Energy democracy: taking back power

A comparative analysis of investor-owned and publicly owned utilities' ability to achieve the conditions for energy democracy

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Executive Summary

Electric utility (re)municipalization is gaining popularity as a strategy to shift away from a reliance on fossil fuel extraction in the context of combating climate change. Across the world—from Berlin to Boulder—communities have initiated campaigns to take back their power from investor-owned (private) utilities and create publicly owned and operated utilities. Moreover, such efforts are increasingly taking on the perspective and language of energy democracy.

Energy democracy seeks not only to solve climate change, but to also address entrenched systemic inequalities. It is a vision to restructure the energy future based on inclusive engagement, where genuine participation in democratic processes provides community control and renewable energy generates local, equitably distributed wealth (Angel, 2016; Giancatarino, 2013a; Yenneti & Day, 2015). By transitioning from a privately- to a publicly owned utility, proponents of energy democracy hope to democratize the decision-making process, eliminate the overriding goal of profit maximization, and quickly transition away from fossil fuels (Chavez, 2005; Sweeney, 2017).

Utilities are traditionally profit-oriented corporations whose structures are based on a paradigm of extraction. Following the path of least resistance, they often burden communities who do not have the political or financial capital to object to the impacts of their fossil fuel infrastructure. Residents living within three miles of a coal plant, for instance, are more likely to earn a below-average annual income and be a person of color (Patterson et al., 2011); similar statistics have been recorded for natural gas infrastructure (Bienkowski, 2015).

These utilities are in a moment of existential crisis with the rise of renewables. From gas pipelines to coal power plants, their investments are turning into stranded assets, as political leaders and investors realize

that eliminating fossil fuels from the energy mix is paramount to creating healthy communities and stemming climate change.

Unfortunately, often publicly owned utilities in the United States have similar energy generation profiles to their privately owned counterparts (American Public Power Association, 2015). This paper explores the extent to which publicly owned utilities are reticent to take on the new energy paradigm and evaluates their ability to provide energy democracy compared to investor-owned utilities.

Five utilities in three states—Virginia, Ohio, and Nebraska—were selected as case studies to represent a range of regulatory, political, and geographic contexts. Data was gathered through 25 in-depth, semi-structured interviews as well as additional primary and secondary sources.

Results show that publicly owned utilities meet more of the conditions for energy democracy than investor-owned utilities, but still fall short in many respects. However, their structures provide a better platform to change their orientation to an equitable, community-controlled utility. The results of this study not only identify what principles of energy democracy currently exist in publicly owned utilities, but also provide strategies to reorient and rebuild publicly owned utilities with strong foundations in energy democracy. By looking to the strengths and pitfalls of these studied publicly owned utilities, energy democracy activists who take on (re)municipalization campaigns can intentionally build out energy democracy and create a more just energy future.

Outlined below are some of the major findings, categorized by energy democracy's energy portfolio, political, and economic conditions:

Energy Portfolio: The publicly owned utilities studied in this paper have higher levels of renewable energy than private utilities. While one of the publicly owned utilities gains the majority of its renewable energy generation from wind, a significant amount of the publicly owned utilities' renewables come from large-scale hydro power, which has significant environmental and community repercussions. To further energy democracy, publicly owned utilities should enable much more ambitious renewable energy goals from such sources as solar and wind.

Political: Community members' lack of understanding of their utility's decisions and the energy system as a whole is a pervasive problem with all utilities studied, though to varying degrees. This has a direct negative impact on participation in democratic actions—like voting or public meetings—and is particularly troubling from an equity perspective because it leaves an elite few to make decisions. Investor-owned utilities use their economic power to further capture political systems and implement their desired policies. Publicly owned utilities allow for a much larger scope of people who could participate and therefore limit elitism, while still suffering from some inequalities. To further energy democracy, publicly owned utilities should identify ways to increase community understanding and counter elitism by increasing the participation of diverse voices. This could be accomplished through such methods as input from local neighborhood assemblies and diversifying utility boards through seat allocations.

Economic: Neither utility structure studied has expansive decentralized renewable energy in their service area. A system based on decentralized renewables would require a drastic change from current business models, but this shift is much more manageable for publicly owned utilities than for investor-owned utilities that pursue profit for shareholders through constant expansion and capital-intensive—often fossil fuel-based—infrastructure projects.

