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ARTICLE



Power to the people: industrial transition movements and energy populism

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ABSTRACT

This paper refines understanding of industrial transition movements by focusing on 'energy populism' as a framing and frame amplification device that informs anti-smart meter activism in the Pacific Northwest. Drawing on interviews with activists, utilities regulators and engineers involved in smart meter implementation across the region, we examine the energy populism frame and its implications for renewable energy transitions more generally. We identify and analyze four themes within the resistance to smart meters: inequality, victimization of 'regular people'; democracy and local control and ownership of electricity use data, and power centralization. These themes provide activists with a set of principled objections that have political resonance far beyond the specific material threats posed by the technology itself, and far beyond the direct experiences of consumers impacted by smart meters in specific Washington communities, constituting a populist frame amplification. These findings have important implications: by misreading the populist and anti-corporate framing of the anti-smart meter movement, analysts and policymakers alike have missed opportunities to understand and effectively respond to it.

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Now we've got a battle between the market forces that want to incorporate new technology for energy, and this behemoth of a utility industry that is digging their heels in and saying, 'No we've got to do it this way, it's got to be this way, we want to be in control and we're going to make all the decisions and you can't have any say.' – Silvia

Smart meters are digital devices that allow two-way information flow between consumers and utilities. They relay electricity use information at vastly shorter time intervals than traditional metering systems (minute-to-minute rather than month-to-month), allowing utilities to remotely coordinate power supply and demand, detect outages, and in other ways manage system efficiency and reliability (Quinn 2009). With appropriate interfaces, smart meters also integrate electricity users into the smart grid by allowing them to closely monitor their energy consumption, shift their electricity use, and facilitate incorporation of renewable energy sources (Liu et al. 2012). For these reasons, many see smart meters as a key that unlocks the promise of a decentralized and dynamic renewable energy system (Jasanoff 2004; Stephens, Wilson, and Peterson 2015).

Yet Silvia,¹ quoted in the epigraph above, opposes a municipal program to install smart meters in private homes and businesses in the Seattle metro area. She is not alone. Like other anti-smart meter activists around the country, Silvia's concerns about smart meters touch on potential health risks and threats to

privacy (Hess 2014; Hess and Coley 2014; Stephens, Wilson, and Peterson 2015), but her primary reason for mobilizing opposition to them is her belief in the technology's potential to further concentrate political and economic power. Her message is a fundamentally populist one with a left-wing tinge: she wants to combat social inequality by bringing decision-making about electrical power to the people.

Drawing on interviews with activists like Sylvia, as well as with utilities regulators and engineers involved in smart meter implementation projects across the Pacific Northwest, this paper investigates framing within a variant of an 'industrial transition movement' (ITM) (Hess 2016) and considers its implications for renewable energy transitions more generally (see also Vasi 2011). Hess (2016:15) defines ITMs as an 'attempt to reform society by changing technologies, products, and industrial processes' with the aim to 'improve basic access to material goods and to alter the social organization of industrial production.' Distinct from larger and better studied 'universalizing' social movements that seek to expand human rights and access to public goods generally, ITMs draw specific attention to the politics of science and technology. Moreover, Hess (2016) and others suggest that as politics becomes increasingly scientized (Kinchy 2012; Walsh and Warland 1983) and as science and technology become more deeply embedded within global systems of economic production (Moore et al. 2011), ITMs are likely to gain political

significance as forces of social change around the world (Beck 2008). However, as the mobilization against smart meters in the Pacific Northwest demonstrates, such movements are not uniform. Nor do they have shared understanding of the challenges of creating sustainable energy systems, or shared ideas about how such transitions can succeed.

Our goal in this paper is to refine our understanding of ITMs by focusing on ‘energy populism’² as a framing device that clarifies or ‘amplifies’ the relationship between the technology and broader issues of social inequality and is in part responsible for mobilizing this anti-smart meter movement’s unconventional constituents (Benford and Snow 2000; Kolker 2004). The people interviewed for this study are scattered across the state of Washington. They are neither seasoned political activists nor technophobe members of so-called ‘tin foil hat’ brigades.³ Instead, they form a loose coalition of mostly white, older, college-educated, first-time activists who are spurred to action by the threats that smart meters represent for local, popular control of energy distribution and use. Like the engineers and utility regulators in our study who voice strong support for smart meter implementation, the activists we interviewed express beliefs that are generally pro-technology and pro-environment. Most align politically with environmentalists and progressives rather than conservative energy advocates (see also Hess and Brown 2016; Lineweber 2011). Yet unlike administrative and technical experts, who see smart meters as a central requirement for a ‘smart’ electrical grid and a broader renewable energy transition, these activists frame smart meters as antithetical to social- and environmental-justice goals, and are concerned about their potential effects on the lives and purses of ‘average’ people. Instead, for them, smart meters are symbolic of broader issues they perceive with the region’s energy history, politics, and tech-oriented culture.

We find that opposition to smart meters is framed by four discursive themes that are constitutive of energy populism: social inequality, victimization of ‘regular’ people, democratic concerns and worries about ownership of electricity use data, and centralization of power. These themes are highly (though far from exclusively) resonant with an array of leftist political and populist critiques, as well as other ITMs across time, including the movement for distributed solar generation (Hess 2016:Ch. 3). ‘Smart meters are not going to get us where need to go,’ Sylvia confided to us. ‘It’s just a placebo that doesn’t do anything to move us forward. We need to change the conversation.’ Studying Sylvia and her fellow activists draws theoretical attention to the framing of the conflict that shapes the movements’ internal logic, as well as its broader potential to impact the social organization of energy.

