among key actors and organizations throughout the state. Vermont's Energy Action Network (EAN) is a unique statewide organization whose principal purpose is to use a cross-sectoral network approach to advance Vermont's transition to a sustainable energy future (**Figure 1**). EAN is a diverse group of non-profits, businesses, public agencies, utilities and educators, and other high-level stakeholders working collectively to meet 90% of our 2050 energy needs through efficiency and renewables across four key leverage points: capital mobilization, technology innovation, public engagement and regulatory reform. At EAN's 2015 annual meeting, the organizers designated an entire opening session to encourage members to reflect on the social value of a network including a focus on relationships, communication, and collective impact. This sophisticated and self-reflective session highlighted the impact of working for change through a cross-sector coalition rather than through a single organization (Kania and Kramer, 2013). The state has also made key moves toward integrated planning of transmission and distribution to address reliability concerns. Additionally, the state has adopted policies for rate decoupling and group and virtual net metering, and has implemented a standard offer program to encourage small-scale renewable generation (Farrell, 2014). These networks are simultaneously involved in resisting, reclaiming and restructuring Vermont's energy systems.

OPERATIONALIZING ENERGY DEMOCRACY IN VERMONT

Each of the examples of energy innovations described in section Examples of Operationalizing Energy Democracy in Vermont represent intentional democratic attempts to resist, reclaim, and restructure the state's energy systems toward a renewable energy future. While the first three initiatives were selected to explicitly demonstrate resistance, reclaiming, and restructuring, the additional initiatives are more integrative incorporating components of all three (arguably focusing more on reclaiming and restructuring than resisting).

Through a combination of policy, institutional, and cultural innovations, Vermonters are actively involved in visioning and advancing a different energy future. Vermont has been identified as a state with a unique energy landscape worth keeping track of as energy democracy goals are advanced (Farrell, 2014). This review of several specific energy innovations in Vermont provides insights on operationalizing energy democracy.

One key aspect of considering the opportunities for energy democracy operationalization in Vermont is the state's small size. Through the participatory-observation methods integrated into this research involving each of the co-authors direct engagement, it becomes clear that the small scale of the state of Vermont results in interconnecting networks of stakeholders who know each other. These interconnections among stakeholders across the state and the comparatively short distances that stakeholders have to travel to convene results in broad participation across the state. This participation, in turn, seems to lead to multiple frequent mechanisms for communication among a diversity of stakeholders. The sharing of information appears to be easier than in other places, and alignment of common goals appears to be more readily achievable because of multiple informal connections among key actors. Vermont seems to foster a culture of community, collaboration, state pride, and public engagement, so many residents of Vermont are active and engaged in their communities. This high level of engagement and the small size results in a sense of state-wide collaboration toward a renewable energy transition and fosters an application of democratic processes to energy planning.

Other factors that are unique to Vermont when considering operationalizing energy democracy ideals are the minimal fossil fuel interests in the state. Unlike many other jurisdictions, Vermont has no fossil fuel resources, and Vermont is the only state in the nation with no large fossil fuel power plants, so the liquid fossil fuel dealers are the primary fossil fuel interests in the state. Vermont has over 17,700 jobs in the clean energy sector, which accounts for almost 6% of the workforce, up from 4.8%

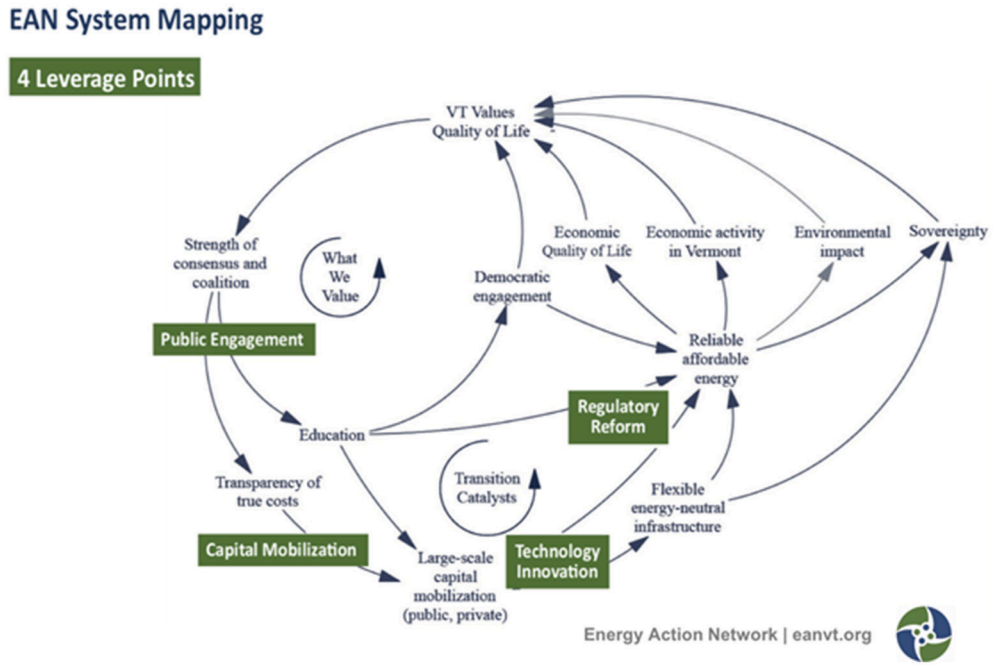

FIGURE 1 | A social system network map of the Vermont energy innovation system created by the Vermont Energy Action Network (EAN, 2016). Reproduced with permission of the Vermont Energy Action Network.

in 2015, and 4.3% in 2014 (Clean Energy 2016 Industry Report, prepared for the Vermont Clean Energy Development Fund). In addition, national rankings regularly identify Vermont as one of the top ten spots leading per capita renewable energy jobs, particularly those related to solar and efficiency (Clean Edge, 2016).

In addition to these positive opportunities for operationalizing energy democracy principles in Vermont, there are also multiple challenges. In particular, there is limited community ownership of renewable energy projects. This lack of community ownership has resulted in widespread tension and opposition to many of the proposed renewable energy projects throughout the state. Controversy surrounding siting of wind and solar installations has been fierce in many parts of the state, and has similarities to resistance to renewables in many parts of the country (Peterson et al., 2015). Much of this opposition is related to local communities not having ownership and therefore not sharing in potential future benefits of renewable installations. This opposition has led to some scaling back of policy incentives and a slow-down of deployment of both solar and wind. Opposition to transmission lines, including transmission from hydropower from Quebec, has also been strong in some communities (Watts and Kaza, 2013). New state rules approved in fall 2017 limit the sound from wind power to such a degree that no large wind power projects will be built while this rule is in place.

Among the many challenges of operationalizing energy democracy goals that emerge is the prominent role of the private sector. The renewable energy industry in Vermont is strong and politically involved in advancing ambitious renewable energy policies. The influence of the private sector is at odds with some of the community-oriented goals of the energy democracy agenda, and the sector generally lacks a strong union presence. The limited examples of alternative ownership models in Vermont is clear challenge of operationalizing energy democracy, and a place where Vermont has strong potential to continue to innovate.

While the citizen opposition to Vermont Yankee and some recent renewable installations demonstrates the power of resistance in Vermont, many of the renewable energy activists are quite separate and lacking connections to those working to resist fossil fuels. There seems to be only a few organizations that are simultaneously resisting non-renewables while also advocating for reclaiming and restructuring toward renewables.

An additional challenge of operationalizing energy democracy in Vermont relates to the limited attention to the most vulnerable individuals and households and injustices within the energy system. A unique consideration in Vermont is the limited racial diversity of the state. The larger energy democracy movement has emerged most strongly in urban contexts where socio-economic and racial disparities are critical social justice issues that are being connected to energy system change, but the comparatively racially homogeneous population in Vermont has meant that racial injustices are not prominent. Socio-economic disparities and inequalities are widely acknowledged in Vermont, but only some energy innovations within the state are prioritizing the potential for the renewable energy transition to redistribute jobs and economic power. As a result of these and other challenges, progress lags behind the state's goals.

CONCLUSIONS

As a transformation toward more renewable-based energy systems accelerates, the principles of energy democracy provides guidance on redistributing economic and political power during the transition. But operationalizing those principles is both challenging and ripe with opportunity. The energy democracy movement provides a framework to *resist*, *reclaim,* and *restructure* energy systems (Sweeney, 2012, 2014) in the transition away from fossil fuels. Within the political context of the United States, the small state of Vermont provides valuable insights on challenges of operationalizing these energy democracy goals. One noticeable challenge (and opportunity) is the apparent inability of organizations and initiatives to simultaneously embrace working toward resisting, reclaiming and restructuring. Many individuals and organizations in Vermont are focusing on advancing renewable energy rather than paying attention to how to resist the continued fossil fuel reliance. A largely unrecognized challenge is how to reduce the entrenched fossil fuel dependence throughout the state—much of which is associated with transportation and heating. While resistance to nuclear at Vermont Yankee was strong throughout the state, a similar resistance to fossil fuels has not emerged. This lack of resistance is due in part to the lack of a large tangible fossil fuel power plants and the distributed reliance among almost everyone in the state for both transportation and heating. Carbon pollution tax proposals are the primary fossil fuel resistance efforts in the state of Vermont, and the strong controversy surrounding those demonstrate the more general challenge of resisting the dominant and entrenched component of the energy system.

The limited focus on distributed ownership and labor organization in the energy sector in the Vermont context represents a fruitful area for future innovations in Vermont and beyond. Additional comparative research on the motivation, structure and evolution of community energy initiatives in Vermont would be a valuable contribution to the growing community energy research (Macarthur, 2016; Hoicka and Macarthur, 2018).

Another interesting aspect of Vermont's ambitious energy policy is the focus on 90% renewable rather than 100% (Jacobson et al., 2015; Diesendorf and Elliston, 2018). While the energy democracy movement explicitly aims for 100% renewable, Vermont's goal of 90% by 2030 represents a practical acknowledgment of the challenge of reducing that last 10% of fossil fuel reliance (Heinberg and Fridley, 2016).

While a rich literature has focused on social acceptance of renewable energy deployment, this empirical review of several energy innovations in Vermont suggests that more attention should be paid to innovations in participation, ownership and financing. Recognizing that local community ownership is critical to distributing the economic and political power associated with renewable energy, Vermont demonstrates how controversy can emerge despite a culture of collaboration and experimentation, limiting the transition.

As the steady and growing concerns with climate change and fossil fuel dependence at the national and international levels provide the broader backdrop at the macro-level for the energy democracy movement, the combined efforts of the state of Vermont, including the Vermont legislature, several supportive gubernatorial administrations, and pressure and involvement of the Vermont citizenry, create a unique place where energy innovations are thriving. Despite this positive potential and a highly participatory culture of democracy, the operationalization of energy democracy principles, particularly distributed ownership, remains minimal and contested, limiting the transition.

AUTHOR CONTRIBUTIONS

JCS coordinated this collaborative effort and contributed to data collection and writing the paper. MJB researched specific innovations and contributed to writing the paper. BG and EJ researched specific innovations. RW provided insights on the specific innovations and contributed to writing the paper.

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Shared Yet Contested: Energy Democracy Counter-Narratives

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Conventional ways of communicating about the transition to renewable energy in North America presuppose that energy systems can be changed while sustaining existing social, political, and economic relations. Energy democracy counters such ostensibly apolitical narratives by emphasizing the socially transformative potential of this transition. Yet energy democracy, as both organizing principle and social movement, is itself increasingly recognized as flexible and contested. This research seeks to better discern and understand the practices and implications of energy democracy and its variants through synthesis and qualitative analysis of transition counter-narratives drawn from public communications of energy democracy initiatives actively working in northeastern North America. Transition narratives are examined through four constituent elements: collective-action frames that define problems, solutions, and motivations for sociotechnical change; discourses that describe values and norms of members of the communities of interest; sociotechnical imaginaries that describe and prescribe futures to be attained; and stories that connect past, present, and future and identify specific agents and adversaries to change. The research finds a set of diverse organizations across the region taking up and giving shape to the concept and goals of energy democracy, revealing a convergence among these initiatives around commitments to a socially transformational shift to collectively-controlled renewable energy systems. A comparison of transition narratives suggests distinct and potentially competing approaches to energy democracy, or multiple energy democracies, described as local and regional communities, public partnerships, and social movements. These energy democracies express differences in terms of social groups to be connected and empowered, theories of change and stability, form and specificity of institutional change, resistance to negative as well as promotion of positive agendas, and ability to work across scales. These differences can and perhaps must activate a productive tension among multiple energy democracies working for and within a democratized renewable energy future for this region. The paper broadly contributes to research on sustainability transitions by examining and comparing transition narratives at trans-national and sub-national levels, proposing a descriptive and analytical typology of transition counter-narratives, and initiating a data set for future research on regional social-ecological-technical systems to strengthen initiative-based practice and learning.

Keywords: energy democracy, renewable energy, transition narratives, social transformation, social movements, sociotechnical imaginaries

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INTRODUCTION: ENERGY DEMOCRACY AND TRANSITION NARRATIVES

The project of shifting from fossil fuels to renewable energy sources is now widely recognized for its political rather than strictly technological or economic dimensions (Cherp et al., 2018). A broad political movement organized around renewable energy transition has not yet been clearly articulated, however. Energy democracy, as an organizing principle and social movement, offers the opportunity for groups promoting renewable energy to mobilize around an overtly re-politicized project for energy transition (Angel, 2016; Becker and Naumann, 2017). Advocates of energy democracy see in the renewable energy transition the possibility and even the necessity for achieving multiple social and ecological goals and outcomes through the process of ending fossil fuels and developing their renewable replacement (Burke and Stephens, 2017; Szulecki, 2018). In this way, energy democracy provides a socio-political counter-narrative (Davis, 2002, p. 25; Lieberman and Kline, 2017, p. 3; Nye, 2003, p. 14) to mainstream post-political transition narratives that position renewable energy transitions within a broadly dominant neoliberal hegemony (Mouffe, 2014a, p. 66). These dominant narratives, increasingly criticized for their inability to compel the desired level of action (Bushell et al., 2017; Sweeney and Treat, 2017), tend to approach the transition to renewables primarily as a matter of changing technologies and fuel sources, while taking as given a need to renew and sustain processes of accumulation (McCarthy, 2015) under a banner of the green economy (Gibbs and O'Neill, 2017, p. 162; Luederitz et al., 2017, p. 396).

As with the democratic paradigm more broadly, energy democracy would therefore appear to hold as a central concern not only technological change but also a creative transformation of social relations (Montgomery, 2016, p. 1992). Indeed, energy democracy has been described in terms of a political demand for just, democratic, and sustainable energy systems as well as a corresponding effort to institutionalize democratic energy governance through diverse and socially transformative forms of organization (Becker and Naumann, 2017). Yet energy democracy is also politically flexible and contested, involving divergent approaches, some of which may serve to justify and advance established notions of green capitalism and extend market relations (Angel, 2016; Tarhan, 2017). Energy democracy appears to move beyond reformist approaches to sustainability that emphasize technological or behavioral change but may be flexible in whether it takes a reconfiguration position, working to reconfigure modern energy systems, or a revolutionary position, working toward deeply structural societal shifts through processes of energy transitions (Geels et al., 2015, p. 9).

This current moment of transitions in the making (Turnheim et al., 2015, p. 240) opens an opportunity for energy democracy activists to disrupt and expand political imaginations and develop and implement tangible and targeted initiatives. This opportunity can be enabled through simultaneous processes of disarticulating the existing hegemony and re-articulating old and new elements into more democratic configurations (Mouffe, 2014a, p. 67–68) as pre-figurations of alternative socio-ecological-technical systems (Turnheim et al., 2015, p. 249). Realizing this transformative energy vision will largely depend upon the capacity for groups working toward energy democracy to influence the direction of transition through both practice and persuasion (Davis, 2002; Bushell et al., 2017). To better understand and recognize energy democracy as part of a contemporary socio-political struggle, research can seek to uncover and analyze the central characters of this struggle, the contending mobilized counter-publics (Hess, 2017), their core political claims and arguments (Montgomery, 2016), and their motives and strategies on the ground (Turnheim et al., 2015, p. 244) as embedded within and publicly performed through particular locations and diverse social institutions and modes of organization (Jasanoff, 2015; Becker and Naumann, 2017; Gibbs and O'Neill, 2017; Hess, 2017).

This original research examines energy democracy initiatives and their transition narratives in northeastern North America to understand (1) how energy democracy works as a counter-narrative to mainstream energy transition narratives, and (2) whether and how a diversity of counter-narratives for energy democracy are presently communicated publicly and how they compare across this region. Transition narratives include and extend beyond stories about political life to serve as collective justification for actions to create sustainability transition pathways (Luederitz et al., 2017, p. 394; Wesley, 2014, p. 138). Such narratives of change, describing context, actors and plots of transformation (Wittmayer et al., 2015), may interact with social and systems-wide innovations and macro-level phenomena to produce transformative social innovations that challenge, alter or replace dominant institutions (Avelino et al., 2017). Narratives can support the efforts of communities of energy and climate change researchers and activists by collectively imagining, integrating and expressing broad yet detailed possibilities, rather than limiting the focus of transition to narrowly-prescribed institutional or political reforms (Moezzi et al., 2017, p. 6). As communicative strategies and practices for energy transition, narratives offer to communities of people an accessible, meaningful, and culturally- and historically-grounded approach to expand participation, diversify and anchor challenging deliberation, articulate and legitimate community values, and increase capacity for rethinking energy futures (Miller et al., 2015, p. 67). Like their constituent elements, transition narratives are stabilized through diverse social institutions including governments, businesses, sciences, the media and civil society, and in turn seek to influence and give rise to institutionalized change (Jasanoff, 2015; Becker and Naumann, 2017; Hess, 2017). The paper broadly contributes to research on sustainability transitions by examining and comparing cross-regional transition narratives at trans-national and sub-national levels (Jasanoff, 2015, p. 18), clarifying emergent ideal-type transition counter-narratives, and initiating a data set for future research on regional social-ecological-technical systems to strengthen initiative-based learning and support diverse and participatory analytical approaches (Turnheim et al., 2015, p. 244).

The following section on materials and methods summarizes the procedures used for defining and selecting cases of energy democracy, collecting data, and analyzing and synthesizing transition narratives. The paper goes on to present the results of this research, describing attributes of cases, a general energy democracy narrative, and diverse types of energy democracy and transition narratives for the region, and offers a preliminary set of factors related to this diversity. In the discussion section, the paper considers energy democracy counter-narratives in terms of their convergence and divergence, and their performative and transformative potential. These differences, it is argued, can and perhaps must activate a productive tension among multiple energy democracies available for guiding democratized renewable energy futures. A final section concludes by reviewing the contributions and limitations of this research and proposing ways to improve upon and extend this work.

MATERIALS AND METHODS

This section briefly summarizes the materials and methods used for this research. To investigate transitions in their particular spatial contexts (Gibbs and O'Neill, 2017, p. 169), the units of analysis include energy democracy initiatives and their transition narratives presently operating in eastern Canada and the northeastern United States. An *energy democracy initiative* (EDI) is defined as an organization or program that actively makes use of the term "energy democracy" to guide actions (Hess, 2018) or works to advance energy democracy goals and outcomes or policy instruments to achieve a renewable energy transition (Burke and Stephens, 2017). For this research, a *transition narrative* is defined by a set of elements used for ongoing public communications of an initiative, whether originating in an official source or used less formally by non-experts (Tidwell and Tidwell, 2018). Informed by Miller et al. (2015) and Wittmayer et al. (2015), these elements of transition narratives include (1) *collective-action frames* that define problems, solutions, and motivations for sociotechnical change (Eaton et al., 2014, p. 232–233), (2) *discourses* that describe values and norms of members of the communities of interest (Wesley, 2014, p. 137), (3) *sociotechnical imaginaries* that describe and prescribe collective visions of desirable futures to be attained in a given context (Eaton et al., 2014, p. 230; Jasanoff, 2015, p. 4; Jasanoff and Kim, 2009, p. 123), and (4) *stories* that connect past, present and future and identify specific human agents and adversaries of change (Moezzi et al., 2017, p. 2; Wesley, 2014, p. 138). This definition avoids presuming any specific social group as agent or adversary (Tidwell and Tidwell, 2018). Similarly, the "institutionalist dimension of energy democracy," involving the issue of who should own and control energy infrastructure (Becker and Naumann, 2017, p. 4–5), is addressed within transition narratives in terms of new or existing organizational forms proposed as solutions for democratization.

An iterative process of online searches and evaluation of evidence yielded text source data and attribute values for a set of nine EDIs working within northeastern North America, as well as a broader data base of initiatives within this region available for further scholarly research through a publicly accessible repository (Burke, 2018). Analysis and synthesis of transition narratives for the EDIs were performed through qualitative document analysis (Wesley, 2014), coding text data by categories of elements of transition narratives (**Table 1**), clustering similar organizational narratives, and constructing a transition narrative for each cluster of organizations. This process uncovered a set of attribute values useful for characterizing energy democracy initiatives, a generalized energy democracy transition narrative, three distinct types of energy democracy and their associated variants of transition narratives, and an exploration of possible relationships between attributes and types of energy democracy. Further details on case selection, data collection, and analysis and synthesis of transition narratives are described within the Supplementary Material to this manuscript.

RESULTS

Attribute Values for Energy Democracy Initiatives

The search and selection process identified a set of nine energy democracy initiatives as defined here, including: Canadian Union of Public Employees (CUPE); Confédération des syndicats nationaux, Québec (CSN); Co-op Power; Coule Pas Chez Nous; New England Grassroots Environment Fund (NEGEF); New York Energy Democracy Alliance (EDA); The Leap; 350.org; and Trade Unions for Energy Democracy (TUED). The researcher-completed surveys of primary sources yielded values for attributes relevant to sustainability initiatives within social-ecological-technical systems at the regional scale. Energy democracy as an organizing principle has been taken up by this set of organizations and programs operating within the region at local, regional, national, global, or some combination of scales. Both long-standing and recent initiatives, representing a range of organizational types, have taken to using the term. The initiatives examined here demonstrate a leadership approach described as either bottom-up or a combination of top-down and bottom-up, emphasizing social or a combination of social and ecological dimensions, often taking a holistic perspective to their analysis of problems and their proposed solutions, and organizing around available renewable energy technologies generally. Examples of evidence of these values as identified in the primary sources are presented here for the attributes "organization type," "initiation or leadership approach," "social-ecological emphasis," "breadth of focus," "geographic range/spatial scale," and "available technologies." The number of EDIs for each key attribute value is presented in **Table 2**.

McGinnis and Ostrom (2014) identify a broad set of organizational types used to characterize social groups including public, private, non-profit, community-based and hybrid organizations (p. 9). These general categories were used here to characterize the selected EDIs based on differences found within the text documents. For example, for an organizational type of cooperative, Co-op Power self-described as "a consumer-owned sustainable energy cooperative,"[1] for EDA, a community-based organization, "a statewide alliance of community-based organizations, grassroots groups, and policy experts working together to advance a just and participatory transition to a

[1] http://www.cooppower.coop/about-us (Accessed 24 September, 2017)

TABLE 1 | Coding topics and descriptions of elements of a transition narrative.

Coding topic	Description
Collective-action frames	Problems, solutions, and motivations for collective action toward sociotechnical change.
Motivations for collective action	Specific events or phenomena that have occurred or are occurring at an identified point in time, which have inspired or sustain a sense of need for collective action.
Problems	Issues of collective concern (e.g., global warming, income inequality) that the group identifies as requiring action to address and improve.
Solutions	General types of responses (e.g., organizational forms, policies, strikes, demonstrations) promoted to address problems through collective action.
Discourses	Values and norms of members of the communities of interest, including the initiative, partners, and communities served.
Values and norms of members	Ideological commitments or normative positions that guide the collective behavior of members of an initiative.
Sociotechnical imaginaries	Desirable futures collectively described or prescribed in a given context.
Futures described or prescribed	Collective visions of a future that the initiative works to create and attain.
Stories	Periods of time and events connecting past, present, and future, and specific agents of and adversaries to the desired change.
Adversaries for change	Groups identified as preventing the attainment of a desired future.
Agents for change	Groups identified as holding the capacity for controlling the direction of change or occupying a central role for making change toward a desirable future.
Connecting past, present, and future	Selective descriptions of events and timelines that temporally position the work of the initiative and its members.

resilient, localized, and democratically controlled clean energy economy,"[2] and for TUED, a hybrid organization, "a multi-partner initiative"[3] coordinated by non-profits as part of a partnership between a public university and labor unions. These examples demonstrate differences in the language used for self-description of the EDIs, useful for understanding whether and how different forms of organizations publicly present transition narratives. Aside from cooperatives, no private sector initiatives or their hybrids were identified among this set.

Orenstein and Shach-Pinsley (2017) propose a set of characteristics of sustainability initiatives that may allow achievement of successful outcomes, including approach to initiation and leadership of initiatives (bottom-up and top-down) (p. 250). Interpreting the diversity of approaches across these categories and their hybrid can provide insight as to the potential for success both individually and as a group. Evidence suggested bottom-up and hybrid organizations within this set. For example, for a bottom-up leadership approach, NEGEF made the following statement: "Focused on all things local, the Grassroots Fund is the only organization of its kind dedicated to inspire, connect, and support community-based environmental projects throughout New England. Grassroot Fund's niche is to help those on-the-ground, everyday people for whom grassroots work is a passion and whose volunteer time is a priceless contribution to the common good."[4] In contrast, a hybrid approach values both bottom-up and top-down, for example: "Trade unionism at CSN is based on the organization of autonomous trade unions. They choose the rules that drive their union life. Our unions are masters of their decisions."[5] "In our democracy, it is imperative that the State assume its responsibilities in implementing the measures guaranteeing social solidarity and the best possible sharing of wealth produced. The State must act through laws, agreements and treaties, through taxation, supporting by all necessary means the public networks of health, education and social services and taking measures capable of ensuring income security to all citizens."[6] No exclusively top-down leadership approaches were identified.

Differences in relative emphasis on ecological and/or social systems may also influence effectiveness (Orenstein and Shach-Pinsley, 2017, p. 250). Evidence from the text data suggests social and combined social-ecological emphasis among these organizations. For a social emphasis, EDA stated that "We envision a renewable energy system that is led by and prioritizes solutions for low- and moderate-income communities and communities of color who are most impacted by our current energy and economic system. We transform our communities' relationship to power through advocacy, organizing, job creation, coalition-building, policy research, and public education for an equitable, sustainable energy future."[7] Rather than a general statement on the value of sustainability, a social-ecological emphasis gives explicit attention to combined social and ecological concerns: according to 350.org, "Climate change is not just an environmental issue, or a social justice issue, or

[2]https://edatestsite2.wordpress.com/ (Accessed 23 September, 2017)

[3]http://unionsforenergydemocracy.org/about/about-the-initiative/ (Accessed 23 September, 2017)

[4]https://grassrootsfund.org/about-us (Accessed 24 September, 2017)

[5]https://www.csn.qc.ca/mouvement/patrimoine/nos-valeurs/ (Accessed 21 September, 2017) (Translated from French)

[6]https://www.csn.qc.ca/mouvement/patrimoine/notre-declaration-de-principe/ (Accessed 21 September, 2017) (Translated from French)

[7]https://edatestsite2.wordpress.com/mission/ (Accessed 23 September, 2017)

TABLE 2 | Number of Energy Democracy Initiatives (EDIs) by attribute value ($n = 9$).

Attribute and attribute value	Number of EDIs
Province or state	
Massachusetts	1
New Hampshire	1
New York	3
Ontario	2
Québec	2
Year of initiation	
Pre-1970	2
1970–2007	2
2008–2017	5
Organization type	
Non-governmental/nonprofit	4
Private	0
Public	0
Community-based	2
Cooperative	1
Hybrid (mix of types)	2
Initiation/management or leadership	
Bottom-up	5
Hybrid (bottom-up and top-down)	4
Top-down	0
Social-ecological emphasis	
Ecological	0
Social	3
Social-ecological	6
Breadth of focus	
Holistic	7
Specific issues	2
Geographic range or spatial scale	
Local	0
Regional	4
National	0
Global	1
Cross-scalar	4
Available technologies	
All renewables	5
All renewables with specifics indicated	2
Specific renewables	1
Unspecified	1

an economic issue—it's all of those at once."[8] No organization appeared to emphasize only ecological dimensions.

Outcomes are also understood to be affected by an organization's breadth of focus, seeking to address a more narrowly-defined issue or taking a more holistic approach (Orenstein and Shach-Pinsley, 2017, p. 250–251), where both approaches offer advantages. As evidence of a breadth of focus on specific issues, 350.org stated that "All of our work leverages people power to dismantle the influence and infrastructure of the fossil fuel industry,"[9] and "Keeping fossil fuels in the ground is the most important step we can take to prevent further climate change."[10] Conversely, NEGEF, an organization demonstrating a holistic breadth of focus, stated that "Just Transition means shifting from dirty energy to energy democracy, from funding highways to expanding public transit, from incinerators and landfills to zero waste, from industrial food systems to regional food sovereignty, from gentrification to community land rights, and from rampant development to ecosystem restoration."[11]

Geographic range or spatial scale provide both a means for characterizing organizations by location and spatial extent of activity (McGinnis and Ostrom, 2014, p. 8–9) as well as an additional factor proposed to influence their success when working in a specific context (Orenstein and Shach-Pinsley, 2017, p. 251). Here categories include local, regional, national, global, and cross-scalar. As evidence for a regional geographic range or spatial scale, Co-op Power described its scope of work as a "regional structure, organizing our cooperative as a decentralized network of [cooperatives],"[12] while for a global range, TUED includes "58 trade union bodies, including 4 Global Union Federations, 3 regional organizations, and 7 national centers…10 allied organizations from the policy and academic communities…Unions presently participating in TUED come from 20 countries."[13] As an example of a cross-scalar range, 350.org states, "With the growth in local groups, we've been busy organizing around the world and training the climate movement."[14] None of these nine EDIs were found to orient their work strictly at the local or national levels.

Organizations are also characterized by the types of renewable technologies they articulate and emphasize within their efforts to transition, described here as available technologies (McGinnis and Ostrom, 2014, p. 5), suggesting both the form and the level of engagement with technology as key components of social transformation. This category includes either specific renewable energy technologies or renewables in general. For example, Coule Pas Chez Nous, an initiative focusing on specific available technologies, listed the technologies as "biomethane… biogas… geothermal… wind turbines… solar photovoltaic… passive solar… active thermal solar… hydroelectricity,"[15] whereas the more frequently stated category of "all renewables" was indicated by CUPE as "We will support renewable energy that has a less harmful impact on the climate and the environment" (CUPE, 2013, p. 14), and by TUED in terms of "the need to restructure the global energy system in order to massively scale up renewable energy and other safe low–carbon options" (Sweeney, 2013, p. ii).

[8]https://350.org/about/#principles (Accessed 23 September, 2017)

[9]https://350.org/about/#history (Accessed 23 September, 2017)

[10]https://350.org/science/#causes (Accessed 23 September, 2017)

[11]https://grassrootsfund.org/dollars/guiding-values (Accessed 24 September, 2017)

[12]https://www.cooppower.coop/what-is-a-community-energy-co-op/ (Accessed 24 September, 2017)

[13]http://unionsforenergydemocracy.org/about/partners/ (Accessed 23 September, 2017)

[14]https://350.org/2016-annual-report/ (Accessed 23 September, 2017)

[15]https://www.coulepascheznous.com/alternatives#tabbed-content (Accessed 22 September, 2017) (Translated from French)

Additionally, organizations can be characterized and distinguished by the outcomes used to measure and communicate success for transition. McGinnis and Ostrom (2014) describe such indicators as social and ecological performance measures (p. 5), which can vary depending on the context. Accordingly, the specific outcomes varied across these initiatives, yet taken together they reveal a set of general priorities or performance measures for energy democracy in this region. Social outcomes include accountability, community resilience/adaptation, community sustainability, efficiency, employment, energy conservation, equity/justice, health/wellbeing/quality of life, participation/democracy/inclusivity, public/community ownership, public safety, reduced energy poverty, and sense of place. Ecological outcomes identified include clean air/clean soils/clean water, ecological resilience, environmental/ecosystem sustainability, reduced greenhouse gas emissions, and regeneration. Overall, the work of these EDIs is oriented toward achieving a broad set of both ecological and especially social outcomes, including mainstream outcomes such as community and environmental sustainability and energy efficiency and conservation, with additional emphasis on issues of equity and social justice, participation and democracy, and public and community ownership of energy technologies and infrastructures.

A Shared Energy Democracy Transition Narrative for the Region

The analysis revealed a set of topics or themes that indicate a convergence among the selected EDIs around a shared transition narrative. Events that have motivated collective action of these EDIs include: ongoing trends of social and environmental deterioration including especially global warming; a corresponding increase in awareness, activism, and sense of urgency; actual and potential risks of impacts to local environments and communities; and specific changes in energy policies and politics at all levels. The EDIs seek to address systemic problems of climate change and greenhouse gas emissions, fossil fuels, privatization and the primacy of the market; risks associated with fossil fuel projects and environmental degradation; and institutionalized economic, social, and environmental injustices. Members of these EDIs bring the values and norms of equity and justice, broadened public and community participation, concern for the well-being and resilience of social and ecological communities, and a perspective that connects deep social transformation with efforts to advance renewable energy and conservation. Overarching solutions center on increasing and innovating forms of public and community ownership and control over renewable energy systems, community development and public investments, low-carbon jobs, renewal of democracy and reorientation of government policy, sanctioning of the fossil fuel industry, and various other local and public solutions.

These efforts are temporally positioned in response to a continuation of historic harms, injustices and global inequities; the current moment of crisis, change, growing inequality, public scarcity and urgency for economic transformation; and a future of lasting struggle for true sustainability while stewarding enduring energy sources. Key agents of change include citizens and communities, governments, elected officials and the public sector, activists and social movements, Indigenous groups, trade unions and workers, cooperatives, and businesses. The key adversaries to change include the fossil fuel industry, governments, public agencies, political leadership and political parties, private companies and corporations, financial institutions, and corporate and centralized state utilities. Sociotechnical imaginaries are generally described in terms of renewable and sustainable futures, and public communities and economies, envisioning a just and participatory transition to a diverse, resilient, democratically-controlled renewable energy economy in balance with the earth's limits, and allowing citizens, workers and communities access to real decision-making power, ownership, and control of the means of sustainable energy production.

Types of Energy Democracy Within the Region

Based on the coded content identified through the coding queries, the process of identifying patterns and themes for each element of transition narratives per EDI pointed to three plausible generalized types or models of energy democracy. These types are described as (1) Local and regional communities, (2) Public partnerships, and (3) Social movements. Two additional subtypes appeared important to articulate. Within "Local and regional communities," there was an emphasis on cooperatives, and within "Public partnerships," an emphasis on labor and trade unions. The relationships among these types of energy democracy are graphically demonstrated in **Figure 1**. Of the nine EDIs assessed, two (Co-op Power and NEGEF) were grouped under "Local and regional communities," three (CUPE, CSN and TUED) under "Public partnerships," and two (Coule Pas Chez Nous and 350.org) under the "Social movements" group. The remaining two (EDA and the Leap) were not easily characterized according to these recognizable societal divisions, did not demonstrate the same degree of particularity as the other groupings, and their patterns and themes of transition narratives indicated an intermediate tendency relative to the three types described. Rather than force a tenuous relationship or overemphasize similarities, the choice was made to address these initiatives within the overall energy democracy transition narrative presented in the previous subsection, while recognizing that the synergies of these models may inspire over time not only a blend of types but rather an emergence of unique and differentiated approaches to energy democracy.

As a descriptive tool resulting from the analysis of elements of narratives, the Venn diagram was used in combination with pairwise comparison diagrams to confirm the relationships based on the relative positioning of each EDI within the graphic. The comparisons largely confirmed the Venn diagram with only minor adjustments, with one exception being that the grouping of Coule Pas Chez Nous under "Social movements" demonstrated uncertainty in relation to the three "Public partnerships" initiatives, meaning that the coding comparisons between these EDIs could not be reliably represented. Thus, there is a degree of uncertainty regarding the positioning of this EDI with respect to the "Public partnerships" group.

Revisiting the coding for this EDI revealed a consistent focus on local government, municipalities, and related solutions. Because the relationships were more readily confirmed with the remaining five EDIs, the choice was made to retain this EDI within the group for "Social movements" for the purpose of developing distinct transition narratives. The three variants of transition narratives are presented in the following section and summarized in **Table 3** with emphasis on their divergence where relevant. Although these narratives include some of the same dimensions as identified by Becker and Naumann (2017, p. 6) (e.g., political objectives, modes of organization, technologies and resources involved, and spatial dimensions), the resulting typology of energy democracy differs here because the narratives were constructed based on elements expressed by initiatives themselves.

Variants of Transition Narratives

Local and Regional Communities

Local and regional communities are motivated toward collective action for energy transition in response to a general awareness of political and social trends that compromise the local and global environment and economy and the inability for local communities to consistently meet the social and ecological needs of their members. Communities presently face multiple and overlapping problems that weaken their resilience including climate change and environmental degradation, dependence on polluting energy sources that undermine public health, a fossil-fuel-driven economy, consumerism, militarism, and a legacy of exploitation of land, labor, and resources. The transition to community-scale, local renewable energy resources is one element of building healthy and resilient communities, yet the complexity and expense of these systems create barriers for communities. Overcoming these barriers while creating secure jobs and livelihoods requires new energy policies, support of innovative community and place-based projects and initiatives, grassroots work, local activism, civic engagement and direct democratic decision-making, and participatory energy planning within the context of a multiclass, multi-racial movement.

Community-based and regionally-produced renewable energy requires the development and advancement of new organizational and democratically-owned group-based business models including community-owned sustainable energy businesses and networks of community energy cooperatives that design and implement projects for and permanently anchor capital within local communities and the region. This networked and community-based approach is the work of everyday people operating within and across communities of the region, finding creative ways toward a sustainable future. Workers, community members, grassroots organizations and community activists, cooperatives, legislators, and cities and towns are to lead the way to clean energy economies, while corporations, large financial interests and energy industries pose the greatest obstacles. Energy cooperatives, guided by principles of democracy, autonomy, open membership, and mutual support, serve as key drivers of community and regional energy transitions.

Change begins at the local level, allowing those people closest to and most affected by current economic and environmental trends to determine their own solutions. This approach is legitimated and sustained by the deeply-rooted sense of place among neighbors, and their interests in their homes and communities defined both socially and ecologically. Social movements and grassroots organizations serve to educate, organize, inspire, and provide the resources for community-led change. Solutions imposed outside of communities and the region will surely fail. Community members themselves are empowered to access, own, and control locally- and regionally-generated energy and become effective practitioners of grassroots democracy, stepping up to co-create the long-term resilience of neighborhoods and towns through the development of all components of resilience, including energy, food, water, and livelihoods.

The organizing vision of the future includes a safer and healthier economy powered by 100% clean, renewable sources for all end uses based on maximized efficiencies, reduced demand, expanded storage, responsible siting of facilities, and a democratized power grid. This approach ensures a just transition for workers and communities and opens up the benefits of the green economy to low-income people and people of color. The transition must stay on track to drastically reduce global warming pollution by mid-century. This is a local, living economy of abundance rather than scarcity, grounded in ecological and social well-being, cooperation and regeneration, and inherently supportive of healthy, just, safe, and environmentally sustainable communities.