The publicly owned utilities studied that own renewable energy are going through processes of partial privatization. Existing regulation has led them to rely heavily on power purchase agreements (PPAs) with large corporations—even

investor-owned utilities—for their renewable energy needs. This is a double-edged sword. On the one hand, PPAs with for-profit entities can increase the long-term costs of renewable energy for a community (i.e. over the long run, it could be significantly cheaper to use bond financing to build and own renewable energy infrastructure directly). On the other hand, PPAs could be used to further distribute ownership of renewable energy if utilities entered into contracts with local community members. However, none of the utilities studied are currently pursuing this strategy.

Revenues from publicly owned utilities studied are generally paid to local governments and not shareholders, allowing profits to benefit local communities directly. This aligns well with energy democracy values, specifically keeping value local and redistributing wealth within a community. Publicly owned utilities also distributed wealth internally in a more equitable fashion. The highest-paid employees at publicly owned utilities studied never makes more than ten times the average lineman, while the highest-paid executives at investor-owned utilities makes more than one hundred times as much.

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** This research shows data up until December, 2017**

List of Abbreviations

AMP – American Municipal Power
APPA – American Public Power Association
CEI – Cleveland Electric Illuminating Company
CPP – Cleveland Public Power
CRES – Certified Retail Electric Supplier
DEQ – Department of Environmental Quality
DG- Distributed Generation
DOE – Department of Energy
EDU – Electric Distribution Utility
EPA – Environmental Protection Agency
ESP – Electricity Stability Plan
FERC – Federal Energy Regulatory Commission
IOU – Investor-owned Utility
IRP – Integrated Resource Plan
ISO – Independent System Operators
kW – kilowatt
kWh – kilowatt hour
LES – Lincoln Electric System
MW – Megawatt
NE – Nebraska
NEARC – North American Electric Reliability Corporation
NRC – Nuclear Regulatory Commission
OH – Ohio
OPPD – Omaha Public Power District
PPA – Power Purchase Agreement
PUC – Public Utility Commission
PUCO – Publicly owned utilities Commission of Ohio
PURPA – Public Utility Regulatory Policies Act
REC – Renewable Energy Credit
RPS – Renewable Portfolio Standard
RTO – Regional Transmission Operator
SSO – Standard Service Offer
VA – Virginia
(V)SCC – Virginia State Corporation Commission
WAPA – Western Authority Power Administration

Introduction

Our conventional energy system creates unjust environmental, economic, and social impacts—from extraction to emissions (Cuomo, 2011; Heffron & Mccauley, 2014; Malin, 2014). Companies building noxious infrastructure, like fossil fuels, often follow the "path of least resistance" and burden the communities who have neither the financial nor political capital to object (Bullard, 1990; Roberts & Parks, 2009). The infrastructure's emissions then contribute to climate change, which disproportionately affects low-income and minority groups (Giancatarino, 2013b). In sum, companies externalize their negative impacts onto vulnerable communities, growing the gap between the haves and have nots (Schrader-Frechette, 2002).

Nations across the globe have begun to transform their energy systems to mitigate climate change with a phase-out of fossil fuels. However, the process has been slow, uneven, and inequitable. Moreover, a new renewable energy system can still produce inequality because of the failure to address structural political and economic problems (Finley-brook & Holloman, 2016; Giancatarino, 2012). For instance, policies that have been implemented to incentivize decentralized renewable energy still tend to focus on middle-income homeowners and are prohibitive for low-income residents (Garascia & Scheu, 2016).

The concept of energy democracy was introduced to highlight the problems with both the extractive fossil fuel system as well as the misaligned distribution of benefits in the emerging renewable energy system (Fairchild & Weinrub, 2017). Coined in Germany around 2012, energy democracy emphasizes community control with the objective of serving a diverse local public renewable energy through democratic means (Angel, 2016; Giancatarino, 2013a; Yenneti & Day, 2015). It has provided a powerful rallying concept for change with activists, communities, and labor unions alike (Angel, 2016; Kunze & Becker, 2014; Lausitzcamps, 2012).

Incumbent players have strong incentives to continue their old ways of doing business, and the traditional electric utility is one of the major gatekeepers in the current energy paradigm. They are often consolidated corporations whose primary motive is profit (Farrell, 2014). They have expensive fossil fuel assets, such as natural gas pipelines and coal fired power plants, which leave them unable to quickly realign towards renewables (Castaneda, Franco, & Dyner, 2017). Investor-owned (also known as private) electric utilities have reigned the U.S. landscape for close to a century and fit snugly into the contemporary paradigmatic structures.