We begin by characterizing energy populism and situating its emergence within the literature on ITMs and social movement framing. Next, we describe the organizational features of anti-smart metering mobilization in relation to the energy transition under way in Washington State generally, and smart meter implementation specifically. After outlining our data and methods, we present the results of our analysis, focusing on the four thematic elements of the movement’s frame. Our aim in this study is not to assess the validity of the movement nor the likelihood of its success, but rather to understand its framing, as well as the practical consequences of activists’ perspectives as relates to the energy transition. We conclude by discussing the study’s implications for future research on ITMs, and the anti-smart meter movement’s relationship to other kinds of social mobilization.

Industrial transition movements

The Washington movement to organize opposition to smart meters is best characterized as a variant of an ITM. According to Hess (2016, 2008), ITMs are a broad family of technology-oriented social movements that group into four distinct types. The first type, ‘industrial opposition movements,’ are ‘anti’ movements that mobilize against existing technological regimes or processes. Hess and Coley (2014) characterize mobilizations against smart meters as an industrial opposition movement; anti-GMO movements (Schurman and Munro 2010) and the movement to ban harmful chemicals from consumer products (Cordner 2016) are other examples. Inversely, there are ‘alternative industrial movements’ that mobilize ‘for’ new or alternative technologies, for example by promoting sustainable design (Keeler and Vaidya 2016), solar and wind energy (Vasi 2011), or green chemistry (Woodhouse and Breyman 2005). A third type of ITM is ‘industrial restructuring movements.’ These are localist movements that involve efforts to create new organizational forms for industry, such as local food infrastructure and farmer’s markets, or municipalities that take over investor-owned utilities (Hess 2009). Finally, there are ‘industrial access movements,’ conceptualized as movements focusing on redistributing access to the poor, and expanding human rights and justice. The movement for food justice or food sovereignty (Alkon and Agyeman 2011) exemplifies this type of ITM. ITMs can encompass an array of actors – often working in coalition – including governments, industry, and community activists. These configurations depend on the type of movement and the demands made. Hess (2016) cautions that these categorical distinctions should be understood as ideal types and that most actual ITMs – including the one we analyze here – will share characteristics across the four categories.

A key feature differentiating ITMs as a unique class of social movement are ‘object conflicts.’ These are ‘definitional struggles [...] involving which objects should be released on to markets and, within categories of objects, which designs should be given priority over others’ (Hess 2007:80). Object conflicts occur when the technological artifacts at the center of object conflicts become imbued with symbolism that helps movement organizers to showcase what is at stake for the movement and articulate their critique of a specific technology or system. Extending this perspective, we show that object conflicts can also represent deeper struggles that extend beyond acceptance or rejection of a particular technology, to engage broader social critiques centered on growing inequality and articulating demands for deepening democratic participation.

Populism and energy populism

Social movement frames are not static (Mooney and Hunt 1996). Benford and Snow (2000: 623) argue that an important interpretive practice is frame amplification, which ‘involves accenting or highlighting some issues, events, or beliefs as being more salient than others’. In this case, the ‘energy populism’ frame amplifies local struggles centered on a new and untested technology to broader, statewide concerns focused on inequality in energy provision and access, anti-corporatism, and a general deepening of democratic participation in energy governance (on frame amplification, see Snow et al. 1986; Benford and Snow 2000).

In the absence of organizing capacity at the state level, the frame of energy populism helps anti-smart meter activists with limited resources articulate their concerns in ways that command attention from the state regulators, utilities managers, and engineers. It also helps those concerns resonate with a much broader, nonlocal, audience. In this sense, our analysis develops and extends the connections that the analysis of object conflicts makes, linking it to broader political conflicts. As we describe it, ‘energy populism’ is a political expression of widespread anger and anti-corporate concerns about inequality that have emerged in the context of profound social changes throughout society. We see it here, more specifically, in the movement to reorganize energy systems in ways that expand social justice and ecological sustainability.

Although ‘populism’ can be difficult to pin down conceptually, anti-elitism and collectivism are central themes of most populist discourse (Oliver and Rahn 2016). As a collective action frame, populism expresses the idea that ordinary people should have political autonomy and control over their government, and should resist ‘both the established structure of power and the dominant ideas and values of the society’ (Canovan 1999:3). Many academic scholars view

today’s right- and left-wing populist movements as an outgrowth of increasing resistance to the market-oriented policies that have dominated European and American politics since the 1970s: neoliberal trade policies that sent manufacturing overseas, shrank social safety nets, and allowed public institutions to erode from deregulation and financial neglect (Judis 2016; Purdy 2016). Amid growing insecurity about labor prospects and social status, ‘the people’ have sought unity in a collective identity as a means of coping with the uncertainty and vulnerability of widespread social and economic precariousness (Spruyt, Keppens, and Droogenbroeck 2016; Alden 2016).

Such critiques form the basis of the ‘energy populism’ that we follow here. Energy populism has important similarities other twentieth-century ITMs that have advocated for distributed power generation and clean energy as an avenue towards a more accountable form of democracy (Mitchell 2011; Sclove 1995; Vasi 2011). Contemporarily, anti-smart meter activists’ goal of distributed or decentralized energy production parallels ongoing solar energy movements that emphasize community-based systems of local control and distributed decision-making power (Beder 2003; Munson 2005; Welton 2018; Hess 2016). Like the solar energy movement, anti-smart meter activists also face stiff corporate and regulatory opposition (Hess 2013). Building on scattered efforts to delineate connections between environmental activism and populist framing (Adger et al. 2001; Hochschild 2016; Meyer 2008; Szasz 1994), our analysis seeks to refine understanding of ITMs by unpacking the discursive themes and frame amplification strategy of energy populism within our case.