Public Partnerships

The motivation for a comprehensive, public partnership approach to energy transition stems from: a recognition of substantial gaps between actions needed to confront global warming and other social and ecological crises and targets as established by the scientific community; current impacts and the likely trajectory toward planetary catastrophe of current models of energy and economic development under a "green growth" pathway; failure to establish firm sustainability commitments at global conferences including Rio+20 in 2012; and possibilities opened by recent events, including the Paris agreement and the rise of global movements for climate justice and a just transition. Because economic unsustainability, global inequality, and environmental calamity share the same systemic roots, these crises must be addressed together. This work requires directly confronting the power of corporate control over energy resources, infrastructures, markets, and our collective political imagination, leading to a change not only of energy sources but also to the full spectrum of unsustainable and unjust features of the dominant political economy. Mainstream narratives of green growth and ecological modernization are grounded in destructive neoliberal ideologies that prioritize profit, commodification, extractivism, deregulation, corporatization, privatization and marketization, support ongoing use of fossil fuels and increasing use of energy, and sustain patterns of economic precarity, financial insecurity, global austerity, and systematic dismantling of the social welfare state. Future renewable-based energy systems

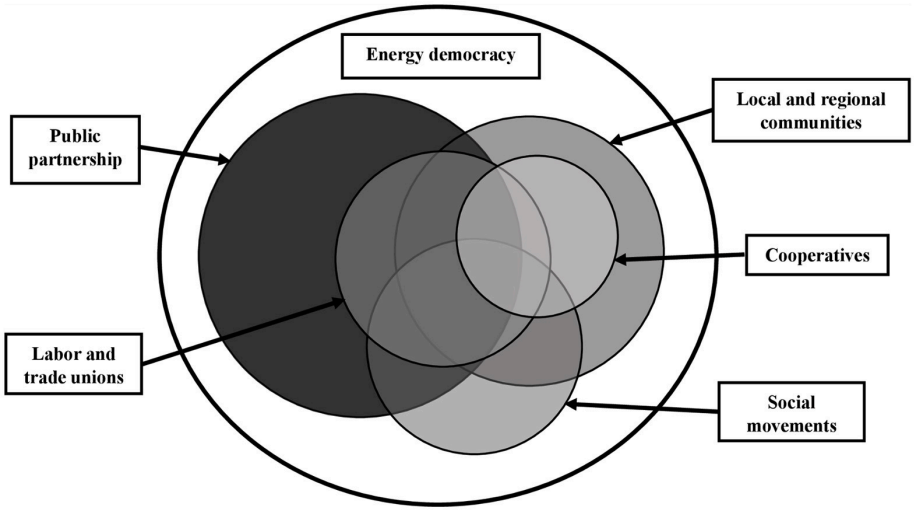

FIGURE 1 | Visualizing diverse types of energy democracy across the region.

TABLE 3 | Comparative summary of variants of energy democracy transition narratives.

Elements of transition narratives	Local and regional communities	Public partnerships	Social movements
Collective-action frames	Ongoing trends at the local and global levels and an inability to meet community needs have inspired groups to work together on problems of insufficient community resilience, fossil fuel dependence, and complexity and expense of energy systems by advancing community-based initiatives, including cooperatives and community-owned energy businesses, grassroots and local activism, and citizen engagement and decision-making.	Failures of mainstream efforts and global agreements to achieve the change required have motivated action targeting the systemic roots of social, environmental, and economic problems, by shifting energy and other economic sectors to public and social control, democratically restructuring and reprioritizing governments, and increasing community planning and development, public investments, and public works programs.	Experienced local impacts, risks of energy extraction and transport, growing social movements, and policy changes at all levels have stirred direct action to confront the global climate crisis, fossil fuel expansion, and global inequities, by mobilizing to keep fossil fuels in the ground, stop industry expansion, and experiment with local sustainable livelihoods and new modes of living.
Discourses	Community health and resilience; secure jobs; participation and ownership; citizen and community control.	Rejection of green growth agenda and other neoliberal ideologies; just transition and empowerment of workers and communities; global solidarity; genuine sustainability.	Urgency of climate change; shared responsibility and shared benefits of transition; grassroots action; strategic alliances; energy and environmental justice.
Sociotechnical imaginaries	Localized, efficient, decentralized and democratically-controlled renewable energy powering local living economies and healthy, resilient, just, and environmentally sustainable communities.	Just, equitable and democratic societies and new political economies providing meaningful work, renewable energy, and other services as public goods and human rights while respecting planetary limits.	Strengthened local and global communities built by ordinary people using renewable energy to support viable livelihoods and a just, prosperous, and equitable world for all.
Stories	Everyday people working within and across local communities, grounded in a strong sense of place and empowered to overcome large financial interests and energy utilities, work toward long-term community resilience and economic and civic renewal.	Alliances of progressive labor movements, energy sector workers, citizens, and governments at all levels, building on a history of collective struggle and past accomplishments, confront established centers of economic and political power and restructure political economies.	Networks of community groups, social movements, and frontline communities, resolved to resist the fossil fuel industry and their allies and expose their misinformation campaigns, reverse historic global inequities and end the fossil fuel era.

are not achieved by making capitalism green and sustainable, or by shifting economic and political power of fossil fuel corporations to large, for-profit renewable energy multinationals. This approach is an extension of existing unsustainability. A focus on maximizing short-term profit, making market conditions work for renewables, and creating incentives for private ownership of renewable generation fails to protect workers and vulnerable communities and effectively places the fate of humanity and the planet in the hands of private corporations and bankers. The logic of the market is not compatible with the basic survival of the human species and other life forms, and must be replaced by logics of non-market, needs-based approaches that bring economic life into alignment with social and ecological necessity.

Solutions are to be found primarily through a reassertion of public and social ownership of energy and other key economic sectors, central to a deep, democratic restructuring of the global political economy. This approach is the most and possibly the only effective path toward decisively ending fossil fuels and deploying diverse (decentralized and centralized) renewable-based energy systems rapidly, equitably, and efficiently, while simultaneously protecting workers and communities, providing quality, stable employment, respecting ecosystems, and ensuring universal energy access. A public partnership approach requires democratization of public renewable power systems and services in cooperation with communities and social movements, strategic regional and national energy planning and community development, revival of the manufacturing and transport sectors, and complete transformations of production and consumption patterns. This project is not radically new, rather it builds on and revitalizes core principles of sustainable development and its combined economic, social, and environmental agenda, emphasizing access to decent work, economic development as social development, and respect for human rights and planetary limits. These efforts form part of long-term struggle for the common good led by working people, building on historical experience over the last century with responding to societal crises and advancing public works. This model now regains importance following decades of neoliberal policies and logics, including privatization of public assets and services, that have weakened the capacity of the public sector to address existing and future crises worldwide. The fight for working people is deeply interconnected to the fight to protect the planet. Ensuring the survival of life on our planet is a moral and ethical responsibility.

Working in a spirit of solidarity, key agents include progressive trade unions and labor movements, energy sector workers, citizens, local community groups and civil society, governments at all levels, public agencies and municipal utilities, environmental, Indigenous, and racial justice movements, as well as left and progressive political parties. New technologies are the impetus for change, the public sector remains the central driver of change, and work remains a key defining activity of the human experience. Households and cooperatives may play an important role over time, but presently there are not enough localized initiatives in practice to significantly alter present trends, nor does a narrow focus on distributed generation address the pace and scale of change required to transform energy and economic systems, particularly the manufacturing sectors. Adversaries include groups advocating or aligning with mainstream green growth agendas, including wealthy federal, provincial and state governments, current political leadership, corporatized and conservative political parties, traditional unions, private and marketized state-owned fossil fuel corporations and investor-owned utilities, business interest groups, chambers of commerce and for-profit firms, well-established environmental groups, and mainstream global economic and political entities including the United Nations, the World Bank, the International Monetary Fund and the World Trade Organization. Energy, water, transportation, and other critical public services, are basic human rights and public goods to be supported largely through unionized public systems. Such systems are best controlled by ordinary people through partnerships with well-run and accountable public agencies and governmental leadership, using public works programs and diverse ownership models that provide decent, meaningful work and public-sector jobs, devolving power and decentralizing technologies as much as possible to workers, communities, and municipalities. Generation and transmission of renewable-based energy is returned to public control and ownership for meeting essential social and environmental priorities. This energy system will form the core of a new political economy grounded in social justice, equity, democracy, universality, and genuine sustainability.

Social Movements

With the Paris Agreement and related international accords as impetus, local and global networks of social movements advance energy democracy, following systematic targeting of communities and regions for extreme or risky energy extraction and transport projects, and due to a growing recognition of global warming trends and associated impacts across the planet. This lived experience, of large-scale fossil fuel projects, new coal and gas developments, fracking, pipelines, spills, contamination of water sources and arable land, and general expansions of the fossil fuel industry on one hand, and on the other, extreme weather events, deadly heat waves, severe droughts, loss of biodiversity, ocean acidification, melting glaciers, displacement of populations, and human misery stemming from a global climate crisis, compels widespread action to end fossil fuels and advance renewable energy. Climate change is real and impacting the global community now. Justice demands courageous action to avoid further climate and environmental catastrophe. All can and must contribute to this collective effort, as the issues are pressing and immense, requiring new ways of thinking, new modes of living, and diverse ways of learning among allies.

The most critical and urgent strategy is to ensure that fossil fuels stay in the ground. Fossil fuel projects must be delayed and cancelled, bans and moratoria on all new projects and infrastructure must be adopted, and credible and coherent plans for transitioning to 100% renewable energy must be made and implemented rapidly. Within a global grassroots movement, direct actions, mass demonstrations, and civil disobedience are key elements of this agenda. At the local level, this energy transition will require rethinking ways of living, reducing

consumerism, supporting low-carbon jobs, shifting to organic agriculture and permaculture, developing public transport, improving urban and community planning, and so on to reverse patterns of unsustainability, particularly in Western societies. This unsustainability is evidenced in the historical increase of atmospheric carbon dioxide. Civilization developed under specific and stable climatic conditions, yet as the use of fossil fuels increased and spread, the amount of carbon in the world's atmosphere and oceans has skyrocketed, now above 400 parts per million. Knowledge of global warming dates back more than a century. Since at least the 1970s, however, vested interests concerned with their bottom line have sought to create a sense of uncertainty regarding the science, contributing to a false debate that has prevented action and discouraged political leadership for decades.

Organizers, community groups and regular people have therefore stepped up and mobilized to protect homes and livelihoods from the impacts of the fossil fuel industry and climate change. This mobilization of activists and citizens unites diverse peoples and institutions locally and globally working at all levels of society, including citizens, landowners, Indigenous and environmental organizations, local authorities, farmers, artists, students, researchers, religious leaders, labor unions, institutional investors, and especially frontline communities who are suffering the worst impacts. Together these groups directly confront the power of the fossil fuel industry and their allies in government and finance and apply pressure on government agencies and elected officials to take bold action toward a 100% renewable energy future for all. This shift to a renewable economy based around sharing, mutual help and solidarity will help create viable livelihoods across the globe and contribute to a just, prosperous and equitable world built by the power of ordinary people.

Relating Attribute Values by Type of Energy Democracy

Charting EDI cases by selected attributes suggests similarities and differences of attribute values for each type of energy democracy. Within the "Local and regional communities" group, the two EDIs are located within the U.S. in relatively smaller towns. The organizations were initiated in 1996 and 2002. These EDIs include a cooperative and a hybrid community-based/non-governmental organization. Both indicated a bottom-up leadership approach and included a regional focus. These EDIs differed in their social-ecological emphasis and their breadth of focus. Both looked to renewable energy generally with a focus on solar photovoltaics.

The three EDIs within the "Public partnerships" type are located in major metropolitan areas in Canada and the U.S. This group includes the two organizations in operation for the longest period of time. The three EDIs include non-governmental trade unions and hybrid (non-governmental/public) organizations partnering with trade union organizations. All were characterized as a hybrid top-down/bottom-up leadership approach and a holistic breadth of focus. These organizations differed in their social-ecological emphasis and their geographic scope, and described renewable energy generally or did not specify favored technologies.

For EDIs of "Social movements," initiated in 2008 and 2014 in Canada and the U.S., both are bottom-up, non-governmental/non-profit organizations emphasizing social and ecological dimensions, and differing in breadth of focus and geographic scope. One EDI indicated specific renewable technologies while the other indicated all renewables. The two remaining organizations relating more broadly across all types are located in metropolitan areas in Canada and the U.S. Both are community-based organizations initiated in 2015 with a holistic breadth of focus. These EDIs differed in their leadership model, social-ecological emphasis, geographic range, and both looked to renewable energy technologies generally.

DISCUSSION

In contrast to conventional narratives of energy transition, this research finds a set of long-standing as well as recently emerging organizations and programs across the region organizing around the term and/or goals of energy democracy, in effort to advance a transformative shift from fossil fuels to renewable energy. The energy democracy initiatives take a variety of organizational forms, embrace bottom-up and in some cases combine top-down leadership models, emphasize ecological and especially social dimensions and outcomes, and often bring a holistic lens to the work. The EDIs work across geographic scales and often organize around renewable energy systems generally rather than specific technologies. Broadly, the evidence suggests that these initiatives can reasonably be characterized as critical (rather than liberal) (Tarhan, 2017, p. 17), democratic (rather than technocratic) (Montgomery, 2016, p 1982–1983), reconfiguration or revolutionary (rather than reformist) (Geels et al., 2015, p. 9) and potentially transformative (Avelino et al., 2017, p. 4) positions of energy democracy, social innovation and sustainability transition. They thus do represent counter-narratives and the mobilization of counter-publics (Hess, 2017) engaged in efforts to articulate and serve a broad and reimagined public interest. Together these efforts demonstrate a clear example of diverse publics actively engaging in energy transition (Miller et al., 2015) and re-politicizing narratives of energy transition (Meadowcroft, 2009; Stirling, 2014).

The study uncovers a distinct set of archetypical transition narratives for this region (Luederitz et al., 2017, p. 404), finding both a convergence and divergence among them. Similar to the three energy democracy approaches described by Becker and Naumann (2017), these regional narratives converge around a shared commitment to high levels of renewables, a preference for public and local control over energy systems, and a view of energy change as inseparable from broader changes to communities, politics and economies. In this view, social, economic, ecological, and energic crises are fundamentally intertwined; all will change together and all must be addressed together. Framings for collective actions demonstrate a shared set of motivating events that link impacts to communities with global trends, agreements, and failures. Action is largely directed toward addressing climate

change and fossil fuel dependence. In proposing solutions, these transition narratives shift away from market-based energy systems. Rather, this set of EDIs, "united in championing new modes of organization that break with international regimes of accumulation in the energy sector" (Becker and Naumann, 2017, p. 9), emphasize a broad set of organizational solutions centered on communities and the public sector and based on alliances and intersections among diverse social movements. This integrated stance regarding technological change is further evidenced by the tendency among these narratives to seek solutions in renewable energy technologies in a general rather than specific sense, suggesting that energy democracy as expressed here considers the non-technological dimensions of energy systems change at least as important if not more so than the technological dimensions. Likewise, among these groups, limited attention has been given to critically assessing specific renewable energy technologies and the degree to which different technical systems may support an energy democracy agenda, which may indicate either a gap in knowledge, an unexamined belief or an implicit rejection of technological determinism. The narratives express values of responsibility and capacity to act, participation, cooperation, equity and sustainability, envisioning shared engagement with energy systems that support a prosperous and just future, emphasizing meaningful work and sustainable livelihoods. Perhaps most notably, these narratives identify a shared set of adversaries, while emphasizing the interconnected roles of public partnerships and trade unions, local and regional communities and cooperatives, diverse groups of social movements, and similar to Szulecki (2018), the importance of citizens in steering the energy transition and owning and controlling renewable energy futures.

This shared energy democracy counter-narrative draws from the voices of groups presently active across this region who utilize and self-define this notion of energy democracy through their public communications, rather than drawing upon theoretically-derived concepts (Hess, 2018). The shared regional narrative suggests an available and potentially effective alternative to dominant narratives, their positioning of the private sector and for-profit corporations as the key agents of change, and their scope of available energy policies and politics that are increasingly viewed as insufficient to the task of transition. The findings suggest transformative potential of this set of initiatives by linking transition narratives with innovation of energy systems and broader macro-level trends and events to produce social transformation (Avelino et al., 2017). The regional energy democracy narrative may prove more effective by providing a shared and inclusive statement of what, why, how, and for whom members of these organizations and their associated communities across political jurisdictions and sectors of society are taking action (Bushell et al., 2017). The practical implication then is that the functions of these initiatives and their narratives are not mutually exclusive and may facilitate joint policy-making and activism (Becker and Naumann, 2017). Employed flexibly and strategically as a co-productive synthesis, a shared narrative may serve to complement, integrate and tie together diverse initiatives, organizations, and campaigns for energy systems change, increasing their collective prominence and motivating action toward a positive and comprehensive vision of the future (Jasanoff, 2015; Avelino et al., 2017; Becker and Naumann, 2017; Bushell et al., 2017; Moezzi et al., 2017; Hess, 2018).

Differences across all elements of transition narratives also suggest the possibility for a diversity of counter-narratives for the region. For collective-action frames, there is difference in the degree of focus on local lived experiences, with social movements especially motivated by experiences with specific risks and events impacting local communities. The framings of problems overlap, yet as with the associated attributes, a more holistic breadth of focus was found within the narratives of public partnerships and social movements, which place greater emphasis on systemic problems. This problem framing then points to differences in proposed solutions, with the narrative of local and regional communities proposing positive, community-oriented, and often policy-based solutions while saying little about struggle or opposition. The narrative of public partnerships and social movements are fundamentally organized around struggle and conflict, with the former emphasizing more targeted political change and comprehensive planning and the latter emphasizing broad but arguably less defined cultural change. The narratives also diverge in their emphasis regarding which modes of social organization, e.g., local businesses, cooperatives, municipalities, and other governments, should be supported, developed, and reformed. The social movement narrative appears to offer relatively less specificity on organizational reforms as solutions, whereas the local and regional narrative emphasizes local organizations as solutions and public partnerships emphasizes multi-scalar public restructuring.

Beyond general convergence around a core set of values and future visions, the findings suggest that the public partnership and social movement narratives express a stronger critical or oppositional positioning and commitment to global solidarity. The imaginaries of the local and regional, public partnership, and social movement narratives are respectively constructed to work primarily at the local, trans-local, and national/transnational levels. While the narratives converge around the element of stories, important differences are found with respect to the key agents of change within broadly shared alliances, the degree of specificity of adversaries, and the set of historical experiences that the current work is understood to extend. The main agents of change are identified by the names given to each narrative of energy democracy, with public partnerships underscoring the role of state and local governments relative to the positioning of groups of citizens as change agents in the other two narratives. The local and regional narrative refers to adversaries in vague terms and lacks a depth of engagement with the core issue of social power, while public partnership and social movement narratives generally name specific individuals or entities as a way to target key loci of power, albeit emphasizing different levels of governance. Convergence around futures interestingly stem from diverse historical experiences, where once again the public partnership and social movement narratives include a greater emphasis on historical conflict (extended or more recent) while the local and regional narrative seems to connect past and future not through conflict but as recovery, suggesting a yearning for a

lost ideal of self-determined communities. Overall, these findings imply differences regarding the possibility for energy democracy to connect, empower, or disempower specific social groups, to include robust theories of change and obduracy, to focus on specific institutional change, to resist negative as well as promote positive agendas, and to work across scales.

Minding these potential differences among this set of energy democracy narratives allows for speculation regarding their potential value as counter-narratives for social transformation. While collectively an energy democracy narrative serves to bridge differences across social groups (Hess, 2018, p. 180), the narrative of local and regional communities may offer less capacity for bridging groups or influencing policy changes or technological solutions at larger scales (i.e., energy system regime) as compared to the other narratives. Likewise, given their greater emphasis on historical episodes, specific adversaries, imbalances of social power, and negative as well as positive dimensions of the future, public partnership and social movement narratives may prove more useful for helping agents make sense of and respond to past, present, and future events or trends and better appreciate what is at stake. These narratives do not focus narrowly on political targets but rather offer broad and detailed visions that may lead to more integrated approaches and a wider set of solutions for renewable energy transitions (Moezzi et al., 2017). On the other hand, the local and regional narrative, and the social movement narrative to some degree, may serve to inspire concrete actions by emphasizing direct benefits of renewable energy to people's everyday lives and by stressing local community identity, thus appealing to psychological and sociological drivers of behavior change (Bushell et al., 2017). Further, an emphasis on the role of marginalized or vulnerable communities, as articulated in the social movement narrative, may more effectively change who speaks and whose voice is heard in the process of energy transitions. Of course, this assessment can only point toward transformative potential. Ultimately the effectiveness of any narrative requires evaluation with respect to its ability to lead to action toward and achievement of a desirable future (Bushell et al., 2017).

These transition narratives may likewise vary in the degree to which they can be considered as counter-narratives to the neoliberal hegemony (Geels et al., 2015, p. 9). The narratives of public partnerships and social movements appear firmly positioned within the reconfiguration or revolutionary positions, whereas the narrative of local and regional communities appears flexible regarding the reformist position, in line with the analyses of Luederitz et al. (2017, p. 397) and Tarhan (2017, p. 17), and thus potentially more vulnerable to cooptation (Angel, 2016, p. 11). This claim has less to do with the solutions, visions, or futures that this narrative describes, and more to do with a lack of breadth and depth of analysis of historical context, problems and adversaries. In other words, the concern involves not so much what is in but rather what is left out of the narrative, perhaps overemphasizing the opportunities of renewables while neglecting engagement with the realities of current energy systems. There is similarly an important difference in terms of the stance on the future of fossil fuels across narrative types; what role fossil fuels will serve going forward, and how, if at all, energy democracy will engage, and even democratize, these currently dominant energy systems while concurrently developing systems based on renewables. Does a democratized energy system largely ignore hydrocarbons, fight to keep them in the ground, or use them strategically to support energy transition and protect the most vulnerable? Each narrative appears to take a different position on this question.

Following Geels et al. (2015), the more revolutionary narratives face threats of another sort, possibly limiting their potential for affecting deep social change through energy transition. Rather than broad societal change, a more targeted or subject-specific focus (Orenstein and Shach-Pinsley, 2017, p. 250–251) limited to overhauling and democratizing modern energy systems (Geels et al., 2015; Szulecki, 2018), still far from simple, may yield greater gains. In other words, there may be benefit for these initiatives to further reflect on the necessary balance between a holistic or issue- or sectoral-specific focus to successfully achieve outcomes, in the same way that they appear to have presently found a balance, as a group, between top-down and bottom-up leadership, social and ecological emphasis, and diversity of spatial scales (Orenstein and Shach-Pinsley, 2017). Targeted projects focusing on changing the energy sector offer the additional benefit of learning-by-doing, blending testable approaches, small-scale yet networked experimentation, and use of both top-down and bottom-up leadership (Mason, 2015, p. 265).

This analysis therefore tentatively proposes three different approaches or layers of energy democracy across the region, with degrees of difference related to the problem framings, the form and specificity of solutions, the critical stance, the historical positioning, and importantly, the scale, agency and mode of social organization. From another point of view, we could describe these narratives as representing rather multiple *energy democracies* (Hess, 2018, p. 185–186), due to their varied meanings, emphases, implications, and transformative potential (Avelino et al., 2017; Rivera-Ferre, 2018). Theoretically, these multi-layered differences complicate efforts to characterize or position energy democracies along typical binary divisions (e.g., centralized-decentralized, reformative-transformative) although such distinctions may be usefully applied in further analysis. In their performance, these multiple energy democracies and their narratives will likely vary in who they bring together, at what scale they operate, and in how they effectively empower, confront, or constrain social groups, provide sense of meaning and explanation of events, and justify targeted policy, organizational, and behavioral changes.

These perceived differences across narratives are not necessarily a disadvantage for advancing energy democracy. Firstly, the narratives are correctly understood as plausible rather than definitive interpretations or representations of the perspectives of these initiatives and their members. Likewise, as illustrated in **Figure 1**, this research finds considerable overlap among transition narratives, so the distinctions drawn should in themselves be considered flexible both theoretically and practically. This flexibility across counter-narratives may prove an advantage in targeting or bridging specific audiences while

retaining a fundamental distinction and meaning (Bushell et al., 2017). Additionally, the priorities of one narrative can be used to broaden or shift the emphasis of another. For example, the public partnership narrative arguably holds the broadest formulation of the issue of social power, the social movement narrative focuses sharply on the issue of ending fossil fuels, while the local and regional community narrative carries a strong commitment to involving everyday people working in places of meaning.

Lastly, given a democratic agenda, such differences may not only be unavoidable but also desirable (Hansen and Sonnichsen, 2014; Mouffe, 2014b), as diverse groups struggle to develop and implement a new form of hegemony based on values and norms centered on justice and sustainability. This suggests the emergence of what democratic theorist Chantal Mouffe describes as a *conflictual consensus*, a situation in which social agents share a commitment to a set of ethical and political principles yet disagree about their interpretation (Hansen and Sonnichsen, 2014, p. 268). While currently offering a counterhegemonic approach, these diverse counter-narratives of energy democracy within this region may offer the basis for engagement as political contestants, rather than political enemies, through ongoing democratic argument *within* a democratized energy future, in the endless quest to achieve outcomes such as justice and sustainability. This view of energy democracies suggests multiple and competing energy transition pathways and political projects that engage through processes of political conflict as well as continuous dialogue and co-learning (Bushell et al., 2017; Luederitz et al., 2017). In this way, the presence of a variety of positions as and within energy democracy at this moment of pre-figuration is a potential strength, offering both a shared opposing stance as well as multiple interpretations for defining and refining visions and imaginations of new energy politics, new energy cultures, and new energy futures.

CONCLUSION

This analysis of public narratives finds and compares energy democracy counter-narratives that have emerged through use and promotion among organizations active across eastern Canada and the northeast United States. Across this region, energy democracy as a narrative for energy transition converges not only around a shared commitment to shifting to renewable energy systems, but crucially using collective control and in a transformative manner for communities, politics, and economies. A comparison across four elements of transition narratives identifies difference in themes and emphases, suggesting three plausible, distinct, and potentially competing approaches to energy democracy, or multiple energy democracies, described as local and regional communities, public partnerships, and social movements. The intention here is not to propose these narratives as factual representation of energy democracy, rather to offer them and their principle elements as useful means for thinking about differences within an emerging phenomenon, open to further analysis, verification, and revision. As such, the value of this typology is both descriptive, in identifying and sharpening differences, and analytical, in drawing out implications of these differences.

This research has taken a step toward allowing these diverse groups to hear and learn from one another. Recognizing that actors can project but never fully control transition narratives (Bushell et al., 2017), the practice of energy democracy may take into consideration these dynamics of convergence and divergence when communicating with different groups of people, mapping out alliances, and considering their strategic integration and experimentation. There may be benefit in networking across differences, to leverage the diversity of attributes across complimentary initiatives, adapt to changing circumstances, resist dominant agendas, and increase capacities and resilience across the region. For example, governments and the public sector could prioritize development of capacities at the community level, communities could give more attention to the wide ranging and holistic demands and perspectives of a broadly defined public, while social movements could benefit from strong partnerships with governments and communities.

Further research could build on this work in several ways. Although this research offers an approach to standardizing search methods, online research may miss important instances of energy democracy initiatives, and therefore the procedure for discovering and selecting these cases could be further tested and refined. More broadly, methods can be advanced for reconstructing and analyzing transition narratives in terms of their production and role as well as their content (Wittmayer et al., 2015). Expanding the set of initiatives included for analysis and providing greater empirical substantiation would clearly be an important next step to confirm or modify the groupings and narratives as suggested here. The data set provides a basis for this expansion (Burke, 2018), including at the time of this research an additional 44 organizations or programs across the region for which further inquiry may yield sufficient evidence for analysis (see Supplementary Material). A systematic assessment of differences would benefit from such an engagement with a broader set of initiatives. Connecting more directly with French-language scholarship on sustainability transitions would also be worthwhile for this region (e.g., Audet, 2015).

Conversely, while this work takes a high-level, regional perspective, a targeted approach with individual cases and narratives is also strongly encouraged. Leveraging the strengths of initiative-based learning for sustainability transitions (Turnheim et al., 2015), more direct engagement with members of these initiatives, through surveys based on the attributes, case study analysis, and ethnographic and participatory methods would serve to strengthen and sharpen these findings while changing the voices, shifting the logics, opening new solution space and contributing to coherent yet transformative proposals for political and cultural change. The understanding of transition narratives and supporting organizations could benefit from a deeper exploration of the degree and importance of differences for core analytical concepts including especially social power,

social movements, and processes of sociotechnical change. While this research cannot offer explanatory power for the differences in transition narratives, it does suggest lines of inquiry, for example, exploring the influence of organizational history and type, and physical location. A variety of analytical, comparative, and reflective approaches and uses for narratives are available (Paschen and Ison, 2014; Jasanoff, 2015; Avelino et al., 2017; Becker and Naumann, 2017; Moezzi et al., 2017) as well as complementary approaches such as modeling and historical research on regional transitions, which could help to overcome limitations of initiative-based learning (Turnheim et al., 2015). Likewise, energy futures research based on these narratives may help build capacity among relevant social groups to understand and transform energy systems and inform democratic debate and technological development (Grunwald, 2011; Miller et al., 2015). To get at actual performance of initiatives and further contribute to transition studies involving social-ecological-technical systems, research could further develop the data base of attributes and specifically the set of outcomes expressed here, into workable indicators and measures of both social and ecological performance (McGinnis and Ostrom, 2014; Cherp et al., 2018).

Overall, this research contributes to practice and scholarship of sustainability transitions by clarifying and amplifying an emergent transition narrative and diverse yet complementary counter-narratives, examining and comparing transition narratives at the regional level, and initiating a data set for future research on regional social-ecological-technical systems to strengthen initiative-based practice and learning and support diverse and participatory analytical approaches.

AUTHOR CONTRIBUTIONS

The author confirms being the sole contributor of this work, is fully responsible for its content, and approved its publication.

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SUPPLEMENTARY MATERIAL

The Supplementary Material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/fcomm.2018.00022/full#supplementary-material

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Energy Democracies and Publics in the Making: A Relational Agenda for Research and Practice

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Mainstream approaches to energy democracy and public engagement with energy transitions tend to adopt specific, pre-given meanings of both "democracy" and "publics." Different approaches impose prescriptive assumptions about the model of participation, the identity of public participants, and what it means to participate well. The rigidity of many existing approaches to energy participation is increasingly being challenged by the ever-multiplying diversity of ways in which citizens participate in energy systems, as consumers in energy markets, protesters against new infrastructures and technologies, as initiators of community energy projects, and as subjects of behavior change interventions, amongst others. This paper is concerned with growing areas of scholarship which seek to understand and explore these emerging energy publics and forms of energy democracy from a relational perspective. Such work, grounded in constructivist and relational ontologies, views forms of participatory democracy and publics as being co-produced, constructed, and emergent through the performance of collective practices. It pays closer attention to power relations, politics, materiality, exclusions, and effects in both understanding and intervening in the making of energy democracy. This in turn shifts the focus from studying discrete unitary forms of "energy democracy" to one of understanding interrelations between multiple diverse *energy democracies* in wider systems. In this paper, we chart these developments and explore the significant challenges and potential contributions of relational approaches to furthering the theories, methods, and practices of energy democracy and energy public engagement. The paper draws on an expert workshop, and an accompanying review, which brought together leading proponents of contending relational approaches to energy participation in direct conversation for the first time. We use this as a basis to explore tensions between these approaches and set out a relational agenda for energy democracy research in terms of: developing concepts and theories; methodological and empirical challenges; and implications for practices of governance and democratic engagement with energy transitions.

Keywords: energy democracy, public engagement, relational, emergent, co-productionist

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INTRODUCTION

It is not so long ago that centralized energy systems developed by industrialized nation states through the twentieth century seemingly left little role for the public, other than as "passive consumers," removed from the governance, materials, and infrastructures of energy production and supply (Walker and Cass, 2007). However, the past two decades have witnessed thoroughgoing changes in the relationship between energy systems and their publics. Transformations in how energy is governed and produced, including the neoliberalization of energy markets and the rise of more distributed forms of energy production and renewables, have multiplied the roles that publics can and do take up in relation to energy (Devine-Wright, 2007). In addition, the looming energy crisis that accompanied the dawn of the twenty-first century—whether defined in terms of the "energy trilemma" of global climate change, energy security and socio-economic inequalities (Hammond and Pearson, 2013) or some more complex entanglement of issues that make up this very "political situation" (Barry, 2012)—means that publics are now simultaneously sought out, implicated in, and actively seek out their place in energy transitions. What publics think, know, say and do has become an important concern of energy research, government policy, corporate strategy, and social movements.

Though discussions around the importance of energy transitions have multiplied in policymaking and in the academic literature (Araújo, 2014), these discussions have neglected the social and political dimensions of transitions (Miller et al., 2013, 2015) and leave little role for citizens or democratic processes (Hendriks, 2009; Laird, 2013). Calls have been made for social scientists to more fully conceptualize and demonstrate the range of existing and potential forms of citizen participation in determining and enacting energy transitions, as part of the project of democratizing these processes and holding decision-makers to account (Stirling, 2014). Of course, citizens frequently figure in a wide range of government interventions and areas of the academic literature including consultation processes, opinion polls, behavior change programmes, social marketing campaigns, social media, planning protests, activism and public demonstrations, lobbying, investment decisions, the co-design of energy technologies, participatory energy modeling, visioning exercises, open innovation processes, citizen science, hacker spaces, smart energy technologies, eco-homes, community energy schemes, other grassroots energy innovations, and others (on this diversity, see for example Chilvers and Longhurst, 2012).

However, in this paper we argue that the majority of these approaches and ways of describing energy democracy and participation assume a fixed, pre-given and "residual realist" view of the public and of democratic engagement. Following Chilvers and Kearnes (2016a), what we mean by residual realist here is that the who (i.e., public participants) and how (i.e., models of participation and democracy) of energy democracy are viewed in a realist sense as being highly specific, pre-given, external, and naturally occurring categories. This upholds a dominant perspective and imaginary whereby many existing approaches prescribe a narrow definition of energy democracy and participation to the exclusion of others. The emphasis is on developing and "scaling up" democratic and participatory procedures, and judging them against externally prescribed principles and evaluative criteria, that fit within a pre-given normativity of democracy and participation.

There are many examples of mainstream approaches that adopt relatively fixed, pre-given meanings of what it means to participate in this way, and imagine involvement occurring in discrete events or cases in particular parts of wider energy systems. Take for instance public opinion research and deliberative democratic procedures. The emphasis here is on establishing public views, and achieving equitable and competent public group deliberation, on choices and decisions about energy system transitions (e.g., Burgess and Chilvers, 2006; Stagl, 2006; Hendriks, 2009; Pidgeon et al., 2014). Such appoaches tend to involve "general" or lay publics often in interaction with "experts," are judged in terms criteria like representaitiveness, inclusivity, and impact on decision-making, and are often called upon to seek "public acceptance" of energy policies and technologies. Contrast this with attempts to engage publics in changing their energy behaviors (e.g., Abrahamse et al., 2005), which tend to center on the workplace, the home and efforts to reduce energy demand, and are evaluated against criteria such as energy savings and carbon reduction. In other areas of research and practice, studies of social movements and transitions management approaches, respectively, hone in on energy democratic engagement in the form of public protest or activism (e.g., Saunders and Price, 2009) and sites of community mobilization and grassroots innovation (e.g., Seyfang et al., 2013). For these modes of energy democracy the focus is more on resisting or assisting system change, whether in terms of technological innovation or more radical social change.

Each of these approaches adopt specific pre-given meanings of energy participation and democratic engagement, to the exclusion of others. They each attend to particular parts of wider energy systems in comparmentalized ways. They place an emphasis on doing energy democracy through developing methods and procedures, rather than posing more critical and reflexive questions about power relations, politics, and exclusions that work through these processes. When it comes to evaluation, it is the positive effects and impacts of participation that are emphasized and looked for, not the negative effects and downsides. These aspects, associated with a residual realist imaginary of energy participation, can actually limit the ability of energy democracy initiatives to address the systemic, complex, and long-term nature of energy transitions in equitable, inclusive, and socially responsive ways (see Chilvers and Longhurst, 2016).

This can also be seen in the nascent but emerging writing on energy democracy. While the notion of energy democracy that has recently emerged in social movements and radical scholarship (Kunze and Becker, 2014) has been largely ill-defined, most sources emphasize bottom-up, civic and community-based empowerment, ownership, and/or control over energy production and consumption (e.g., Morris and Jungjohann, 2016; Burke and Stephens, 2017; Fairchild and Weinrub, 2017). Becker and Naumann (2017) have sought further clarification by suggesting a typology that classifies energy democracy projects into those that emphasize: decentralized energy provision;

collective ownership of energy services; or energy sovereignty over resources. Szulecki's (2018) recent attempt to bring further definitional clarity expands the frame to also include prosumer action, but ultimately offers an evaluation and "decision-making tool" based on indicators to judge energy democracy along the three dimensions of popular sovereignty, participatory governance, and civic ownership. Barring a few exceptions (e.g., Hess, 2018; Van Veelen, 2018) then, most existing writings on energy democracy adopt a residual realist standpoint, emphasizing particular definitions and normativities of energy democracy to the exclusion of others, and prescribing universal pre-given evaluative principles and criteria external to the situated performance and construction of energy democracy in practice.

More relational approaches in science and technology studies (STS), geography and cognate disciplines have attempted to account for the ways in which different forms of energy democracy and their publics are *made*, constructed, and co-produced. These studies illustrate the range of ways in which citizens are already participating within and against energy transitions, as community energy cooperatives (e.g., Yildiz et al., 2015), activists (e.g., North, 2011), participants in invited deliberative processes (e.g., Soneryd, 2016), and as energy users in the home (e.g., Shove et al., 2012) including their interaction with material devices (e.g., Marres, 2011). Such work, grounded in constructivist and relational ontologies, views forms of participatory democracy and publics as being co-produced, constructed, and emergent through the performance of collective practices. It pays closer attention to power relations, politics, materiality, exclusions, and effects in both understanding and intervening in the making of energy democracy. This shifts the focus from studying discrete unitary forms of "energy democracy" to one of understanding multiple diverse *energy democracies* which intermingle in wider systems. However, relational approaches are emerging from different disciplinary standpoints, with competing understandings and assumptions about what brings energy democracy and publics into being, and with what effects. In addition, relational approaches have thus far attended to discrete case study examples of public engagement with energy and focused on particular modes of democratic engagement. There has been little cross-comparative work aiming to draw wider lessons about emerging energy publics in diverse forms and locations. There is a need to look across a broader range of modes of energy democracy and the making of energy publics, to reflect their diversity but also to identify more general patterns, stabilities, and shifts in the role of citizens in energy transitions.

In order to address these issues this paper is informed by an expert workshop, held in April 2014, which brought together leading proponents of contending relational approaches to the making of energy participation and publics in direct conversation for the first time (further details of the workshop format and participants are provided in Chilvers and Pallett, 2015). The workshop aimed to consider the potential academic and practical value, across a range of different approaches, of adopting a perspective on energy publics as relational and co-produced. The 1-day workshop involved presentations drawing across contending relational approaches before opening up to discussion where workshop participants considered what it would mean to take seriously and properly account for emerging publics and forms of democratic engagement in and around energy systems. Through exploring the similarities and differences of emerging relational approaches the workshop considered the implications for theory, modes of study, and practices of energy participation. Workshop discussion was analyzed through qualitative coding which produced key themes presented in a workshop report (see Chilvers and Pallett, 2015). This helped frame a comprehensive review of the academic literature which forms the basis of this paper.