Based on an ideologically enforced conception that public services were inefficiently run and expensive, a wave of privatization in the 1980s doubled down on this model (Kishimoto & Petitjean, 2017).

Internationally, governments deepened austerity measures and intensified competition based on a neoliberal economic theory (Cumbers, 2016). The public came to equate public ownership with the large, centralized state-owned vestiges of a previous era, and in large part acquiesced to privatized provision of services (Cumbers, 2016). However, by and large privatization failed to deliver the promised cost reductions, service improvements, and infrastructure investments, while examples proliferated of private companies providing public services like water, energy, and waste management with a primary focus on the extraction of profit over all other considerations (Bliss, 2015).

An international movement has now gained traction to reverse the trend of privatization, and is scoring successes around the world (Kishimoto & Petitjean, 2017). Particularly, transitioning utilities to public ownership could provide the scale needed to transition quickly to renewable energy while still enabling energy democracy. By transitioning from a privately to a publicly owned utility, proponents hope to democratize the decision-making process, eliminate the overriding goal of profit maximization, and transition away from fossil fuels (Angel, 2016; Sweeney, 2017). Campaigns have taken hold across the globe—from Berlin, Germany, to Boulder, Colorado—to redirect utilities so they are more responsive to the community's needs, namely through equitable access to renewables (Kishimoto & Petitjean, 2017).

However, publicly owned utilities as a whole have also missed the mark on transitioning to renewable energy, continuing instead to invest in generating facilities using coal and natural gas (American Public Power Association, 2015). This paper seeks to understand the extent to which publicly owned utilities are able to meet the conditions of energy democracy in comparison to investor-owned utilities by taking an in-depth look at five utilities across the United States. By providing an analysis of the ability of publicly owned utilities to provide structures for energy democracy, and by identifying the pitfalls of current-day public ownership, it seeks to help activists, communities, and policymakers build a future based on energy democracy.

Core Values of Energy Democracy

The concept of energy democracy was introduced in an effort to take back power in the energy system. Energy democracy arose from the environmental and climate justice movements and defines a social movement, emancipatory action, a value, and an aspiration all at once (Lausitzcamps, 2012; Angel, 2016; Kunze & Becker, 2014). It goes beyond eliminating fossil fuels from the energy mix and provides a vision to restructure the energy future based on democratically governed, community controlled renewables (Weinrub & Giancatarino, 2015). While there are many diverse interpretations of energy democracy, we explore some core values, or conditions, of energy democracy within a context of electrical utilities in order to identify indicators and guide our comparative analysis.

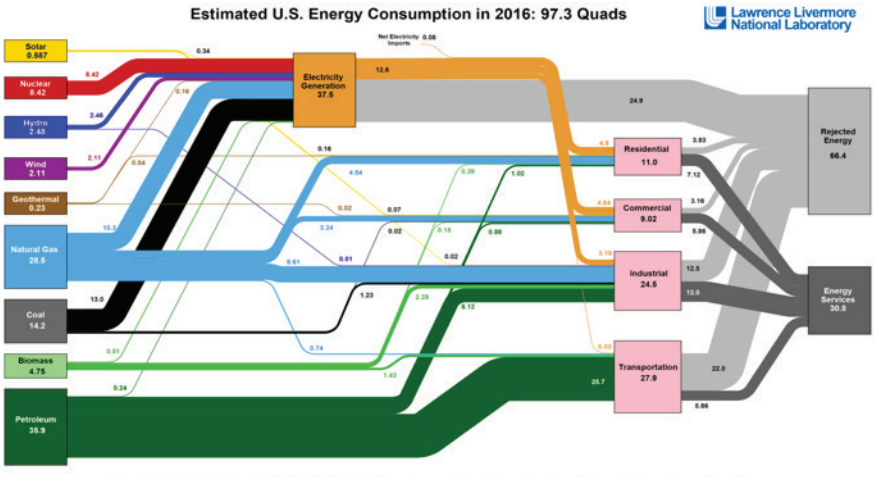


Figure 1: **Breakdown of US Energy Consumption by Origin and Use. (Lawrence Livermore National Laboratory, 2017).**