Existing research on anti-smart meter mobilizations (for North America, Europe and Australia especially) has identified many reasons for popular objection, and a range of political ideologies within those objections. For example, privacy concerns are paramount in the Netherlands (Cuijpers and Koops 2013), while in Canada and the United States, health concerns and concerns about electro-sensitivity are common (Hess and Coley 2014; de Graaff and Bröer 2012), as are issues relating to privacy and government intrusion (Hess 2014; Horne et al. 2015). In Australia, health (Lamech 2014) and privacy concerns have prevailed (SCER 2013); and there has been a robust policy conversation about whether the public can more fully realize the benefits of smart meters (Chandrashekeran and Duffy 2018). In North America, smart meters tend to meet with more support from political liberals and opposition has been linked with conservative and Tea Party politics (Lineweber 2011), a finding that our data complicates. Other studies (Chandrashekeran and Duffy 2018; Lineweber 2011) hint at issues that we probe in depth – namely, the concern that consumers are not enjoying the beneficial impacts of smart meters. While social

concerns around inequality, democracy, centralization, and the like do appear in other ITMs (not only anti-smart meter movements), they articulate here in conjunction with each other, constituting a specific frame of 'energy populism' that has a specific set of consequences. Thus, while our sample from the Pacific Northwest exposes certain characteristics of the anti-smart meter movement in the western United States, and potentially particularistic connections with energy populism, it also brings to the surface issues that have been implicit in smart meter research elsewhere.

Mobilization context: framing smart meter opposition in Washington's heterogeneous energy field

Sandwiched between the Pacific Ocean and the Cascade mountain range, urbanized western Washington is imbued with a spirit of environmental progressivism and technological optimism. These values are reflected in the state's energy budget, which is heavily dependent on renewables. Hydroelectric power from dams along the Snake and Columbia Rivers account for over two-thirds of electricity production, with other renewables such as wind and wood waste contributing another 5%.⁴ The state's large investment in hydropower has meant historically low electricity prices for Washington residents, which today remain among the cheapest in the country. This diverse energy portfolio also adds to the regulatory complexity and organizational heterogeneity of Washington's energy distribution system.

Because they play a central role in moving electricity from power plants to homes and businesses, utilities are the dominant actors in Washington's electricity field. For example, Seattle City Light (SCL), which was the first US municipal utility to own and operate a hydroelectric facility, is the 10th largest public utility in the US, and in 2005 it became the first in the nation to become greenhouse-gas-neutral (Stiffler 2005). But SCL shares the stage with 44 other local public, private and cooperative utilities across the state, all of whom build and maintain storage, transmission and billing infrastructure for the power grid (Bonneville Power Administration 2017). In addition to utilities, the larger energy field is composed of well over 250 other organizational actors, including power generators, technology firms, university laboratories, state and municipal regulatory agencies, trade associations, labor unions and other professional groups, and social movement organizations (Frickel et al. 2017). These actors now constitute a rapidly changing strategic action field (Fligstein and McAdam 2015) focused on the sociotechnical development of energy efficiency and smart grid systems (Frickel et al. 2017).

Smart meter implementation varies from utility to utility; some utilities operate on an 'opt-out' basis, while other utilities operate on an 'opt-in' basis. Larger private utilities often pilot smart meters within a small service area prior to installing them universally. In all cases that we studied the utility pays for the installation and the smart meter itself, though – as we will show – activists are concerned that meters will increase their bills.

High levels of organizational investment in sustainable energy systems notwithstanding, actual implementation of smart meters in Washington is limited. They currently serve less than 15% of the population; the state is one of just a handful with such low installation rates (Cooper 2016). One reason is lack of a shared vision among field actors about what role smart meters will ultimately play in the energy transition (Frickel et al. 2017). Another reason is the state's already low electricity costs, which weaken the business case for smart meters: installing them is unlikely to further reduce Washington residents' energy bills. A third, and comparatively understudied reason, is local activists' mobilization against smart meters.

Yet the presence of opposition to smart meters is a puzzle in itself: in the context of low market penetration, reliable energy and affordable electricity prices, why would such opposition emerge at all? The answer, we will argue, is not only rooted in activists' concerns about the technology itself. Rather, they are using smart meters to frame their objections to a broader set of changes in the governance of energy provision as it relates to democracy and social justice – a framing strategy that, if successful, has serious consequences for the larger energy transition that is now haltingly underway. This broader framing also serves an organizational function, adding discursive coherence to a group of geographically scattered and under-resourced activists.

Nationally, there is insufficient organization and resources to fully catapult the small anti-smart meter movement into the national or even regional spotlight; for example, it attracts little media attention compared to anti-smart meter activism in California (cf. Cheong, Choi, and Lee 2016). Indeed, backlash against smart meters seems to vary widely from state to state (Hess 2014; Lineweber 2011; Stephens, Wilson, and Peterson 2015). In Washington, movement entrepreneurs mostly organize online, sharing resources, information, and experiences; their websites contain links to articles, talking points, calls to action, and even downloads for documentary films. While websites and Facebook pages are key for communications and planning, the Washington-based activists we studied dedicate their energies to local fights organized by small local cadres – usually but not always in smart metered communities. Local organizing frequently includes letter-writing and sign-holding campaigns, demonstrating at city council

hearings or other public meetings, and flooding the public input periods with testimony: they engage old-school contentious politics (Tilly and Tarrow 2015) targeting state actors, using the internet to mobilize protests that are geographically scattered and intermittent.

Data and methods

This study relies on multiple documentary data sources, including document analysis, as well as 38 interviews with a nonrepresentative sample of Washington-based activists, regulators, trade association and industry representatives, utilities managers, and electrical engineers. Interview questions for activists focused on why and how they became involved in mobilizing against smart meters, how their movements are organized, and what challenges they have faced in that work. Interviews with utilities other actors tended to focus on smart meter implementation programs, and the risks, challenges, and outcomes of such programs.

Table 1. Interview Respondents.