Many relational and constructivist studies of energy participation emanate from STS and human geography, which forms the interdisciplinary focus of this paper, alongside cognate disciplines in the energy social sciences and humanities. While overlaps exist between STS scholarship and the emerging subfield of energy communication (Endres et al., 2016; Cozen et al., 2018), we move beyond the frame of the latter by taking a relational starting point and by considering a wider diversity of energy democracy-related practices within which forms of energy communication exist. In what follows, we first contextualize our argument by reviewing dominant perspectives on energy public engagement in the literature. Here, we contrast "residual realist" understandings of energy publics, found in much of the academic and gray literature, with constructivist and relational perspectives from the interpretive social sciences which present a view of energy publics as emerging rather than pre-given. We argue that these relational approaches can be further enhanced with a co-productionist perspective which would enable more symmetrical and comparative analyses between different kinds of energy public engagement and conceptual frames. In the remainder of the paper we set out a relational agenda for energy democracy research in terms of: developing concepts and theories; methodological and empirical challenges; and implications for practices of governance and democratic engagement with energy transitions.

ENERGY DEMOCRACIES AND PUBLICS IN THE MAKING

Until recently, core energy research has tended to neglect the social dimensions of energy systems, with social science and interdisciplinary approaches being under-represented (see Sovacool, 2014). Miller et al. (2015) identify a neglect of social dimensions in energy policy discussions more broadly, and in the design of key governing institutions. Of course, government policy around the energy system does engage with social dimensions and energy publics in an increasing diversity of ways, though these are heavily shaped by assumptions coming from economics and behavioral psychology. Citizens are engaged as consumers of energy through market mechanisms and social marketing projects (Dolan et al., 2012), and are also increasingly seen as community groups who could be recruited for community energy generation and behavior-change projects (Owens and Driffill, 2008). The rising interest in policy

circles in the concept of "Big Data" and the possibility of accumulating large data sets from social media and government services, also recasts citizens as sources of information about new trends or potential challenges and controversies (Jasanoff, 2017). A small but significant set of approaches to engaging citizens with policy-making concerns two-way dialogue in the form of deliberative public engagement exercises. These have been carried out, for example, by the UK Government-funded programme Sciencewise and the Danish Board of Technology, around topics including acceptability of particular energy technologies, or how greenhouse gas reduction targets might be met (Mohr et al., 2013; Pallett and Chilvers, 2013).

However, what these diverse approaches have in common is they often assume a particular fixed model of democratic engagement and imagine an external public existing in a natural state waiting to be revealed, engaged, or mobilized by science and democracy (Chilvers and Kearnes, 2016a). This way of understanding energy democracy and its publics as static and pre-given is even reflected by approaches which advocate more interactive forms of engagement influenced by deliberative democratic theory, in that they are based on an implicit model of (consensual) democratic engagement which assumes a particular kind of citizen who will act in a certain way (cf. Hendriks, 2009). Understandings of forms of democratic engagement and publics as fixed entities have been challenged by constructivist theories in STS, geography, political/democratic theory, and anthropology (e.g., Irwin and Michael, 2003; Irwin, 2006; Lezaun and Soneryd, 2007; Bennett, 2009; Mahony et al., 2010; Marres and Lezaun, 2011; Chilvers and Kearnes, 2016a). Such work sees publics as actively brought into being by the very ways actors seek to know and move them—whether that be through practices of opinion polling, behavior change, protest movements, or grassroots community innovations, for example. Any understanding of engagement practices, publics, their knowledges, and actions, thus cannot be separated from the ways in which they are mediated and configured in particular settings.

While relational approaches vary, a common central argument is that most existing ways of knowing, doing, and governing energy publics fail to properly account for how publics and engagement practices are actively constructed and shaped by—and in turn shape—the various material settings, technologies, infrastructures, issues, participatory procedures, and political philosophies with which they are associated. Rather than existing as fixed entities waiting to be discovered, energy publics are seen to be co-produced through the mutual constitution of social, political, and technical orders (Jasanoff, 2004), in the performance of participatory experiments and practices at particular sites (Laurent, 2011; Chilvers and Longhurst, 2016), and the more durable relations between citizens, technoscience, and the state held together in wider assemblages, institutions, and political cultures (Jasanoff, 2011).

Owens and Driffill (2008) identify the normative and autocratic assumption, evident in much government engagement with publics on energy issues, that public attitudes and behaviors need to be changed. Furthermore, they criticize the persistent assumption that attitudes and behaviors can be straightforwardly altered through communication and engagement, drawing on critiques from STS of "deficit model" assumptions (Wynne, 1991) and sociological research which reveals a more complex relationship between attitudes and behaviors (Blake, 1999). Social practice theorists have further challenged the behavior change agenda by criticizing the assumption that publics behave as individual rational actors. Theorists like Shove et al. (2012) have suggested that individuals or the public as a whole are not an appropriate focus for study, instead advocating an emphasis on energy-related practices themselves.

A related set of relational approaches coming from human geography, sociology, and STS have further interrogated the relational nature of publics, highlighting the multifaceted and contingent conditions implicated in their emergence. Work specifically concerned with renewable energy technologies and siting (Walker and Cass, 2007; Barnett et al., 2010; Walker et al., 2010; Cotton and Devine-Wright, 2012) has demonstrated the strong role played by imaginaries of or assumptions about energy publics in the construction of public engagement around renewable energy. Such studies argue that certain publics are performatively brought into being by strongly held models and assumptions, like that of NIMBYism which presupposes opposition from narrow motivations. Contributions from relational STS have described the mutual construction of particular kinds of energy publics and issues/objects of interest. For example, Noortje Marres work has demonstrated the important role played by material technologies in the smart home (Marres, 2012) and understandings of particular policy issues (Marres, 2007) in mediating and transforming energy publics. Similarly, Barry's (2013) work on the Baku-Tbilisi-Ceyhan pipeline illustrates how different kinds of publics emerge at different times and places alongside different manifestations of policy issues and the "political situation."

Research on diverse emerging public engagements with energy abounds, though with contrasting conceptual approaches and terminologies. As with recent developments in energy communication (Endres et al., 2016), this is moving beyond a focus of high-level controversies to consider more mundane and distributed engagements with energy in everyday life (Michael, 2016). As demonstrated above, studies of social movements, active communities, deliberative democratic engagement, energy users in the home and more could be considered as relational accounts. However, this nascent literature remains fragmented, with different sets of approaches tending to focus on particular parts of the energy system, adopting particular concepts of what it means to participate, and working with particular kinds of partners and publics. The lack of connections and conversations in particular between approaches focused on behavior change vs. those emphasizing public acceptance of energy policies and technologies, even where similar concepts and methodologies are used, has also been noted (Owens and Driffill, 2008; Marres, 2012). This fragmentation leads to a further concern, that the partiality of these necessarily situated accounts is not fully acknowledged or reflected on, and that connections between different publics or broader developments in energy systems are not fully understood. Therefore, we advocate a more co-productionist, symmetrical, and comparative approach to the study emerging forms of democratic engagement and energy

publics, which is able to draw from a shared conceptual framework and talk about developments at the national scale and beyond. Only then can the diversity and contingency of emerging forms of energy democracy and their publics be accounted for. The remainder of this paper explores the opportunities and challenges of adopting such an approach.

A RELATIONAL AGENDA FOR ENERGY DEMOCRACY RESEARCH AND PRACTICE

Relational Concepts and Theories

Even amongst the literature offering relational accounts of energy participation, there are several different concepts and theoretical frameworks used to explain the making and mediation of energy publics. These different approaches variously emphasize or de-emphasize the relative roles played by social practices and procedures, material objects and issue-framings, imaginaries, and forms of human agency in the making of energy publics. Though they are not necessarily mutually exclusive or in competition with one another, these different emphases shape analyses in contrasting ways with potential implications for methods of empirical study and practices of governance and engagement (as discussed in the sections on Methodological and Empirical Challenges and Governance and Engagement Practice below). Furthermore, these conceptual approaches are rarely brought into direct conversation with one another, as we attempt to do in this section.

One strand of scholarship foregrounds the role of objects in shaping publics, including material energy technologies and infrastructures, and different expressions or framings of the issue in question. Noortje Marres (2012) has looked at the role played by devices in an eco-show home in processes of participation, embodying assumptions about energy itself and the publics or users to be engaged. Goulden et al. (2014) make similar arguments with regards to visions of future smart grids in energy scenarios, showing how different visions can variously conjure energy citizens or energy consumers, with different expected behaviors and permissible roles. Marres (2007) has also argued that the framing of particular (energy) issues dictates the nature and form of public involvement possible around that issue, thereby shaping energy publics. Cowell (2010) has made a similar argument in the context of wind energy planning decisions in Wales by exploring the highly contingent processes by which "acceptable locations" for wind energy were identified and constructed within the national assembly, limiting the forms of participation and the potential participants in planning decisions.

At the level of particular energy landscapes, Barry (2013) has explored the emergence and management of different energy publics around the Baku-Tbilisi-Ceyhan oil pipeline in conjunction with a number of different but connected "political situations" encompassing material elements such as landslides or the pipeline itself. Similarly Krauss (2010) has examined the wind power landscapes of North Frisia and Dithmarschen in Germany, offering rich ethnographic observations of the emergence of particular kinds of publics and modes of democratic engagement often in the intersections between wind energy and other land use controversies in the area. At a macro level Winner's (1986) classic study of the politics of artifacts argued that nuclear power was "socially constituted" in terms of a centrally controlled energy system, shaping energy publics (cf. Grove-White et al., 2006).

In a second strand of scholarship exploring emerging energy publics authors have emphasized the role played by procedural "technologies of democracy" and forms of participatory expertise (Chilvers, 2008) in knowing and mobilizing energy publics. Lezaun and Soneryd (2007) have explored the rise of "technologies of elicitation" for involving citizens in decisions around energy and other topics, arguing that they presuppose, and bring into being particular publics—usually those with no prior knowledge of or position on the issue under discussion. This approach has also been used to examine how these particular technologies of participation travel between different policy and national contexts, being interpreted differently and interacting with pre-existing publics and constitutional stabilities (Soneryd, 2016). Bauer and Pregernig (2013) have used a similar approach when looking at techniques of technology assessment and foresight around energy, arguing that the design and underlying assumptions of these procedures influence the selection and interactions of participants. This approach has the scope not only to explore deliberative democratic technologies of participation, but could also be applied to other techniques such as opinion polls or public attitudes surveys, or even forms of protest and activism; all of which make assumptions about the public which is to be engaged and contribute to the emergence of energy publics through their design and framing. For example, Jones et al. (2013) reveal the highly contingent way in which so-called "nudge" techniques of behavioral economics have developed, with implications for the kinds of citizens who are engaged and brought into being. Furthermore, Asdal and Marres (2014) suggest that social science methods themselves assume and bring into being certain kinds of publics.

Concerned more with the sphere of human action and agency, a third set of approaches that seek to understand the construction of societal engagement with energy has foregrounded everyday energy-related social practices—like thermal comfort, showering, and cooking—as central to configuring everyday public life around energy (Shove, 1998; Shove et al., 2012; Hargreaves, 2013). In challenging economistic and psychological behavior change approaches, social practice theorists have decentered the conventional focus on individual energy consumers, or even on energy publics, instead taking social practices themselves as the focus of study. In this literature so far, therefore, central questions have not concerned the making of energy participation and publics but rather the related processes by which particular social practices become stabilized or might change over time with implications for energy systems. Energy publics in this sense are groups of practitioners associated with a potentially large range of energy-related practices, though social practice theory studies have until recently focussed primarily on domestic energy-related practices.

The raw power of human action in mediating public engagements with energy has been emphasized in a fourth set of approaches to understanding emerging energy publics, whether that be the power of facilitators, mediators, and

community organizers (Elam et al., 2007; Chilvers, 2008), the force of social movements (Seyfang and Haxeltine, 2012), or incumbent institutions (Stirling, 2008). In her in-depth ethnography around a wind energy project in a village in East Frisia, Northern Germany, Carlson (2014) explores complex community dynamics and patterns of engagement and disenfranchisement woven through everyday village life mediated by particular individuals and institutional structures. Pacheco et al. (2014) explore the co-emergence of social movements around wind energy with the industry itself and associated institutions, arguing that there is strong evidence of mutual influence between these three bodies. Many authors have emphasized the role played by institutions in shaping energy publics, for example exploring the strength of old technocratic modes of governing in shaping modes of engagement and ways of interpreting public responses, even where governing institutions are attempting to be open and consultative (Kim, 2014). Another strong shaping force has been the focus on progress in science and technology as a primary driver of economic productivity, a foundational assumption which governing institutions often put before and allow to shape other forms of energy public engagement (Bowness and Hudson, 2014; Stirling, 2014).

Others have focussed on the constrained ways in which opportunities for public involvement in democratic decision-making are framed, limiting the kinds of views and people who can be involved, and the potential of the process to influence decision-making (Lee et al., 2012). A significant focus in studies of this kind has been on the institutional assumptions made about energy publics themselves, influencing how they are engaged and interpreted. For example, in the context of formal "invited" public engagement processes Wynne (2006b) and others have pointed out the continual projection of deficit-model visions of the public by governing institutions, assuming that public dissent, opposition, and disinterest is down to deficits in public understanding of the issue, or public trust, rather than engaging with the politics of the issue under debate. Similarly, in the context of planning decisions related to wind energy generation. Bristow et al. (2012) have explored the very specific way in which "communities" are imagined, with implications for how they are engaged around these decisions and who is eligible to receive community benefits.

Lastly, some scholars have highlighted the importance of narratives, visions, and imaginaries of energy systems and futures that are durable over space and time, being continually (re)produced through the performances of state decision making and distributed energy publics. The notion of socio-technical imaginaries, developed by Jasanoff and Kim, has been used to understand the relationship between particular visions of future energy systems—and by implication particular visions of energy publics and forms of democracy—and the design of particular energy-related scientific and technological projects including nuclear power (Jasanoff and Kim, 2009), the German "Energiewende" (Jasanoff and Kim, 2013), bioenergy (Eaton et al., 2014), through to more distributed and localized energy imaginaries (Smith and Tidwell, 2016). The idea of stories and story-telling as modes of making energy publics has also recently been developed in several energy-related projects, including the "Energy Biographies" project which has developed longitudinal stories of changes in individual's energy-related practices in a variety of different locations (Butler et al., 2014; Shirani et al., 2015).

Contending relational approaches to understanding democracy and publics in the making outlined above have broader implications for how social scientists, policy actors, and others theorize and conceptualize public engagement in energy transitions. Different relational theories foreground the relative roles of technologies, objects/issues, social practices, procedures, imaginaries, and forms of human action in the making of energy publics. Bringing different approaches into conversation in this way raises questions about the effects of foregrounding these different elements in analyses of energy participation, and to what extent these different theories are complementary, working in tension, or completely incompatible? Our review, and supporting expert workshop analysis (Chilvers and Pallett, 2015), provides the basis to identify four important imperatives for future theoretical and conceptual developments to understand energy democracies and their publics in the making.

1. *Understanding energy democracies and their publics as diverse, relational, and co-produced.* Despite their differences the relational approaches explored in this section share the perspective that energy democracy and energy publics are not narrowly defined, fixed or pre-given categories—like "deliberative democracy," "community energy," "energy behavior change," and so on—but are continually being made, constructed, and remade through the performance of socio-material practices. They call for a shift away from thinking that takes energy democracy for granted as a natural or unitary category, to a more agnostic approach that opens up to the sheer diversities of *energy democracies* that are continually being performed across energy systems and beyond. Relational approaches force us to consider the democratic/anti-democratic possibilities not only of public, deliberative, discursive, or institutional forms of energy participation but also in terms of material, mundane, everyday, and private spaces of public engagement with energy. They call for an increased focus on power, politics and exclusions in the construction of diverse energy publics and how these process are always shaped by wider social, political, and constitutional orders.
2. *Valuing difference and symmetry in relational theories of energy participation.* It is important to recognize the value of developing alternative relational theories and their relative contributions and implications for studying the dynamics of energy democracies and emergent publics. In seeking to explain how energy democracies and their publics are brought into being there is value in developing theories that allow explanatory emphasis to be variously placed on: emergence and the role of objects and non-humans (in the case of assemblage or actor-network based theories), the role of relational stabilities and already existing powers tied up extant orders, expertise, technologies, imaginaries and other durable elements (such as constitutional co-productionist theory), or a greater emphasis on human agency in the performance of

practices *in situ* (as is foregrounded by social practice theory). At the same time there is also a need to develop relational and co-productionist theories that are more symmetrical in the relative emphasis that they place on the roles of objects, formats, and human agency in bringing (energy) democracies and publics into being—retaining conceptual agnosticism to see the variable role of each being foregrounded or backgrounded in different times, places, and sites of public engagement with energy (see for example, Pallett and Chilvers, 2013; Chilvers and Kearnes, 2016b; Chilvers and Longhurst, 2016).

3. *Toward conceptualizing systems of energy participation.* Thinking relationally and symmetrically about diverse forms of energy participation in these ways prompts a further important area of conceptual development in energy democracy research. This involves moving from thinking about energy participation in terms of discrete isolated cases toward conceiving of multiple practices of energy democracy and public mobilization as intermingling and interrelating in wider systems. In these terms, the dynamics and qualities of energy democracy should be analyzed not in terms of discrete instances of energy democracy but in terms of the performance of multiple forms of democratic engagement and representation occurring across energy systems. Many of the relational theories discussed in this section are undergoing a "systemic turn" that can form part of such conceptual development, including work on systems of practice (Watson, 2012); deliberative systems (Parkinson and Mansbridge, 2012), ecologies of participation (Chilvers and Kearnes, 2016b), and conceptualizing constitutional relations between citizens, science and the state in STS co-productionist scholarship (Jasanoff, 2011). Of course, it is important to be aware that different relational approaches would have different conceptions of the energy system itself and the containers or objects with(in) which diverse energy publics are engaging, ranging from political situations (Barry, 2012), issue spaces (Marres, 2007), institutions (Wynne, 2006b), democratic systems (Owen and Smith, 2015), the nation-state (Jasanoff, 2011), landscapes (Krauss, 2010), complexes of practice (Hui et al., 2016), and so on.
4. *Attending to the performativity and situatedness of theory in studies of energy democracy and participation,* is a final theoretical necessity that emerges from taking a relational perspective on energy democracies. Relational approaches blur the traditional distinctions between theory, methods, and practice that are maintained in realist approaches to energy participation. This urges theoretical developments to be reflexive about the ways in which theory plays a role in shaping both research methods and actual practice. In this sense, in the energy field one can see a persistent presence of "theory in the wild." For example, policy professionals' understanding of energy publics is often informed by theories from economics and psychology, but also increasingly the role of theories from interpretive social science such as democratic theory or social practice theory. These theories often co-exist in particular settings and also shape the understandings and accounts given by research participants, even before any formal contact with researchers. Theories used to understand energy publics are also performative in how they shape the framings, products, and effects that researchers have. As discussed above in this section, there is a strong association between certain theoretical perspectives, parts of the energy system, the kinds of publics studied, and the actors sought as research users or collaborators. This suggests researchers need to show more awareness and reflection about the ways in which their conceptual resources frame their accounts and interventions. A co-productionist approach would further encourage reflection and awareness of ways in which socio-political orders and cultures, as well as the object(s) of energy itself, shape and influence theoretical developments. For example, in workshop discussions (Chilvers and Pallett, 2015) it was observed that many STS theoretical perspectives on the democratization of science and technology emerged out of—and were shaped by—energy-related case studies, objects, and controversies (e.g., Wynne, 1996; Nowotny et al., 2001; Callon et al., 2009).

Methodological and Empirical Challenges

In this section, we move on to explore the challenges and implications of adopting relational approaches (as set out above) for the methods by which energy publics and practices of energy democracy are studied. It is common in relational accounts of energy publics to distinguish between invited and uninvited publics and between top-down and bottom-up, organic and orchestrated, formal and informal modes of engagement. However, such labels are often applied *a priori* or in a broad-brush manner. Relational theories can often fail to translate into relational methods. This can serve to close-down studies to particular meanings of energy publics and participation to the exclusion of other framings, diversities, and complexities of people's material and affective attachments with energy. Furthermore, the strong shaping of empirical accounts by the conceptual and theoretical approaches chosen (as discussed in the section on Relational Concepts and Theories) often entails making *a priori* assumptions about these different publics rather than taking an empirically-oriented approach to the realities of energy public engagement. Relational theories pose further challenges around the politics of different forms of academic knowledge-making, urging analysts to consider how social science or humanistic methods are implicated in shaping and creating certain visions and enactments of energy publics.

Interventionist approaches are commonly used in studies of energy public engagement, particularly involving deliberative, co-design, and action-research methodologies. Deliberative methods of public participation have been used extensively both in policy and academic contexts, involving two-way engagement with a small number of participants over a day or more, to gain a rich picture of public views on a given topic. Such methods have been used as part of forecasting and foresight projects (Bauer and Pregernig, 2013), transition management projects (Hendriks, 2009), policy decisions at a number of levels (Burgess and Chilvers, 2006; Cowell, 2010), and assessments of emerging technologies like carbon capture and storage

(Einsiedel et al., 2013; Lock et al., 2014), or fracking (TNS BMRB, 2014). These approaches often aim to bring together those with different perspectives for example by selecting from contrasting demographic groups, bringing together citizens with experts in energy-related topics (Stagl, 2006), or attempting to bridge divides between different domains of thought and action (Callon et al., 2009). However, they have been criticized for making framing assumptions about their participants, for example limiting their contributions to the domain of values rather than new knowledge (Chilvers and Burgess, 2008) or deliberately seeking out only "innocent citizens" (Irwin, 2001) with no pre-defined interest in or knowledge of the issue under discussion. Some relational accounts have tried to deal with this through using reflexive methodologies which show awareness of these framing effects (Williams et al., 2017), or by deliberately including a more diverse range of participants and triangulating with other methods of engagement (Pidgeon et al., 2014).

Co-design is another interventionist approach which has been adopted in policy and academic contexts to know and bring into being public engagement with energy. Social practice theorists have worked with engineers and household energy practitioners in studying household technologies which may alter, or be altered by, everyday energy practices (Hargreaves et al., 2013; Strengers, 2013). In some cases these projects have adopted a more participatory design, incorporating the ideas and needs of research participants in novel household technologies (ECDC, 2017). Similar projects have been inspired by a more object oriented conceptual focus, most notably speculative design projects which aim to create monitoring or information giving technologies relating to energy that can bring certain kinds of publics into being or empower particular collectives (Gabrys, 2014; Wilkie et al., 2015).

Action-research and participant observation methodologies have been particularly adopted by those studying social movements or protests and working with these conceptual approaches (e.g., Saunders and Price, 2009; North, 2011). These approaches try to acknowledge and account for the normativity of the researcher's positions and interventions, and are often adopted when the researchers have similar beliefs and convictions to the research participants. These methodologies can encompass a wide range of interventions, but what they have in common is that they explicitly set out to record and account for the effects of the researcher's interventions and positions. Therefore, this approach blurs clear distinctions between energy publics and researchers, and highlights the roles played by researchers in both constituting and creating energy publics.

More conventional qualitative methodologies including semi-structured interviews and document analysis are associated with a range of different conceptual approaches to understanding energy publics and forms of democracy. For example, they are generally adopted in studies emphasizing human agency in the making of energy publics, from studies exploring the power of mediators of participation processes (Chilvers, 2008) to those emphasizing the importance of institutional cultures and assumptions (Cowell et al., 2011). Such methods have also been used in issue-focussed studies of debates and publics emerging around an object such as fracking, exploring what the discourses at play show about power relations, policy framings, and energy publics (Jaspal and Nerlich, 2014). These methods also form the basis for analysis in studies aiming to identify particular genealogies of participatory and policy practices which make energy publics (Soneryd, 2016), as well as the imaginaries of energy technologies and systems which are co-constructed with energy publics (Jasanoff and Kim, 2013).

These in-depth and historically informed analyses of the making of energy publics are also often the result of archival methods, sometimes combined with long term ethnographic work and involvement around a particular domain (Jones et al., 2013). Long term archival and ethnographic methods are also necessary for studies which aim to provide rich and complex accounts of energy landscapes and their publics (Krauss, 2010; Barry, 2013). This enables these accounts to illustrate the contingencies in the current states of affairs and potentially opens up space for alternative ways of seeing and constructing energy publics.

Interviews, document analysis and more participatory methods have been used by those adopting narrative approaches to emerging energy publics and forms of democratic engagement (e.g., Moezzi et al., 2017; Raven, 2017; Smith et al., 2017). Drawing inspiration from the humanities and other creative disciplines these methods are used to derive stories and narratives which can then be used in a variety of engagements with marginalized or activist communities, as well as with policy-makers and other actors as tools for communication and engagement (Shirani et al., 2015). Stories are both relational and generative so can be used to reflect uncertainties, complexities, and contingencies around energy public engagements, and can potentially account for the multiplicity of perspectives and explanations around emerging energy publics.

Increasingly, a range of digital methods are being used to understand and engage with emerging energy publics, including growing government interest in "crowdsourcing" and "sentiment mapping" using social media platforms. Emerging digital methods and digital humanities approaches (Rogers, 2013; Marres, 2017), more closely based on relational theories, are increasingly being applied to energy issues. This includes issue-mapping which draws on social media and other internet-based platforms to map a particular energy-related issue-space or controversy (Marres, 2015). This technique helps to identify the different collectives at play around a given issue-space and provides a basis for understanding their relationships. Importantly, such methods go beyond studies of public involvement with energy in discrete cases or sites to open up to more systemic understandings (as introduced in the section on Relational Concepts and Theories) of how multiple forms of energy participation intermingle in wider systems. Opening up to wider ecologies of participation in this way is has also been achieved through forms of qualitative meta-analysis (Macnaghten and Chilvers, 2014), comparative case analysis (Chilvers and Longhurst, 2016), and systematic reviews (Pallett et al., 2017) to study diverse and interrelating forms of public engagement occurring across wider energy systems and constitutions.

In this section, we have shown that alongside a considerable diversity of theoretical and conceptual approaches, there is also a wide range of methodological approaches to understanding energy democracy and emerging publics "in the making." Sometimes these methods are closely linked to a particular theoretical perspective, for example the relationship between deliberative theory and interventionist participatory processes or the relationship between action-research methods and social movements theories. While in some cases this relationship is more ambiguous, this illustrates that the choice of method has performative framing effects for the kind of accounts of energy democracy and emerging publics which get produced (cf. Asdal and Marres, 2014). For example, some methods might contribute to an emphasis on historical factors or the role played by individuals in a given account. Furthermore, methods such as deliberative engagement or action-research contain *a priori* assumptions about the kinds of publics which are being engaged and the correct modes of engagement. Taken as a whole, alongside workshop discussions (Chilvers and Pallett, 2015), the review in this section points to four main areas of questioning for future methodological development and empirical study.

1. *The need for situated empirical studies into how practices of energy democracy are constructed, co-produced, and with what effects.* Relational perspectives call for an ambitious programme of empirically-oriented studies that explore how instances of energy democracy and energy public mobilization are constructed and get made. Drawing on some of the methods explored in this section, there is a need for such studies to ask how collectives of energy democracy are mediated and orchestrated, how human and non-human actors are enrolled into these processes, and with what exclusions and effects? Such studies can serve to broaden the evaluative frame of "residual realist" accounts of energy participation, which are centered on narrow metrics that assess the positive effects—such as the carbon reduction of behavior change initiatives or the representativeness of deliberative events. Relational empirically-oriented studies can produce more robust evidence by remaining open to the multiple productivities and effects, both good and bad, of instances of energy democracy.
2. *Toward more symmetrical studies of the interrelations and entanglements between diverse practices of public engagement with energy.* Drawing on the arguments made in the section Relational Concepts and Theories, such studies could adopt the principle of symmetry through a comparative research design, or by exploring the ways in which different theoretical perspectives might engage with the same case study, potentially producing a diversity of accounts and having broader effects which themselves could be monitored. This recognition of the diversity of energy publics which is increasingly evident in energy communication research (Endres et al., 2016), and the related diversity in ways of studying these publics, offers a challenge to conventional case-study based approaches which are the way in which most interpretive social scientific knowledge about energy publics is produced. To be clear, moving beyond isolated case studies does not mean simply reverting to large-scale quantitative methods or big data analytics that produce an image of a flat, static, amalgamated public. The challenge is to develop systemic, comparative, and symmetrical studies that can retain a sense of the contingencies, contexts, and specificities of diverse practices through which energy democracies and publics are co-produced. Such studies would move from studying energy democracy in terms of isolated case studies, to develop new knowledge about how multiple forms of energy public engagement across wider systems interact and affect the performance of each other.
3. *Comparative studies between and across energy democracies, systems and political cultures.* The democratization of energy system transitions, as with much energy social science research, often takes a national focus. Relational approaches to energy participation, particularly work in STS, emphasize the need for comparative research between contrasting national political cultures and energy systems to explore how these constitutional arrangements shape (and are shaped by) the performance of energy-related public participation within these settings (cf. Jasanoff and Kim, 2013). Thinking about forms of energy democracy as practices, innovations, and technologies in their own right, as relational STS perspectives urge researchers to do (e.g., Soneryd, 2016), also expands the sites of empirical study to the processes through which and spaces where models of energy democracy circulate trans-locally between and within nation states, and their impacts on the localities where they are replicated (for example, how particular models of community energy have become replicated within and across countries in Europe).
4. *Attend to the performativity of method in studies of energy democracies and their publics.* A more relational understanding suggests that in future accounts of energy democracy and energy public engagement it would be a productive and interesting to reflect upon and take account of the potential performative effects of social science methods in shaping what is found out about publics, democracy, and the energy issues in question. Such concerns could even inform the design of studies of energy publics themselves, necessitating the active and reflexive monitoring of these factors (as is further elaborated in the section on Reflexive and Experimental Energy Participation, below).

Governance and Engagement Practice

Our final area of exploration in this paper is to consider what taking a relational and constructivist perspective on democratic engagement with energy might mean for practices of governing and of public participation in energy transitions. While relational approaches have been developed in theoretical and empirical studies, as outlined in the above sections, such thinking has rarely been translated into policy and practice. Instrumental and residual realist approaches to engaging society with energy dominate mainstream practice. This includes commonly adopted approaches to bring about behavior change, often grounded in the disciplines of psychology and economics, through to approaches that seek public acceptance of energy policies and technologies (such as public attitude surveys and deliberative

processes). Such approaches tend to take for granted the who (the participating subjects) and the how (the model or format) of democratic engagement with energy, presuming these categories to be fixed and pre-given, rather than actively constructed through the performance of participation. Furthermore, the ways in which these approaches are often performed in energy policy and practice largely upholds a centralized and top-down model of the energy system (Stirling, 2014), whereby realist forms of energy participation are used either explicitly or implicitly to gain public views that feed into decisions made by so called "high-level" actors in government and industry, or to change public behaviors to bring them into line with dominant policy framings.

Relational co-productionist theories and empirical studies can lead to very different ways of practicing energy democracy and ways in which the qualities of energy participation might be judged. Taking a relational and symmetrical approach to energy public engagement in the making also has implications for how academics, policy-makers, citizens, and other actors understand and might intervene in processes to democratize energy. Both academic accounts and interventions in practice could aim to represent energy publics in ways that pay due attention to the inherent uncertainties, indeterminacies, contingencies, and framing effects of their production. Relational approaches also raise legitimate questions about how relations between science, governance and society would need to be reconfigured to better account for the inherent uncertainties, diversities, materialities, and competing visions of emergent energy publics. However, there is a dearth of work outlining possible ways forward. The agenda we set out in this section is therefore somewhat speculative. We draw on Chilvers and Kearnes's (2016c) relational framework of four paths for remaking participation in science and democracy more broadly as a way of structuring and sensitizing some of the suggestions emerging from workshop discussions and the accompanying review with respect to energy democracy. This leads us to set out three main areas for remaking energy democracy in practice, based on the need for: (i) reflexive and experimental energy participation; (ii) responsible energy democratization; and (iii) socially responsive energy governance.

Reflexive and Experimental Energy Participation

Relational perspectives focus attention onto the ways in which practices of energy democracy construct, frame, cause exclusions and effects in relation to the models (formats), subjects (participants), and objects (issues) of energy participation (cf. Chilvers and Longhurst, 2016). A major implication of this is that *these dynamics should be deliberately and reflexively attended to in the performance of energy democracy in practice. Reflexivity in this regard means critically attending to closures (framing effects) or deliberately opening up the objects, subjects and models of energy democratic practices in terms of their construction, performance, publicity and systemic relations.* In other words, relational and co-productionist perspectives call on those actors or institutions intervening in practices of energy democracy and participation to be openly and reflexively aware of their own assumptions and co-productive effects, as well as those of others.

There are several relational approaches that have been developed to more actively intervene in or create participation processes, though only a subset of these have thus far been attempted with regards to energy-related issues. These approaches draw upon relational arguments to inform new ways of doing engagement, which attempt to reconfigure participatory practices in ways that are reflexive, experimental, material, anticipatory, and/or speculative. These approaches also rely on different notions of effectiveness and focus their efforts on different elements. For example, the robustness of processes and outcomes is no longer judged only on the basis of statistical significance, the achievement of consensus, or the authenticity of the public voices represented, but rather on virtues such as reflexivity, the anticipation of unintended consequences, humility, and the reflection of uncertainties in participatory process reporting.

One strategy for developing reflexive practices of energy democracy is to *take existing participatory methods and tools and imbue them with reflexive intent*. For example, as Brian Wynne (2006a) has shown, even established social science methods like focus groups can attend to reflexivity in this way, through researchers being aware of how the research intervention shapes publics (such as upland sheep farmers facing radioactive fallout from the Chernobyl nuclear disaster), thus openly revealing emergent publics and inherent ambiguities in public concerns (see also Macnaghten et al., 2015). Examples also exist of attempts to make deliberative forms of energy democracy more reflexive about the ways in which they frame the objects (issues) of public deliberation. A good example is Deliberative Mapping (DM)—a hybrid multi-criteria options appraisal tool that seeks to engage citizens and specialists together in a symmetrical manner. By enabling participants to define the issue at hand, options for appraisal, and the criteria with which to perform the appraisal, DM has been used to open up the framings of both the objects and subjects of participation on radioactive waste management (Chilvers and Burgess, 2008) and geoengineering of climate change (Bellamy et al., 2016).

Another strategy is to *take a more explicitly experimental approach to the formation of energy democratic practices.* Processes of "collective experimentation" (Felt and Wynne, 2007) have been developed by advocates of relational STS understandings of participation, attempting not only to experiment with ideas and different understandings of the issue in question, but also with different forms of organization—introducing reflexivity around the models of participation adopted and the kinds of publics enrolled in these processes. For example, work by Callon et al. (2009) has sought to bring about heterogeneous participatory collectives of humans and non-humans—which they refer to as "hybrid forums"—in various contexts, including the cases of nuclear waste management. A similar approach has been put into practice by Matthias Gross in the context of ecological restoration projects (e.g., Gross, 2010), evoking an attitude of constant experimentation, monitoring, and shifting socio-material organization. Speculative design is another interventionist method which has been developed out of relational STS arguments, in particular object-oriented approaches. It is a model of designerly practice that attempts to

create new objects with close attention paid to the construction of intended users and the emergent modes of social organization they will be associated with. There are multiple examples of speculative design related to the energy field, such as in relation to so-called smart technologies for the home and environmental monitoring technologies (e.g., Gabrys, 2014; Wilkie et al., 2015; Michael, 2016).

A further set of possibilities exist around being reflexive about the actual models or "atmospheres of democracy" (Latour and Weibel, 2005) that are brought into being in energy-related participation. Where models in typical deliberative workshops have been one-off events that assume a deliberative democratic constitution, recent work by Bellamy et al. (2017) has experimented with deliberately constructing more centralized, competitive, and consensual modes of deliberation and exploring how these different "atmospheres" shape public views on the governance of climate geoengineering technologies. Work that actively experiments with the formats of energy participation is also emerging in practice theory. This includes attempts to reconfigure everyday practices-that-use-energy through deliberately changing aspects of practice in an experimental fashion, and then monitoring subsequent changes. For example Higginson et al. (2014) have experimented with changing the timings of particular energy-using practices, while Jack (2013) asked practitioners to avoid washing their denim jeans for a 3-month period and then tracked the new understandings and competences they developed around laundry and clothing-related practices.

Even where constructions and framing effects have not been considered in "real time" during the performance of energy democratic practices, they can still be attended to in how instances of public engagement with energy are publicized. Even after the "event" of participation those intervening in energy democratic practices should ask: is it possible to represent publics in ways that pay due account of the inherent uncertainties, indeterminacies, contingencies and framing effects of their production? *In this sense, social scientists and public engagement practitioners should do more to open up and communicate uncertainties about energy participation and publics—pertaining to the way they have been constructed, possible alternatives, and exclusions*. Uncertainty is not only a concern for energy modelers, but for those modeling energy publics too. The evaluation frameworks which are used for judging the effectiveness of behavior change programmes or deliberative consultations, for example, also need to open up these uncertainties. They should not only be concerned with inclusion and linear impacts on decision processes, but need to also consider significant exclusions and wider effects.

Finally—with reference to the recommendations in the above sections to move beyond conceiving of energy democracy in terms of discrete cases and to move toward mapping approaches—*there is a need to develop new reflexive practices and methods that map diversities of already existing collectives through which publics engage with energy and their interrelations within wider systems*. In this regard a range of promising mapping methods are emerging in the energy field and beyond, such as issue mapping (Marres, 2015), controversy mapping (Latour, 2005; Venturini, 2010), comparative cases analyses (Chilvers and Longhurst, 2016), systematic reviews (Pallett et al., 2017), and network analysis (Higginson et al., 2015). Such maps produce public documents (evidence for all system actors, not only for policy-makers) that reveal hidden diversities of participation and thus offer a means of enhancing public accountability and transparency of decision institutions. The act of mapping diversities can reveal and make public otherwise denied or marginalized perspectives, concerns and actions, and serve as a basis for harnessing citizen innovations and energies.

Responsible Energy Democracy

Mainstream approaches to practicing public engagement with energy tend to emphasize the positive aspects of participation. For example, evaluation frameworks focus on the energy savings or carbon reductions of behavior change initiatives (Dolan et al., 2012), or on the inclusivity, representativeness, and decision impact of deliberative processes (Renn et al., 1995). In contrast, relational and constructivist approaches to democratizing energy show that practices of public engagement can have negative as well as positive effects and outcomes, or bring about unintended consequences in the longer term. Grassroots and community based energy initiatives, which represent great opportunities to democratize and socially shape energy transitions, might actually be quite exclusive and exclude, marginalize and disempower actors and perspectives in specific localities (Smith et al., 2016). Behavior change initiatives and the provision of energy feedback to consumers might lead to some reductions in energy use while locking consumers into unsustainable social relationships and leading to rebound effects (cf. Hargreaves, 2018).