Energy Portfolio Conditions

That being said, one of the first core values of energy democracy *is* to resist fossil fuels and rapidly transition towards 100 percent renewables (Burke & Stephens, 2017; Sweeney, 2012). No new oil, gas, or coal extraction can be developed beyond those already in construction and some must be retired before being fully exploited in order to keep warming below two degrees from preindustrial times (Muttitt et al., 2016). Renewable energy sources will have to be expanded to assume their place. The energy democracy movement bases its rejection of fossil fuels not only on climate change but also on the extractive tendencies of fossil fuels that directly affect communities in the near term (Burke & Stephens, 2017). Electricity generation makes up a significant percentage of all energy use in the United States and relies almost exclusively on fossil fuels (see Figure 1), making utility generation a clear avenue to facilitate technical transition (Lawrence Livermore National Laboratory, 2017). While grid improvements are a key component of ushering in the new age of electricity, this report only evaluates grid modernization decisions for purposes of scope

Table 1: **Indicators for Energy Portfolio Conditions**

Energy Portfolio Conditions	Indicator
Portfolio	The extent to which the utility has eliminated fossil fuels in its energy portfolio, based on most recent data.
Types of renewables	The types of renewables that make up its renewable energy portfolio. Biofuels, waste to energy, and large-scale hydro are characterized as low quality. Solar, wind, and geothermal are characterized as high quality.

insofar as they affect the ability of the utilities to provide access to renewable energy.

Not all renewable energy types are created equal. The ability of waste-to-energy and biomass sources to serve as zero emissions sources is heavily dependent on managed use and have other land use implications (Junginger, Faaij, Rosillo-Calle, & Wood, 2006). Large-scale hydro also has significant social and environmental baggage—it can considerably disrupt the environment, displacing both species and human communities (Kelly et al., 1997). In some states, large-scale hydropower is not even considered renewable when accounting for meeting a renewable portfolio standard (RPS) (Donnelly-Shores, 2013). Therefore, this study categorizes renewable energy as either high-quality (solar, wind, geothermal) or low-quality (biomass, waste-to-energy, large hydroelectric).

To assess the utilities' ability to meet the energy portfolio conditions of energy democracy, both the extent to which they have eliminated fossil fuels from their energy portfolio as well as the types of renewables that make up their portfolios are evaluated (see Table 1).

Political Conditions

Replacing fossil fuels with renewable energy is far from the only requirement for energy democracy. Advocates of energy democracy also reason that the energy system needs a political and economic overhaul in order to provide an equitable transition (Weinrub & Giancatarino, 2015). The prevailing modern model of democracy is based on representational governments (Dahl, 1964; Schumpeter, 1942). Some political theorists criticize this model of democracy because it creates conditions for elites to unduly influence the system and centralize power (Roper, 2012). Since one of the root causes of climate change has been private investment decisions that externalize environmental costs and consolidate wealth (Alperovitz, et al, 2016), undoing the elite influence and control over the institutions of representative democracy is another core value of energy democracy.

The environmental justice movement has for years insisted that democracy should move beyond merely making requests of elected representatives, and towards the engaged and balanced participation of multiple stakeholders (Sanchez-Pages & Aragones, 2009; Szulecki, 2018). As a product of the larger environmental justice movement, energy democracy holds a similar commitment to participatory procedures. Energy democracy activists Huang and Yoshitani contend that "communities don't want to simply engage, they want to be able to govern, to make decisions, and to have agency" (Huang & Yoshitani, 2017).

This alternate conceptualization of democracy is more than just voting in elections and instead is a continued process to overcome elitism by pluralizing sites for engagement and creating mechanisms for deeper engagement in all aspects of decisionmaking (from planning to initiation, implementation, and monitoring). In order to operationalize the political conditions of energy democracy, three interdependent cornerstones are evaluated (Harrison & Sigit, 2014). These are (see Table 2):

Transparency: This refers to the ability of people to gain access to information, and neither participation nor accountability would be viable without it. Transparency allows community members to make informed decisions and preferences as well as provides a mechanism of accountability (Harrison & Sigit, 2014; Michener & Bersch, 2013). Good information, not just more information, is critical. If there is ample access to information but it cannot be easily digested by the public, community members are stifled in their ability to utilize that data in their decision-making and accountability measures. This is particularly important within the context of energy democracy because the energy sector has been characterized as a technocratic domain—relegated to elite scientists and industry (Szulecki, 2018). Energy democracy values engagement from the local public and a breadth of stakeholder engagement is unattainable if there is not visibility nor ability to comprehend as a layperson (Szulecki, 2018). To operationalize transparency, this study evaluates the visibility of the data (or the ability to access the information) as well as the inferability of the data (or ability to infer the information with accuracy) (Michener & Bersch, 2013) within two contexts: the utility's energy generation and its decision-making processes.