Type of organization	Number of respondents
Public Utility	10
Activist Group	8
Trade Association	5
Investor-Owned Utility	4
University	3
Public Research Lab	3
Cooperative Utility	1
Labor Union	1
Public Official	1
Consumer Group	1
Civil Society Group	1
Total	38

To gather documentary data, we conducted extensive online searches for public comment from government hearings and radio interviews with movement activists. We identified a variety of data sources, including documentary films, local meeting announcements, newspaper articles, information on opt-out programs, letter-writing campaigns, informational videos, reports, blog posts, articles, and calls to action. We systematically coded and analyzed these documents, including form letter templates and call scripts that activists used for public input periods. We also viewed and analyzed archived video testimony given before city councils in cities across the state. In addition to collecting and analyzing this documentary evidence, we reviewed scholarly literature and news articles on populism to provide additional context and aid us in identifying significant patterns of discourse. We largely cite from interviews in the results section of this paper; however, the textual documents provided important triangulation for our interview data.

Because the network of activists in this region is small and industry actors are well connected, we identified interview participants through a snowball process (Atkinson and Flint 2001; Berg 1988). While utilities, trade groups, and researchers were eager to speak with us, soliciting activist interviews proved a challenge. Some activists were extremely hesitant to talk to us – five people we approached for interviews refused to participate, citing a worry that we would use their information to further installation of smart meters in their communities. Many of those who did grant us interviews did so extremely reluctantly, expressing a similar set of concerns. We find this reluctance analytically meaningful, suggesting that people's resistance to smart meters is so powerful, and the skepticism of power structures so great, that our questions were perceived as part of a coordinated campaign to subvert their movement. Semi-structured interviews field actors lasted between one and two hours. All interviews were conducted in English and transcribed by a professional transcription service.

Though activist respondents are spread throughout the state, more are clustered in heavily urbanized western Washington than in the more rural and politically conservative eastern region. Most of the movement's participants are retirement age, identify as white, and have college degrees. Despite this demographic profile, most of the activists we interviewed described their living standards as economically marginal, though not poor, and reported backgrounds ranging from decades of employment in manufacturing to short-lived academic research careers. Nearly half of the activists we interviewed had a background in technology, including working for utility companies and even in nuclear energy. Thirteen percent identified as politically conservative; the remainder identified as liberal or very liberal. Given the political demographics of western Washington generally, this liberal tinge is not particularly surprising. The geographical disparity among our interlocutors may account for some of the different political strands of thought expressed by the activists we interviewed – those with conservative viewpoints tended to hail from the eastern, rather than the western part of the state. Most also reported that they are newcomers to social movement activism, and that their retirement had afforded them opportunities to become involved in organizing in ways they had not before.

Analysis of interview transcripts and documents proceeded in two stages. An initial read-through allowed us to identify broad discursive themes running through all the collected material, such as 'inequality', 'democracy', and 'mistrust.' A second read-through was conducted to refine broad themes into more precise codes and categories, such as 'public power'. Below we present the main discursive themes to emerge from our analysis of energy populism.

Results: unpacking energy populism

For the activists we study, smart meters are not simply a new technology, but rather a repackaged technological expression of older, larger, and more troubling, social processes. While sometimes focused on health issues, activists view the smart meter issue mainly in terms of economic and social justice; a large portion of their messaging is anti-corporate, and some is linked closely with concerns about democracy more generally. Their energy populism is reflected in four themes: concerns with inequality, victimization of 'regular' people, democracy and ownership of electricity use data, and centralization. Although these themes are interrelated and overlapping, we distinguish them here to aid analysis.

Anti-corporatism and inequality

Activists in our study perceive utilities as elite actors, pursuing their own financial interests and advancing corporate control without regard to the needs of the consumer or the environment. In interviews, they describe smart meters as 'greenwashed' objects designed to secure complacency from customers. Seldom drawing distinctions between publicly owned utilities, cooperatives, and private investor-owned utilities, activists frame the energy industry as a whole monolithic corporate power bloc that disregards community or environmental needs in favor of profit. For them, the smart meter issue is representative of a much bigger struggle over inequality – a frame that is represented both among individual cadres of activists, and among their more centralized online resources. Per one online organizing hub,

The smart meter debacle is a huge threat to our health, safety, privacy, and wallet. But it is also an opportunity and a teachable moment about the dangers of wireless technology, corporate control, and false solutions to a looming climate catastrophe. With your help, we can work toward a truly sustainable, equitable and democratic energy system, and new wireless standards that will put human and environmental health before profit. (Stop Smart Meters 2016)

This excerpt centers smart meters in a corporation-dominated world in which democracy and health take a backstage to turning a profit. Similarly, a report from a small independent think tank offers a frame that emphasizes themes of economic injustice. Like the previous passage, this one condemns smart meters as being a false solution for the challenges posed by climate change:

These meters [...] are primarily for the benefit of utilities, reducing their operating costs and increasing profits by firing meter readers – ironically with federal stimulus funds – while doing essentially nothing to advance what should be the real goal of the smart grid: balancing supply and demand and integrating

more renewable resources. Instead, the meter networks squander vast sums of money, create enormous risks to privacy and security, introduce known and still unknown possible risks to public health, and sour the public on the true promise of the smart grid. (Schoelche 2015)

The mistrust of industry actors resonates throughout the movement. Speaking on a podcast another activist – a founder of an influential regional website against smart meters – observed that 'politicians are very reluctant to kill the golden goose of the wireless industry that's producing so many jobs and income, certainly a lot of income for the shareholders of these companies' (Tracy 2016). This corporations-vs.-the-people framing equates industry profit with increasing social inequality.

By contrast, activists describe their ideal energy solution as one of distributed energy production, which they see as inherently more democratic and equitable; implicit in their critique of smart meters is a critique of the structure of the energy industry generally. As Silvia explains,

[T]he utility industry was [...] built on this concept of economies of scale. They've got this centralized behemoth of a utility industry that is not flexible enough and they actually don't want renewable energy independent and distributed because their model can't support it. It's actually *destructive* to their business model.... If they really created renewable[s...], they would destroy themselves. Their industry would collapse.