So, a second practical move urged by relational understandings of energy democracy is *to actively anticipate and take responsibility for possible downsides, purposes and social/ethical implications before and during—not just after—the event of participation and democratic engagement. In this sense forms of energy democracy need to become what Chilvers and Kearnes (2016c) term "responsible democratic innovations"* which requires anticipation, "opening up and accounting for the inherent uncertainties, framing effects, politics, power relations, social assumptions, and unintended consequences of emergent technologies of participation" (p. 276). In many respects this mirrors and can make use of tools developed by work in STS that seeks to responsibly develop emerging science and technologies through reflexive consideration and anticipation of their underlying purposes, consequences, social assumptions, and ethical dimensions in processes of technology assessment (Rip, 1996), anticipatory governance (Guston, 2014), and responsible innovation (Owen et al., 2013).

Technology assessment and foresight processes could be used to anticipate the how particular innovations in energy democracy might co-evolve with science and society in the future (for an example of this applied to citizens panels see Voß, 2016). There is also scope for social scientists to work interactively with engagement practitioners in the "social laboratories" of energy democracy—whether they be community organizers of grassroots innovations, activists, facilitators of deliberative processes, designers of digital methods, and so on—to get them

to reflect, anticipate and respond to the possible social and ethical implications and effects of their democratic innovations in "real time" (cf. Fisher et al., 2015). When the move is made to take a more responsible and careful approach to energy democracy the possibilities multiply, including the potential to reconfigure existing processes of learning and evaluation and imbue them with more reflexive and responsible intent (e.g., Mohr et al., 2013).

Such thinking brings into focus long-standing debates about appropriate and effective forms of academic critique and intervention. Workshop discussions (Chilvers and Pallett, 2015) considered, for example, the extent to which researchers should couch interventions and commentaries in the language and framing of currently dominant regimes, or whether the stance of academic theories such as Actor-Network Theory should be considered apolitical or deeply normative. Workshop discussion also spoke to the *need for (social) scientists to take up a diversity of roles when interacting with and intervening in practices of energy democracy* including: the formation of distant or more radical critiques (Shove, 2010), the provision of more abstract and systemic conceptual frameworks (such as those outlined in the section on Relational Concepts and Theories), providing expert advice in more policy relevant ways (Owens, 2015), to adopt more activist positions and engaging with social movements (Taylor, 2014), through to the development and mediation of new forms of energy democracy (such as the examples provided in the section on Reflexive and Experimental Energy Participation above). However, some of the workshop presentations and plenary discussions reported on in Chilvers and Pallett (2015) also hinted at further dimensions to this well-worn debate, in particular highlighting the importance of being aware of long term driving forces, systemic stabilities, and political situations when forming academic and practitioner interventions and deciding when is an appropriate time to act. This also hints at a need for more constitutional or system-wide understandings of the energy system in academic work on energy publics, including a broader historical and geographical span of relevant processes and structures. A relational approach resists seeing these dimensions merely as "constraints" which practitioners should work within, to emphasize how extant powers and orders that shape energy democracies should also be openly exposed, resisted, reconfigured, and transformed.

Socially Responsive Energy Governance

Finally, relational perspectives on energy democracy urge consideration of how institutions, systems of governance, and various system actors (including publics themselves) might better acknowledge, account for and be responsive to diverse and emergent energy publics. A recognition of the diversity of emerging energy publics thus raises broader questions for academics and wider society, around what it means to govern in the "public interest" or "public good," under such complex and uncertain conditions. This calls for *greater responsiveness on the part of institutions and system actors to the diversities, emergence, and productivities of the practices through which publics engage with energy transitions.*

Relational and co-productionist perspectives fundamentally challenge mainstream understandings of energy democracy as a "problem of extension" where the burden is placed on publics to engage with, change, get in line, or respond to trajectories and definitions of "the energy transition" defined by others (most often institutional authorities, whether that be science, the state or industry, but also increasingly groups in civil society). Relational accounts recast the challenge as a "problem of relevance" where the problem is one of incumbent institutions (and to some extent publics themselves) accounting for the relevance of diverse and already existing forms of participation and public engagement that make up the energy systems and their futures (cf. Wynne, 2007; Marres, 2012). In short, the move is from seeing participation as simply about eliciting public views on energy systems in invited events, to seeing it as a challenge of mapping the diversities, relations, and productions of already existing forms of participation across energy systems. This shift of emphasis, to recognize distributed agencies in the form of collective participatory practices, potentially provides the basis for breakthroughs in how to tackle issues of equity, inclusion, institutional responsiveness, and social change with regards to participation in whole energy systems.

These insights effectively turn participation and energy democracies around, prompting new ways of governing energy transitions. They mark a shift away from an exclusive drive to elicit and aggregate public views in forming a vision of 'the transition' which is then centrally managed, toward more distributed and responsive styles of governing energy transitions. Given that societal engagements in the energy system are continually emerging - imagining, knowing and doing in different ways - the challenge is to develop systems of governance that are more responsive and accountable to these diverse and continually emerging forms of 'public interest', value and action. This demands new forms of institutional listening (cf. Dobson, 2014) to diverse forms of energy public relevance, and new ways of seeing emergent energy public doings, that might otherwise be excluded or denied. This more open, responsive and outward looking approach to governing energy transitions should attend to the emergence and overflows of energy participation and promote institutional learning and responsiveness to new framings of energy issues, publics, and forms of energy democracy.

CONCLUSION

In this paper, we have argued that "energy democracy" is not a simple or neutral object, but rather something which needs careful unpacking and reflexive examination to be useful and productive. Acknowledging the "essentially contested" nature of democracy (cf. Gallie, 1955)—and therefore participation and publics—opens up a more reflexive and critical approach to this emerging object of energy participation. The approach we advocate recognizes and explores the multiplicity and diversity of energy publics and participation, and therefore visions of what energy democracy might look like, rather than adopting

a singular model or vision of energy democracy, such as community energy or deliberative engagement.

The diversity of energy publics and participation, and of academic work around these objects, which we have demonstrated in this paper, shows the need for more symmetrical, co-productive, and comparative analyses of the emergence of energy publics. This necessitates developing conceptual frameworks which enable the analysis of contrasting energy publics and forms of participation, and allow researchers and practitioners to compare across diverse cases and cultures. We argue that these frameworks should also be co-productive so that they acknowledge the relational emergence of energy publics and participation, rather than adopting the fixed realist perspectives we criticized in the section on Energy Democracies and Publics in the Making.

Academic work on energy democracy also needs to openly acknowledge the inevitable partiality of the accounts produced, shaped as they are by theoretical and methodological leanings, and the limitations of time and other logistical elements. We need to find better ways of writing about this and highlighting it when we are called upon to give advice and guidance. This also requires us to recognize the performativity of our accounts, in the way that they shape people's own understandings of what they are engaged in, as well as governing or other official narratives about energy participation and democracy. In the energy field, perhaps more than any other, we need to be aware that our theories and concepts are already out there "in the wild" of the processes we are studying (cf. Callon et al., 2009), and therefore not entirely under our control or according with our specific definitions.

These conclusions have far-reaching implications for academic theorization, empirical work, and policy-practice, which we have tried to explore and propose in this paper. We hope in particular, that the key points summarized at the end of each sub-section in the section on A Relational Agenda for Energy Democracy Research and Practice will be of use to academics and practitioners wanting to weave these insights into their theories, methods, and practice, along with the experimental and reflexive disposition which we advocate.

AUTHOR CONTRIBUTIONS

Both authors made equal contributions to writing this article. The expert workshop which the article partly draws on was designed, organized and facilitated by JC and HP. JC led the project in which this research was undertaken.

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Energy Democracy and the City: Evaluating the Practice and Potential of Municipal Sustainability Planning

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While calls for, and work toward, energy democracy have been entrenched in social movements, and the concept has a burgeoning posture in academic discourse, perhaps the most significant implication for its development is the potential for its implementation at the local governance scale. In order for municipal efforts to be wholly democratic, energy policy must be accessible and responsive to the needs of all communities. This necessitates the convergence of an energy democracy paradigm with principles and practices of both energy justice and just sustainabilities that encourage communities and households' entrée to the energy planning arena, as participants in policy making and with access to renewable innovations. By using a case study as its means of analysis, this paper will evaluate municipal-scale energy programming by considering the prospects of energy democracy on a sub-state scale. In our analysis of Washington, DC's sustainable energy utility, we highlight challenges that limit the potential for energy democracy in the nation's capital, along with practices that lead DC toward energy justice and democracy. We conclude by offering indicators for democratized urban energy planning.

Keywords: energy democracy, energy justice, just sustainabilities, sustainability planning, sustainability energy utility

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INTRODUCTION

Claims for energy democracy envision the emergence of energy *prosumers* who are influential at all points in the life-cycle of energy, including as designers and analyzers (Communication Institute and University of Utah, 2017). Further, it necessitates that "community residents are innovators, planners, and decision-makers on how to use and create energy that is local and renewable" (Center for Social Inclusion, 2017) and has the potential to "empower the individuals and communities that have the energy resources of the 21st century (e.g., wind and solar) to economically benefit from their use" (Farrell, 2014). Several core elements are broadly recognized as essential to energy democracy, including: system decentralization, citizen engagement in decision making, public ownership, and consequent economic benefits associated with energy (Becker and Naumann, 2017, Tarhan, 2017). However, calls for energy democracy often fail to account for the complexities associated with energy systems; particularly relating to physical structures, operations, and unique local "political, economic and social" (Burke and Stephens, 2017) characteristics that influence outcomes.

We view an urban energy democracy as the culmination of the above, while operating within the purview of municipal and sub-state policy and planning. Urban energy democracy emphasizes the role of residents as consequential actors in energy planning and design, and who are featured in prominent roles in the delivery of energy services. It stresses energy conservation and renewable energy strategies and is cognizant of all phases across the life-cycle spectrum of energy use

(including social concerns), and orients itself as a conduit for community empowerment and self-determination. An urban energy democracy should act in conjunction with broader urban sustainability planning goals, which are the totality of planning strategies centered on comprehensive development related to regional-scale environmental and ecological concerns.

Furthermore, the potential for energy democracy is intertwined with an equity and just sustainabilities (Agyeman et al., 2003) discourse, which engages in community based development while recognizing the unique characteristics of various stakeholders and groups (Reames, 2016a,b), while steeped in the principles of economic justice. In order for energy democracy to reach its potential, it must emphasize access to, and the affordability of, energy services for marginalized communities, is predicated on sustainable fuels sources in its recognition of threats deriving from global climate change and local environmental hazards that disproportionately harm marginalized communities, and offers a prominent role for all stakeholders in determining energy futures. Critical to this framework is an equity discourse built around social and economic justice, along with the distribution of environmental benefits to marginalized communities and their remoteness from disproportionate burden sharing. With social capital being a recognized element in environmental decision making that prioritizes public participatory processes (Peterson et al., 2006) argue that social capital alone, in absence of sturdy state structures will not create an enabling environment for democracy to occur and might result in less than expected environmental protection outcomes. There is also evidence of a lack of attention to equity and justice concerns within broader sustainability policy on the local scale (Teron, 2015, 2016), and due to this, it is critical that we assess not only who is at the table for local-scale energy governance, but also ensure that participants have voice in decision making and are empowered.

Considering the attention that US cities have given rise to energy policy, including the US mayors' climate change consortium and innumerable sustainability plans, the need to explore the policy/democracy nexus is pertinent. This work acts as a companion piece to earlier efforts that have evaluated municipal sustainability plans' attention to justice concerns (Teron, 2015, 2016). We diverge from broader environmental and sustainability planning concerns here, by specifically evaluating energy policy and putting forth research that can aid energy planners as well as community based interests.

MATERIALS AND METHODS

While acknowledging the above complexities, this article seeks to explore the practices and looming threats to the potential of energy democracy at the municipal level. Washington, DC was chosen as a model for the case study as its energy programming goes back several mayoral administrations, thus substantiating its durability and capacity to exist beyond a singular pro-environmental administration. This is manifest by program anchoring within DC's department of energy and environment, as opposed to a mayor's office level entity, which can benefit or decline based on the intensity that any particular regime may (or not) have toward consequent issues.

We evaluated DC's energy programs by initially engaging in an overview of relevant literature, including sustainability and climate plans along with energy programming. Data collection involved consultations with planning officials from the DC sustainability energy utility, a comprehensive review of energy planning materials, from both project websites and official planning documents and the review of relevant federal legislative and energy policy documents. We used interviews and consultations to navigate the mechanisms of programs and to identify partnerships that the city fostered. Finally, based on the review of innumerable US urban sustainability and energy plans and programs from over three dozen of the most populated US cities, we developed a non-exhaustive set of indicators that show the potential for energy democracy practice in urban settings (See **Table 1**). We acknowledge limitations which include governance issues that are unique to DC, due to the city's political status (addressed below) that are not entirely replicated by standard devolution of statutory powers from US states to local entities.

TABLE 1 | Suggested energy democracy indicators for municipal energy regimes including equity, environmental, and economic categories.

Category	Principle stakeholders	Sample indicators
Equity	Marginalized communities Future generations	• Energy/weatherization programs with targets/outreach for low-income households • EJ language used in programming materials • Public transportation/non-auto centricity as conspicuous part of energy planning/programming • Translation tools/document interpretation for limited English proficiency communities
Environment	Local ecologies Resource extraction communities Global ecology	• Residential energy auditing/weatherization program (commercial or residential) • GHG emissions accounting (municipal fleet and community-wide accounting) • Renewable energy production (MW installed capacity) • Residential electricity use/capita
Economic	Energy entrepreneurs Energy cooperative shareholders	• Share of household income spent directly on energy (home and transportation) • Jobs directly created for city residents via energy programs • Solvency: financial capacity to take on energy projects • Residency preference hiring programs for energy programming
Energy Democracy	Residents	• Energy planning/utility board composition representative of diverse community interests • Voter participation in state/local elections • Training programs targeted toward municipal residents • Prosumers influence on social life-cycle analysis concerns

WASHINGTON, DC: ENERGY DEMOCRACY IN PRACTICE

With just over 680,000 residents, democratic exercise in Washington, DC is unique among US cities. As a federal district, its residents do not have voting representation in Congress (they do elect a delegate to the US House, who can vote on procedural matters), and the Constitution grants Congress "exclusive jurisdiction" over the nation's capital. Accordingly, emboldened on DC's license plates is the Revolutionary Era slogan "Taxation Without Representation." There is value in framing DC's manifestations of energy democracy, along with threats, within these contexts.

Washington, DC's energy programs operate out of the city's Department of Energy and Environment from which the DC sustainable energy utility (DC Sustainable Energy Utility, 2015) operates. It exists as a quasi-private entity responsible for administering the city's sustainable energy programs, which include: reducing per capita energy consumption and increasing renewable energy generating capacity; improving energy efficiency in low-income housing, *via* weatherization, technical assistance, and financial inducements to developers and property owners (DC SEU). The DC SEU is representative of an emerging alternative to conventional energy utilities and service provision, as SEU's are community based and grounded on the principles of energy conservation and efficiency, while placing emphasis on the use of renewable energy sources. Similar entities have sprouted up in various locales across the nation, including Pennsylvania and California.

With a goal of reducing 2006 greenhouse gas emissions by 50% by the year 2030 and a target of 80% by 2050, DC has among the most aggressive targets in the nation. Concurrently, it has some of the highest per capita emissions rate in the US. In 2015, Washington, DC ranked 35 out of 50 states (plus DC) for per capita energy consumption with 267 million Btu per capita (US Energy Information Administration, 2017c). It ranked last in total CO_2 emissions in 2014 with three million metric tons (US Energy Information Administration, 2017a). SEU initiatives have led to reduced electricity consumption. In FY 2015, electricity consumption was reduced by 57,000 MWh and led to a reduction of nearly 87,700 Mcf of natural gas (DC SEU). The aforementioned has substantive environmental benefits along the entirety of the life-cycle spectrum, including reduced pressures for fossil fuel extraction, the reduction of natural gas leakage, fewer power plant emissions, and waste byproducts. Consequently, the environmental implications, both locally and beyond, are meaningful.

AN IMMINENT THREAT TO THE SEU'S POTENTIAL

The potential for DC's ambitious energy policy faces external obstacles that along with the claims above regarding voting representation, serve to further disenfranchise Washingtonians. It is critical here to consider Congress' jurisdiction over the city, coupled with right-wing domination in both houses of Congress, along with conservative antipathy toward progressive climate policy (and climate science more generally). This is in addition to an ensemble of threats from the 115th Congress regarding other matters relevant to DC and "home rule," including: euthanasia, undocumented immigrant defense, welfare reform, gun-control, and abortion legislation (Davis and Jamison, 2017). While the text of the House's 115th Congress' Oversight and Government Reform Plan, as pertains to DC, focuses on school choice and tuition assistance, the last line of this section ominously states the Committee's intention to "strengthen Congress's oversight of DC's and exercise of its plenary legislative authority granted by the Constitution." (US House of Representatives, 2017) It is not a leap to view potential threats to DC's renewable energy strategies, considering the attention that the House's authorization gives to energy and the environment with regards to: (i) a heightened focus on pursuing hydraulic fracturing, (ii) prospective easing of the oil and gas pipeline permitting process, (iii) increased efforts to develop coal exporting facilities, and (iv) heightened scrutiny of clean air and water rules' implications on the "economic well-being of American families, job creation, [and] energy security" (US House of Representatives, 2017).

ANALYSIS

Considering the complimentary existence between urban energy democracy and justice, practices and outcomes must emphasize marginalized populations. This includes outcomes which are committed to community empowerment, contain critical life-cycle analysis, and include programming that is targeted to low-income groups, along with the capacity for residents to be involved with the design and delivery of renewable energy services. Consider DC's successful green jobs program as a critical piece of its energy strategy within the larger context of citywide resident job preference programming. Notwithstanding a 10-point residency preference bonus, a majority of workers in overall city government jobs are not city residents—of 35,302 in qualified positions, only 15,191 were DC residents (King, 2016). By contrast, 100% of SEU employees—including upper management—are DC residents and the city's green jobs program, which mandated that all employees receive (including those working through government contractors) a minimum wage of $13.80. This was enacted years before a citywide $13.40 minimum wage that would go into effect in 2018. Another entry point is Solar Works DC, a joint job training and solar installation project, which is representative of an approach to converge renewable energy goals with workforce development and consideration for low-income households. The SEU's green jobs program created over 185,000 green job hours for over 240 residents in 2015. This suggests a capacity for Washingtonians to play roles covering the range of project planning and design phases of energy project development all the way through the delivery of services. While green jobs are critical, they should not be the economic end point. Beyond training and guaranteed wages, energy programs must make concerted efforts to advanced marginalized communities beyond the employee stage, but give attention to contracting with businesses from these same groups[1].

[1]As an example of how this would manifest in DC or elsewhere, the city of Seattle has contracting goals that target 13% of purchasing and 17% of consulting

While the city was lauded earlier, for facilitating community access to planning and design phases of energy policy, the city has significant room to improve in other areas of emphasizing the role of residents as consequential components of energy design, particularly those from linguistically isolated communities. The extent of its outreach in this area is website-based translation tools to make online materials accessible for limited English proficiency communities. This is a rudimentary step that does not provide residents entrée to networks and programs that are not on the web, who may need resources beyond web materials or who wish to be involved at public meetings.[2] We identify "translation tools/interpreters access for residents/consumers" as a critical indicator of urban energy democracies. In designing and implementing energy programs at the city level, municipalities need to be cognizant of potential language barriers among residents. In failing to do so, approximately 10,000 adult DC residents, who are self-identified as speaking English as less than "very well" (Teron, 2016) are locked out of the energy sphere.

While municipal energy planning rightfully give considerations to a range of issues, including: renewable energy portfolios, green jobs, and energy efficiency and conservation, given that in the US the transportation sector accounts for nearly 30% of all energy used, with a majority coming from light-duty vehicles (US Energy Information Administration, 2017b), it would behoove local energy planners to explore how this sector can be better integrated into policy. We view the disconnect between transportation planning and energy policy as a critical nexus for DC to forge. While the SEU gives considerable attention to building emissions and residential power sources, ample concern should be given to the amalgamation of transportation and energy policy. It is shortsighted for DC, and many other municipal energy regimes, to overlook this. We urge a more holistic framework which captures the transportation sector's emissions and fuel use as a pathway toward more robust energy and transportation policy along with greater sustainability goals. We urge that public transportations/non-automodality be included as a measure of energy democracy in cities. In Washington, DC, while approximately 39.5% take a private vehicle to work, a nearly equal number of commuters (38%) take public transportation to work, and another 16.9% either bike or walk to work. This is in contrast to the national picture, in which over three-quarters of the population rides a private vehicle alone to work and just over 5% rely on public transportation (McKenzie, 2015). When considering the environmental benefits (both local and beyond) along with the diverse residential interests involved in urban transit planning, this is an opportunity for DC to take further leadership on, and also to have a better accounting of, the entire suite of energy services and processes that are fundamental to urban life.

CONCLUSION

We contend that Washington, DC, notwithstanding limitations in its energy programs, is an emerging urban energy democracy. Indeed, there are critical areas of improvement that the city must consider as its policies evolve, including: governance concerns, equity, and outreach to the linguistically isolated and the incorporation of transportation into the body of renewable energy strategies. Other indicators are favorable for DC's evolution as a functioning energy democracy. This includes the presence that city residents have in program development and delivery and renewable strategies that target renters. Furthermore, its projects are steeped in efforts based on truncating the city's and its residents' collective environmental footprints. These and similar programs are done with specific programmatic language stressing environmental justice, and is embodied by the diverse array of community interest that are represented across the energy planning spectrum, including skill-based green jobs training programs, an energy advisory board that represents a cross-section of community interests and energy/weatherization programming that features extensive outreach to low-income households.

We recognize that a vast majority of energy consumers across the US receive services from conventional fossil fuel-based energy regimes. However, considering the perilous energy futures associated with carbon intense energy systems, and their contribution to both local and global environmental instability, alternative strategies that are based on energy conservation, efficiency, and renewable, while embedded within a just sustainabilities paradigm are necessitated. Therefore, while this study is a seminal look at the behaviors and possibilities of only a sole emerging democracy, it offers perspectives and outlooks for other local energy regimes to consider in their movements toward more democratic, just, and sustainable behavior. It is critical for Washington, DC and other urban entities to have both democratic and just orientations, in order to capture the widest swath of residents in the desired outcome of becoming more sustainable cities. This will involve further work among researchers, planners, community based interests, and residents to expand upon best practices and indicators and also design pragmatic tools for communities and residents to engage with planning regimes and to strengthen networks for engagement with all communities to have a greater footprint in energy services.

AUTHOR CONTRIBUTIONS

The authors fulfilled the following criteria: substantial contributions to the conception or design of the work, or the acquisition, analysis, or interpretation of data for the work. Drafting the work or revising it critically for important intellectual content. Final approval of the version to be published. Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

designated to women owned and person of color owned enterprises, for the year 2017 (Locke, 2017). While the percentages leave ample for improvement, the use of specific targets allows for goals to be assessed and dissected.

[2]We recommend DC to follow the lead of the San Francisco Bay Area's planning outfit, which provides comprehensive translation and interpretations services, for documents and public meetings respectively. Though DC's LEP population is significantly smaller than the Bay Area's—nearly 18% of San Francisco's population self-identifies as speaking English less than "very well," compared to only 2% for DC—the nation's capital still has roughly 10,000 residents who fall into this category and are effectively locked out of participation (Teron, 2016).

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A Comparative Case Study of Electric Utility Companies' Use of Energy Democracy in Strategic Communication

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A substantial increase in distributed renewable energy resources is changing the face of the energy environment, leading to strategic communication efforts by key stakeholders. The energy democracy movement supports this transformation from fossil fuels to distributed renewable energy and aims for equitable involvement of publics in energy decision making. These tenets challenge utility company earnings as they are directly related to energy sales and infrastructure returns on investment. Proposals by electric utility companies to restructure net-metering policies as a solution to financial issues have been criticized as prohibitive to the success of renewable energy advancement. To address these disagreements, the Edison Electric Institute and a communication firm, Maslansky & Partners, created *The Future of Energy: A Working Communication Guide for Discussion*. This handbook provides utility companies with strategic communication guidelines to portray themselves as supportive of renewables within a dynamic energy industry. We posit that aspects of the energy democracy movement have been employed by electric utility companies, as shown through the use of the handbook, as a strategy for communicating with customers in discussions around net metering. We examine two case studies in states with recent controversial net-metering policy changes by analyzing utility company websites and press releases for the use of the communication handbook terminology. We found that, in both cases, the suggested language was used to position their companies as pro-renewable energy and their utility-scale projects as more equitable for their customers. In addition, we found differences between each company's use of key terms from the handbook. We posit that this is due to the temporal context of each net-metering debate at the time of the handbook release. Conclusions and future directions for research in the growing area of energy democracy are discussed.

Keywords: electricity, energy, energy democracy, net metering, strategic communication

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A dramatic increase in solar power adoption has occurred in the last decade, in part because of the growing consumer interest in green energy, coupled with significant decreases in associated costs (Weiner, 2015; Muro and Saha, 2016). The unprecedented speed at which distributed resources are changing energy systems underscores the challenge and importance of understanding the roles of humans in this transition. This evolution is especially apparent in democratic societies in which participatory communication is integral to resolving environmental issues (Stephens et al., 2015).

Energy democracy is a movement that aims to involve publics in energy decision making with emphasis on the transformation from fossil fuels to renewable energy and distributed systems (Fairchild, 2017). This aligns with a broader effort in environmental communication to address human-caused threats to ecological systems and the failure of social institutions to confront these threats (Cox, 2007). Some propose that scholars have a responsibility to assist in the accessibility and social understanding of these issues (Cox, 2007; Schwarze, 2007). Within environmental communication scholarship, energy democracy is a novel research arena with interdisciplinary capability (Endres et al., 2016). Thus far, research in energy democracy has painted transitions of energy systems in a positive light, citing the potential for civic change and public participation (Clarke, 2017; Stephens, 2017). Due to the complex nature of energy production, transmission, and distribution, a range of actors may use the energy democracy movement for a variety of reasons. Research in energy democracy has yet to examine actors who may perceive distributed energy as a barrier to their goals. For example, electric utility companies are disadvantaged by the increased adoption of distributed renewable energy because customers are no longer reliant on utility-sourced power.

The goal of the present work is to identify how aspects of the energy democracy movement have been employed by electric utility companies as a strategy for communicating with their customers in discussions around net metering. As prior research does not offer sufficient evidence to allow us to posit hypotheses, we instead formulate propositions. To this end, we examine utility company artifacts for use of key terms derived from a handbook that guides communication processes of electric utility companies, *The Future of Energy: A Working Communication Guide for Discussion*. Using case studies of NV Energy and Rocky Mountain Power (RMP), we conduct a qualitative analysis of websites and press releases about net metering and identify the use of handbook language in these communications. In the following sections, as background for our analysis, we describe the energy democracy movement and the strategic use of the handbook by NV Energy and RMP in the context of net metering.

BACKGROUND

Energy Democracy as a Communication Strategy

Though currently centrally managed and regulated, energy systems in the USA are increasingly moving toward alternative, renewable energies. Renewable energy has been conceptualized as decarbonized, decentralized, and democratized (Pezzullo, 2017). However, there is no assumption of democracy or justice within the transition of energy systems. Attempts to integrate energy matters with social issues and public participation have led to the development of the energy democracy movement (Endres et al., 2016), which calls for democratic participatory communication and broader civic engagement in energy systems change (Stephens, 2017). Social justice and public engagement are key to the democratic ideal of voice, trust, and decision legitimacy (Clarke, 2017). Within the energy democracy movement, energy consumers are "prosumers" who participate in decisions throughout the energy process, from production to consumption (Giancatarino, 2012). The community of Boulder, Colorado, is an example of the energy democracy movement in the public sphere. In 2016, the city published a Climate Action Plan with aims to municipalize their energy and deliberately involve citizen voices in the energy shift (Pezzullo, 2017). By making citizens a part of the democratic process regardless of their financial, social, or physical role in the community, Boulder fulfills the key social justice aspect of the energy democracy movement.

While still in its infancy, one main goal of the energy democracy movement is to identify theoretical, empirical, and practical research directions. One possible direction for scholarship in this area is to address the theoretical gap between strategic communication and the energy democracy movement, which includes examining the potential negative outcomes of employing the principles of this movement as a communication strategy. Strategic communication analyzes how organizations intentionally communicate to attain designated goals (Holtzhausen, 2008). It first identifies an issue and key stakeholders that inform the subsequent creation of an organizational plan with measurable objectives (Toth, 1986; Botan, 1997; Barwick et al., 2014). These plans use messages and symbols to communicate values (Rokeach, 1968; Miller and Lellis, 2016) since the aim of strategic communication is to create a favorable reputation for stakeholders or to motivate change beneficial to the industry (Cornelissen and Cornelissen, 2017). These actions are often employed in persuasive campaigns for public relations and advertising (Bostdorff and Vibbert, 1994). For example, strategic communication is reflected in climate change mobilization through agenda-building, framing, and social marketing (Cox, 2010). In addition to civic engagement analysis, strategic and environmental communication coalesce in studies of fracking extraction (Matz and Renfrew, 2015), fossil fuel advocacy (Miller and Lellis, 2016), and corporate use of environmental rhetoric (Hanan, 2013).

Strategic communication is also used in preparation and response strategies for crisis situations (Coombs, 2015). Corporations can adopt an anticipatory model of crisis communication to prepare for environmental catastrophes (Olaniran and Williams, 2008), emphasize common societal values shared with its customers (Miller and Lellis, 2016), or systematically discredit perceived industry opposition (Faber, 2008; Bell and York, 2010; Matz and Renfrew, 2015). One of the primary foci of crisis communication is the notion that organizations can repair damaged reputations (Avery et al., 2010), and image restoration theory[1] specifically addresses this strategic action (Liu and Fraustino, 2014). Image restoration theory proposes that an organization or an individual accused of being responsible for an offensive action must respond to that action (Benoit, 1997). An organization has numerous message options that they may use to address a damaged image. The five broad categories of repair are denial, evasion of responsibility, reducing offensiveness, corrective action, and

[1]Some scholars use the name image repair theory, as restoration suggests that the image reverts back to the original, which is often not the case when faced with a crisis (Benoit, 2000).

mortification (Benoit, 1997). In expressing denial, an organization insists that the action never happened or that they did not have a role in it, while evading responsibility either justifies actions or downplays involvement. Reducing offensiveness can be achieved through many strategies, including minimization or bolstering. If an organization acknowledges their role in the crisis, corrective action attempts to improve the situation, while mortification involves an organization asking for forgiveness (Burns and Bruner, 2000). Due to the extent and flexibility of these categories, image restoration theory is an exhaustive approach to achieving goals through discourse (Burns and Bruner, 2000).

Ideally, democratic communication is accessible to all. However, corporate discourse is constrained and hidden from public view (Sproule, 1988). Therefore, the handbook presents a unique opportunity to publicly witness strategic image restoration in response to a crisis. An organization may use these approaches in preparation for a crisis, when analyzing a crisis, and when addressing a crisis (Benoit, 1997). Reaction to numerous environmental issues reflects image restoration theory, such as a review of British Petroleum communications after the Deepwater Horizon oil spill (Harlow et al., 2011) and President Bush's speeches following Hurricane Katrina (Liu, 2007). Image restoration theory strategically aligns with organizations in moments of negative publicity, since a corporation's image is not homogeneous and audience perception is critical to corporate success (Benoit, 2000; Burns and Bruner, 2000). The current transition in the energy industry could be viewed as a potential crisis due to its negative impacts on company image and financial returns on investment (ROI). Energy democracy offers a positive frame that a utility company may systematically apply in discussions about net metering. Thus, industry reactions to net metering pose an interesting context for analysis, yet no scholarship to date has examined the corporate use of the energy democracy movement as a communication strategy.

Utility Companies and Net-Metering Policies

Traditional utility companies are vertically integrated economies; typically, one corporation oversees electricity from creation to delivery (Steiner, 2000). Electricity is distributed through transmission lines to public consumers through a network called the power grid, which is maintained and operated by utility companies (Fang et al., 2012). Most of these companies are investor-owned and profits derive from investments in energy projects and subsequent ROI of electricity sales (Atkinson and Halvorsen, 1986). Therefore, new utility company power plants result in financial returns. A summary of electric utility company cost estimations found the potential for a natural monopoly for transmission and distribution of energy (Ramos-Real, 2005). When small-scale individual solar energy projects became popular in the 1980s, many utility companies proposed a system called net metering (Faden, 2000), which allows customers who produce their own energy to sell the excess back to the utility company at an agreed-upon price. Historically, the price at which energy is sold back to companies is equivalent to the cost an average customer pays to purchase electricity, known as the retail rate. Net-metering policies were intended to decrease market barriers, such as technology expense, and increase the market penetration of solar energy (Doris et al., 2009).

Solar energy adoption has grown rapidly in the last decade at the residential, community, and utility company scale due to a decline in associated costs and an increase in enthusiasm for renewable energy (Muro and Saha, 2016). Typically, to propose changes in customer energy rates, utility companies forecast transitions in the energy market. In 2015, 27 states recommended changes to their net-metering policies, citing an increase in distributed renewable energy (Carley and Davies, 2016). Most studies of net metering find the retail rate for 1 kilowatt hour (kWh) of solar energy to be a fair price that encourages the development of distributed renewable energy (Forsyth et al., 2002; Kroposki et al., 2008; Doris et al., 2009). Yet, the results of net-metering studies are not homogeneous, partly due to inconsistent cost–benefit analyses (Muro and Saha, 2016). The social cost of carbon, the avoided construction of new power sources, health benefits, and environmental effects are factored into some, but not all, studies (Farrell, 2014). Therefore, many studies funded by utility companies contend that net metering and its associated policies harm customers who do not own residential solar energy (Rocky Mountain Power, 2016).

The Communication Handbook

The Edison Electric Institute (EEI) is an association that represents over 90% of investor-owned utility companies and advises their clients on public policy, an expanding market, and business strategy (Braithwait and Eakin, 2002). In April 2016, EEI distributed *The Future of Energy: A Working Communication Guide for Discussion*, a handbook produced by the communications consulting firm, Maslansky & Partners. Utility companies distributed this text internally, and it became public information the following year. This document guides the energy communication strategies of utility companies that serve over 220 million Americans. It highlights that customers may not always approve of utility company actions concerning renewable energy and emphasizes the importance of customers' perceptions.

The Future of Energy proposes key terms that can be tactically changed to improve relations between the companies and their consumers in four key areas of insight: the basics, the future of the energy grid, leading the way on clean energy, and the fundamentals of rates (Maslansky and Partners, 2016). Within each area, the handbook suggests key concepts to adopt, as well as those from which to abstain, in communication efforts. The structure of the handbook guidelines closely follows the proposed layout for any form of strategic communication (Botan, 1997); a term currently used in energy discourse is described, followed by the recommended replacement term, its definition, why it matters, and language to "use and lose" when the suggested term is employed in public communications. In addition, the handbook emphasizes the differences between the assertions of utility companies and customers' perceptions. The handbook reiterates this process 25 times for the terms it finds most in need of change. The repetitive nature of this format reinforces the importance of strategic change to utility company messaging.

We identified three key handbook terms used in the net-metering discussion: *universal*, *private*, and *private solar credits*

(often referred to as a *subsidy*). The handbook classifies large projects funded with utility company resources as "*universal* solar" rather than utility-scale solar energy projects. This allows for a focus on the "ultimate benefit: solar for all" (Maslansky and Partners, 2016). To create a clear contrast with utility company solar projects, the handbook recommends "rooftop solar power" be referred to as "*private* solar power" and "distributed generation" be termed "*private* generation," emphasizing that the rooftop sources provide power only to individual homes and businesses. In addition, the handbook advises that net metering be referred to as *private solar credits* or *subsidies*, which support *private* solar customers.

Maslansky & Partners recommend that the handbook be the only resource for marketing and communications to enable utility companies to have a unified voice (Maslansky and Partners, 2016). The communication plan of this handbook closely follows key tenets of strategic communication, such as creating a systematic plan (Toth, 1986; Botan, 1997) and communicating values that support an agreeable reputation through particular messages and symbols (Rokeach, 1968; Miller and Lellis, 2016). In this study, we postulate that NV Energy and RMP use *The Future of Energy* recommendations for strategic advancements of their reputations in the context of net metering. Therefore, we offer the following proposition:

> P1: In the context of the net metering debate, NV Energy and RMP use key terms from the communication handbook to strategically position themselves as pro-renewable energy.

NV Energy and RMP

While roughly half of the states in the USA redesigned their net-metering policies in 2015, few received as much attention as the state of Nevada. Once a hotbed of solar growth, changes in net-metering policies emphasized the debate between utility and independent solar companies, and customers in this state. A large Nevada utility company, NV Energy, claimed that net metering allowed individuals with solar power to shift the financial burden of grid maintenance and control to customers without residential solar energy. A study conducted in 2014 by the Public Utility Commission of Nevada (PUCN) found no support for this and revealed that net metering provided $36 million in benefits to all NV Energy customers (Price et al., 2014). Yet, in 2015, NV Energy implemented a net-metering policy that decreased the rate at which they would buy solar power from customers by 60% (Carley and Davies, 2016). Prior to the change, net-metering customers were compensated at the retail rate of $0.09–$0.11 per kWh for electricity generation. The new wholesale rate price of net metering was $0.03 per kWh. The decrease in the sale price, coupled with an increase in monthly fixed charges, reduced compensation and, consequently, motivation for customers to invest in individual solar energy systems. While the rate change was intended to apply to all net-metering customers, including those who purchased solar power systems prior to the change, heavy backlash led to NV Energy only applying the new rate of $0.03 per kWh to consumers who installed solar power following implementation of the new rate (NV Energy, 2016c). After the policy transition, installation of new solar power systems declined by over 90% in the first quarter of 2016 (Muro and Saha, 2016). Many of the changes to net metering in Nevada occurred without public participation or input in the process, fueling social resistance.

Proposed changes to net metering in Utah with the utility company, RMP, occurred after the case in Nevada. A 2015 RMP cost–benefit analysis of solar power net metering found that the current rooftop solar power customers underpay their actual cost of service, shifting a total of about $6.5 million each year to other residential customers. The company forecasted this amount to grow as much as $78 million annually and an estimated $667 million over the next 20 years (Rocky Mountain Power, 2016). However, it is important to note potential bias in this forecast, as most cost–benefit analyses show a net benefit of individual solar power to the grid due to avoiding construction of new facilities and the associated health and environmental effects (Muro and Saha, 2016). Similar to NV Energy, in 2016, RMP proposed net-metering changes to the Public Service Commission of Utah (PSCU) (Rocky Mountain Power, 2016). Negotiations between RMP, local companies, and community groups representing citizens led to a proposed settlement in August 2017, which was later passed by the PSCU (O'Donoghue, 2017). The agreement set the net-metering compensation rate at $0.09 per kWh for electricity generation; however, the resulting program only included applicants through November 15, 2017. Owners of household solar installations built after that date would not receive compensation (Penrod, 2017).