Silvia believes that 'Smart Meters are actually a way to protect [utilities'] centralized model in giving them more control in protecting their revenue rather than incorporating renewable energy like rooftop solar or even hydro-, micro-hydro- and wind.' In other words, utilities are organized on a business model that discourages development of additional renewable resources that she perceives as more beneficial to the average person, and she sees smart meter technology as a specific expression of the structural incentives built into centralized electricity distribution. Her objections (which articulate as objections to smart meters) resonate with broader populist sentiment – the idea that money in politics and trade has left the middle class and working class behind. Nina, another organizer, sees smart meters as a distraction from more pressing work needed to convert local power generation to renewables. She tells us that '[the local public utility] has harmed – with their own actions – the incentivizing of solar recently. Also, the state has done it too, in that no one is really pushing for the programs needed to actually create a solar future.' She adds this has occurred despite the Pacific Northwest's relative competitive advantage: 'we have better weather than Germany does, which is one of the world's foremost renewable energy policies.'

As Nina's reference to the battle around solar suggests, activists understand utilities as crushing the potential of decentralized, free energy in favor of their own profit and an energy production system that harms the environment. 'What's happened here,' another activist named Rob explains,

... is the utility pretended to want solar and touted solar, but they're obstructing it terribly. It takes a year for people to get permits, and they clamped down on the amount of permits they're giving. They're making it very hard for people to put solar [on their roofs] because they're scared. Twenty percent of the power [here] is generated with solar panels on people's roofs. It's going to put utilities out of business, and they don't like that.

Rob understands utilities to be hampering solar to protect their own profit margins, while touting smart meters as a false green energy solution. As he sees it, the utilities 'talk out of both sides of their mouths.' He and other organizers believe that electrical power and economic power are consonant forces, guarded by utilities and corporate actors whose interests and behaviors capture value at the expense of the masses. For these activists, smart meters are a disingenuous means to an end – a technology that sustains inequality instead of extending power to the people.

Victimization of 'regular people'

Consonant with their critiques of inequality and a pervasive anti-corporate sentiment, activists in our study also see smart meters as victimizing members of the working class. For Seattle-based activists, SCL's strong clean energy record does little to convince them that the utility has an equally strong vision of social justice. At a Seattle City Council hearing, activists objected to smart meters on grounds that the meters would disadvantage 'regular' people: 'As we know,' a local woman testified, people who are low income are going to be paying more than their fair share of [utility costs ... and] the time-of-use, that's going to affect working class people more. [...] The working class can't adjust their schedule to use energy at a different time of day [...] all of this is going to have an impact on lower income families that require the energy. (Select Committee on Utility Strategic Planning 2014) Her comment demonstrates concern not just for the meters' cost – a concern that has appeared elsewhere in the literature (Cuijpers and Koops 2013; Hess and Coley 2014) – but for those city residents who are least able to bear its cost. Here, cost is framed as a social problem of inequality – 'paying more than their fair share' because it shorts 'working class people' in Washington.⁵

Another activist, Eloise, is part of a group that successfully repealed a smart meter initiative further east in Washington and also shared concerns about

consumer costs, which she credits with changing the city's decision on the technology. 'I was amazed to talk to [...] the city manager,' she remarked. 'I said, "what was it that finally made you decide to give up on [smart meters]?" He says, "We realized that you kept saying that the people couldn't afford it," and he said, "When we got into it we found out that they could not afford it."' For Eloise – an avowed conservative, and thus a minority among many of her co-activists – framing smart meters in terms of unfair cost draws a clear distinction between the needs of the utility industry and the needs of the working people. While Eloise does not reference inequality as a general problem, the way that more liberal Seattle activists did, she does focus on issues of cost, pointing to a financial burden on 'the people'.

Concern about costs – and who bears them – is prominent in this movement: Khalil, an activist from central Washington, sees the time-of-use pricing (in which electricity costs vary by time of day, frequently becoming more expensive during peak times, such as the evenings) that smart meters facilitate as socially injurious, particularly to the most vulnerable. For him, time-of-use is designed to benefit the utilities only, at the expense of 'regular people'. While his framing has a stronger social justice angle than, say, Eloise, concerns about cost remain salient. 'In the time-of-use pricing,' Khalil says, 'I feel that more people are going to lose out on that than they're going to gain. There's going to be winners and losers whenever you change it to a new pricing scheme.' He focuses on people with specific vulnerabilities that could be negatively affected by time-of-use metering:

I was more speaking of people that are home most of the time. Some of these people could be handicapped – it could be people that have to have medical equipment, some older people have to be on oxygen. I have a mother-in-law who's on oxygen 24 hours a day. [...] She's an older person but she doesn't have a choice really on when she uses electricity. She's not working. A lot of unemployed people, of course, are home all the time and can't really change their schedule. Some of the older people, too, the more vulnerable people, whether it be due to medical conditions or being a senior citizen, are more susceptible to illnesses. [...] Maybe they don't make much money, [...] people that have illness or have medical equipment that is dependent on electricity [...] don't have a choice on when to use that electricity.

Khalil's comments highlight a deep sense distrust in governance structures to prevent victimization of the poor and vulnerable; in this context, the progressiveness of Washington's electricity portfolio seems largely irrelevant to his concerns. Rather, for him, smart meters penalize people who are unable to shift the timing of their electricity consumption. His comment exhibits a concern typical of industrial

access movements that are sensitive to how the poor or disenfranchised may access technology or resources (Hess 2016).

Activists' concerns with smart meters extend beyond the smart meters themselves, and into the field of renewable energy as a whole. For instance, in our conversation about the technology, Silvia articulated worries about a future scenario in which the wealthy will be able to opt into solar or renewables projects by buying their own solar arrays, and in which the 'people who are least able to afford it' are stuck with a centralized (and expensive) model. Similarly, Khalil suggests that smart meters' tiered pricing models will further disadvantage 'the masses', especially those who are ill or unemployed.