Both NV Energy and RMP interacted with their customers on the topic of net metering to varying degrees of success. In these interactions, we believe that both utility companies strategically position themselves as proponents of social justice, a key tenant in the energy democracy movement, through the use of *The Future of Energy*. In addition, by arranging the companies as equitable in these conversations, the utility companies continue their practice of strategic communication by using messages to positively influence their reputation. Therefore, we put forward the following proposition:

> P2: NV Energy and RMP use key terms and language from the communication handbook to represent utility-scale solar projects as a more equitable form of energy transition.

The temporal context of each case study relative to the release of *The Future of Energy* is distinct. The handbook was released after the NV Energy net-metering proposal and before that of RMP. When their net-metering policies were first passed, NV Energy received a lot of negative press. Therefore, it is likely that they used language from the handbook for damage control. In accordance with image restoration theory, NV Energy was accused of an offensive action, and it was thus necessary to address the issue in an attempt to improve its public standing (Benoit, 1997). Meanwhile, RMP had the opportunity to learn from NV Energy's image crisis and use the suggested language preemptively. RMP could use the keywords to diminish the negative impacts of net metering or transcend their role as a utility company to one that focuses more on supporting the customer. Time and context appear critical for the differences in utility

company communications and thus our final proposition is as follows:

> P3: The use of recommended terms and language by NV Energy and RMP will differ due to net metering debates in Nevada and Utah occurring at different times relative to the release of *The Future of Energy*.

METHODS

We conducted qualitative case studies of two utility companies, NV Energy in Nevada and RMP in Utah. A case study methodology may include one or many approaches, such as interviews, observation, or analysis of relative documents. Most case study methods are qualitative in collection and analysis. Often, the detailed information gathered through a qualitative case study can provide insight into future quantitative research (Yin, 2013). Case studies are useful for our purposes as they enable us to conduct an in-depth investigation of the net-metering policy changes and discussions through distinct contexts, lenses, and data sources (Baxter and Jack, 2008). Here, the contextual condition of time is particularly important as the release of the communication handbook by Maslansky & Partners occurred after changes to net-metering policies in Nevada but prior to analogous discussions in Utah. An advantage of conducting multiple case studies is the ability to compare the strategic use of language from the communication handbook that may have resulted from circumstantial differences. Similar to other qualitative studies, the data collection and analysis occurred concurrently (Yin, 2013).

For each case study, we identified three strategic key terms (*universal*, *private*, and *private solar credits* or *subsidies*) from *The Future of Energy*. These key terms were chosen because of their recommended use for net metering and solar energy. In our analyses of the websites and press releases,[2] we looked for these terms and how the utility companies used them to position themselves in the net-metering debate. We chose to analyze websites and press releases because they are representations of the language used by utility companies in public relations and are routine ways in which corporations reach the media and their customers (Sleurs et al., 2003; Capriotti and Moreno, 2007). Press releases are often digitized and available on company websites, thus allowing organizations to bypass journalists and other media representatives. This affords companies and corporations more strategic control over their public image (Strobbe and Jacobs, 2005). Therefore, an analysis of press releases and website content related to net metering provide insight into the communication efforts of NV Energy and RMP. The inductive format of this comparative analysis aims to support propositions that may be extended beyond these two specific cases and tested in deductive case studies or quantitative analysis (Levy, 2008).

[2]Since August 31, 2017, NV Energy has restructured their website. Linked pages are different from those at the time of analysis, and some of the press releases included in this study are no longer publicly available.

Analysis of Websites

To conduct systematic qualitative analyses, we used the search feature on each utility company's home page to examine the use of each key term on the website. The search feature reviews the entire website for use of the keyword and reports where the term was found. We then examined each result for any mention of net metering. If the outcome used a key term and mentioned net metering, we included it in our analysis. The volume of results for each key term search on both websites is shown in **Table 1**. For consistency, both websites were analyzed on the same day, August 31, 2017. It should be noted that search results were composed of individual web pages, publicly available court proceedings, and marketing materials and did not include press releases. These were reviewed separately since each utility company had a complete collection of press releases available to the public. This allowed for a proportional analysis of press releases that contained keywords compared to the total number of press releases from each utility company.

Analysis of Press Releases

As press releases are distributed to newspapers and the community, we see them as artifacts distinct from the websites, which require a reader to actively seek out information. For this review, we examined all publicly available press releases on the websites of both utility companies. Press releases by NV Energy ($n = 60$) and RMP ($n = 97$) were available from January 1, 2015, to August 31, 2017, and January 1, 2016, to August 31, 2017, respectively. In each press release, we first searched for mentions of net metering. If a press release mentioned net metering, we then searched for the presence of key terms. If both net metering and a key term were used in a press release, it was included in analysis. Due to the availability of a census of press releases from each utility company, we were able to determine the proportion of press releases that mentioned net metering and, of those, the proportion that included the identified key terms (**Table 2**). Approximately, 18.3% of NV Energy press releases mentioned net metering, 73% of which used a handbook keyword. Meanwhile, 2% of RMP press releases mentioned net metering and 1% used handbook keywords.

RESULTS AND DISCUSSION

In this study, we made several propositions: we posited that utility companies would use the language from *The Future of Energy* to strategically position themselves as pro-renewable energy (P1) and support their utility-scale projects as more equitable (P2). Our third proposition suggested that NV Energy and RMP would use handbook language differently due to the circumstances of the net-metering debate each utility company faced at the time

TABLE 1 | Frequency of use of each key term from *The Future of Energy* on utility company websites.

	Universal	Private	Subsidy/credits
NV Energy	2	9	24
Rocky Mountain Power	2	17	3

TABLE 2 | Proportion of press releases by each utility company that mention net metering and frequency of key terms in them.

	Proportion of press releases that mention net metering	Universal	Private	Subsidy/ credits
NV Energy (n = 60)	18.3	2	4	2
Rocky Mountain Power (n = 97)	2.1	0	1	1

of the handbook release (P3). Before examining our results for each individual utility company, we describe the general findings of our analysis. Overall, we found that utility companies tended to use the terms *universal* and *private* to juxtapose utility-scale solar energy projects with those of residential solar power. For example, solar projects that originated from utility companies were described as *universal* and combined with the claim that these projects benefit all customers. In doing so, utility companies could position themselves as proponents of renewable energy. The language used around the term *universal* created inclusivity that grouped customers and companies against those who generate their own energy from residential solar installations. These *private* solar projects were described as external entities that do not contribute to the energy infrastructure of the community, such as when NV Energy referred to the "single class of *private* solar net metering customers" in a press release (NV Energy, 2017). The terms *credit* or *subsidy* were typically used to reinforce this contrast between *universal*- and *private*-renewable energy projects. We also found the latter terms to have financial connotations that evoke ideas of justice related to the unfair distribution of costs based on residential solar power generation.

Importantly, our findings highlight how utility companies strategically use the key terms to characterize utility-scale-renewable energy projects as a form of energy transition that aligns with one of the central tenets of the energy democracy movement, social justice. In doing so, utility companies emphasize *universal* solar projects as efforts that benefit communities in opposition to *private* solar installations that only benefit those individuals. In this context, the net metering at the retail rate is depicted as unfair to non-solar customers as it subsidizes residential solar energy generation.

NV Energy

We observed evidence for P1 and P2 in the use of language from the communication handbook on NV Energy's website (**Table 1**) and press releases (**Table 2**). In multiple instances on their website, customers with rooftop solar panels are referred to as *private* solar customers with *private* solar systems. By using the recommended terms *private* and *universal* on their website, NV Energy implicitly denigrates individual solar projects as an inequitable form of energy. Consequently, this makes their own action appear fair and reasonable. For example, a court docket on their website states that

> NV Energy remains committed to offering renewable energy options to customers who are not willing or able to invest in *private* solar or other renewable energy options at their own premise or business, but who desire to meet their personal sustainability goals and/or further Nevada's green economy (Nevada Power Company, 2016a, p. 221).

By remaining committed to offering utility-scale solar power options to those who are financially limited, NV Energy appears to enable customers to participate in sustainable solutions to energy. Thus, this energy transition option appears more equitable than residential solar power. In another example, NV Energy states that the competitive bidding pricing of universal-scale solar power ensures that customers are paying a fair price for solar photovoltaic energy (Nevada Power Company, 2016b). By highlighting the use of the terms *private* and *universal*, these examples situate NV Energy as supportive of renewable energy.

Moreover, we found 24 occurrences of the term *subsidy* or *credit* on NV Energy's website. This term was used to highlight the unfair distribution of costs that resulted from net metering. In a brochure, *Net Metering 2016: Update and FAQs* (NV Energy, 2016b), the company states, "Under the old net metering rules and rates, southern Nevada net metering customers were receiving an estimated $623 annual *subsidy* per customer […] If you do not have a rooftop solar system, you are part of a broad group of customers who pay that *subsidy*" (p. 2). Referring to the net-metering policy change that occurred in Nevada, the brochure goes on to state that "[w]ithout these new rules, that *subsidy* would have continued to grow." The emphasis on a "broad group of customers" who do not have rooftop solar panels highlights the social justice element of energy democracy and implies that those who have individual solar installations are benefiting from financial assistance in the form of subsidies and are, therefore, not paying their fair share.

To a lesser extent, we observed the use of these terms in press releases by NV Energy. While the website was analyzed after the distribution of the handbook, publicly available press releases both prior to and after handbook dissemination were examined. Interestingly, press releases published post-handbook circulation were the only ones that contained the key terms. As found on the website, the terms *universal* and *private* were used in tandem to juxtapose utility company projects and consumers with rooftop solar installations. A press release in October 2016 focused on the "appropriate value of excess energy *credits* provided to *private* rooftop solar customers" (NV Energy, 2016e). *Private* net-metering customers are singled out in later press releases (NV Energy, 2017), and such statements serve to isolate these individuals from the remainder of the community, i.e., those without rooftop solar. By contrast, the use of the term *universal* emphasizes a cleaner energy solution for all, such as in the Nevada's Energy Future: Key Principles document: "The price of *universal* scale solar energy has declined rapidly in the past five years" and this "[m]arket restructuring must not shift costs to vulnerable populations" (NV Energy, 2016a, p. 1).

A common charge that was frequently addressed in the communication efforts of NV Energy is whether changes to net metering would increase company profits. The utility company refutes this accusation on their website and in press releases.

While utility companies do not earn a profit from electricity sales, they do earn a rate of return on investment. When utility companies invest in new power plants, the sale of energy provides financial returns. However, if individuals are able to generate their own energy, the ROI for utility companies decreases. In a January 2017 press release, NV Energy argued against a ruling by the PUCN to restrict changes to net metering, stating that the change "takes the savings that were intended for a larger customer base and directs them to this small subset of future solar net meter customers" (NV Energy, 2017, p. 1). This statement implies that the increase in costs resulted from subsidizing customers with rooftop solar installations.

Rocky Mountain Power

While we found support for P1 and P2 through the presence of language from *The Future of Energy* on RMP's website (**Table 1**), there was no evidence in the utility company's press releases related to net metering (**Table 2**). The website used the term *private* 17 times and contained a page designated solely for the discussion of *private* solar. This page stressed the considerable commitment required to install solar power due to large up-front costs and continued maintenance (Rocky Mountain Power, 2017). To focus on the pro-renewable energy position of the utility company, RMP stressed other options for customers, such as enrolling in a customer-supported renewable energy credit system or a subscriber solar power program. In both options, customers pay more money on their power bill to support utility company *universal* solar projects. The application of the handbook language allowed the utility company to appear supportive of solar and promote their company image:

> Rocky Mountain Power's new Subscriber Solar program makes it easy for you to use solar energy without having to install rooftop solar panels. It's a simple, cost-effective way to support a more sustainable Utah and enjoy the benefits of solar energy with no rooftop required (Rocky Mountain Power, n.d., p. 1).

Many of the applications of *The Future of Energy* language focused on the equitable relationship between the utility company and their customers in opposition to other residential rooftop solar owners. A page on RMP's website contained a headline stating, "When it comes to solar net metering rates, it should be about fairness" (Rocky Mountain Power, n.d., p. 1). This implies an unequal foundation between customers with and without residential solar panels and situates the utility company as supportive of social justice. Moreover, the home page emphasized that net metering is a policy that is relevant only for consumers who have rooftop solar panels. According to RMP, these customers underpay the cost of providing amenities, including customer service and energy-grid maintenance. Those costs are shifted to customers who rely on the utility company for energy: "Rocky Mountain Power doesn't benefit from reducing the *credit* net metering customers receive for excess generation. The benefit would go to all other customers who would pay less on their bills" (Rocky Mountain Power, n.d., p. 1). While concurrently discrediting *private* rooftop systems, RMP asserts that rooftop solar customers save 35% on their energy bills compared to customers without residential solar panels. By stressing the financial inequality between rooftop solar panel owners and others, RMP positions itself as a protector of integrity in energy-making decisions.

While language from *The Future of Energy* was used on the RMP website to promote the reputation of the utility company and its relationship with customers in the net-metering debate, there was an overall lack of use in press releases. Of the 97 press releases publicly available on the website, only two mentioned net metering and, of those, only one used keywords from the communication handbook (**Table 2**). The sole press release that used handbook language was the initial announcement of RMP's proposed change in net-metering rates. It highlighted unfair distribution of costs and *subsidies* from non-rooftop solar customers to support *private* generation (Rocky Mountain Power, 2016). Yet, this was the only example that supported our proposition. Most of RMP's press releases focused on the community: awards, safety, and holidays. While this did not support our initial propositions regarding net metering, it does contribute to the overall strategic method to promote the utility company reputation and relationship with its customers.

Differences between NV Energy and RMP

Review of the utility companies' websites and press releases found evidence for P3. NV Energy proposed changes to net-metering policy in 2015, 1 year prior to the release of *The Future of Energy*, while RMP initiated net-metering discussions after publication of the handbook. Due to this timing, we expected that NV Energy would use handbook terminology in discussions about net metering as damage control, i.e., to repair their public image in the face of an offensive action (Benoit, 1997). In coping with the crisis, NV Energy would make corrective action claims and strategically try to reduce the offensiveness of the action. Meanwhile, we anticipated that RMP would use handbook language early and often in a preemptive manner, prior to the potential net-metering crisis, to reduce potential offensiveness and evade responsibility by placing it on individual solar customers. Both predictions reflect image restoration theory through different strategies. While both utility companies were anticipated to use keywords from *The Future of Energy* that manifest principles of the energy democracy movement, we suggested that the organizations would differ in strategy.

In our analysis, we found that both utility companies used language from the communication handbook in divergent ways on their websites. NV Energy used the terms energy and solar *credits* or *subsidies* 24 times; RMP mentioned *private* 17 times (**Table 1**). We believe that NV Energy's focus on the financial aspect of net metering was a reactive way to evade responsibility and repair their fractured image through justification of their actions as fair to all their customers (Benoit, 1997). Meanwhile, RMP's use of *private* repeatedly on the website positions rooftop solar customers in clear contrast to the utility company projects from which all customers benefit. This approach attempts to diminish the utility company's role in net metering and transfer blame to individual solar owners. This strategy both reduces offensiveness and evades responsibility (Benoit, 1997).

Though both utility companies used language from *The Future of Energy* on their websites, the usage differed in public press releases. Almost 20% of NV energy press releases mentioned net metering, compared to only 2% of RMP press releases (**Table 2**). Directly following the release of the communication handbook, NV Energy incorporated the recommended language in their press releases. The early mention of net metering used jargon that *The Future of Energy* discouraged, such as "incentives to offset the installation costs of customer-owned distributed renewable generation including solar, wind and hydro" (NV Energy, 2016d, p. 1). All press releases that mentioned net metering following the distribution of the communication handbook used the suggested language to simplify a complex conversation. NV Energy's *post hoc* justification of their net-metering costs to customers resulted in the large use of handbook language.

While the lack of language from the communication handbook in RMP's press releases was unexpected, it echoed their overall effort to avoid discussions of net metering. Over half of the press releases instead focused on community actions that reflected the utility company as pro-renewable energy and committed to building relationships with their customers. The utility company actions reflect the preparation practices of image restoration theory by evading responsibility and focusing on other topics rather than an existing or future crisis (Benoit, 1997). By concentrating on community actions such as tree plantings and holiday celebrations, RMP could appear supportive of their customers and distance the company from discussions of a potential crisis. Our contrasting findings on NV Energy and RMP's websites and press releases provide evidence that the timing of release of *The Future of Energy* played an important role in how the utility companies used the suggested language.

CONCLUSION

A considerable disconnect exists between the dynamic world of distributed renewable energy and the current energy infrastructure. There are many key stakeholders involved in the energy sector, including those whose profits are tied to production, transmission, and distribution. The economic health of a utility company relies on energy sales and consistent ROI for energy projects. The increase in residential distributed energy reduces consumer reliance on utility companies by decreasing consumer demand for electricity and, therefore, the need for future investments by utility companies. Utilities consider net metering a solution to this complex problem, and discussions surrounding it allow for interesting and insightful case studies.

While utility companies may establish regulations on behalf of their customers, the energy democracy movement seeks to involve publics in energy decision making and emphasizes renewable energy transitions (Fairchild, 2017). It underscores the equitable awareness and involvement of all people in a democratic process. The energy democracy movement has critical implications for political, social, and democratic scholarship, yet as a developing area of analysis, the academic focus is on identifying foundational research directions. Studies thus far primarily accentuate positive aspects of energy democracy, such as civic change and public participation (Clarke, 2017; Stephens, 2017). The present study contributes to this growing body of knowledge by examining a theoretical gap between strategic communication and the energy democracy movement. We noted that there are important participants in the energy process who may view distributed renewable energy as prohibitive to their goals and therefore employ principles of the energy democracy movement in their communication efforts. Specifically, we sought to analyze how electric utility companies use the energy democracy movement as a strategy for communicating with their customers during net-metering discussions.

We reviewed the websites and press releases from two utility company case studies, NV Energy and RMP, for use of key terms derived from *The Future of Energy: A Working Communication Guide for Discussion.* The utility companies employed language from the communication handbook to emphasize their support for, and contributions to, equitable forms of renewable energy transition. Our case studies examined the use of language embodying the energy democracy movement and directly tied it to strategic communication and crisis communication efforts. By presenting utility-scale solar power options to those with financial or housing limitations, NV Energy and RMP seem to allow all customers to participate in renewable energy. Therefore, utility-scale energy options are perceived as more democratic and fair than individual options, primarily rooftop solar power. NV Energy and RMP adopted the terms *private, universal,* and *credit* or *subsidy* when discussing net metering to simplify a complex debate with a myriad of motivations and stakeholder positions into a simple dichotomy with one side for and the other against renewable energy. Markedly, the two utilities used *The Future of Energy* in different ways due to the circumstances surrounding the timing of the release of the communication handbook. While NV Energy used keywords from the handbook to repair their damaged image, RMP seldom mentioned net metering in their press releases and preemptively framed themselves positively in the context of net metering on their website. Both companies' efforts align with strategies of image restoration theory in an effort to minimize the effects of the crisis on their respective corporate images (Benoit, 1997).

While this study offers evidence of the strategic use of the communication handbook language to position utilities as pro-renewable energy in the topic of net metering, there are limitations. First, our sample consists of data from websites and press releases, which are communications that are controlled by the utility companies. Future research could expand the scope to include communication efforts over which the utility companies have limited control. One example is to conduct a content analysis of framing of utility company representative quotes in newspaper articles. This would address media content created by those outside of the utility company and offer a provocative comparison to the findings reported here. In addition, more corporations are taking to social media to connect with customers, and an analysis of social media content may prove to be insightful. While some studies review organizational image repair through social media, initial findings imply that traditional media have been more effective at repairing images (Liu and Kim, 2011; Moody, 2011). It may be that the static nature of image restoration theory is ill-suited to studying social media (Seeger and Padgett, 2010), and future

scholarship should seek to examine energy democracy in this dynamic communication environment. As this is one of the first studies to address strategic communication efforts by utility companies, we felt that websites and press releases were appropriate foundational representations of utility company communications (Sleurs et al., 2003; Capriotti and Moreno, 2007).

Furthermore, while the timing and context of the utility companies' net-metering conversations are important, there may be other factors influencing the differences between the two cases. Utility companies are unique organizations that have distinct hierarchical structures and internal correspondence practices, which inform their external communication efforts. The present work does not analyze these potential latent attributes as they are beyond the scope of this project. However, an internal review of organizational practices would be a complementary avenue for future research. Finally, this review focuses on the frequency of keywords from *The Future of Energy*; yet, prevalence of the keywords does not necessarily indicate intention. While we show the proportion of keyword use in relation to other topics in press releases, we were unable to quantify keyword use through website communication. Since websites are constantly updating and definitive boundaries can be uncertain, there is no concrete total amount of data with which to compare keyword use and calculate proportions. As this is a preliminary study of energy democracy as strategic communication, we feel that the frequency of use, as well as the proportion of press releases, is more than adequate as a benchmark on which future research can build.

This case study analyzed artifacts within the specific proposed time boundaries; yet, strategic communication often takes place over extended periods of time. We decided on the time frame of this study based on the accessibility of press releases on each of the utility company websites. Prospective research should expand on the period of analysis to observe dynamic change over greater lengths of time. In addition, an extended study could incorporate more utility companies for analysis. Since over half of all states redesigned their net-metering policies in recent years, there is potential for broader comparisons (Carley and Davies, 2016). This study focused on NV Energy and RMP due to their involvement in intense net-metering debates around the time of the communication handbook release. A narrow investigation allowed for comparison and identification of similarities and differences of these cases. As this study was exploratory, future analysis should build upon this research by examining other utility companies that are enmeshed in net-metering debates.

The energy industry is at a transitional crossroads, partly due to the rapid increase in distributed renewable energy. How electric utility companies choose to communicate about issues related to renewables will play a major role in defining future energy policies. Here, we examined how energy democracy was used as a form of strategic communication through a qualitative analysis of the use of key terms from *The Future of Energy* handbook. Using the handbook recommendations, NV Energy and RMP emphasized their pro-renewable energy position and framed their net-metering policies as socially just positions in energy decision making. This study contributes to a growing research agenda in energy democracy and displays the potential use of the energy democracy movement as a form of strategic communication.

AUTHOR CONTRIBUTIONS

MM was the lead author of this piece and conducted all research. SY acted as the second author and editor.

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State-Level Renewable Energy Policy Implementation: How and Why Do Stakeholders Participate?

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For most of the twentieth century, large-scale, utility-owned power plants dominated electricity generation in the United States. Today, however, a growing share of electricity comes from renewable energy sources such as solar and wind energy, which are often small-scale and distributed. In the absence of significant national policies, the Renewable Portfolio Standard has emerged as the key state-level policy governing the deployment and use of renewable energy sources. While renewable energy offers new possibilities for clean energy generation, it also poses new regulatory and governance challenges as a wide range of stakeholders, such as the utilities, regulatory agencies, environmental and consumer advocacy groups, electricity generators, and private citizens, increasingly seek to influence how Renewable Portfolio Standards are implemented. In this study, we ask how and why do stakeholders participate in decision-making about how these policies are implemented? Given the unique context of renewable energy policy, the long-term and iterative nature of renewable energy policy implementation, and the wide range of actors involved, we look at the suite of participatory opportunities available to stakeholders. We interview stakeholders in two states—Colorado and Nevada—to identify the mechanisms through which stakeholders participate and the incentives (or disincentives) that influence their willingness to do so. We find that while decision makers in both the states use a variety of mechanisms to engage stakeholders in decision-making, meaningful participation may be limited to stakeholder groups that are knowledgeable about the issues, have the resources to engage in long-term and sustained participation, and have long-standing relationships with decision makers and other stakeholders. Although many stakeholders participate in multiple types of processes to achieve a broader range of benefits, they often perceive their participation as superficial; and yet, their continued participation suggests that they may play a long game, building coalitions, relationships, and knowledge to position themselves to influence decisions later on. Finally, we find that the regulatory environment influences which participatory processes are available, the incentives for participation, and ultimately the outcomes of stakeholder participation.

Keywords: Renewable Portfolio Standard, renewable energy, stakeholder participation, policy implementation, energy democracy

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INTRODUCTION

For most of the twentieth century, large-scale, fossil-fuel powered, utility-owned power plants dominated electricity generation in the United States. In recent decades, however, the electric sector has experienced a momentous shift toward renewable energy resources for electricity generation. For example, the share of electricity generated from wind and solar increased from two-tenths of 1%

in 2000 (Fleischmann, 2016) to 7% in 2016 [Energy Information Administration (EIA), 2017]. These new generation facilities are often small-scale and distributed (Martin, 2009), which has disrupted the centralized nature of electricity generation (Bakke, 2016) and opened up the sector to participation by a new and diverse set of actors.

In the United States, policies that govern the use of renewable energy for electricity generation have been almost entirely left to individual states (Lutsey and Sperling, 2008). In particular, many states have adopted Renewable Portfolio Standards (RPSs), which require that a minimum percentage of electricity sold by utilities must come from eligible renewable energy resources. RPSs vary by state in terms of the percent of energy required from renewables, the type of renewables allowed, the date by which these goals must be achieved, and the consequences—if any—for non-compliance. In some cases, the requirement applies only to investor-owned utilities, which are regulated by state Public Utilities Commissions (PUCs). In other states, however, RPSs extend to include municipalities and electric cooperatives, albeit often with lower requirements. As of January 2016, 29 states, Washington D.C., and 2 territories had adopted an RPS, and 8 additional states had set other renewable energy goals (Durkay, 2017).

Our focus in this study is on participatory opportunities in RPS policy implementation for stakeholders who may, for example, be involved in, electricity rate changes, and the design of renewable energy and energy efficiency programs for customers. Increased involvement of stakeholders in electric sector decisions—also known as "distributed governance" (Baldwin et al., 2018)—stems from the idea that the transition away from a centralized, fossil fuel paradigm to a decentralized, renewable energy paradigm is both technically challenging and has the potential to drastically change the sector's winners and losers. In this setting, stakeholders have an important role in shaping decisions about how to carry out complex policies like the RPS.

However, the culture of decision-making in the electric sector, which comprises a network of business interests, stakeholders, and legal structures, is proving difficult to change (Bakke, 2016). Electric utilities, while obligated to serve their customers, have little economic incentive to share the market or decision-making power with other stakeholder groups. PUCs in many states have strong ties with utilities (Lifsher, 2015) and may therefore be reticent to act in ways that could damage this relationship. As Bakke (2016) points out, transforming the grid does not just entail introducing new technologies, but is also a cultural system and "the stakeholders—utilities, investment firms, power plant owners, mining firms, and "too-big-to-fail" multinational conglomerates—will not go gently into the future's bright night" (Bakke, 2016, p xviii).

Growing research identifies a number of potential benefits to stakeholders' participation, such as improved decisions, decreased decision-related costs, fewer delays in decision implementation, and greater stakeholder support for decisions (Beierle and Konisky, 2000; Cotton and Devine-Wright, 2012). And yet, many empirical studies of participatory processes suggest that these benefits are rarely realized, and that all too often participatory processes can be a box-checking exercise rather than a meaningful effort to engage stakeholders in the policy process. In the context of renewable energy policy, we know little about how and why stakeholders participate in electric sector decision-making, or about how agency rules and procedures shape their incentives to do so. To address this gap, we ask how and why do stakeholders participate in decisions about RPS implementation? Using interview data from two states—Colorado and Nevada—we identify the mechanisms through which stakeholders participate and the incentives that influence their willingness to do so. First, we find that stakeholders may play a long game, participating in the short-term to build coalitions, relationships with decision makers, and knowledge that will eventually allow them to influence decisions later on; second, stakeholders often participate in multiple types of processes to achieve goals; and third, the regulatory environment influences which participatory processes are available, the incentives for participation, and ultimately the outcomes of stakeholders' participation.

We begin with a brief overview of the process and key actors involved in the implementation of RPS policies. Next, we explore the scholarly literature on stakeholders' participation and discuss the benefits and drawbacks to participation, the mechanisms through which stakeholders participate in renewable energy and other natural resource contexts, and the incentives that affect their willingness to participate.

BACKGROUND

The implementation of RPSs can be broken down into a series of stages, beginning with policy adoption. Electric utilities translate RPS objectives into plans with concrete, measurable actions, for example, increasing renewable energy capacity with new generation facilities, entering into contracts with existing renewable energy producers, or creating customer programs to increase energy efficiency. Such plans are subject to approval by electricity regulators—the Public Utilities Commissions (PUCs) (Berry and Jaccard, 2001). Utilities thus shape whether, when, and how RPSs are implemented, and the extent to which RPS goals are achieved. In this study, we focus on implementation by investor-owned utilities for two reasons: (1) investor-owned utilities service the majority of electricity customers in both Colorado and Nevada and (2) unlike municipal and cooperative utilities, investor-owned utilities are regulated by PUCs and thus are more tightly bound to RPS policy requirements and to state laws regarding public engagement. From here on they are simply referred to as "utilities."

Stakeholders are increasingly involved in decisions related to RPS implementation (Scott, 2015; Ulibarri, 2015). We define stakeholder broadly as any person or group who affects or is affected by the actions of utilities and PUCs (Freeman and Reed, 1983, p. 91). We differentiate these groups as decision-making stakeholders ("decision makers"), which include utilities and PUCs, and non-decision-making stakeholders ("stakeholders"), which include electricity customers, consumer advocacy groups, environmental organizations, electricity generators, private citizens, and the renewable energy technology industry.

Many states have developed formal and informal opportunities for stakeholders to participate in electric sector

decision-making (Baldwin et al., 2018). At a minimum, thanks to the Administrative Procedures Act of 1946 and its state analogs, federal and state agencies—PUCs included—are required to hold open meetings whenever they adopt new rules (Rosenbloom, 1983; West, 2004; Crow et al., 2016). Stakeholders' participation is also common in legal proceedings such as rate-setting cases. Legal proceedings are typically initiated when utilities propose a rate increase or other regulatory change from the PUC. The PUC then acts as fact finder and judge in a legal proceeding that culminates in approval (or disapproval) of utility requests. Stakeholders may intervene in these proceedings and contribute information to the administrative record. Historically, this was the predominant mechanism through which stakeholders could voice their opinions to PUCs (Gormley, 1983; Baldwin et al., 2018), but a number of other mechanisms now exist, although these have largely been unexplored in the context of renewable energy or the electric sector.

Despite the legal requirements to allow stakeholder comments, there is no mandate that stakeholders' participation be meaningful, which we define here as stakeholder inputs that inform or shape PUC or utility decisions. Given that utilities have interests that may not align with those of other stakeholder groups, they may be resistant to sharing decision-making power. Further, the close ties between PUCs and utilities may bias regulators' decisions in some cases (Lifsher, 2015).

Public responses to renewable energy and associated policies are understandably varied and complicated. While many people want more choice in energy sources, others are concerned about the location of renewable energy generation sites and the added cost, which is sometimes distributed across the broader customer base. Given the value-laden decisions inherent in renewable energy and other environmental issues, scholars widely note the importance of stakeholders' participation in agency decision-making, arguing that, when done well, stakeholder input can improve the legitimacy and quality of decisions. Conversely, however, a lack of participation can contribute to opposition to the decision and distrust in decision makers (Nabatchi and Leighninger, 2015).

LITERATURE REVIEW

The theory and practice of participation are founded on the idea that particularly complex or "wicked" problems, such as those often encountered in the public-environment arena, are better addressed by multiple actors than by single agencies (McGuire, 2006). Increasingly, scholars, practitioners, and citizens are recognizing the value of stakeholders' participation in government decision-making. Stakeholders' participation may lead to improved democratic accountability and decisions, and the participatory process itself has additional benefits that may help to build trust and enhance problem-solving in future situations. However, there are also potential drawbacks to participation that may make it unsuitable for certain policy situations: stakeholders' involvement may reduce the quality or perceived quality of the decision, be costly, and, if not conducted properly, may backfire or create a false sense of legitimacy in the decision. We explore each of these in greater detail below. We then turn to the mechanisms and incentives for participation described in the literature.

Potential Benefits of Stakeholders' Participation

Participation is a means of allowing private individuals and groups to influence the decisions that affect them (Cogan and Sharpe, 1986; Fung, 2006) and is often considered foundational to democratic ideals (Perhac, 1998; Bryson et al., 2013). By participating in decision-making, stakeholders are better able to hold elected and unelected officials accountable to laws and their constituents, which also promotes transparency in government decisions (West, 2004).

The outcomes of participatory processes, that is, the decisions themselves, may be improved in terms of quality, perceived legitimacy (Cogan and Sharpe, 1986; Wondolleck and Yaffee, 2000), stakeholder buy-in (Chess and Purcell, 1999), transparency (Reed, 2008; Dyer et al., 2014), timeliness (Cogan and Sharpe, 1986), and equity (Simonsen and Robbins, 2000), particularly when stakeholders are involved early on in decision-making and when processes are intensive and deliberative (Beierle, 2002; Blackstock et al., 2007; Teitelbaum, 2014). Stakeholders can provide local knowledge, information, ideas, and opinions that can inform project design and allow interventions and technologies to be better adapted to local conditions (Cogan and Sharpe, 1986; Renn et al., 1993), which may lead to decisions that are more durable because they are based on more complete information (Beierle, 2002; Koontz and Thomas, 2006).

Fair, transparent, and equitable participatory processes have the potential to produce long-lasting benefits (Nabatchi, 2010; Boyte, 2011), which may carry over into future planning efforts (Cogan and Sharpe, 1986; Reed, 2008). In particular, such processes may allow participants to generate and share knowledge about the issue (Burroughs, 1999; Feldman and Quick, 2009), which may empower stakeholders to participate in future activities (Macnaghten and Jacobs, 1997) and increase public awareness of the issue (Bryson et al., 2013); build social capital, develop trust, and resolve conflict (Blackstock et al., 2007; Dyer et al., 2014; Teitelbaum, 2014); and develop mutual understanding (Renn et al., 1993; Fung, 2007).

Potential Drawbacks of Stakeholders' Participation

The time and financial costs associated with stakeholders' participation can be significant, particularly in intensive and deliberative activities, and are incurred by both decision makers and stakeholders (Irvin and Stansbury, 2004; Nabatchi and Leighninger, 2015). Such costs can delay action (Bojórquez-Tapia et al., 2004) and divert resources away from carrying out the actual decision (Irvin and Stansbury, 2004), and lead to "consultation fatigue" among participants (Wondolleck and Yaffee, 2000; Burton et al., 2004). These costs may lead some agencies to exclude certain stakeholder groups, minimize participation, or eliminate it entirely from planning efforts (Cogan and Sharpe, 1986).

Stakeholders' participation does not always lead to improved decisions (Irvin and Stansbury, 2004), particularly when

processes involve insufficient deliberation among participants (Beierle, 2002). The credibility of decisions may be questioned when stakeholders lack sufficient expertise to meaningfully contribute to technical debates (Pearce and Pearce, 2010), leading some decision makers to ignore stakeholder input or exclude stakeholders from future planning efforts (Beierle, 2002). For example, decisions of a technical nature—such as those related to renewable energy and the electric sector more broadly—have often been viewed as best left in the hands of "experts" (DeSario and Langton, 1987) because non-expert stakeholders may not adequately understand the issue, technology, or potential risks involved (Perhac, 1998). Walker and Daniels (2001) point out this increasingly salient paradox: stakeholders want to influence decision-making, but also want decisions to be based on the best possible scientific information.

Decision makers may also do a poor job of conducting participatory processes, either intentionally because they perceive little value in stakeholder input (Lee et al., 2015), or unintentionally because of resource limitations (Lukensmeyer et al., 2011). When processes are poorly conducted—as the majority are (Levine et al., 2005)—they may be counterproductive (Nelkin and Pollak, 1979). One study found that officials usually had their minds made up prior to public meetings (Adams, 2004); in turn, this creates a false sense of legitimacy in the decision and distrust by stakeholders in the participatory process (Lee et al., 2015). If stakeholders perceive that their input is ignored, they may view their participation—and any future attempts—as pointless, which can lead to even greater hostility toward decision makers (Irvin and Stansbury, 2004) and "reinforce their suspicions of ordinary politics and ineffectual bureaucracies" (Lee, 2014, pp. 7). Effective participatory processes require skilled facilitation (Holmes, 2011); however, many of the staff working with public groups lack the knowledge and skills necessary to effectively facilitate participatory processes (Lukensmeyer et al., 2011) and are often the youngest and least experienced employees in the agency (Nabatchi and Leighninger, 2015).

Other concerns regarding stakeholders' participation relate to representation and power dynamics, that is, who is allowed to participate, the extent to which they influence decisions, and how the balance of power influences these (Quick and Bryson, 2016). Exclusion and equality remain concerns of participatory processes (Quick and Bryson, 2016) as some processes may reinforce existing power imbalances by discouraging minority representation (Dasgupta and Beard, 2007; Crow et al., 2016) or may be particularly difficult for lay stakeholders to navigate (Endres, 2009). Participation more broadly may encourage those involved to become overly focused on short-term actions while ignoring the bigger picture (Lee et al., 2015).

Mechanisms for Stakeholders' Participation

Stakeholders' participation occurs through a variety of mechanisms that vary in intensity. Arnstein's (Arnstein, 1969) "ladder of participation" was an early vision of participation as a hierarchy, where lower-rung processes involve information provision and sharing, while higher-rung processes allow citizen control of decisions and may involve collaborations, partnerships, or co-management (Arnstein, 1969). While low-intensity (or lower-rung) processes provide limited opportunities for stakeholders to influence policy, more intensive (higher-rung) activities allow information and opinion exchange with the possibility of dialog between participants. However, information exchange alone has limited "democratizing potential" because there is limited opportunity for learning to take place and because decision makers are typically not required to factor stakeholder input into their decisions [European Institute for Public Participation (EIPP), 2009].

The most intensive—and arguably most meaningful—participatory mechanisms are those that include deliberation, which Nabatchi and Leighninger (2015) defined as the "thoughtful, open and accessible discussion about information, views, experiences, and ideas during which people seek to make a decision or judgments based on facts, data, values, emotions, and other less technical considerations" (p 15). Rather than simply exchanging information, deliberation allows for the possibility of opinions to be changed, participants to come to a shared understanding of the issues and potential solutions [European Institute for Public Participation (EIPP), 2009], and the development of mutual understanding (Roberts, 2004). Such activities may include workshops, advisory committees, and taskforces, although no single process is best suited to all circumstances (Fung, 2006; Tippett et al., 2007).

The specific participatory process used to engage stakeholders depends on a number of contextual factors (Rowe and Frewer, 2000), which may include the goals of the process, that is, whether stakeholders' participation is seen as an end in itself or as a means to an end (Wiedemann and Femers, 1993); who the process is targeted toward (e.g., the general public, a specific subset of the public or key stakeholder groups) (Quick and Bryson, 2016); the history of cooperation or conflict among stakeholder groups and decision makers; and the technical or social complexity of the issue (Bryson et al., 2013). The process chosen and the way it is conducted often indicate whether authorities have a genuine interest in implementing any stakeholders' recommendations or whether the process is merely meant to placate stakeholders (Rowe and Frewer, 2000).

Incentives for Participation

In response to the growing desire by stakeholders to have a say in decisions, laws and regulations have been developed that allow citizens to monitor, comment, or otherwise weigh-in on government policies and decisions (Nabatchi and Leighninger, 2015). Even so, it is up to stakeholders to volunteer their participation and up to agency staff to invest time and energy in facilitating participatory processes. Therefore, it is important to understand why and under what circumstances stakeholders and agencies may choose to engage with each other, as these incentives impact whether stakeholders are willing to participate and whether the goals for participation are achieved (Ansell and Gash, 2008).

Stakeholders may be more likely to participate when they view participation as a necessary means of achieving their goals (Ansell and Gash, 2008); there are opportunities for knowledge sharing (Burroughs, 1999); and when they perceive that their involvement will impact decisions, that is, the process will be meaningful (Bradford, 1998; Martin et al., 1999; Brown, 2002; Geoghegan and

Renard, 2002; Schneider et al., 2003; Warner, 2006). Stakeholders may be less likely to participate when there are significant power differences between their group and the decision makers, or among stakeholder groups (Burroughs, 1999); they have little knowledge or understanding of the issue (Martin et al., 1999); the mechanism for participation is misaligned with cultural or social norms (Wondolleck et al., 1996); the costs of participating are high compared to perceived benefits (Wondolleck et al., 1996); and when they perceive that their involvement is superficial and aimed at appeasement (Futrell, 2003). If stakeholders think their needs are better met in the courts or legislative branches, they may forgo working with agencies on policy implementation (Ansell and Gash, 2008).

The history of cooperation between agency and stakeholders and the specific context of the issue can also affect willingness of stakeholders to participate. A history of conflict, for example, leads to low levels of trust and low commitment to cooperate by all parties, whereas successful participation in the past leads to higher trust and social capital among participants and more collaboration in the future (Chess and Purcell, 1999). When stakeholders hold opposing interests, they may find that none can achieve their goals without working together (Futrell, 2003; Ansell and Gash, 2008).

Although our focus is on incentives for stakeholders, it is important to acknowledge that there are also incentives and disincentives for decision makers to engage stakeholders, which affect whether and how they choose to do so. Agency administrators and other decision makers may be less motivated to engage stakeholders and share decision-making power if they feel decisions are best left to the "experts," if outcomes of participation seem unpredictable (Burroughs, 1999), or if they have limited resources (Nabatchi and Leighninger, 2015). Decision makers and agencies may also choose not to allow stakeholders' participation if they are not required to do so, stakeholders have diverse goals that cannot all be accommodated, stakeholders lack motivation or are unable to engage with decision makers, or when opposition to the policy or plan is overrepresented among stakeholders (Cotton and Devine-Wright, 2012).

In our exploration of how and why stakeholders participate in decision-making about RPS implementation, we look critically at the types of mechanisms, the incentives for stakeholders to participate in each, and the connections between the broader regulatory environment and outcomes of stakeholders' involvement. Although the existing literature on stakeholders' participation offers important insights, much of it comes from contexts others than renewable energy or electric-sector governance. Moreover, many of these studies focus on single mechanism of participation, such as public meetings, and may overlook potentially important avenues of participation for lay stakeholders (private citizens and utility customers), or fail to recognize how multiple individual mechanisms create an entire suite of opportunities for stakeholders to influence policy. Given the unique context of renewable energy policy, the long-term and iterative nature of RPS implementation and policy modification, and the wide range of stakeholders involved, in this study we consider the suite of participatory opportunities available to stakeholders, asking how and why stakeholders participate in the RPS policy arena.

DATA COLLECTION AND ANALYSIS

In this study, we ask (1) how do stakeholders participate in decision-making related to renewable energy policy implementation, and (2) what incentives or disincentives affect stakeholders' participation in this context. To answer these questions, we use a qualitative analysis of key-informant interviews conducted in Colorado and Nevada in June 2016. These two states were selected because, although both states have RPS policies that have been in place for many years, they have different histories of RPS adoption, modification, and implementation. The RPS is salient to voters in both states, and yet each state uses different approaches to stakeholders' engagement, which allows us to see a range of approaches. However, we acknowledge that participatory mechanisms and incentives may vary in states with less or different renewable energy capacity, or with different histories of cooperation and conflict between electric utilities, regulators, and other stakeholder groups.

Stakeholders were identified through (1) a review of regulatory and renewable energy policy websites that identified stakeholder groups involved in policy development and implementation, (2) a review of recent legal proceedings related to renewable energy to identify intervening parties, and (3) snowball sampling. Although these methods may not have identified all groups involved or all processes by which stakeholders participate, through snowball sampling, we tended to hear about the same individuals, groups, and processes, suggesting that we had an adequate sample and captured the range of mechanisms.

Stakeholders and decision makers representing a broad range of interests were invited to participate in interviews. Specifically, we invited representatives from utilities, PUCs, environmental organizations, consumer advocacy groups, other government agencies, community groups, and individuals representing various public interests. Although we focus on the incentives for stakeholders to participate in decision-making, we also interviewed decision makers to gain a more robust understanding of the state context and to hear their perspectives on why and how stakeholders are involved in decision-making. Because our focus was on processes directly connected to policy and decision-making, we were most interested in "expert stakeholders" who participate regularly and understand both the formal and informal mechanisms through which participation occurs. In total, we conducted 9 interviews in Nevada (1 with decision makers and 8 with stakeholders) and 11 interviews in Colorado (2 with decision makers and 9 with stakeholders), each ranging from 45 min to 2 h, depending on the availability of interviewees. Most of our interview sessions included multiple members of the organization.

Interview participants were asked open-ended questions about the following: the ways they participate in renewable energy policy development and implementation; how they work with utilities and/or the PUC to implement these policies or, when talking with decision makers, how they engage other stakeholders in these activities; why they participate or seek stakeholders' participation in these particular processes; and what they see as the benefits and drawbacks associated with each process. Because we did not prompt interviewees with a list of all possible participatory

processes, it is likely that there are additional avenues through which stakeholders participate in renewable energy policy implementation that we did not hear about; however, by allowing interview participants to discuss whatever aspects of the participatory processes they thought were most relevant and important, we believe that we captured the most important processes and avoided imposing our own biases toward specific mechanisms.

Written notes were taken during each interview by one or both researchers and transcribed into NVivo software for content analysis, where the data on mechanisms and incentives for participation were coded and qualitatively analyzed based on the following themes: descriptions of participatory processes; who is involved; when are they involved (in the decision-making process); why are they involved; barriers to participation; interactions between stakeholder groups; and stakeholders' conflict.

Unless otherwise specified, all information in the "state context" and "results" sections were provided by interviewees. To comport with institutional review protocols, we avoid revealing identifying information.

RESULTS

State Context

Interviewees indicated that the social, economic, and political contexts, as well as the availability of fossil fuel and renewable energy resources in Colorado and Nevada, played a significant role in how and why RPSs were adopted in each state, as well as how stakeholders and decision makers work together to design effective implementation plans. Although the specific stakeholder groups vary between the two states, the type of groups involved in RPS implementation are the same and include utilities, PUCs, environmental advocacy groups, consumer advocacy groups, utility customers, electricity generators, and the renewable energy technology industry. Following is a brief overview of the context of each state.

Colorado

In 2004, Colorado voters passed the nation's first voter-led RPS (called the Renewable Energy Standard in Colorado). Similar legislation had failed to pass four times in the legislature, a failure that interviewees attributed to strong opposition from electric utilities, who tend to oppose any kind of mandate that forces change. Since then, the state's largest utility, Xcel, has become a leading advocate for further increases to the RPS for several reasons, including customer support for renewable energy, cost-competitiveness of wind energy with other technologies, and the wide perception that the RPS is a key driver of decreased renewable energy costs. Since 2004, the legislature has increased the amount of renewable energy required three times. The RPS now requires that investor-owned utilities procure at least 30% of electricity from renewable resources by 2020, 3% of which must come from distributed resources such as rooftop solar. Municipalities and cooperatives are subject to a lesser 20% standard (Renewable Energy Standard, 2017). Requirements increase incrementally until these goals are reached. Failure to meet the RPS goals may result in a fine, or the PUC may choose to provide an exemption or other administrative actions.

Although Colorado has significant installed solar capacity (Solar, 2017), wind energy dominates the renewable market in the state. As of 2016, 17.3% of the electricity produced in Colorado came from wind energy (Wind, 2017). Innovations in technology and decreased manufacturing costs have made both wind and solar resources cost-competitive in Colorado, and wind energy is now the least-cost resource for utilities building new electric generation (Colorado Energy Office, 2016).

Colorado has two investor-owned utilities: Public Service Company of Colorado, known as Xcel Energy and centered in Denver, and Black Hills Energy, centered in Pueblo. Xcel Energy is by far the largest utility in the state, servicing more than half of Colorado's population, while Black Hills Energy services just under 10%. The remainder of Colorado residents is serviced by 29 municipal and 22 cooperative electric utilities (Colorado Energy Office, 2017). Utility interests often reflect a combination of business and customer interests, which together impact their support for or opposition to the RPS. While Xcel has embraced the RPS, exceeded its goals, and even pushed for increased requirements in recent years, many smaller utilities have struggled to meet the goals and have opposed further increases to the RPS.

Despite these differences, we were told by stakeholders that Colorado's electric sector has a history of coming together to solve energy problems. In the 1980s, Colorado lacked diverse energy investments—instead they had "Coors, carbon, and the Cold War"—and were badly affected by the collapse of the energy market. As one interviewee noted, "the oil bust was really the tipping point that transformed how we work together…stakeholders came together to fix the economy because they knew that none of them could be successful in a broken economy."

Nevada

In 1997, Nevada became the third state to adopt an RPS (after Iowa in 1983 and New Jersey in 1991) and has since modified it a number of times (State Renewable Portfolio Standards and Goals, 2017). Nevada's RPS requires all electric utilities to generate or acquire a total of 25% of their electricity from renewable resources by 2025, with incremental increases every two years until that date. Renewable energy credits can be purchased from independent power generators both within and outside of the state to help meet RPS requirements (Renewable Portfolio Standard, 2017), which has been a source of concern for many renewable energy advocates. Compliance with the RPS is reported annually to Nevada's PUC; like Colorado, failure to meet the RPS goals may result in a fine, or the PUC may choose to provide an exemption or other administrative actions (Renewable Portfolio Standard, 2017). Nevada's predominant renewable energy resource is solar; the RPS requires that 6% of electricity must come from solar energy resources by 2025. While the state also has significant geothermal and wind resources, we heard from stakeholders in Nevada that wind is primarily available in the high elevations of the Sierra Nevada Mountains, which are highly inaccessible, expensive to develop, far from population centers, and comprise numerous protected areas.

At the time interviews were conducted for this study in 2016, Nevada's electric sector was deregulated and more than 90% of the state's population was serviced by a single investor-owned

utility—NV Energy, which is the holding company of Nevada Power Company and Sierra Pacific Power. A handful of cooperative and municipalities together service the remaining 10%. Because NV Energy is the only investor-owned utility and by far the largest utility in the state, it has had significant negotiating power when it comes to state energy policies, the RPS included.

Over the past 2 years, Nevada's electric sector has been rife with conflict and uncertainty, especially with regard to solar energy and utility regulation. In December 2015, at the urging of NV Energy and some of the electricity consumer base, the PUC ended net metering in the state on the grounds that non-solar customers subsidizing solar customers. Specifically, these groups argued that non-solar customers were effectively paying for the infrastructure for solar power distribution, while solar panel owners paid a smaller share of these infrastructure costs due to net metering credits. Solar customers and renewable energy advocates were outraged by this decision, in part because it did not grandfather in existing solar customers. Governor Sandoval, a Republican, expressed discontent over the decision and re-instated a task force to advise him on possible means of addressing the issue.

In November 2016, Nevada voters passed the Energy Choice Initiative, a proposed constitutional amendment that would allow electricity users to choose a retail electricity supplier and generate electricity for themselves, effectively ending the monopoly held by NV Energy and deregulating the state's electric sector. Proponents of the measure were large-scale electricity users, environmental advocacy groups, and the solar industry. To become law and take effect in 2023, the proposed amendment will need a second round of approval by voters in 2018. In the spring of 2017, a number of energy-related measures were passed be the legislature, one of which reinstated net metering. A bill that would have raised the RPS requirements to 40% by 2030 and created a carve-out for energy storage was vetoed by Governor Sandoval, who cited uncertainty in the impacts of electric-sector restructuring on the RPS as his reason for opposing the increase.

Opportunities for Participation

When asked about opportunities and incentives for participation in RPS implementation, interviewees discussed a wide range of formal and informal mechanisms aimed at utility customers (focus groups, public meetings) and/or expert stakeholder groups (informal discussions, legal proceedings, working groups); many also discussed how they participate in legislative processes, such as by creating ballot measures, talking with elected officials, or participating in taskforces to develop policy recommendations. Each of these processes is described in **Table 1**, including who participates, when they participate, and why they participate (i.e., the incentives or perceived advantages of the process); then, we summarize key examples and evidence discussed during interviews.

Opportunities for Utility Customers, Citizens, and Interest Groups

Focus Groups

Focus groups organized by utilities in Colorado were identified as one of the few opportunities for stakeholders to voice opinions about RPS programs directly to utilities. However, focus groups were also perceived as superficial efforts at engagement; for example, one interviewee from Colorado said "the utilities try to justify their plans by doing focus groups," but they are "statistically invalid" because they are conducted internally and the utility selects all of the participants. Stakeholders in both the states suggested that more focus groups were needed, but that utilities could better gauge public opinion on renewable energy if focus groups included better public representation and greater transparency.

Public Meetings

We heard from stakeholders in both the states that public meetings are a rare opportunity for lay stakeholders (i.e., the general public) to voice opinions directly to PUCs. Although meetings are difficult for some stakeholders to attend, it was noted by one interviewee in Colorado that some public meetings are webcast so stakeholders unable to participate can watch and that the PUC "tends to spread meetings all over" when possible to be more inclusive, particularly when they plan to discuss controversial issues such as rate changes.

However, there is no requirement that the PUCs either acknowledge or respond to public comments, and interviewees reported that PUCs typically do neither. Most interviewees perceived public meetings as superficial and used only to fulfill the requirements of the states' Open Meeting Laws. One stakeholder from Nevada said, "The PUC has no real interest in the process, they only do it to keep the public at bay." Another said that public meetings are "all a show. They thank people for coming, take their comments, people leave, and then the agency does whatever they wanted to do originally."

Opportunities for Select Stakeholder Groups

Informal Discussions

Informal discussions were perceived by some interviewees as the most effective way to achieve organizational goals. As one interviewee in Colorado told us, "a lot can be done without litigation" but, she added, "there are many legal limitations" to what extent they can do. However, even during informal discussions, power remains with the utilities. For example, in Nevada one stakeholder group said that they often work with utilities to develop programs that help achieve RPS goals. But, rather than co-producing a plan, "the utility drafts the plan, then asks for feedback," and retains final decision-making power.

Legal Proceedings

Interviewees agreed that intervening in legal proceedings is meaningful and critical to impacting decisions about utility plans; for example, an interviewee in Colorado said that the PUC listens to all of the evidence and tries to make a balanced decision. Another interviewee said that if a consensus agreement is reached during settlement discussions among stakeholders, the PUC is likely to support the agreement. An interviewee from an environmental advocacy group in Colorado pointed out that the PUC must make rulings based only on evidence presented. As a result, environmental advocates must present evidence if they want to influence decisions. However, public comments—which are not legal evidence—cannot directly influence rulings.

TABLE 1 | Mechanisms and incentives for stakeholders' participation in RPS policy implementation.

				Stakeholders' perceptions of the process:	
	Description	**Who participates?**	**When do they participate?**	**Incentives for/benefits of participation**	**Disincentives for/drawbacks to participation**
Focus Groups	Small group of utility customers convened by utility to share opinions about programs	Restricted: utility customers invited to participate	Late stages of program design; occasionally program approval process	– Voice opinions directly to utility – Develop mutual understanding	– Little/no impact on decisions – Limited dialog – Poor transparency of results
Public Meetings	Meetings organized by PUC to deliberate or take action on items requiring regulatory approval	Open	Late stages of program design	– Direct contact between lay stakeholders and decision makers – Potential for learning and development of mutual understanding (dependent on if participants are allowed to speak)	– Little/no impact on decisions -May be difficult to attend because of time or location – No opportunity for dialog – Participation limited in terms of whether participants can speak (CO) or how long they can speak (3 minutes in NV) – Dominated by the PUC and utilities
Informal Discussions	*Ad hoc*, informal conversations among stakeholders and decision makers	Open	Late stages of program design; program approval process; implementation	– Likely to impact decisions – No time restrictions or formal procedures to follow – Build/strengthen relationships	– Power asymmetries between stakeholders and decision makers – Requires existing relationships be in place (in practice limits participation to those already involved)
Legal Proceedings	Legal process required when utilities seek regulatory approval for rate changes or to take major actions; PUC makes a ruling based on the written testimony of the utility and all intervening parties	Restricted to "intervening parties" (Intervention requires demonstration of a stake in the case and that interests are not already represented)	Approval process	– Likely to impact decisions – May include sub-processes (public workshops, informational meetings, technical workshops) that facilitate learning, build social capital, and speed up decision-making – Structured, formal process allows participants to know what to expect	– Time and resource-intensive – May be difficult/intimidating to navigate the process – Legal representation is required, but qualified attorneys and witnesses may be lacking (NV), or may have conflicts of interest (CO) – Case transcripts are technical and complex and must be purchased, inhibiting transparency – Not all interests equally represented
Working Groups	Convened by PUC—often in response to conflict during a proceeding—to address utility plans and develop recommendations for revision	Restricted to intervening parties in legal proceeding; may be exclusive to certain parties	Late stages of program design; approval process	– Likely to impact decisions – Develops mutual understanding – Facilitates learning – Builds social capital – May lead to consensus decision	– Time and resource-intensive – Power stays with decision maker (utility)
Legislative Processes	Processes that aim to influence policy decisions (e.g., talking with elected officials, developing ballot measures, or participating in a taskforce, such as the New Energy Industry Taskforce in Nevada)	Depends on the process (e.g. Taskforce members must be invited; informal discussions and ballot measures open to all stakeholders)	Policy design/adoption	– Likely to impact policy decisions – More cost-effective than participating in implementation processes – Builds social capital – Stakeholders can initiate actions	– May be difficult to navigate and initiate discussions – May be inaccessible to lay stakeholders – May be time and resource intensive (e.g,. Taskforce participation)

The formalities of proceedings, however, can be cost- and time-prohibitive to some stakeholders. Intervening parties are required to have legal representation, which is costly, particularly given that some cases can last months or years, and there may be a dozen new cases in a month.

Sub-processes of legal proceedings, including public workshops, informational meetings, and technical workshops were perceived by interviewees from Colorado as helpful in overcoming knowledge barriers associated with technically complex cases.

However, many interviewees perceived that not all interests were equally represented in legal proceedings. One interviewee from Nevada—a private citizen—said that the public in Nevada "is not really considered a stakeholder" and that "if they want to give their input, it has to be through the Bureau of Consumer Protection, which is severely understaffed."

Working Groups

When the PUC convenes a working group, it is often in response to conflicting perspectives before or during a legal proceeding. For example, an interviewee from Colorado said that sometimes a working group is convened because there is so much conflict that the PUC is unable to make a balanced decision. Working groups

allow participants to build relationships, engage in dialog over multiple sessions, develop mutual understanding, and develop consensus decisions. Another interviewee from Colorado said that working groups are most effective when participants share power equally but that utility representatives tend to lead the working groups, deciding meeting times and agendas, and so hold more power than other participants.

Participation in Legislative vs. Implementation Processes

Particularly for organizations that cannot afford or do not have the expertise to intervene in legal proceedings, working with legislators was perceived by some interviewees as more effective than attending public meetings or other forums, but may be a last resort. For example, in 2016 in Nevada, some members of the public, frustrated by the PUC's decision regarding net metering, created a ballot measure to change the policy. Also in response to the PUC's decision, Nevada's Governor reinstated the New Energy Industry Taskforce to provide policy recommendations on how to promote the development of renewable energy and distributed energy resources in Nevada. Although the New Energy Industry Taskforce has no decision-making authority, Taskforce members we spoke with perceived that the Governor valued and intended to use their policy recommendations.

Much as stakeholders may participate in multiple types of participatory processes, participation in legislative and implementation processes are not mutually exclusive. For example, one group said they go to City Counsel and PUC workshops every month and send letters to legislators and the PUC in the hopes of spurring action to reduce energy load in southern Colorado. One group member described their participation as "energy whack-a-mole," where the game and people are changing so rapidly that by the time they understand what's going on, things have changed again. "It's tough to track all the information and keep up," he said, and added that "we can't be policy makers, but we can influence the policy makers by mobilizing the community," which is why much of their work involves educating people on electric-sector and renewable energy issues in their area.

Factors That Shape Stakeholder Incentives to Participate

Taken together, the participatory mechanisms offer a wide range of opportunities of varying levels of intensities. The literature identifies a number of potential incentives for participation, including enhanced ability of stakeholders to hold decision makers accountable, improved decisions, and process-related benefits. Interviewees perceived that some, but not all, avenues for participation produced these benefits. A few examples help to illustrate this point. First, legal proceedings were seen as a useful way to hold decision makers accountable, because the formality requires decision makers to record all evidence presented and provide a justification for the decision. Second, participation in more intensive activities, such as working groups and legal proceedings, was perceived as more likely to impact decisions about renewable energy and the RPS; although we did not measure the quality of decisions, there is strong evidence from the literature that decisions are often improved when stakeholders participate in decision-making. And third, many processes create opportunities for learning and developing social capital and mutual understanding, but these tend to be more intensive processes in which the same "repeat players" continue to interact over time.

As expected based on the literature, stakeholders felt the most incentivized to participate in processes that they perceived as meaningful and cost-effective, and in those that allowed learning, building of social capital, and development of mutual understanding. Interviewees said they were less likely to participate in processes that they perceived as superficial, costly, and that offered no opportunity for dialog or follow-up from decision makers. Although the literature suggests monetary costs can be a strong disincentive, we heard from interviewees that this acted more as an outright barrier. For example, given the high cost of participating in legal proceedings, many stakeholder groups simply cannot afford to participate. In response, some stakeholder groups in each state partnered with one another such that one group focused on implementation processes and the other on legislative actions.

However, in looking at the suite of participatory mechanisms, three qualities that may limit effectiveness or discourage participation appear common to many or all mechanisms: first, each puts stakeholders in a reactive position to utility-designed plans; second, in each process decision makers (utilities or PUCs) retain decision-making power; and third, very few of the processes were perceived by stakeholders to be meaningful.

Participation Is Reactive

Nearly all of the stakeholders we talked with described the reactive nature of their participation; that is, interviewees said that they tended to be involved somewhat late in the decision-making process, when plans and programs had already been written (**Figure 1**). This finding is consistent with the findings of Cotton and Devine-Wright (2012), and suggests a limited ability of stakeholders to impact decisions in such cases (Rowe and Frewer, 2000). For example, in the case of legal proceedings, utilities initiate the process by submitting plans for meeting RPS requirements. Interveners may then respond to the proposal with written testimony. We did not hear of any instances where utility plans were co-produced with other stakeholder groups.

Decision Makers Retain Power

Interviewees also noted that utilities and PUCs retain decision-making power in all engagement processes, many of which also lacked transparency. For example, stakeholders may comment on proposed actions during public meetings, but the PUC chooses whether to incorporate their comments in the final decision. Again, this is consistent with prior findings that public meetings, although meant to foster transparency and accountability, tend to be superficial (Kelshaw, 2006), and may be perceived by decision makers as an easy means of fulfilling legal requirements, thus giving a false appearance of public involvement (Fiorino, 1990). With the exception of legal proceedings in which interveners' comments are recorded as evidence, there are no requirements that the PUC respond to stakeholder concerns in any of the other processes mentioned during interviews. Although limited

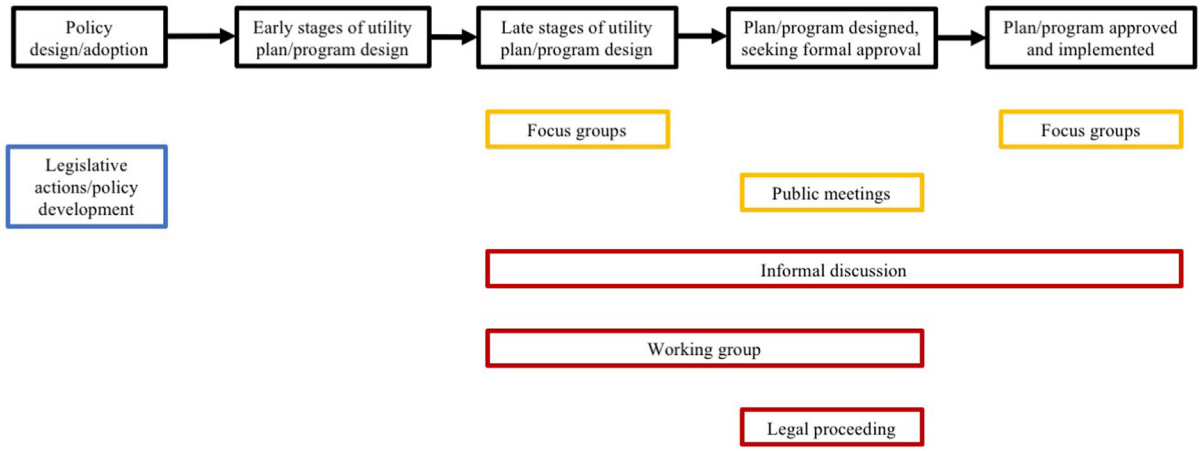

FIGURE 1 | Stages in the decision-making process during which stakeholders participate through a variety of mechanisms.

transparency of participatory process outcomes is common to processes like focus groups (Rowe and Frewer, 2000), we heard that transparency was lacking in nearly all processes, which hinders learning and the ability of participants to hold decision makers accountable.

Meaningful Participation Is Limited to Expert Stakeholders

Finally, meaningful participation appears limited to expert stakeholder groups with existing ties to decision makers and formal processes. Even expert stakeholders' ability to influence decisions may be limited, as they tend to be involved late in decision-making when utility plans have already been designed. According to some scholars (Holmes, 2011), true participation requires that stakeholders are able to influence decisions; by this standard, only legal proceedings qualify as true participation, and even then, not all stakeholder groups are equally able to influence decisions.

A number of interviewees noted that lay stakeholders—members of the public and utility customers—are limited to participating in less-intensive processes, most often public meetings. Therefore, they have very little opportunity to influence decisions or derive other process-related outcomes, such as learning or building social capital. For example, one member of the public from Nevada told us he feels excluded from processes that allow repeated interaction and dialog with other stakeholders and that he "doesn't have a real relationship with any other group. They have different interests, and every group seems to have a one-track mind." Similarly, in Colorado, stakeholders from a community advocacy group said that, although they regularly attend PUC workshops and meetings, send letters, and make calls to legislators, they have found it difficult to build relationships with other stakeholder groups. As Ansell and Gash (2008) pointed out that, when stakeholders hold opposing interests, they may find that none can achieve their goals without working together; indeed, the stakeholders from each state who were unable to work with other groups expressed greater frustration with decision makers, and reported less ability to achieve their goals than stakeholders who had strong relationships with other groups. Because individuals and groups may be less inclined to participate in future activities when they have felt discouraged by past efforts, the consequences of this may extend beyond current planning efforts (Irvin and Stansbury, 2004).

DISCUSSION

In this study, we ask how and why stakeholders participate in decision-making related to RPS policy implementation. Three important findings emerge from our interview analysis. First, we find that stakeholders may play a long game, participating in the short term to build coalitions, relationships with decision makers, and knowledge that will eventually allow them to influence decisions later on; second, stakeholders often participate in multiple types of processes to achieve goals; and third, the regulatory environment influences which participatory processes are available, the incentives for participation, and ultimately the outcomes of stakeholders' participation.

Playing the Long Game

Given that the literature identifies meaningful participation as a key incentive for stakeholders, it was surprising that stakeholders continued to participate in mechanisms that were widely viewed as superficial, providing little or no opportunity to influence policy decisions. One implication of this surprising finding is that stakeholders may tend to view their participation in different policy venues not as one-shot opportunities to influence immediate decisions, but rather as opportunities to position themselves as participants in long-term policy processes. Interviewees suggested that they derived benefits from participating, such as building relationships with decision makers and other stakeholders and enhancing knowledge, that would position them to influence decisions later on. Several interviewees also indicated that they were hopeful they might have greater influence as individual decision makers changed over time.

The idea that stakeholders may be seeking greater long-term political influence is bolstered by the fact that some stakeholder

groups have formed coalitions to create policy change. For example, stakeholders from environmental advocacy groups in Colorado said that they work with other groups with similar goals. While one group may focus on influencing legislative agendas, other focuses on implementation processes. In doing so, they are each able to extend their resources further, potentially increasing their impacts on both policy and implementation decisions. These findings are consistent with the Advocacy Coalition Framework, which predicts that interest groups achieve goals over time by forming coalitions with other organizations around shared interests (Weible and Sabatier, 2007). Kelshaw (2006) argued that participation in any process, whether highly structured and formal or *ad hoc* and informal, is political in that it has potentially far-reaching consequences beyond impacting immediate decisions. Our findings suggest that stakeholders may participate in electric sector decision-making not only to impact immediate decisions but also to enact long-term political change. Moreover, since relationship building with other participants facilitates long-term political change, participation is about long-term relationship building as well as achievement of short-term policy objectives.

Seeking Multiple Avenues for Participation

Scholars of public participation often study participatory processes in isolation, seeking to understand how a particular participatory forum is used to shape decision making. However, our findings show that participatory processes do not work in isolation but rather in conjunction with one another, allowing participants to realize a broader range of benefits.

We find that many stakeholders—particularly expert stakeholder groups—participated in multiple formal and informal avenues of participation. For these stakeholders, participating in multiple types of processes was perceived as a way of increasing one's impact on decisions. For example, interviewees noted the unique benefits of participating in both formal processes, such as legal proceedings, and informal processes, such as informal discussions: whereas formal and highly structured processes allow participants to know what is expected and prepare accordingly, informal processes allow more casual interactions with fewer restrictions, and may be more effective at building social capital. This finding highlights the importance of relationship building among participants. Informal interactions may help participants find common ground with other groups who share similar interests. Informal interactions may also allow participants to understand the policy positions and interests of participants with opposing interests, providing participants with useful information about how to behave strategically in more formal settings.

While our findings highlight that multiple avenues for participation exist and can shape the participants and outcomes of other avenues within the same policy context, this in turn raises equity implications. Expert stakeholders and those who have well-established relationships with decision makers generally have far greater opportunities to participate in the full range of formal and informal mechanisms to shape policy. Thus, while the ability to strategically participate in multiple participation avenues may help make participation more meaningful for expert stakeholders, it may at the same time make participation less meaningful for ordinary citizens or groups who are less connected with decision makers.

Participation as Part of a Broader Context

Finally, our results suggest that agency culture and prior experience with stakeholders' engagement may influence which participatory processes are made available, how these are perceived by stakeholders, and the resulting outcomes; in other words, stakeholders' participation is complex and exists as part of a broader political context.

In both Colorado and Nevada, interviewees discussed how historical relationships with stakeholder groups, individual PUC Staff members, and PUC culture influence the agency's perceived value of stakeholder input in electric-sector decision-making. Perceived value of stakeholder input appears to be a key determinant of whether and how decision makers seek out and use stakeholder input in decisions. While interviewees from Colorado described the PUC as relatively receptive to stakeholder input, those from Nevada reported that the PUC had tried to limit participation as much as possible.

Stakeholders in both states suggested that past experiences with stakeholders' engagement has likely contributed to the current status of relationships between stakeholders and decision makers, which supports prior findings that a history of conflict or cooperation influences incentives to participate (Chess and Purcell, 1999). Whereas Colorado's electric sector has a strong history of cooperation among key interest groups beginning with the 1970s oil crisis, growing conflict in Nevada over net metering has damaged many stakeholders' trust in the PUC. Additionally, Nevada has one powerful investor-owned utility with close ties to the PUC, while Colorado's two large investor-owned utilities often have divergent interests, which may be one reason the Colorado PUC tends to consult expert stakeholder groups in an attempt to make balanced decisions. The role of past interactions in influencing stakeholder-decision maker relationships is not surprising, given previous findings that poorly conducted or unsuccessful stakeholders' engagement efforts can backfire and deter agencies from developing more effective engagement practices (Lukensmeyer et al., 2011; Nabatchi and Leighninger, 2015).

Many stakeholders in Colorado perceived that the PUC tries to make balanced decisions, taking into account all stakeholders' perspectives when possible. Additionally, many felt that participation had improved relationships and helped to build trust between decision makers and stakeholders. For example, one interviewee said that the PUC often encouraged stakeholders and utilities to work together to solve conflict outside of legal proceedings. Several interviewees also said that the PUC had become more receptive to input from stakeholder groups in recent years, which they attributed to the individual Commissioners and strengthened stakeholder-decision maker relationships resulting from repeated, positive interactions. As one interviewee put it, "the PUC views each stakeholder group as representing a specific slice of the public interest," and therefore the input from each group is valued. While these views were common, they were not unanimous. A minority of stakeholders felt excluded from participatory processes and had little trust in the PUC, showing how equity concerns about access to decision making can persist

even in contexts where decision makers actively seek stakeholders' participation.

In Nevada, on the other hand, stakeholders widely perceived that the PUC has a negative attitude toward stakeholders' participation and that stakeholder input is neither valued nor used in decision-making. For example, one interviewee from Nevada said that "[the PUC] makes it as difficult as possible [to intervene]. The attitude is that they know best." We were told by two stakeholders that over the last decade, Nevada's PUC had attempted several times to exempt the agency from the state's open meeting law, arguing that they are a quasi-judicial agency and thus not directly accountable to the public. Furthermore, because the majority of PUC Staff stays with the agency for a long term and trains and advises incoming Commissioners, there is little cultural change within the organization over time. Therefore, the agency tends toward maintaining the *status quo* rather than supporting innovation and change.

Most stakeholders in both Colorado and Nevada indicated some level of mistrust of the PUC and utilities. However, rather than acting as a disincentive for participation, modest levels of mistrust may promote participation as stakeholders do not feel their interests will be represented unless they show up. One stakeholder in Colorado indicated that there are "cozy relationships between the regulators and the utilities" that allow the utilities to "weasel around the rules" regarding rate structures. An interviewee in Nevada said that, although there is a law in Nevada prohibiting communication between parties behind closed doors before the PUC makes a ruling, there are "rumors that the head of NV Energy meets regularly with the PUC for lunch" and may have a closer relationship than is appropriate. Another stakeholder suggested a similar level of mistrust, saying that "the utility is the wolf, the public is the sheep, and the regulator is *supposed* to be the sheepdog that protects the sheep from the wolf," hinting that this is not the case.

CONCLUSION

In this study, we ask how and why do these stakeholders participate in decision-making about how RPS policies are implemented? Prior studies on stakeholders' participation have tended to look at participatory mechanisms in isolation; however, the long-term and iterative nature of renewable energy policy implementation and the wide range of stakeholders involved in decision-making suggest the need of a broader examination of participation. Here, we look at the suite of participatory opportunities available and how stakeholders choose which to engage in. Our interviews with stakeholders in Colorado and Nevada reveal a range of mechanisms, some available to all stakeholder groups (focus groups, public meetings) and some limited to select stakeholder groups (informal discussions, working groups, legal proceedings).

Furthermore, the literature on stakeholders' participation tends to treat all participants the same; however, the ability to influence decisions may be quite different for different participants depending on the stakeholder. We find that meaningful participation may be limited to stakeholder groups that are highly knowledgeable about the issues, have the resources to engage in long-term and sustained participation, and have long-standing relationships with decision makers and other stakeholders. The limited opportunity for knowledge sharing and building of social capital in the mechanisms available to lay stakeholders further restricts their ability to meaningfully engage with decision makers and other stakeholders.

Although many stakeholders were skeptical about their ability to impact decisions, they were willing to participate as a means of building coalitions and relationships with other stakeholder groups and were hopeful that long-term participation would eventually influence decision makers, particularly as agency culture, relationships, and individual decision makers change over time. Finally, we find that the types of mechanism and the way they are carried out by agencies are affected by agency culture, experiences with past engagement efforts, and historical relationships, which together impact the incentives for stakeholders to participate and outcomes.

As electricity generation is increasingly shifting toward small-scale, renewable resources such as wind and solar, its governance is becoming more complex involving a wider range of policies and actors. State-level renewable energy policies—namely the Renewable Portfolio Standard—require utilities to design and carry out programs to meet renewable energy goals, and in doing so shape whether, when, and how RPSs are implemented, and the extent to which RPS goals are achieved. Stakeholders therefore have a potentially important role in shaping decisions about how to carry out complex policies like the RPS; and yet, we find that opportunities to influence decisions are limited to select stakeholder groups through mechanisms that maintain existing power imbalances and lack transparency, thereby restricting potential benefits gained from participation. We suggest that the scholarship on participation in policy processes could be enhanced with greater attention to find how the long-term interactions between regulatory context, participatory processes, incentives, and participants shape policy outcomes.

ETHICS STATEMENT

This study was carried out in accordance with the recommendations of the IRB Committee at the University of Arizona with written informed consent from all subjects. All subjects gave written informed consent in accordance with the Declaration of Helsinki. The protocol was approved by the IRB Committee at the University of Arizona.

AUTHOR CONTRIBUTIONS

Both authors conceived of the idea, developed the methods of data collection, and conducted interviews. VR performed interview data analysis. Both authors discussed the results and contributed to the final manuscript.

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The Energy Covenant: Energy Dominance and the Rhetoric of the Aggrieved

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The Trump Administration has adopted "energy dominance" as its guiding ideology for energy policy, marking a notable shift from decades of "energy security" rhetoric. This paper analyzes how Secretary of Interior Ryan Zinke, one of the administration's key spokespeople for energy dominance, uses "energy covenant renewal" to frame the importance of energy dominance for the conservative base. Covenant renewal is a modified form of the jeremiad; Zinke uses it to unite conservative identities around energy politics and policies. Energy dominance thus invites those who feel aggrieved under Obama administration regulatory policy and the multicultural identity politics of the left to renew their commitment to fossil fuels, American exceptionalism, and a restored social order and privilege.

Keywords: energy dominance, jeremiad, covenant renewal, energy communication, energy democracy, energy policy, environmental rhetoric

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INTRODUCTION

On September 29, 2017, Secretary of the Interior, Ryan Zinke, was hosted by the conservative organization the Heritage Foundation, where he gave his first major policy address titled: "A Vision for American Energy Dominance." In this speech, Zinke outlines a vision for how the Department of the Interior (DOI) can aid in reversing decades of "American energy dependence." The speech received media attention for how Zinke began it—he provided a lengthy defense of his own use of non-commercial flights, relevant because Health and Human Services Secretary Tom Price had just been ousted from the Trump Administration for the same action (Adragna, 2017). What received less popular attention, however, and what is especially important about the speech, was its substance: Zinke's explication of the Trump administration's new approach to energy policy, known as "energy dominance." We focus on that substance in this paper.

We examine this speech because it is one of the more complete statements addressing energy policy to have emerged from the often-chaotic messaging apparatus of the first-year Trump administration. It also comes from one of its key spokespeople. Zinke, along with Scott Pruitt, administrator of the Environmental Protection Agency, and Rick Perry, Secretary of the Department of Energy, are the primary mouthpieces for "energy dominance." We use rhetorical analysis to demonstrate that energy dominance not only draws on previous, familiar energy and political discourses but also departs from them in ways that have significance for how conservative identity politics are playing out in this political moment. This analysis is therefore in conversation with other types of energy communication work that focuses on how legacy energy systems resist change, consolidate power, and construct identity (see Endres et al., 2016).