Related, activists see automation generally and smart meters specifically as a slippery slope towards the eventual obliteration of working-class or middle-class jobs. Utilities 'thought it was cool they could fire their meter readers,' Rob tells us. He continues,

We have a jobs problem as it is, so many people out of jobs, and here they're saying, 'isn't it great, we can get rid of more people'. [...] Sure, there's a tremendous need for software people and even more than that, good [data] security people. The security consultants aren't going to be employees. They're going to be highly paid consultants in their own companies, their consulting companies, for the good ones. That's going to increase our electric bills.

For Rob – who lives in the Seattle suburbs – it is not only a question of more jobs, but a question of the *kinds* of jobs, and who will be eligible for them. He perceives those new jobs as passing over the working class, while also increasing the working-class' energy bills, in a particularly brutal one-two punch. James is even more specific:

[Because of smart meters] they are firing the meter readers. [...] They did the research for and found out it cost a \$1.50 per meter reader in order to pay them to go to all 500 houses, and [...] We read bi-monthly in [our city]. That's \$6 a year, or ever if it was \$2 per meter reading, that would be \$12 a year. I'd gladly pay for somebody to have a job. I'm not all about modernizing and throwing people out. Yeah, they're kind of pedestrian jobs. They're not particularly exciting. It's probably boring for the meter readers, but [...] It's still job and it's been done. It's cheap. Now, they're spending millions of dollars to basically automate meter reading and get rid of all those meter readers.

James understands 'increased efficiency' as coming at the expense of employment opportunities that support people in his city and community, to the extent that he expresses a willingness to pay extra to permit meter readers to retain their jobs. For him, energy consumption efficiency, and organizational/operational efficiency are distinct; one does not necessarily justify the other. One city official describes the objections to smart meters that he encountered while in office:

The idea behind [the objections] was 'we're going to replace [people]'—of course, automation. 'We're going to replace up to three people and this [meter] would be automatically read'. It would be turned into a computer program that could, again, replace up to three people.

This interviewee reports that the original smart meter contract in his community was an effort to decrease utility rates by letting go three full-time utilities employees. A politically conservative anti-smart meter activist from the same community agrees with this assessment. In a neighboring community that has smart meters,

... people were getting billed for astronomical charges. Then one of the biggest things they were saying was that [smart meters were] going to save people money, they don't really need meter readers. That's not true. You have to hire the IT department and they work for a lot more than a meter reader.

For this activist, firing meter readers produced an unexpected expense, and privileged high-skilled tech jobs over those of the meter-readers. Darrell, a liberal activist, expresses similar concerns:

What I've come to is to see how smart meters are used to raise a lot of money for the utility, but not really provide any customer benefits. There was a primary study that the Department of Energy gave to Sacramento, California. [...] It was] to study how time of use would be used, and they found that only maybe 8 to 10% of the people changed their electricity use outside of that time, and they were charging twice as much. [...] Charging twice is much during the peak time from 4pm to 7pm for that use, so 90% of the people were paying twice as much! The utility is going to make millions, and more money, and it may not be that much for each individual person, but when you add it up, it was a lot more money!

Darrell concludes, expanding his critique to 'a triangle of three groups that benefit':

Utilities, because they get extra money, their profits based on the capital expenses, [...] and the vendors benefit because they're selling the product, and then the banks benefit because they're loaning all this money to the utilities. Three very powerful organizations are making a lot of money, but it's costing citizens a lot more.

Darrell's concerns – like those of the more conservative activist and the city official—are about who benefits in a smart grid, and he sees the variable electric rates and the centralization as part of a manipulative project of rent-seeking by utilities, banks, and technology firms. Although his political perspective is different from that of his co-organizers, the common thread that runs between these critiques is a general concern – and a discursive frame – emphasizing the ways that smart meters consolidate benefits amongst a 'power' elite, at the expense of ordinary people. And he sees the technological management aspect of smart meters as obscuring the social processes that

affect citizens – adding a populist twist to another instance of concern about industrial access.

Democracy, local control, and ownership of electricity use data

Clean energy movements – particularly solar and wind – have long attempted to connect local control over power to democratic ideals (Vasi 2011). The premise of such movements is that if citizens are democratically empowered to help determine society's basic structure, and if technology and power comprises an important aspect of that structure, then technological design and power production should be democratized (Hess 2009; Kleinman 2000; Winner 1978:1). Similar concerns are apparent in our activists' responses to smart metering, translated here as concern about who owns electricity use data.

Smart meters provide an ongoing flow of information to utilities that is necessary to realize the load-management benefits of advanced metering infrastructure, a practice that activists see as centralizing ownership and control in the hands of utilities (see also Krishnamurti et al. 2012). While this capacity to 'see' into private homes and businesses has raised serious political objections regarding government and industry surveillance capacities, forming the basis of objections to smart meters elsewhere (Hess 2014; Scheer 2015; Westin and Solove 2015), and while others have pointed out the physical vulnerabilities inherent in a centralized power grid (Murphy 2001), activists in our study object to them primarily on economic grounds. Privacy concerns emerged only peripherally among activists in our sample. Rather, the movement's central concerns focus more on who *owns and profits* from consumers' information (see also Culnan and Bies 2003). For activists, electricity use data should belong to the user rather than the company, and utilities should not be able to aggregate customer information for profit. That is, they make a strongly anti-corporate critique of data aggregation that belies a concern with data ownership and a distrust of organizational actors within the electrical power field. As Jason observed,

I think the utilities are afraid of the changes taking place, with solar, with their ability to make income. What the smart meter will do is also bring in another stream of income with the data that they're going to be collecting, and they can sell that data [...] There's some research that shows that data might be worth as much or more than the electricity sales in the future.

Activists' conviction that utilities will profit by aggregating household electricity use data is pervasive. Rob feels that 'a big part of it seems to be that they can sell this information as marketing information that they collect from people every five minutes or every

15 minutes.' Another respondent believes that the utilities are interested in the data because of its potential for revenue generation, and she objects to their ability to harvest that data from her without her knowledge or consent:

They can do just about anything they wanted, we couldn't see it, we didn't know. Even now the police can't barge into your house to get that information. They have to have proper warrant. How can the electric company come into your home? [...] We just got a notice in the paper. Like I said, they were convinced from, like Bonneville Power and all of the different companies, that this was the best thing since sliced bread, that we're going to make more money, we're going to have more electricity and it was going to be fine for everyone.

These activists believe that the data belongs to the consumers, to the people who generate it. Thus, activists contest the idea of smart meters and changes in information flows as being democratic. For them, the meter enables further centralization and control over energy generation and distribution – in addition to causing privacy issues – and thwarts the development of technologies that could redistribute benefits to consumers.

This view contrasts sharply with industry insiders like Anthony, an engineer working in a research university who describe smart meters in purely functional terms as 'just a meter':

All it does is, it measures things! It doesn't do anything else. Right? Now you have to think of what is the advantage in being able to measure something that you didn't measure before. Right? [...] from the utility side [...] they can make things more efficient by having that measurement. But this is even more true for the customer! That is, if the customer wants to – just by knowing how much energy they're using when – that can help you figure out whether you can be more efficient or not.

Whereas this engineer sees the meter as an apolitical technology that permits more individual autonomy over electric use, activists see the technology as *politics* (see also Winner 1980). Here the object conflict is embedded discursively within a structure that subordinates the working and middle classes. For activists, the meter is a proxy for economic centralization and increased corporate control over the means of [energy] production.

Dangers of centralization

Though critiques of centralization often arise in issues related to cybersecurity, the activists we study have transposed the critique and applied it to energy production and distribution. Activists criticize smart meters for their perceived contribution to centralizing energy flows and the hyper-automation of labor,

linking centralization with corporate capture in much the same way that they link questions of data ownership with corporate capture. They perceive centralized energy production as imperiling the economic well-being of the region by rendering it vulnerable to disasters and attacks, particularly given the pressures of globalization. The economic element of their critique resonates with the anti-corporate strains of populism, while their focus on distributed generation and system resilience is consonant with broader anti-globalization critiques common in other ITMs.

Eloise, believes that with such high degrees of centralization, 'We're just setting ourselves open for terrorists.' She continues,

You take [our utility], it goes all the way up to California. It goes Oregon, Washington, California [...] You can tie them altogether! [...] I heard several senators say – in fact John McCain that started this, [...] "They want it all to be under central controls, like government is going to control it." That doesn't seem like it's going to help the people. How can that help the people?

Eloise's critique includes worries about geographic centralization and concerns about federal control, both bound up with a conservative rhetoric about government control but also, ultimately, with concern about impacts on the people. She uses the term 'the people' as a discursive category that both transcends partisan differences, and that links her concerns about centralization to concerns about cost and the victimization of the working class in a process of frame amplification.

Interestingly, we found considerable synergy between the activists and the public engineers and planners we interviewed with respect to distributed generation. Both groups envision a distributed generation system that uses renewables with a smart grid, providing resilience capacity when something goes wrong. But they use very different language to describe this shared vision, and they see radically different roles for public utilities. The language in which activists articulate this desire hearkens to visions of individual production, trades on ideas of resilience, and sees a limited role for utilities or other centralized coordination systems. As Jason says, 'I would like a lot of individual production.' In this scenario, he believes,

You'd have more decentralized energy production, along with some centralized. I think that would create more redundancy, but they have to make solar electricity more healthy [...] we need the utilities, and we need the centralized grid as well. It's an engineering marvel. The last thing we want to do is have them go away. It's just necessary for our society. They have to be careful that they don't make the society angry so that rash decisions are made.

Jason explicitly wants powerful utilities to accommodate the wishes of the people – to not 'make the

society angry so that rash decisions are made'. In doing so, he acknowledges the power of the anti-smart meter movement – and populist mobilizations generally – to destroy something that he sees as socially valuable. Other activists, like Sylvia, see no role for utilities or centralization at all, but rather individual production unencumbered by utilities or by middlemen who capture value. As she puts it, 'I see really moving towards an independent decentralized energy grid where people have their own supply. [...] I think there's new technology that's likely coming out that everyone can have their own energy supply, generate their own.' This techno-utopian perspective on household energy sourcing is somewhat inconsistent with activists' strong structural critique of economic centralization. It also stands in tension with Silvia's leftist critique of issues such as inequality. Another activist also told us that his ideal distribution system 'would be small.' He continued,

You might have micro grid per neighborhood or maybe larger. Depending on how the technology would be developed. Then you would use invertors so that you will be able to keep track of what was going on. [...] I think the way the system is now is really inefficient, is way too expensive ...

The quotes embody an interesting tension, and perhaps indicate a lack of clarity in activists' own vocabulary for what they envision as the alternative form of organization within the power industry. They express intense distrust of state agencies and utilities serving as middlemen, but also express little appreciation for large public structures (like the grid) that serve the working class. Some activists look to a highly individualized power source (solar on every home), while others envision smaller collectives, such as micro-grids. The prevailing sense from these and other interviews is that local systems are more resilient – safer from the threats from terrorism, corporate control, climate change, or big government. In these activists' calculations, smart meters encourage centralization rather than moving the grid closer to the decentralized, adaptive version most prefer. However, despite activists' articulated preferences for what they call 'distributed energy', there is little recognition among them that distributed energy is not necessarily locally owned – in fact, much of it is now owned by large corporations, and financed by large banks and technology companies (cf. Hess 2013). Indeed, some activists appear to have not considered their preferred alternative prior our questioning them about it. Eloise answered:

First of all, they're going to have to find a way of generating more electricity, because they've oversold what they've produced. And they're going to have to make it safe and sound and secure, because right now everything is out there in the open. Those big towers, if you shoot up them, bring those down, it's

like a domino, bring them all down, [...] I would like to see them to get the utility and everything up to where people don't have to worry about blackouts, that they are comfortable, they can sell it, they have it, if the power goes off they can realize in half hour, two hours, they're going to have it backed up, not three, four, or five days. They need to be more honest with what they're doing.