In trying to define "energy dominance," the Zinke speech covers a lot of complicated territory, chaotically jumping from domestic to international policy, making unexplained and unsupported claims about jobs and energy markets, and offering contradictory visions of regulation. It attempts to mark how energy dominance differs from "energy security" (or its close cousin, "energy independence")—the reigning energy discourse of the twentieth and twenty-first centuries (Tidwell and Smith, 2015). It not only carves out a significant and increasing role for the DOI in setting national energy policy but also makes claims about foreign policy more suited to the State Department than Interior: Zinke argues that America is both one of the greatest nations on earth and the most under siege by foreign players who have attempted to manipulate the United States, such as through the Iran nuclear deal. Zinke also calls for an immediate and total reversal of Obama-era environmental and energy regulation, while at the same time noting that the United State's regulatory apparatus makes the nation superior to other unregulated places such as Africa and the Middle East. President Trump's campaign slogans are interwoven throughout. His voice wavering with emotion, Zinke states: "It is time to stop the bleeding. It is time to put America first. Under President Trump, American energy, mined and produced by American hands, will make America great again" (Zinke, 2017).

Given this mishmash of messages and slogans, those looking to understand the administration's approach to energy policy can be forgiven for feeling baffled. Statements from Trump's White House (The White House, 2017) have not helped to clarify things, either. Journalist Liam Denning (2017) confesses: "I am perplexed by the 'Energy Dominance' slogan the White House has adopted. It isn't entirely clear to me who or what is being dominated and whether that's even a desirable thing" (Denning, 2017). Bordoff (2017), writing for *Foreign Affairs*, argues that the term is "unfortunate" at best and meaningless and uninformed at worst. He and others note that energy dominance arguments do not match policy realities. Energy dominance avoids the fact that the United States remains one of the largest net importers of petroleum products worldwide and that its petroleum reserves pale when compared with those of other oil-rich countries, making achieving "dominance" difficult; energy markets are global in nature, making isolation challenging if not impossible to achieve; and the Trump administration has proposed cutting funding for a number of energy research and development projects, which it has paradoxically pointed to as evidence of innovation and growth (Bordoff, 2017; Mufson and Mooney, 2017). As another journalist put it: "…even if it were desirable, dominance of global energy markets in today's world is simply unrealistic. There is no Roger Federer of energy" (Raimi, 2017).

From a policy perspective, therefore, the connections Zinke draws seem at times non-sensical, disconnected from policy realities, statistics, and the dictates of the market. But we argue that those looking for policy direction from Zinke are paying attention to the wrong things. The speech makes little effort to construct rational arguments or reference data related to energy policy and to assess it as such misses the larger point. The intention of the speech, we argue, is to connect energy dominance to other narratives of grievance for its intended audience—alienated American conservatives. Energy dominance relies on "an affective economy driven by invested identities and entrenched political projects that are dominated by white public feelings of fear, anger, anxiety, and vengeance" (King, 2017a). It thus functions as a moral call-to-arms for conservatives to come out from the trials under which they had been tested during the Obama administration, drawing on discourses of American exceptionalism, militarism, and gender, race, and class resentment and grievance.

We make this argument based on our analysis of the speech as a "covenant renewal"—a charge to the chosen ones who have suffered at the hands of evil others, but who can regain their prominence if they again commit to the covenant laid out by the speaker (Bostdorff, 2003). As support, we first introduce the jeremiad narrative structure and its lesser-known relative, the covenant renewal. Second, we explain the factors within United States politics and society that have created an environment ripe for Zinke's rhetoric. We then examine Zinke's address through the narrative structure of the energy covenant renewal. In it, Zinke's persona is that of prophet; a prophet constructed using the iconography of white American masculinity and therefore aligned with the suffering chosen people. His emphasis on renewing the energy covenant speaks to the aggrieved—a shift away from the traditional jeremiad, which usually focuses on redeeming the fallen. The aggrieved in this case are those on the far right who feel they have suffered under and been disadvantaged by decades of economic disenfranchisement, most commonly expressed through racial animus (Coates, 2017; King, 2017a; Rubin, 2017). Finally, Zinke uses the energy covenant renewal to offer a "golden era" for the conservative right, premised on "energy dominance," the undoing of Obama-era policies, and a refiguring of traditional social order resonant with the discourses of contemporary conservative identity politics. We conclude by arguing that the Puritan covenant renewal, a timeworn form, thus regains contemporary salience under extreme partisanship, populism, and in response to countermovements on the left, including energy democracy.

ENERGY COVENANT RENEWAL

Covenant renewal as a rhetorical device is an adaptation of the traditional jeremiad. The jeremiad is a Puritan lament intended to warn those blessed by God that they are falling into sin and must work to regain their virtue. It has four key elements: "(1) a chosen people has failed to keep covenant with key values or principles, (2) the people will suffer calamity as a result of this misbehavior, (3) such calamity will be avoided by a return to specified righteous action, and (4) through proper action the chosen people shall recapture their favored status and avoid ruin" (Salvador and Norton, 2011). The jeremiad narrative structure has proven its flexibility and staying power, as it has been applied to contemporary protest, political, presidential, and neoliberal discourses, each with a distinctively American variant. Murphy (1990) explains:

> [The rhetors] assume that Americans are a chosen people with the special mission of establishing that 'shining city on a hill.' They point to the difficulties of the day as evidence that the people have failed to adhere to the

> values that made them special, to the great principles articulated by patriots such as Jefferson and Lincoln. The evils demonstrate the need to renew the American covenant and to restore the principles of the past so that the promised bright future can become a reality. (Murphy, 1990, p. 403)

In addition to political and presidential address, the jeremiad has been employed in environmental rhetoric (Opie and Elliot, 1996): Dr. Seuss's *The Lorax* (Wolfe, 2008), Al Gore's documentary *An Inconvenient Truth* (Rosteck and Frentz, 2009), the environmental apocalyptic movie *The Day After Tomorrow* (Salvador and Norton, 2011), Reverend Billy's environmental discourse (Kaylor, 2013), and Thomas Friedman's "Code Green" (Singer, 2010). The jeremiad's frequent invocation in environmental discourse works to persuade audiences that while they have been given a healthy, sustaining environment, their behavior (overconsumption, pollution, and greed) has created a calamity that can only be rectified by humans changing their ways. Opie and Elliot (1996) concluded that the environmental jeremiad will continue to be expressed because "it is the best device for handling the most difficult subject—the representation of American people in their environment" (p. 35).

While maintaining many of the aspects of the jeremiad, we argue that Zinke's energy dominance address can more accurately be described as using the narrative structure of the "covenant renewal." The covenant renewal, Bostdorff (2003) explains, is a variation on the jeremiad crafted for the second and third generations of Americans who were beginning to question and leave the Puritan faith. Leaders knew they needed to revitalize the church. The jeremiadic approach of blaming parishioners for their "failings" and demanding hard work as a path to redemption was deemed ineffectual as a method for bringing young people back to the church. Bostdorff writes: "Although ministers still criticized untoward behavior in their congregants, their rhetoric began to concentrate more on external enemies like the English, the Indians, and Satan and his witches…. Through this external focus, younger generations were able to escape the full burden of blame for the state of New England's covenant" (p. 295). Instead of using the fear of moral failure as motivation for the congregation to remain active in their faith and good works, the ministers pointed to the crises as "tests from God that the community had successfully passed (rather than as evidence that the community had strayed)" (Bostdorff, 2003, p, 297).

Following the narrative structure of the covenant renewal, Zinke's energy dominance rhetoric constructs an energy covenant renewal. He establishes himself as prophet with a clear and unquestioned vision of America's values, strengths, and failures. Zinke addresses the "chosen people" of the Heritage Foundation and those audience members who he implies had been tested during the Obama years (e.g., American men, patriots, main street residents, and the working class). He characterizes them as having done little to deserve their hardships. With a renewed investiture and belief in the broadly neoliberal energy covenant, however, they will again be dominant in the world.

It is important to note that jeremiads and covenant renewals are frequently employed to speak to or unite a singular American people (Sillars, 1980; Murphy, 1990; Bostdorff, 2003). Analyzing President Bush's speech after September 11, Bostdorff (2003) explains how the president used the renewal discourse to "place blame for September 11 on evil, external enemies and to cast the U.S. and its citizens as a blameless, exceptional community that had been attacked because of its goodness" (pp. 298–299). As this example illustrates, the jeremiad and renewal narratives often use polarizing discourses—the blessed and the sinners, the good and the evil, the righteous and the fallen. These variants typically unify Americans as the chosen people. In direct contrast, Zinke's speech suggests that *some* Americans are chosen, specifically those conservatives who found themselves tested during the Obama years. Those who are not chosen, a distinction formally reserved for foreign threats, are the Americans who did not follow the energy covenant, who supported the Obama administration and energy democracy activists, and who advocated against fossil fuels.

THE AGGRIEVED

Concerns about energy security and independence have not disappeared under the Trump Administration, but they are augmented by a sense of victimhood and "grievance" under energy dominance discourse, which promises restoration. Energy dominance borrows from security and independence rhetoric in that it still underwrites American energy privilege, justifies foreign and domestic energy policies using American exceptionalism, and relies on "sacrifice zones" (see Endres, 2009; de Onis, 2017). Early in the speech, Zinke states this explicitly:

> Our goal is an America that is the strongest energy superpower this world has ever known. Our country has inherited an energy dependent country from previous generations. And in recent years, we've struggled to be self-sufficient in producing low-cost, abundant, and reliable energy. But a new era is dawning. With American leadership, innovation, and good ideas, our challenge will be to pass energy dominance onto our children and grandchildren. (Zinke, 2017)

Here, we see some of the themes of energy independence repeated—Zinke's call for the United States to become self-reliant and insulated from global energy markets.

However, energy dominance is different from energy independence in that it specifically frames energy access as a right of some Americans, who are authorized to become "dominant." Such calls emerge at a time when American politics and identifications are deeply polarized, with the conservative base being mobilized by rhetoric that acknowledges their grievances. "Dominance" rhetorics speak to and for those on the right who have felt wronged by a perceived loss of power, influence, and privilege as a result of demographic and political changes that have taken place during the last few decades, seemingly exacerbated by the Obama administration (López, 2015; King, 2017a). Energy dominance discourses are thus best understood as a manifestation and articulation of these politics of grievance, which become more apparent when analyzed through the lens of the energy covenant renewal.

The themes of Zinke's discourse—victimhood, exceptionalism, and renewal—are especially powerful and present in conservative political discourse under the Trump Administration, as can be seen most clearly in the increasing visibility and influence of the alt-right (Alternative Right, 2017; Dimaggio, 2017). Mike King (2017a) persuasively argues that white victimhood is a prominent form of identification not just for the alt-right but in contemporary conservative politics writ large. With grievance appeals, the facts of victimhood are irrelevant. It does not matter that coal has suffered more from competition with cheap natural gas than from environmental regulation, just as it does not seem to matter that, in material terms, white Americans do not suffer the same systematic discrimination that people of color do, or that straight men do not suffer under gender discrimination and heteronormativity like women or those who identify as LGBTQ. King writes:

> the political identity of 'victim' has become decoupled from a materialist analysis (across the political spectrum). In this context, dominant groups (whites, men, heterosexuals) have adopted identity politics and posited themselves as victims—of affirmative action, of political correctness, of diversity, and of social programs that purportedly serve to advance the social standing of nonwhite, nonmale, non-Christian, nonheterosexual persons. […] the (often perceived) lost privileges of dominant groups has been formulated as a moralistic political grievance, and translated into this language and affective economy of victimized identities. (King, 2017b)

Such narratives, like the energy covenant renewal, function on the level of symbolism and affect and give voice to feelings on the conservative right that something has been lost and must be regained.

ZINKE AS PROPHET

Secretary Ryan Zinke has been zealous when it comes to defending fossil fuels and articulating energy dominance policies and ideology. The DOI is responsible for overseeing the production of energy on public lands, including through the Bureau of Land Management, National Parks Service, and the Bureau of Ocean Energy Management. Zinke has worked swiftly and effectively to reverse the "keep it in the ground" policies of the Obama administration and increase oil and gas leasing on public lands (Lipton and Meier, 2017), to expand offshore drilling operations (U.S. Department of the Interior, 2017e) and to open up formerly protected spaces such as the Alaskan National Wildlife Refuge to oil and gas companies (U.S. Department of the Interior, 2017b).

Zinke has earned a reputation for paying lip service to an "all of the above" energy strategy, which ostensibly includes both fossil fuels and renewables—he is fond of saying: "This administration does not pick winners and losers" (e.g., Backus, 2017; Grandoni, 2017; Zinke, 2017). However, his actions suggest a strong preference for fossil fuels. His record as a former Montana congressman reveals a commitment to defending fossil fuel interests, and while a United States Representative, he received significant campaign donations from those industries (Lipton and Meier, 2017). Furthermore, like EPA administrator Scott Pruitt, Zinke has so far systematically excluded environmental groups and renewable energy advocates from his stakeholder interactions, while embracing fossil fuel interests (D'Angelo, 2017b; Hiar, 2017). In his speech and during public appearances, Zinke claims to care deeply about public lands and environmental conservation: "Nobody loves our public lands more than I" (Zinke, 2017). However, given his funding track record, his privileging of fossil fuel interests through meetings and speeches, and his willingness to open up public lands to drilling, he is clearly emerging as a fossil fuel advocate and not a supporter of "all-of-the-above" energy policies. In his speeches, he articulates that protection of public lands is synonymous with fossil fuel development:

> We're going to probably be, this year, number one in oil and gas. And next year, we will likely be a net exporter in liquid natural gas. That's the first time in sixty years. And our nation will continue, I am convinced, to increase market share, and we have a great opportunity to fuel the world. And stewardship of our public lands, I take seriously…. Energy development and hunting and fishing and camping and habitat and protection and other forms outdoor recreation are all part of conservation. (Zinke, 2017)

Through this speech and others, Zinke has thus emerged as perhaps the most visible and vocal spokesperson for energy dominance in the Trump administration, other than Trump himself (see Woods, 2017). On these grounds, we argue that Zinke serves as prophet for the energy covenant renewal.

As a prophet upholding the American energy covenant, Zinke demands allegiance and punishes those who oppose his views, calling them out for not being "loyal to the flag" (Fears and Eilperin, 2017). Furthermore, under Zinke's leadership, the agency now has a reputation for not "tolerating dissent" (Shogren, 2017)—a consolidation of the prophet's influence and voice. In his 2017 speech, Zinke articulates a top-down vision of management wherein multiple federal agencies learn to "work together," but he emphasizes a command-and-control organizational structure: "This is how we fight fires in the west, and this is how the military does it, so this is nothing new. It's straightforward, and that is how we are going to get to 'yes'" (Zinke, 2017). He shows his displeasure with what he calls political "B.S." and the mishandling of American wealth by the Obama administration (Zinke, 2017; Soundcloud, 2017a). Zinke has eagerly stepped into some of the most fraught contemporary political debates, engaging with the press on issues ranging from the role of confederate monuments in national parks (Al-Sibai, 2017) to the use of private jets for professional travel (Zinke, 2017).

Zinke as prophet is able to reiterate and amplify Trump administration talking points, often making them seem more palatable and politic than the administration can itself. Capturing this sentiment, journalist Woods titled his profile of Zinke "Ryan Zinke is Trump's attack dog on the environment" (2017). The persona he constructs for this position is a strongman, one that he

bolsters with his frequent references to his biography as a former Navy SEAL. In his searing profile of Zinke published in *Outdoor Magazine*, Woods (2017) notes: "Zinke's SEAL credentials have given him enormous cachet, which he has used throughout his political career. The trident appeared on his campaign bus when he ran for Congress in 2014, he continues to wear a small trident on his lapel, and he rarely fails to mention his service in speaking arrangements." Woods goes on to note that Zinke has been accused of misrepresenting his service by suggesting he was part of the SEAL team that assassinated Osama Bin Laden; such misrepresentations and slight manipulations of the truth continue to dog Zinke's actions as Secretary, though he dismisses them out of hand (e.g., Rein and Harwell, 2017).

Zinke tempers his military persona by playing the part of the down-home, salt-of-the-earth Montanan—a beer-drinking, joke-making "guy's guy"—a man of the people (Plott, 2017). For example, in August 2017, Zinke was accused of trying to strong-arm Alaska Senator Lisa Murkowski over her vote against Republican-led health care reform; she allegedly responded by threatening to slow-walk the congressional confirmation of some of his DOI appointees. The two privately reached a detente, and the dustup was smoothed over publicly when Zinke tweeted a picture of himself and Murkowski sharing a beer with the message, "I say dinner, she says brews. My friends know me well" (Beavers, 2017). Cultivating this down-home approachability and authenticity, Zinke also opted for a horse as his means of transportation on the first day of the job as a nod to his *bona fides* as a Montanan and to his new position at Interior overseeing vast public lands, including ranchlands. Finally, bolstering this horse riding, militaristic persona, Zinke declared on Twitter and Facebook that he was a "Teddy Roosevelt fan," though critics have countered that Zinke so far is "all Roosevelt hat and no Roosevelt action" (Freemuth, 2017).

In addition to speaking for a larger, more powerful entity, a prophet is also given the ability to unerringly see right and wrong, good and evil, with a clarity not even bestowed on "the chosen people." Zinke uses (his experiences) in the military and as a Westerner to provide credibility for this infallible vision. For example, in a somewhat rambling, perhaps extemporaneous section of the speech, Zinke links together concerns for the environment globally with national security concerns—including nuclear proliferation in Iran—with calls to deregulate and innovate in order to save small-town, local economies that are suffering. In the speech he states: "As a former military commander [I can say that] Iran is a grave threat […] being able to supplant every drop of crude that Iran produces, is a leverage, and energy dominance is part of that" (Zinke, 2017). He goes on: "American prosperity…jobs matter. Hardworking Americans deserve to have a future, and they deserve to have an opportunity to obtain the American Dream" (Zinke, 2017). Zinke then goes on to reference the suffering in his home state of Montana: "Out West, local communities like my home state of Montana, you know…sincere hurt. And I come from a railroad and timber town. If you want to see small towns get stripped, no jobs, the elderly, kids cannot come home, it affects a lot of small communities" (Zinke, 2017).

Finally, the most notable characteristic of the prophet is the prophet's unassailable ability to see and speak the greater truth. True to form, Zinke relies on positioning himself as a clear-eyed realist to justify energy dominance policies. When announcing an Executive Order that would review oil and gas leasing practices on public lands, Zinke claimed: "Our nation can't run on pixie dust and hope. And the last eight years showed that" (U.S. Department of the Interior, 2017c). Similarly, when commenting on DOI's move to make drilling permits for federal lands easier to obtain, Zinke noted: "We're going to be a fair and prudent partner, but we're not going to be an adversary to creating wealth and opportunity on some of our public lands" (quoted in The Associated Press, 2017). Realist rhetoric is difficult to counter, because it places the critic in the position of being "unrealistic" or extreme (Peeples et al., 2014). The fossil fuel industry and its allies are particularly adept at employing the realist rhetoric of moderation, of common sense, and of "the center" so that environmental challenges are positioned as ideologically motivated, unrealistic, and even absurd (Schneider et al., 2016), a tactic used by Zinke as he details the ways certain Americans have fallen away from the values he argues had made America great before the Obama administration.

OBAMA AND THE VICTIMHOOD OF THE CHOSEN

In the energy covenant renewal, the prophet calls on those who have been injured and victimized—who see themselves as the chosen, but suffering—to sign on to a covenant that will renew their eminence. Just as coal, for example, has suffered under the environmental regulation of the Obama era, so too have the white middle and working classes suffered under failed economic policies and the culture wars. The emphasis of Zinke's energy covenant renewal is on what has been lost during the backward, lost years of the Obama administration, and on how to reverse that damage for the chosen.

In the classic version of the jeremiad, the people have fallen from grace and must be redeemed; the energy covenant renewal deviates from this traditional form in that, while the people are still "favored" or "blessed," they did not fall out of favor because of their own actions, but because they were victimized by the liberal elite. They may have been duped by multiculturalism and political correctness into wavering from conservative values, but they will not be fooled again: Zinke uses the renewal narrative to emphasize the stark differences between the values and policies of the far left and the far right and to frame their actions under Trump as restoring moral and economic order. Familiar conservative arguments addressing deregulation and jobs are matched with covenant and restoration language that suggests energy dominance will guide the victimized out of the wilderness to which they have been cast, and to regain their elevated position.

Undoing the Obama agenda becomes of utmost importance under the terms of renewing the neoliberal covenant. Obama-era policies and rhetoric led to conservatives feeling aggrieved. The Obama administration enacted a number of regulations, particularly in its second term and especially aimed at coal, that have become symbolic targets under the Trump administration (e.g., Burnett, 2017; Federman, 2017). Zinke takes aim at the

Obama regulatory agenda in his energy dominance speech, separating the good Americans from the enemies. From the start, he positions American energy politics as made of up "two sides." He argues that one "vision for the future" of US energy "believes we should retreat into a fortress of regulation and red tape, where foreign nations take the lead while America drowns itself in process and procedure. This is not the vision of President Trump" (Zinke, 2017). Though he does not state it explicitly, the straw man "vision" here clearly refers to Obama-era rule-making and regulation.

Zinke lays out the ways that the chosen Americans were tested under the Obama administration:

(1) *Too much environmental regulation*, which was ideologically motivated and which unfairly targeted fossil fuels. Zinke calls out the Obama administration for purposely slow-walking permits—ostensibly for drilling and pipelines—and declares: "Regulations should be grounded on [*sic*] science and careful analysis and not agenda and ideology. That is why this administration is reducing punitive regulations that have stagnated our economy, and we are cutting the regulatory agenda by over 50%. This is a national imperative" (Zinke, 2017). Zinke positions Obama-era policies as unfairly punishing and biased against fossil fuels—Obama clearly "picked winners and losers"—while Trump-era Energy Dominance will remove government interference and allow markets to return to their natural state.

(2) *Attack on the free market*. The previous administration handicapped economic growth for fossil fuels, especially, and market realism demands that fossil fuel production should be allowed to proceed unfettered. In the speech, Zinke complains that the National Park Service is both underfunded and understaffed and that the solution is to re-energize fossil fuel development in order to replenish DOI coffers. For Zinke, the challenges he faces as Secretary have been made substantially worse, not by falling oil prices, but by Obama-era regulations: "That's the consequence of putting 94% of our offshore holdings off-limits, and even making the National Petroleum Reserve unavailable for exploration and development" (Zinke, 2017). Partnerships with fossil fuel industries are the solution for lack of national park funding. Restoring free markets—but paradoxically, only for fossil fuels—will right much of what ails the federal bureaucracy.

(3) *The working and middle classes have suffered as fossil fuels have suffered*. The regulatory attack on fossil fuels has also been an attack on "Main Street." Obama-era policies, Zinke argues, were particularly harmful to the working and middle classes. Under Obama's policies, "local economies suffer, as the focus on bureaucracy over prosperity delayed jobs and prevented wealth that American energy promised to bring" (Zinke, 2017). Here, the Obama administration, allied with mainstream environmentalism and social protest, is portrayed as purposefully preventing some communities from developing wealth. Zinke argues that "hard-working men and women" and "local businesses and opportunities" have suffered under "moratoriums and bans." "Trillions of dollars in American wealth and millions of jobs have been moved overseas as our politicians here at home have turned their back on America's potential for energy dominance" (Zinke, 2017).

Such grievances must be righted by an aggressive, America-first energy covenant. Pointing to Alaska as a prime example, Zinke holds up the state as being on the "road to energy dominance," which means more fossil fuel development and therefore self-determination. "The last administration turned their back on these patriotic and enormously proud people. I can tell you…they have the right to make their own decisions" (Zinke, 2017). This claim echoes that Trump Administration grievance appeals more broadly, which according to King (2017a) are about the righting of grievance and the restoration of privilege: "The dominant slogan of the Tea Party movement of 'Taking Back our Country' or the resonance of Donald Trump's 'Make America Great Again' speak directly and plainly to this widespread sentiment that white people are losing political control and economic standing within a polity where social dominance is implicitly their birthright."

The "higher purpose" of energy dominance as articulated by Zinke in the speech is that its policies and motivations offer the clearest path out of the disastrous Obama years, typified by overwrought concerns with social justice, deregulation, and the hamstringing of the middle and working class American. Energy Dominance will redress suffering, restore the middle-class self under fossil-fuel-dominated markets, and right a social order upset by meddling bureaucracies and activists. In the next section, we turn to how energy dominance offers a means of restoring prominence to the aggrieved.

ENERGY DOMINANCE AND THE PROMISE OF THE NEOLIBERAL COVENANT

The redemptive power of energy dominance lies in appeals to restore social order, justified through the exceptionalism of chosen Americans, who if they again renew their covenant with the values of neoliberalism will raise America to a position of superiority with unrestrained expressions of global power. Here, we examine each element in turn.

American Exceptionalism and Social Order Restored

"Energy dominance" is a nod to the web of identities, meanings, and symbols fossil fuel industries have built up around their products; in particular, American energy has been synonymized with a neoconservative "American identity," one that is primarily working- or middle-class, heterosexual, and white (Bsumek et al., 2014). Access to affordable, reliable energy, and to well-paying jobs in the energy industry, have been key elements of "energy privilege," which has clear social, race, and gender dimensions (Scott, 2010; de Onis, 2017). When American energy fails to be "dominant," so too do groups accustomed to dominance. According to Mike King, "A consistent feature of the United States racial order has been the intrinsic elevation of all whites

– regardless of occupation, education, wealth, or personal lifestyle—to a socio-political status higher than other racial groups" (King, 2017a). Loss of privilege signifies a loss in status and a social order out of place.

The energy covenant renewal therefore promises to reverse perceived declines in energy privilege and to restore social order by bolstering markets that privilege fossil fuels. Zinke's strongman appeal as prophet, his promises to reassert American energy hegemony, and his guarantees to return jobs and profits to those who have lost out under Obama come together to articulate a nostalgic, redemptive path to greatness. He promises that "jobs matter" and that the Trump Administration wants to be "fair and transparent with our job-creating energy sector" and to be "a better business partner with industry" (Zinke, 2017). He insists that industry will be held accountable environmentally, but notes that DOI will welcome "responsible development," with innovation as the response to environmental and safety concerns, rather than creating "punitive regulations that have stagnated our economy" (Zinke, 2017). Zinke also implies that while renewable energy sources such as wind and energy have seen some gains, they are not market-competitive with fossil fuels: "…they also have to market-driven and at a cost point where they are competitive…. Until we [*sic*] are, we have to use the resources we have" (Zinke, 2017). Zinke nods to the importance of market logics here, though without paying attention to actual markets, which have increasingly shown renewables to outperform coal and nuclear in affordable electricity production.

Through deregulation and allowing fossil fuels to flourish again, small town America will be restored to its former greatness. Using coal-dependent West Virginia as an example, Zinke articulates the energy covenant renewal in one clear narrative:

> One of the hardest places hit in [*sic*] the last administration was in West Virginia. Eight months ago, West Virginians [*the chosen*] had lost hope [*but not fallen*]. Mines were closing. Jobs were being ripped away [*through little fault of their own*]. But under this administration, West Virginia is roaring back. We recently celebrated the opening of the Berwind mine, which brought back economic security and hope [*the covenant renewed*]. And the first quarter of 2017, West Virginia was second in the nation in GDP [*the promise of neoliberalism is proven*]. (Zinke, 2017, bracketed comments inserted)

Here again, material realities are ignored in favor of a symbolic narrative of decline and renewal. As coal is restored, so too will be the white middle and working classes and their access to economic opportunity. The path to redemption flows through the Trump White House, which will reverse the prior "administration's war on coal and mining and timber and the ability for a local community [to] have opportunity and to use our public lands for wealth" (Zinke, 2017).

As Zinke lays out the means of regaining certain Americans' "chosen" or "exceptional" status, he therefore advocates for increased domestic production of energy. He frames this argument as the "reasonable" approach, as seen with other neoliberal discourses (Singer, 2010; Schneider et al., 2016), evidencing his claims using the prophetic vision that he has gained from being in the military and concludes with America's righteousness. He claims that other countries have little or no regulation, making their production much less environmentally friendly:

> And it's better to produce energy here, under reasonable regulations, than watch it get produced overseas with none. As a Navy SEAL, I've been to a lot of countries in my life. If you want to watch how energy is produced without regulation and the consequences that has, I invite you take a tour with me to the Middle East and Africa. I can assure you America leads the world in innovation and regulation to make sure our energy is done right. Period. We're the model for the world. (Zinke, 2017)

From a policy perspective, the speech therefore contains internal contradictions. On the one hand, Zinke maintains throughout that deregulation is a significant platform of energy dominance. On the other hand, he claims that environmental protection cannot be sacrificed and that the United States' regulatory structure is what ensures that "energy is done right," i.e., that environmental degradation and the loss of public health do not rule the day. He affirms market logics but ignores market realities. If we shift our analytical lens away from looking for a consistent policy platform and toward the narrative construction of the energy covenant renewal, however, what becomes clear is that Zinke's message is about reaffirming the correctness and dominance—both moral and economic—of America's place in the world and reasserting the flow of wealth to particular communities facing a loss of energy privilege.

An Energy Super Power

In his speech, Zinke argues that "energy dominance" is different from "energy independence" because it recognizes that "America is exceptional" (Zinke, 2017). "This administration and the President believe in American energy *dominance*…. Our goal is an America that is the strongest energy superpower this world has ever known" (Zinke, 2017). The extension from American exceptionalism to superpower undergirds a key aspect of the energy covenant renewal, which is the promise that exerting strength will protect the chosen from ever feeling victimized again. In the speech Zinke states: "Going forward, our participation in the global energy market will protect and defend American sovereignty, not surrender it" (Zinke, 2017). He continues: "Under President Trump, we will put America *first*, and we will put America's energy *first*" (Zinke, 2017).

Energy security rhetoric historically reinforced promises to Americans that they would be insulated from the vagaries of international energy markets, especially following the oil shocks of the 1970s, which resulted in fuel shortages and long lines at gas stations (Mattson, 2009). But whereas energy security promised to protect Americans from such shocks through protectionism, energy dominance promises protection through aggressive movement into global markets while refusing to cede any ground

through international agreements, such as the Iran nuclear deal or the Paris Climate accords. Energy dominance thus posits that the United States should be insulated from vulnerability and American military interventions abroad, but that the country should have unfettered access to and dominance of "global markets," without paying the cost of externalities, such as climate change.

Zinke argues that becoming energy dominant will ensure that the United States is energy secure and will "never be held hostage to a foreign country to heat our homes and to power this nation" (Zinke, 2017). His voice breaking with emotion, Zinke goes on to "speak personally" about his experiences in the military, the weight of his position as Interior secretary and the "America First" vision of the Trump Administration. He implores: "I don't want to ever see your children have to fight overseas for a commodity we have here. I've been to battle, and I never want your children to see what I've seen" (Zinke, 2017). Though he does not mention them by name, Zinke appears to be referencing prolonged conflicts in Iraq and Afghanistan, made worse by Obama's inability to withdraw American troops from there. Energy dominance is therefore not really a "globalist" strategy, involving partnerships and multilateral agreements—instead, it imagines a dominance wherein the United States hard-charges into foreign markets, reaping significant benefits but bearing few risks.

IMPLICATIONS

In this section, we identify four political realities that inform and resonate with energy dominance rhetoric, as it is expressed through the energy covenant renewal: the threat of energy coloniality, political polarization, the rise of populism, and the challenges posed to the *status quo* by energy democracy.

Energy Coloniality

Energy policy in the United States—and all of the practices it has enabled and entailed—has historically depended on the following: the construction of a superior, exceptional American state, undergirded by cheap and reliable energy, and created at the expense of expendable "sacrifice zones" and/or colonized peoples. Scholars of energy studies have studied how American energy extraction and consumption practices impact communities, groups of people, and environments differentially, and how those communities organize to resist (Pezzullo, 2009; Mitchell, 2013; Heffron et al., 2015; Endres et al., 2016; Fuller and McCauley, 2016; Reinig and Sprain, 2016). The industrial era and the booming postwar American economy may have been enabled by access to "cheap and plentiful" forms of energy, but that energy was often produced at the expense of poor communities and communities of color, both in the United States and abroad, through the construction of environmental and social "sacrifice zones" (e.g., Kuletz, 1998; Fox, 1999; O'Rourke and Connolly, 2003; Lerner, 2010; Hecht, 2012). de Onis (2017) terms these relationships of planned dependence and exploitation "energy coloniality," which "connects energy with patterns of coloniality, to foreground its use as a metaphor of frequently invoked power relations and also as a resource that often undergirds colonial desires to invade, exploit, and export" (pp. 6–7; see also Endres, 2009). Under this definition, communities and environments that have suffered injustices because of energy production and consumption practices do not have to have been "colonies" in the historical sense to experience energy coloniality.

Like other grievance discourses, energy covenant renewal takes up the mantle of victimhood as justification for deregulation in the domain of energy policy. It recasts the history of energy coloniality—which has always relied on the dominance of marginalized or disenfranchised people, often people of color—as a history in which white Americans have been discriminated against and deserve recompense (King, 2017a). Zinke's calls to re-elevate those who believe they have suffered under Obama's energy and environmental policies are thus meant to resonate with those already feeling aggrieved by demographic and economic shifts. "Energy dominance" on its surface seems to not be about identity politics, but through the energy covenant renewal and its many "dog whistles" may resonate with other rhetorics of dominance that are particularly influential in the age of Trump.

We therefore maintain that the narrative structure of the energy covenant renewal is used to warrant an era of re-energized and explicit energy coloniality. Scholarship on energy coloniality demonstrates that energy production and consumption are related to a whole host of beliefs about national identity and anxieties around masculinity, whiteness, and wealth that have long informed American energy policy (de Onis, 2017). Energy politics and policy cannot be divorced from American politics and policy writ large, and arguments over American identity are often expressed through energy discourses (Jasanoff and Kim, 2013).

Political Polarization

The energy covenant renewal, as articulated through the rhetoric of energy dominance, is not used to unify the American people, but rather to exacerbate polarization and partisan identity. This marks a notable deviation away from the classic form used to unite Americans in their exceptionalism and highlights a political context typified by polarization. Politicians like Donald Trump face a unique challenge in the United States today—a country marked by pluralism, multiculturalism, a widening gap between rich and poor, and a fragmented media environment. Unlike populists of the past, they will struggle to identify a "people" who can be unified rhetorically. It may also be that Trump and his spokespeople are not particularly interested in unification and that they in fact benefit from polarization. Historian Michael Kazin (2016) argues that the President's rhetoric "lacks a relatively coherent, emotionally rousing description of 'the people' whom Trump claims to represent" (p. 22), but notes that "it has become increasingly difficult for populists—or any other breed of US politician—to define a virtuous majority more precisely or evocatively" (p. 23).

We have argued throughout this essay that the energy covenant renewal does not seek to unify "the people," if by that we mean all Americans. Instead, it exacerbates polarization by pitting the "chosen" on the far right (those who want to see a fossil fuels resurgence) against the liberal elite of the Obama administration (those who privilege environmental regulation). The energy covenant renewal is meant primarily to rouse the Republican base. Zinke speaks through energy dominance to those who have

felt cast out and aggrieved under 8 years of a liberal, African-American President. Grievance appeals unite predominantly white conservative partisans as victims who have lost out under demographic trends, multiculturalism, and political correctness, but who will rise to dominate again. Again, we return to the work of Mike King (2017a), who writes:

> This amalgamated white conservatism is central to modern American politics, while its overt racial nature is often subsumed and veiled. Aggrieved whiteness is the coupling of this identity of racially coded politico-moral supremacy (of hard work, responsibility, and meritocratic fairness) within a worldview where this identity has been wronged by entwined forces of social liberalism and racial progress.

We argue that one of the ways conservative partisan identity is solidified is through energy dominance rhetoric, which enables those in power, such as Ryan Zinke, to make promises about restoring social order without explicitly referencing racial politics.

This rhetorical sleight-of-hand is possible because fossil fuels are never just fuel sources. They symbolically stand in for conservative culture and identity—for example, many scholars have noted the layers of significance that surround the meaning of "coal" (Scott, 2010; Bsumek et al., 2014; Schneider et al., 2016). "The coal industry seethes with symbolism," writes journalist Jonathan Thompson (2017):

> When Obama was castigated for a so-called war on coal, it was not for trying to mitigate a catastrophic global habit, but for attacking miners, a powerful symbol in rural, white, American culture (85 percent of coal miners are white men, according to the Bureau of Labor Statistics). When Trump demonstrates that he 'digs coal' by rolling back regulations, he's banking on rural nostalgia and pushing back against Obama, who for portions of white America became a symbol of urban elitism, progressivism and blackness.

Attacks on coal—and perhaps on fossil fuels generally—are therefore bound up with attacks on masculinity and on white masculinity in particular. Bringing coal back promises to bring back a lost social order, with Ryan Zinke and Donald Trump leading the way home.

The Rise of Populism

Donald Trump ran his presidential campaign as a populist, anti-establishment candidate, perhaps best evidenced by his promises to "drain the swamp" and "build the wall." His political rhetoric and communication style follow the "simple, direct, emotional, and frequently indelicate" style of populism (Oliver and Rahn, 2016, p. 191). According to Oliver and Rahn (2016), who argue that Trump's rhetoric is classically populist:

> At its core, populism is a type of political rhetoric that pits a virtuous 'people' against nefarious, parasitic elites who seek to undermine the rightful sovereignty of the common folk. […] Its tone is Manichean, casting politics as a bifurcated struggle between 'the people,' on one hand, and a self-serving governing class undeserving of its advantaged position, on the other. Its goal is restorative, replacing the existing corruption with a political order that puts the people back in their proper place and that is more faithful to their longings and aspirations (p. 190).

Here, we see many echoes of the renewal used by Zinke in his energy dominance speech: the "people" (Zinke's conservative audience) are unified in their suspicions of the ruling class (the Obama administration; large federal government), preferring instead the authentic folk wisdom of the prophet. They also long for order to be restored and challenges to their privilege to be suppressed. We have shown how the energy covenant renewal reinforces these key features of populist rhetoric.

Under Trump, populist rhetoric also has partisan appeal because it resonates with ideological arguments for a vastly reduced federal government (Republican Platform, 2017). Similarly, the focus on critiquing the bureaucracy is another signal that Zinke is delivering a message very much in line with the Trump administration's focus on deregulation and diminishing the "administrative state" by refusing to staff and fund federal agencies, a major priority of the President's former advisor, Steven Bannon (Rucker and Costa, 2017). Although Bannon left the administration in August 2017, several agencies in the federal government remain markedly understaffed compared with previous administrations (Rein, 2017). Zinke negotiates his position as a leader of an administrative agency through the energy covenant renewal, which allows him to argue for resources for DOI *via* free market solutions and not through taxpayer dollars.

Silencing Energy Democracy

Privileging industry voices over non-industry voices is a clear hallmark of energy dominance—as we argued above, Zinke uses the renewal to appeal to those who felt they lost clout and privilege during the Obama years. Under Trump, Zinke promises, industry voices will again become dominant. The energy renewal discourses speak primarily to those on the right who perceive they lost out to environmental regulation and who want to see fossil fuels come "roaring back." We argue that energy dominance thus positions itself in direct opposition to energy democracy movements. Those who protest a return to the "Golden Age" and traditional forms of order are not members of the chosen—they are "matter out of place" and need to be dealt with swiftly and decisively. Energy democracy movements, groups, and voices are excluded under the energy covenant renewal. Energy democracy brings together broad coalitions of people to argue for the decentralization of energy systems, decarbonization, collaborative and equitable forms of decision making, and a focus on long-term, intergenerational ethics and sustainability (see Burke and Stephens, 2017). Energy dominance, on the other hand, emphasizes central control, fossil fuels, swift decision making that favors private industry, and short-term profits.

The role of voice is an essential element of energy dominance: fossil fuel advocates are granted voice and access to political

power, and oppositional voices are silenced. The silencing of protest is therefore an essential piece of returning the United States to its former "greatness." One example from Zinke's speech is illustrative: just moments into the speech, Zinke is interrupted by a woman (off-screen) who asks: "Secretary Zinke, how many calls have you taken…." The rest of her question is inaudible on the video, though journalists later reported that it dealt with the many meetings Zinke has taken with fossil fuel industry leaders (e.g., D'Angelo, 2017b). In response, Zinke leans into the podium and forcefully speaks over the protester, saying: "Our decisions will be guided by our *flag*, and not *kneel* to anyone" (Zinke, 2017; italics note inflection in speech).

Zinke's comments here clearly reference the larger cultural debates about the kneeling protests of National Football League players—players who had taken a knee during the playing of the national anthem to protest policy brutality against African-American men and who were publically chastised by President Trump and Vice-President Pence as offending members of the military (Bump, 2017). Protest here is framed as un-American and disloyal. Zinke's comment during the speech also echoes his concerns that 30% of his DOI staff are not, in his words, "loyal to the flag" (The Associated Press, 2017d) and his insistence that a special secretarial flag at DOI headquarters should be flown when he is in the building—a nod to a military tradition (Abrams, 2017). These comments about "flags," "kneeling," and "loyalty" knit together the rhetoric of energy dominance with political identifications in the conservative base that justify the suppression of speech and protest on the left. They underscore the importance of hierarchical forms of order and fundamentally question the role of protest in public life, especially when that protest aims to highlight racial disparity.

Indeed, Zinke's posture toward protesters has not been favorable, and as such echoes conservative critiques of racial or ethnic protest by progressives (Chapman, 2017; Wilson, 2017). During a visit to Bears Ears National Monument in May 2017, Zinke refused to take questions from Cassandra Begay, a woman working as a liaison for Native American tribes involved in the Bears Ears monument designation. A video of their interaction shows Begay asking repeatedly, "When are you going to meet with the tribal leaders?" After she asks the question a third time, Zinke puts his finger in her face and says, forcefully, "Be. Nice. Be nice, don't be rude" (D'Angelo, 2017a). In her interruptions and persistence, Begay was not following the rules of deference and civility, rules that often privilege official, "civil" speech but not indecorous speech or speech from the marginalized (Cloud, 2015).

Similarly, in a moment of irony during the Heritage speech, the woman who interrupted him initially to ask about his fossil fuel connections interrupts again. He continues to speak over her, saying: "As the chief steward of our public lands, my job is to make sure that all Americans have a voice. [Pause]. That *all* Americans have a voice. And I hear that voice loud and clear" (Zinke, 2017). Zinke does make a nod to local, tribal, and state interests later in the speech, arguing that these groups need to be integrated in decision making to improve "coordination and consultation" (Zinke, 2017). But in practice, Zinke's actions suggest that he is attuned to hearing only one voice—the industry voice—as is evidenced by his enthusiastic embrace of their concerns and rhetoric and his refusal to meet with people from other sectors of American public life as Secretary of Interior. Voices of opposition and protest to fossil fuel hegemony are not voices Zinke is interested in hearing. When he says in the speech, "I can assure you, the war on American energy is over" (Zinke, 2017), the "you" here is addressed to those with stakes in fossil fuel industries specifically. Zinke seeks to silence those who are not "the chosen," rather than bring them into the fold.

CONCLUSION

In this article, we have maintained that Zinke's discourse highlights a new variant on the American jeremiad and renewal discourses: the American energy covenant renewal. In it a "prophet" or leader establishes a vision of America's values, strengths, and failures. The narrative establishes the chosen Americans, those who have been tested and suffered, but not fallen, by polarizing them from those Americans characterized as undermining the greatness of the country from the inside. A renewed investment in the neoliberal covenant, one that bolsters America through its production of energy, is offered to the chosen as the means for regaining dominance.

While calling for greatness in the future, jeremiad and renewal narratives are always looking to the past, to a previous golden era when the chosen people were not failing or not enduring the suffering of the present. The narratives are therefore fundamentally conservative, attempting to stave off changes that are seen as threatening to the dominant social order, whether they should be religious, demographic, economic, or military. In the United States, neoliberalism is under pressure from large-scale protests such as the Occupy Movement, the strong showing of Bernie Sanders and his transformative economic messages in the last presidential election, and best-selling books such as Naomi Klein's *This Changes Everything* (Klein, 2014). Fossil fuels are also being challenged by the energy democracy movement, which is motivated by rising concerns over climate change and other environmental and public health risks, a desire to maintain self-determination at the local level, and the increasing availability and affordability of renewable energy. As these hegemonic structures continue to be dismantled, we anticipate seeing further calls for covenant renewal in neoliberalism and energy in American public rhetoric as those who have benefited from these arrangements attempt to bolster them through discourses of victimhood, exceptionalism, and restoration. Our hope is that future work might examine how and where similar rhetorics of environmental dominance appear across contexts, as well as how they might be resisted.

AUTHOR CONTRIBUTIONS

JS developed the topical focus for the paper and developed specific analyses and implications. JP provided the theoretical framework and developed specific analyses and implications. Both authors worked closely on revisions. JS prepared the manuscript for final submission.

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Can Energy Democracy Thrive in a Non-democracy?

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This paper argues that energy democracy could manifest in terms of public engagement at the community level, free of state intervention, government fostering, and donor support, even in locations where governments have been in flux from a democracy to a non-democracy. In currently non-democratic Thailand, for example, public engagement on community energy transitions had occurred, were sustained, and proved to be durable over time. The spaces of deliberation, created and nurtured by Thai citizens in this community, had become effective sites for navigating and negotiating the ebbs and flows of democratically organized sociotechnical energy transitions. This paper further argues that these spaces for public engagement had revealed that energy democracy is collective, cultural, consequential, co-produced, co-existent, and critical phenomenon that can be used to shore up an energy democracy framework.

Keywords: energy democracy, citizen engagement, public participation, energy transitions, community energy, Thailand

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> "What is the meaning of democracy, freedom, human dignity, standard of living, self-realization, fulfillment? Is it a matter of goods, or of people? Of course it is a matter of people. But people can be themselves only in small comprehensible groups." –Ernst Friedrich (Shumacher, 1973): 75, *Small is Beautiful: Economics as if People Mattered.*

INTRODUCTION

Governance at one level impacts governance at other levels. Osmosis and traffic, thus, is the norm in contemporary governing. This notion is manifest in the Paris Agreement on climate change in its call for a multilevel action on decarbonisation of energy systems (United Nations Framework Convention on Climate Change, 2015). By multilevel, it means that energy transitions have to occur across scales—from the global to the national to the subnational or the "local." The focus on the subnational and the local is underlined in the Agreement with the term "subnational" used six times, and "local" seven. So much of the energy transitions will ultimately occur at smaller scale, local and community actions, interventions, and innovations. These "blossoming of a thousand flowers" were indeed instrumental in the German *Energiewende* (Morris and Jungjohann, 2016), and had attracted following in the UK (Seyfang et al., 2013) among many other spaces and jurisdictions. While much has been written in this area in developed societies, scholars have also been tackling localized energy transitions in developing countries (Delina, 2018), albeit in various guises such as energy access (e.g., Sovacool and Drupady, 2012). There seems to be a veneer, however, blocking our focused gaze on community-based energy transitions as they occur in countries with non-democratic governments. But, can energy democracy thrive in these spaces?

This perspective piece seeks to respond to this question by providing an empirical case study as evidence. I begin with a quick focus on energy democracy as a concept and agenda that is a

work-in-progress and, at the same time, deeply attached to established contexts of participation and engagement usually and primarily occurring at the community level; hence it is more of a "governance" idea independent of "government." To emphasize this point, I then go on to argue that energy democracy is a dynamic concept, and that its dynamics are constantly re-imagined—even in contexts such as in places where the government is non-democratic. In making this point, I use a case from Thailand, a developing country in southeast Asia currently governed by a military government. As will be demonstrated, this empirical example suggests that a democratic governance arrangement for sustainable energy access and transitions can exist simultaneously even within a non-democratically governed country. To that end, I highlight the key terms central to energy democracy that I observed in rural Thailand in a section expounding energy democracy as a phenomena. I close the paper with a short concluding remarks.

ENERGY DEMOCRACY AND THE FOCUS ON COMMUNITIES

Conceptualizing and theorizing "energy democracy" remains an unfinished work, but its general agenda can be understood as one pertaining to the instantiations of citizens mobilized in the project of energy transitions in small groups of households and neighbors for social and economic purposes, among multiple contingent aims. Duly attached to "energy democracy," thus, are the cliché terms "civic engagement" and "public participation." As shown in many European contexts, the spaces by which civic engagement and public participation processes are produced have also underscored a key shift in power relations in that "a thousand flowers blossoming" also came to represent social-political-economic struggles against utilities and large-scale energy systems. Energy transitions, therefore, are not ordinary shifts in technologies; they are also strongly glued to the orderings of human societies, economies, and polities (Jasanoff, 2004). The expansion of community-oriented energy systems as manifest in strategic alliances or networks made their evolution similar to what had been observed amongst social movements, which had also strengthened sociopolitical power for regime change via rhizomatic arrangements (Tarrow, 1998; Delina et al., 2014; Delina and Diesendorf, 2016).

The Paris Agreement, now almost universally adopted, shared the same genesis. Some of its orchestrators namely, Laurence Tubiana (Pardee Center, 2016), the French Government's Special Representative to the Paris climate change talks, and Rachel Kyte (2016), then World Bank Group's Special Envoy for Climate Change, almost in chorus, noted invaluable bottom-up approaches as key in realizing the Agreement. If the Paris Agreement signals that global normative ambitions, such as addressing climate change, requires hands-on approaches involving actions from all conceivable actors at the bottom, energy democracy—once diffused and scaled up—could also offer a robust opportunity for large-scale energy transitions for rapid decarbonization. Interestingly though, the word "democracy" is nowhere to be found in the text of the Agreement.

A focus on the local—at the communities—has long been advanced in the critical literature. Feminist economic geographers, Gibson-Graham (2008), for instance, have almost fixated their collective work on bringing to light marginalized, hidden and alternative economic activities in many communal practices. Writer and activist, Monbiot (2017), also points to communities for regenerating culture and making politics in contemporary times that are choke-full of mistrust in government and markets relevant again.

Just like other arenas of public engagement and participation, energy democracy is a dynamic concept. In *Energiewende,* such dynamism is noticeable in community energy as a response to many entangled issues including risk, new ownership structures and socio-economic opportunities, among others (Morris and Jungjohann, 2016). In other locations, such as in the UK, energy democracy reveals community energy as spaces where citizens organized together, among others, to improve social cohesion and develop new job opportunities, not just for seeking environmental ends (Seyfang et al., 2013). What these examples show us, thus far, is that, the concepts and practices of energy democracy are changing in interpretations, with its meanings dynamically interpreted and reinterpreted. What matters at this stage, therefore, is a nod toward reflexivity, i.e., an acceptance of the many inevitable openings and closures that exist as we imagine these new social orders (Stirling, 2015).

With the concept of energy democracy in flux, localized energy transitions are also underscoring emerging opportunities for citizen engagement and participation, including in communities in developing countries. Community-based public engagement in these locations is not a new field of study. Nobel laureate Ostrom (1990) had documented the various structures of these many practices that even pre-date industrialization for common resource management. Another Nobel laureate Sen (2006) also notes similar long tradition of Indian civic engagement. As communities are, once again, called on in the transitions project, understanding their dynamics and learning from their practices have become an imperative for scholarship and practice. One of the many atomized communities where these dynamics could be observed is in non-democratic Thailand.

STUDY SITE AND METHODS

Thailand emerged as an upper-middle income economy in 2011 from a low-income country in less than a generation (World Bank, 2011). Alongside this economic development are its rising emissions—from 152 $MtCO_2e$ in 1990 to 369 in 2013 (World Resources Institute, 2017). Despite its impressive industrialization, however, Thailand is still home to significant rural poverty, with more than six million poor people living in rural areas (World Bank, 2017). Thailand also has an almost rough contemporary politics stamped by a series of protests and take-overs. Since 2014 up to this writing, Thailand is under a military government, which makes it a non-democratic state. Despite the ebbs and flows by which Thailand is governed, energy democracy seems to thrive in a Thai community 275 km southwest of the capital, Bangkok.

This community is located in Pa Deng town, Kaeng Krachan district, Phetchaburi province. Kaeng Krachan also happens to be the name of Thailand's largest and oldest national park. I have visited this community in November 2016 to January 2017 and conducted qualitative data gathering techniques including observations, face-to-face interviews and small group discussions. All subjects gave oral informed consent in accordance with the recommendations of the Internal Review Board of Boston University, which also stated that this project is not human subjects research (Protocol No 4103X, notification provided on 29 April 2016). Inside this forest, many Thai households raise cattle, pigs and chickens, and plant maize, plums, pineapples, jackfruits and vegetables. About a hundred households had self-organized into communal network following the late King Bhumibol Adulyadej's *sethakit por piang* (sufficiency economy) idea of development. *Sethakit por piang* was shaped around cultural forms of communality and Buddhist notions of moderation. [While this development paradigm has been saluted by organizations such as the United Nations Development Programme (United Nations Development Programme, 2007), it is not free of criticism: its open-endedness, for instance, meant that anyone could attach any meaning to it.]

In the Pa Deng network, *sethakit por piang* is translated in practice around five areas: resiliency, cohesiveness, local economy, livelihoods, and capacity building. At the core of this practice are activities about energy transitions, evidenced by shifts in fuel for cooking, lighting and agriculture services. From charcoal, kerosene and firewood-fuelled cooking, many households had been using biogas trapped in digesters that produced flammable gas from organic matter, primarily cow manure and kitchen leftovers. From diesel-powered system for lighting and irrigation, solar home and irrigation systems had become almost mundane (field notes, November 2016).

ENERGY DEMOCRACY AS A PHENOMENON AND AS A FRAMEWORK

Key terms central to the idea of energy democracy panned out from these energy practices. At least six of these terms can be identified: collective, cultural, consequential, co-produced, co-existent and critical. These suggest that energy democracy is a phenomena, at the same time that these terms appear to provide the necessary shores for propping up a framework of energy democracy. Using extracts from my field notes, I concisely describe these terms.

The inherent and spontaneous **collective** response among Pa Deng citizens sways away from the usual understanding of public engagement as a mere collection of autonomous individuals or an amalgamation of their individual interests. These citizens reveal that this collective act is internal, not external, to any public engagement exercise. A farmer interviewee spoke of this collective spirit: "...I knew that my neighbors, although they live miles away from my home, were also in need for (sustainable energy) technologies...(we like) working together as friends (field notes 11/2016)."

The community's imagined citizen-monarch relationship where the King was afforded a revered status (Fong, 2009) served an important **cultural** basis for understanding the context of this type of engagement. Ordinary Thai citizens were nudged to participate in the transitions largely since this communal act is deeply moored to the practice of the King's *sethakit por piang*. These monarch-citizen relations ushered in an almost natural inkling for citizens to participate. Following this, informal engagement simultaneously occurred as farmer-neighbors gather in the evenings over local wine, when gossiping on roadsides, or on their way to town. These culturally embedded spaces had turned into informal sites of energy democracy, where farmers would share their technological innovations.

Another key context for spurring this engagement was the communally identified need for energy access. Since state regulations prohibit grid extension to national parks, the Pa Deng community could not be connected to the national grid. Finding solutions to address this common need had nudged households to collectively think and act. Communal knowledge- and opportunity-seeking, as it turned out, involved processes of constant experimentation and learning, including copying from what others had been doing. The community's innovative biogas digester system is manifest of these processes.

In 2008, the community decided to test a new technology they saw from their Burmese neighbors: a concrete biogas system. However, they found that they would benefit more if they increase its volume by using cheaper plastic material instead. It turned out that this innovative system could produce more biogas, was easy to operate, maintain and manage, and, in the longer term, was cheaper than buying traditional fuels such as charcoal and kerosene. As a result, this system resulted into monetary savings, which many households could use instead for health and education purposes, as well as for purchasing additional equipment or agricultural farm inputs. Freed up time is another benefit. With time saved from firewood gathering, farmers could now have more time for essential farming work. This **consequential** character of the Pa Deng communal practice manifested a key aspect of public participation.

Another essential quality of this thriving practice was their inherently produced public participation exercises. Bereft of any state or donor support, the community prospered in their sustainable energy practices by harnessing their own capacities and resources. The community also addressed their challenges by adopting a systems thinking approach, i.e., using a multifaceted understanding of how these challenges could be addressed. Sustainable energy access, thus, was considered not as a simple change of fuel but more about shifts in ways they could live as a community. The transition, thus, is sociotechnical, hence illustrating public engagement as a **co-produced** interweaving of the social, the normative, and the material (Jasanoff, 2004). Co-production occurs, not only in terms of farmers highlighting their technical transformations but also by valuing social development, as evident in their sense of communality through camaraderie and cohesion (field notes 11/2016). It is also predicated on the shared interactions between the Pa Deng public and professionals manifest on co-design and co-delivery of sustainable energy services. An example is when technologists from a nearby university and the Ministry of Energy would visit the community to provide some technical support (field notes 11/2016).

In Pa Deng, deliberation is pegged as an important exercise for sustaining a sociotechnical innovation. A basic definition of deliberation pertains to a mutual communication involving reflecting over preferences, values and interests on matters of common concern (Dryzek, 2000). Deliberation is used in Pa Deng in both informal and formal settings, i.e. informally at road interactions or neighborhood gatherings, and formally during their monthly community meetings. These practices illustrate how citizen engagement and public participation could occur *in situ* and not exclusively within predesigned participatory exercises. In deliberation, citizens would describe their experiences and experimentations toward their energy systems, without fear of being unduly criticized, apprehended, or mocked. Public engagement, thus, is **co-existent**: as these sites of public engagement thrive, so is energy democracy.

With their sustained deliberation, the Pa Deng community also demonstrates that the virtue of reflexivity is more important in public engagement. Reflexivity refers to the **critical** practice of assessing one's normative biases and commitments in the practice of collective work. The extent to which reflexivity is practiced in deliberation is in terms of their respect of neighbors who elected not to participate. Indeed, the Pa Deng sociotechnical innovations did not necessarily claim to be genuinely inclusive. In this case, it was impossible to engage all relevant stakeholders in the community. The reasons for non-engagement are multiple but significant to these were—in the case of biogas digesters—people's perception over the cleanliness of the system and their capacity to purchase expensive fuels such as liquefied petroleum gas tanks. Reflexivity is also manifest with the practice of deliberation. During these exercises, neighbors gathered to give and take arguments on options or issues relevant to them. A farmer provided an example: "I learned that I could substitute (cow manure) with other feedstock such as grass cuttings and some kitchen leftovers. So I thought my (farmer) friend who is not a member of our network will be attracted to join us; but it wasn't enough to convince them... Anyway, our network is voluntary. If you like, then you can join. If you don't, it's still okay. I like that we are not forced to be here. And I like that we are free to talk things out... (field notes 11/2016)."

CONCLUSION

The materiality of energy transitions is not solely manifest in technological shifts; it is, at best, a marriage between social and technical innovations. The spaces of deliberation, created, nurtured, and sustained by ordinary citizens in Pa Deng had inarguably transformed into effective sites for navigating and negotiating the contradictions, tensions, and contestations of these processes. The sociotechnicality of their engagement also revealed that energy democracy is a collective, cultural, consequential, co-produced, co-existent, and critical governance phenomenon able to manifest and thrive even in places where government systems flow from democracy to non-democracy. This example highlights the relevance of Schumacher who pointed out that people, "in small comprehensible groups," are the matter of democracy. Yet, this community-oriented transition, while it shows an energy democracy in practice, is but a small piece in the larger puzzle of the imperative for a much broader and larger energy transitions. With many communal exercises failing, the Pa Deng case is specific at best: what happened in Pa Deng does not necessarily mean "scalable" to other spaces. We, therefore, remain in dire need for more collective efforts to decarbonize energy systems—hence supporting the ideals of the Paris Agreement, and to do it rapidly and democratically. Here, the lessons extracted from the Pa Deng case could best serve us a framework by which we can model energy democracy elsewhere to support these ideals.

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LD designed the study, collected and analyzed the data, and wrote the manuscript.

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Energy Colonialism Powers the Ongoing Unnatural Disaster in Puerto Rico

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On September 20, 2017, Hurricane María made landfall in Puerto Rico. Blasting the Caribbean archipelago with 155-mile/h winds, this, in many ways, unnatural disaster exposed the brutal consequences of energy colonialism and an extractivist economy, as well as ongoing and increasing advocacy for decentralized solar infrastructure by many local residents and other renewables supporters. This paper argues that acknowledging colonial power relations and their consequences is essential for studying the interplay of energy systems, environments, and actors. To support this claim, this essay outlines Puerto Rico's history as a US colony by focusing on key policies and their implications; examines openings for and barriers to decentralized, community solar in Puerto Rico; and concludes by discussing future research directions on just energy transitions and the imperative of uprooting colonialism and agitating for community self-determination and energy justice in these transformations.

Keywords: disaster capitalism, energy colonialism, energy justice, Hurricane María, Puerto Rico

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On September 20, 2017, Hurricane María rattled Puerto Rico. Weakened by a $73-billion debt crisis, outdated infrastructure, and Hurricane Irma, which skirted the Caribbean archipelago just weeks before, the US unincorporated territory could not sustain the damage caused by the nearly Category 5 María. This most unnatural disaster accelerated the already launched collision of Puerto Rico's entwined economic, energy, and environmental crises (Bonilla, 2017; de Onís, 2017a; Lloréns et al., 2018). As of this writing, about 40 percent of households are still without electricity, and those that have power often do not have consistent access. For months after the storm, many people also lacked potable water, which resulted in some residents drinking from superfund and other contaminated sites (Hand, 2017). Meanwhile, the death toll linked to the storm exceeds one-thousand people (Center for Investigative Journalism, 2017).

Examining this still-unfolding humanitarian crisis requires studying Puerto Rico's historical and present-day experiences with colonialism, especially *energy* colonialism. This extractivist system and discourse marks certain places and peoples as disposable by importing and exporting logics and materials to dominate various energy forms, ranging from humans to hydrocarbons (Atiles-Osoria, 2014; de Onís, 2017a; McDermott, 2017). During the last 4 years, I have studied how Puerto Rico—a US colony since 1898—has been exploited as a sacrifice zone for empire building and experimentation, corporate greed, and toxic energy projects (Bullard, 1993).[1] I also have encountered many social movement actors and energy studies scholars engaged in long-time struggles for alternatives to imported fossil fuels and centralized systems that deny community member control over their own energy futures. To examine the pre- and post-María milieu, this essay outlines Puerto Rico's history as a US colony by focusing on key policies and their consequences; examines openings for

[1]Here, I diverge from the "US unincorporated territory" designation to name Puerto Rico's political status for what it is: a US colony.

and barriers to decentralized solar energy in Puerto Rico; and concludes by discussing directions for future research on energy transitions and the importance of foregrounding self-determination and energy justice for those most impacted by these projects and policies.[2]

ON COLONIALISM, CARBON, AND CORRUPTION

Prior to Hurricane María, entwined economic, environmental, and energy exigencies set the scene for a perfect storm of devastation. While several policies played a role in and are important for understanding Puerto Rico's contemporary situation, I focus on three that epitomize Puerto Rico's colonial dilemma. These are: the Jones Act, Operation Bootstrap, and the Puerto Rico Oversight Management and Economic Stability Act (PROMESA).

The 1920 Jones Act, also known as the Merchant Marine Act, requires that all goods entering Puerto Rico's ports arrive on US-made, US-staffed, and US-flag-carrying ships, an arbitrary policy imposed on the so-called "Rich Port." This Act has choked hurricane relief efforts, as much-needed supplies have sat in local waters waiting to be distributed or have been sent back to their points of origin. While President Trump lifted the Jones Act for 10 days, because of public pressure, this temporary waiver did little to alleviate the burdens created by this economic dependency and its high financial and other costs.

Another twentieth century policy that continues to haunt Puerto Rico is Operation Bootstrap. Beginning in the 1940s, this industrialization-by-invitation initiative implemented loopholes and tax incentives, thus positioning Puerto Rico as a destination for wealthy investors and corporate polluters, including the pharmaceutical and fossil fuel industries (Berman Santana, 1996). This form of "petrochemical colonialism" targets precarious communities that are in contemporary times exploited not by slave owners but "by the petrochemical industry executive as the new 'master' and 'overseer'" (Bullard, 1993, p. 13).

Puerto Rico's current energy mix continues to be shaped by this heavy carbonization initiative. According to the Puerto Rico Energy Commission (PREC, 2016), petroleum, natural gas, coal, and renewables constitute 62, 18, 17, and 3 percent of Puerto Rico's energy mix, respectively. Those numbers translate into a reliance on imported fossil fuels for 97 percent of the Big Island's energy needs, causing residents to pay two to three times more than the average US household on their electricity bills.

Accompanying this energy backdrop, in 2016, President Barack Obama and the US Congress approved PROMESA, which granted unbridled power for "managing" the debt crisis to an undemocratically elected control board, locally called "la junta." Numerous individuals and groups have criticized PROMESA for, its neoliberal austerity agenda and sweeping oversight abilities. Board members have proposed, cutting retirement pensions, closing numerous K-12 schools, gutting funding for the public university system, and fast-tracking "critical" energy projects (PROMESA, 2016). In response, many community members have rejected the legislation and its colonial impositions, with slogans such as "se acabaron las promesas," translated as "promises are over," and "la gente antes que la deuda," or "people before debt."

The debt situation and other colonial efforts to ensure Puerto Rico's economic dependency have yielded dire consequences for local residents. Prior to the 2017 hurricane season, about half of Puerto Ricans lived in poverty, faced high unemployment rates, and had a per capita income of about $15,000 per year (Bureau of Labor Statistics, 2017). Now the situation is much, much worse. Personal financial distress is tied to the debt crisis, a result of risky municipal bond sales, as well as other monetary dealings that have burdened residents with financial hardships, while benefiting wealthy investors (Kolhatkar, 2017).

In response to a lack of resources and adequate recovery efforts, more than 300,000 residents have left the archipelago for Florida alone since María, and those numbers are expected to grow in the months and years ahead (Bonilla, 2018). Prior to the storm, Puerto Rico was home to 3.4 million people, a number persistently eroded in the past decade, as Puerto Ricans, who are US citizens, moved north in search of more livable conditions (Duany, 2002; Centro, 2017).

Human movements are not the only changes unfolding in this US colony. Puerto Rico's bankrupt public power utility, the Puerto Rican Electric Power Authority (PREPA), faces privatization and is experiencing substantial challenges in restoring electricity to the Big Island. Despite assurances from local government and power authority officials insisting that electricity would be restored 3 months after the storm, portions of Puerto Rico likely will remain without power until May 2018—or later (Robles and Mazzei, 2017). One reason for this delay is because of poorly selected and negotiated contracts with inexperienced companies with questionable ties.

The Puerto Rican government's three-million-dollar agreement to restore its decimated grid with Montana-based Whitefish Energy sounded alarms. New to the energy sector, the company employed only a few people at the time of the contract signing and had no experience with a project the size required for Puerto Rico (Whitefish Energy, 2017). Critics of the deal were quick to point out that US Secretary of the Interior Ryan Zinke and Whitefish Energy are from the same Montana town, and the company formerly employed Zinke's son (Geiling, 2017; Goldman, 2017). Amid growing concerns about local and US government and corporate corruption, the Puerto Rico-Whitefish agreement was canceled in late October 2017 (Noticel, 2017). Another two-million-dollar contract with Oklahoma-based, fossil-fuel energy company Cobra also stirred controversy. These two deals exemplify disaster capitalism, as politicians and others

[2]Informed by environmental and climate justice, energy justice is concerned with how People of Color and low-income communities are impacted by global climate disruption, energy poverty, energy vulnerability, and decarbonization (i.e. transitioning from high-carbon energy sources, such as petroleum and coal, to low-carbon energies, such as wind and solar). Energy justice also struggles against the exploitation of indigenous lands and communities for high-risk and toxic energy development, from nuclear to fracked gas, and also recognizes the importance of sustainable jobs in the renewable energy sector and achieving energy security and sovereignty in relation to infrastructure, distribution, and access. Thus, this movement and discourse strives for direct community engagement to advance sustainable practices, including considerations of how, where, and for/by whom energy is produced, distributed, consumed, maintained, and disposed of (Sovacool & Dworkin, 2014).

mobilize shock to curtail agency and resistance to advance a neoliberal, free-market agenda that works to silence alternative perspectives and pathways (Klein, 2007).

Those still without power are frustrated by the delays but also have become accustomed to PREPA's mismanagement. Prior to María, costly electric bills, frequent and widespread outages, environmental pollution, human health harms, and the denial of local community control over residents' own energy futures were the norm in Puerto Rico (Wanzer-Serrano, 2015). This situation has made some large-scale renewable energy proposals particularly appealing.

In the days following the hurricane, Puerto Rican Governor Ricardo Rosselló Nevares and Tesla founder and CEO Elon Musk exchanged tweets about collaborating to address the colony's energy emergency. Supporters of the potential partnership celebrated these emergent plans for installing huge Tesla powerpacks, while critics cautioned that a deal with Musk only serves to advance green capitalism, exemplifies the white savior trope, and positions Puerto Rico as a site for experimentation by the United States (Cummins, 2017; Santiago et al., 2017).

These aforementioned contracts elucidate efforts by Puerto Rican officials and US-based corporations to rebuild the Big Island's power grid, rather than to dramatically transform it, by shifting to small-scale, decentralized solar energy projects organized and maintained at the local community level. Such a departure would revolutionize the colony's current energy culture and disrupt inequitable power dynamics. For some in Puerto Rico, this urgent shift has been central to their daily work for years.

ENACTING ENERGY DEMOCRACY

Academics at the University of Puerto Rico Mayagüez (UPRM) have developed two institutes for advancing energy democracy on the Big Island: the Instituto Tropical de Energía, Ambiente y Sociedad (ITEAS, or the Tropical Institute of Energy, Environment and Society), and the Instituto Nacional de Energía y Sostenibilidad Isleña (INESI, or the National Institute of Island Energy and Sustainability). ITEAS and INESI were created by an interdisciplinary team of professors, who sought to disrupt Puerto Rico's electric energy system and the "energy *status quo* social network" by creating a framework for a sustainable energy ethic committed to deliberation and decision-making among diverse actors, not only engineers and economists (personal communication, Marla Pérez Lugo and Cecilio Ortiz García, May 21, 2015).

INESI was established in May 2015 and strives to create a sustainable and independent energy system. According to the Institute's website, Puerto Rico's energy transition requires "just and transparent decisional processes and citizens capable of participating actively by means of adaptive and collaborative learning, contributing to the social wellbeing of Puerto Ricans as much to this generation as to future ones." Interested in being part of this collaborative transition process post-María, INESI members crafted letters addressed to Rosselló Nevares and Lieutenant General Jeffrey Buchanan, who was leading disaster relief efforts. In our October 16 phone conversation, Dr. Marla Pérez Lugo, one of the INESI's steering committee members, expressed that she and her colleagues felt compelled to draft the letters, in response to dominant discourses about "rebuilding," rather than radically transforming, Puerto Rico's current energy system. Pérez Lugo explained: "We got worried, as the system as it was is what brought us here." In their letter to the governor, INESI members contend: "La sostenibilidad de nuestro sistema eléctrico depende del uso descentralizado de nuestros recursos locales (como la conservación, la eficiencia, los sistemas solares en los techos y almacenamiento en casas y edificios) y de una nueva gobernanza justa, desconcentrada, colaborativa, participativa, y democrática."/"The sustainability of our electric system depends on the decentralized use of our local natural resources (like conservation, efficiency, solar systems on roofs, and placed on houses and buildings) and a new just, deconcentrated, collaborative, participative, and democratic government."

In another letter addressed to Rosselló Nevares and Musk, the authors note the substantial resources and insights that the INESI team has developed while examining and participating in energy conversations and decisions in Puerto Rico. They offer: "We stand ready to help…with over 90 contributing faculty covering 23 disciplines, across the 11 campuses of the University of Puerto Rico (UPR), INESI offers unparalleled expertise in the technical, economic, and social dimensions of energy transitions." Whether the services extended by this interdisciplinary academic team will be acknowledged and mobilized remains to be seen, as these energy researchers have been excluded from key conversations about the Big Island's energy future (de Onís, 2017b).

Despite this lack of institutional recognition, several examples of solar energy advocacy have emerged at the local level. These efforts resonate with the #PuertoRicoSeLevanta (translated as Puerto Rico rises up or lifts itself up) hashtag circulating on- and off-line. For example, INESI has been working on an emergent energy access mapping effort and a project in the mountain town of Jayuya, called Jayuya Solar. Also in the mountainous regions of the Big Island, which were especially hard hit by the storm and remain isolated, Casa Pueblo, led by Goldman Environmental Prize winner Alexis Massol-González, has been working to deliver solar lanterns to the municipalities of Adjuntas, Utuado, and Jayuya (Moya, 2017). Casa Pueblo has a long history of renewable energy advocacy, exemplified by its headquarters building, which installed a solar system in 1999 (Casa Pueblo, 2016). Resilient Power Puerto Rico is supporting local efforts by delivering solar generators to the most under-resourced areas of Puerto Rico and plans to widen its reach to advance solar energy and disaster preparedness throughout the Big Island (Resilient Power Puerto Rico, 2017).

As yet another example, collaborators on the Coquí Solar community project persist in their multi-year campaign to develop sustainable, renewable energy in El Coquí, a town in southern Puerto Rico. Near Jobos Bay, Coquí Solar is not far from the prospective home of the proposed Aguirre Offshore Gasport, which would continue Puerto Rico's reliance on imported fossil fuels and further pollute this frontline community (Excelerate Energy, 2017). As an alternative to this fossil fuel project, Coquí Solar aims to develop a small-scale, decentralized solar-powered community center that democratically integrates resident input and other direct forms of involvement (e.g., training in renewable energy literacy and installation), rather than developing

FIGURE 1 | Local residents examine a recently arrived solar generator for their community center in El Coquí, Puerto Rico in October 2017. Photo courtesy of Ruth "Tata" Santiago. All depicted individuals have provided written and informed consent for the publication of their identifiable image.

new or retrofitting already-existing, top-down, centralized infrastructure that depends on imported hydrocarbons from US and Latin American corporations. Those involved with Coquí Solar hope the project will serve as the first community-built, fully solar-powered town in Puerto Rico, exemplifying how the area can move justly and sustainably beyond imported fossil fuels (see **Figure 1**). Contributing groups include the Junta Comunitaria del Poblado Coquí, Inc. (Community Board of the Coquí Settlement, Inc.), the Iniciativa de Ecodesarrollo de Bahía de Jobos, Inc. (Jobos Bay Eco-development Initiative, Inc.), and INESI members. Additionally, since Hurricane María hit, collaborators have worked with Puerto Rican professors in the US diaspora, including the author, to raise funds for, order, and deliver solar generators to advance the project's larger goals. As collaborator Ruth "Tata" Santiago explains, "Energy is one of the greatest challenges we face. We need to implement energy efficiency (conservation), energy demand management programs, and integrate renewable sources of energy generation, especially rooftop solar…. The energy-democracy challenge is one of the things that energizes me. Injustice energizes me. Working with excluded communities energizes me" (personal communication, Ruth "Tata" Santiago, July 8, 2017).

MOBILIZING FOR AN ANTI-COLONIAL, JUST ENERGY FUTURE

This essay addresses a multi-pronged energy emergency in Puerto Rico—and its complexities—to contribute to disrupting the underlying infrastructural and other injustices that perpetuate fossil fuel dependency and its uneven impacts. Focusing on Puerto Rico is important for energy democracy scholarship for at least two reasons: (1) it makes the unsustainability of our hydrocarbon frenzy feel urgent, and (2) it evinces that energy transitions must consider the role of energy colonialism in shaping contemporary realities and how to grapple with, and ultimately uproot, relationships grounded in extractivism.

First, the archipelago's energy challenges and its related, disproportionate experiences with environmental degradation and climate disruption make Puerto Rico an apt location for examining the precarity and consequences of carbon-based economies (Pezzullo and de Onís, 2017). Detailed study of Puerto Rico's energy exigencies helps make the need to transition justly and sustainably from high- to low-carbon energy sources feel pressing and vital. In other words, critically engaging Puerto Rico's frontline experiences brings an urgency to the imperative of keeping fossil fuels in the ground and unsettles pervasive complacency by those currently privileged enough to look the other way. While the mainstream news media and US government narratives often limit descriptions to the turmoil faced by Puerto Ricans, many residents and their diasporic counterparts are mobilizing resources to construct alternative energy futures.

Second, though neoliberalism shapes our global unsustainable energy milieu, colonial ideology, discourses, and policies also lock us into our current carbon-fueled crisis (Chakrabarty, 2009; Endres, 2009; Schneider et al., 2016). A study of this Caribbean locale makes the underlying logics of domination and dispossession difficult to ignore and provides possibilities for imagining more just, less exploitative alternatives. Thus, future research on energy policy, discourses, and injustices should foreground the role of energy colonialism and its legacies in shaping deliberations and decision-making processes and how various discursive practices enable and constrain more sustainable energy futures.

While the energy emergencies facing Puerto Rico are, in some ways, very specific to this Caribbean archipelago, the concerns raised in this essay also are relevant whether one lives on an island, on a large land mass, or in a rural or urban area, as humanity confronts the climate change and policy imperative of participating in the "Great Transition" from a fossil fuel, carbon-based economy to a renewable, decentralized, and energy just one (Brown, 2015). Rising and acidifying oceans, desertification, species extinction, and the increasing intensity and frequency of extreme weather events, epitomized by Hurricane María, remind us of the growing urgency posed by our climate crisis and the untenable practices that fuel this reckless trajectory (de Onís, 2012). The alternative path is not easy, and it involves grappling with the tensions of alienation and interconnection, loss and love, crisis and caring, and harm and hope that shape our present moment (Pezzullo and Cox, 2017; Pezzullo and de Onís, 2017). The material sea change linked to global climate disruption already threatens life in disproportionately impacted communities. However, as evinced by different grassroots and academic collaborators in Puerto Rico, a sea change of another kind is possible.

ETHICS STATEMENT

This study was carried out in accordance with the recommendations of the Indiana University IRB, with written informed consent from all subjects. All subjects gave written informed consent in accordance with the Declaration of Helsinki. The protocol was approved by Indiana University. Research participants provided written and informed consent for their personal details to be disclosed.

AUTHOR CONTRIBUTIONS

The author confirms being the sole writer of this work and appreciates contributions from community members in Puerto Rico, whose arguments and experiences inform this article.

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