Though her comment references blackouts, this respondent's community had experienced no blackout-related service interruptions. She had, however, spent some of our conversation discussing recent blackouts in California. Her vision of an alternative energy production and distribution system is quite vague when compared to the content of her critique, suggesting that although the movement is clear about what it dislikes, it lacks a coherent account of a preferred alternative.

Conclusion

Existing research suggests that organized opposition to smart meters is often characterized by concerns about health, privacy and safety. Our study finds these themes to be less resonant for Washington activists, who express far greater concern about how smart meters will affect social inequality, the fate of working people, and the dangers of centralization – a bundle of broad social concerns that we call 'energy populism'. We find that utilities have misread activists and their motivations in crucial ways; we also find that activists have misread utilities. These two points of misreading are instructive and have important theoretical and practical implications.

First, Washington utilities managers and public officials have been quick to characterize the regional anti-smart meter movement as a mottle of paranoid conspiracy theorists concerned with government invasion of private property and unregulated environmental exposure to radio waves. By contrast, our data suggest a very different set of motives that are both salient with the current zeitgeist, and resonant with an array of historical critiques. Activists in our study are angry about growing social inequality and corporate capture; while they have some concerns about the technology itself, their main goal is to amplify the discursive framing of smart meters as a symptom of more pervasive political and economic problems. This locally specific case teaches us to pay careful attention to the discursive as well as the practical consequences of technology; the oppositional framing of smart meters that we observe amplifies local contexts of activism onto a larger, regional and national plane.

More directly, by dismissing activists and neglecting to thoughtfully engage their critique of smart meters and the associated issues, utilities and other powerful actors in government and industry miss opportunities to understand activists' position and mistake the role of

technology in fomenting social protest. To effectively manage customer dissatisfaction, instead of referring to activists as a 'black helicopter crowd' or making reference to 'tin foil hats' (as some of our interlocutors from utilities or regulatory agencies did), utilities especially will need to acknowledge and grapple with the *content* of opponents' objections. Without a more sensitive reading of activists' concerns, existing efforts to quell activists' concerns are unlikely to be successful.

At the same time, activists in this study see all utilities – regardless of ownership structure – as a power bloc whose interests are misaligned with their own. Their critique of economic power does not distinguish between public and private utilities and consequently does not account for clear structural and political differences between for-profit and taxpayer-funded, non-for-profit energy provision. This lack of differentiation presents a provocative avenue for future research and demands that analysts consider more closely how different counter-publics perceive utilities. Relatedly, activists put relatively less weight on a collective system that distributes energy (such as a public electricity grid) than do, say, city managers. This, as well, is an informative finding. Moreover, activists' perceptions about utilities managers and their devaluing of public infrastructure systems may be linked. While activists deeply mistrust utilities – even those that are publicly owned – they also do not readily acknowledge the types of public systems that would make their vision of 'people power' work. Activists do not expressly recognize that public systems like the grid have historically been the crux of democratic power distribution. These perspectives – and what they can tell us about our ideas of a green future – suggest that activists lack a well-developed theory of the collective. Why that is merits further study.

At a theoretical level, for sociologists and environmental studies scholars, our findings suggest that anti-smart meter mobilizations have political and economic dimensions that deserve more attention than they have attracted to date. We have worked to refine our analytical approach to ITMs by focusing on energy populism in Washington, and its implications for understanding industrial transitions more generally. The US is part-way into a transition to a smart grid that, if successful, will incorporate renewable energies while maintaining reliable service. At first glance, smart meters seem to be the least provocative piece of Washington's energy transition: a seemingly benign measurement device with relatively low rates of penetration, and in an area with already low electricity prices and stable power supply. However, in this fight for environmentally, economically and socially just energy, smart meters have become a flashpoint for activists because they represent a range of (sometimes conflicting) politically-important issues and symbolize deeper problems with industrial transitions more generally.

As it is expressed among anti-smart meter activists in the Pacific Northwest, energy populism is a fruitful direction for future research on technology within ITMs, extending ongoing debates about democracy and energy access in the context of the energy transition. While other scholars looking at resistance to smart meters have focused on discourses around of precautionary politics or object conflicts, we have outlined the movement's resonance with broader populist discontent, including concerns about economic injustice, labor market access, and social inequality, linking it to a broader leftist populist discourse. The principal lesson we draw from this mobilization is that broad-based economic frustration is so profound that it expresses even in places like Washington, a state whose policies celebrate clean tech culture and offer energy users reliably low power prices. In energy populism, we find geographically scattered activists working to amplify framing to link the local issue of smart meters to broader economic and anti-corporate concerns that resonate with a broader and politically diverse audience. This is a process with potentially important impacts, and thus worthy of sustained academic and political attention. As one activist concluded, smart meters are 'a good topic. It brings all of the issues to the forefront'.

Notes

1. All names used in this paper are pseudonyms.
2. Our analysis is distinct from what economists have described as 'energy populism' in Latin American countries. This form of populism is 'a policy ... that, while claiming to support "the people" versus "the elite," seeks the secure support of the median voter to implement unsustainable transfers through lower energy prices, heavily interfering with efficient energy price formation in a non-transitory manner' (Hancevic, Cont, and Navajas 2016).
3. 'Tinfoil hat' has become a common derisive stereotype for conspiracy theorists and those afraid of technology (see Kiberd 2015).
4. Natural gas, coal, and nuclear combined generate almost 25% of the state's electricity budget.
5. This finding resonates with a study by Lineweber (2011), which found that, although customers in the Pacific northwest believe that smart meters have benefits, they are skeptical that they as customers will receive any of those benefits. See also Huang and Palvia (2017).

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