Participation: This refers to the need for the energy system to recognize and facilitate the genuine and active involvement of all stakeholders instead of an elite few in a community. If there is not a diverse network of stakeholders weighing in on decisions when "greener" initiatives are put in place, they can continue to exclude those in most need and contribute to maldistribution of economic benefits (Fraser, 1996). Creating participation structures enables a more equitable model of decision-making that can then help to reduce social and economic inequalities (Vitale, 2006). Participation is two-fold: 1) It should include a diverse number of stakeholders and 2) ensure that their perspectives are acknowledged and acted upon. The former is referred to as the scope of participation, while the latter refers to the quality. This study evaluates scope and quality both in the context of representative (the closest elected representative to decision-making and state-level elections) and direct democracy (specifically, public hearings). It limits the study of participatory structures to those at the state level and below, while recognizing that decisions made at the regional and federal levels directly affect the utilities.

Accountability: This refers to the ability to hold decision makers accountable for their actions and ensure that participation by stakeholders is not futile. There is a long history of actors in the energy system not being held accountable for their actions and much of the environmental justice movement has focused on enabling accountability both through legislative and judicial structures. Borowiak, for one, argues that democratic accountability should include both the conventional models of accountability, including rules enforcement and voting mechanisms, but also should include opportunity for destabilization, scandal exposure, and democratic insurgence, as informal modes of accountability (Borowiak, 2011). This study evaluates two ways in which accountability is operationalized—1) through the formal structures imposed

Table 2: **Indicators for Political Conditions**

Political Conditions	Indicator
Transparency	Visibility: ability to access information Inferability: ability to infer the information with accuracy
Participation	Scope: inclusion of diverse stakeholders Quality: the extent stakeholders are provided with the opportunity to contribute and that those contributions are acknowledged
Accountability	Formal: rule enforcement and voting mechanisms Informal: destabilization, scandal exposure, and insurgence

Table 3: **Types of Renewable Ownership Structures**

Type of Renewable Energy Ownership Structure	Description
Utility Renewables	**Ownership:** The utility owns its renewable energy generation.
	Market-based: Utility buys energy in power blocks from the market.
	Power Purchase Agreements (PPAs): Vary in type and size but constitute as a long term agreement to buy energy from a renewable energy installation.
Individual Renewables	Energy generated by an individual and fed into the grid, such as rooftop solar.
Community Renewables	Energy generated and fed into the grid, with the benefits of ownership provided to multiple community members who have opted into the project.

by the utility itself or the state, such as voting or rule enforcement, and 2) through informal structures, which include scandal exposure (e.g. by a media outlet) or insurgence—and evaluates the extent to which the utility reacts and changes its methods when the structures have been instigated.

Economic Conditions

Particularly since the passing of the Energy Policy Act in 2005, utilities have been allowed to consolidate their economic power and ergo political power (Morrison Foerster, 2005). By redistributing wealth and ownership within the energy system, energy democracy seeks to stave off inequities created by consolidated power. Energy democracy also focuses on workers' rights and good jobs in an energy economy based on renewables (Sweeney, 2012). The three core economic values of energy democracy are (see Table 4):

Democratized Ownership: Centralized renewable energy plans can allow for continued economic benefit and power to be held by large corporations (Fairchild & Weinrub, 2017). Thus, one of the core economic tenants of energy democracy is facilitating democratized ownership structures that benefit the community (Fairchild & Weinrub, 2017). This study investigates two models of renewable energy generation, decentralized and utility-scale (see Table 3).

Decentralized energy can be owned and operated at a local level, providing the potential to distribute the economic power and benefits more equitably (J. Farrell, 2016; Weinrub & Giancatarino, 2015). However, decentralized policies tend to focus on upper- to middle-income homeowners (Garascia & Scheu, 2016). This study investigates both individual as well as community renewable energy ownership opportunities, while also working to identify if policies enable low-income access.[1]

There is also the tension of scale for a swift transition towards renewables (Angel, 2015). Reinventing the energy system in the necessary timeframe will take large, utility-scale coordination at a clipped pace (Angel, 2015). For utility-scale energy to both accelerate the transition and achieve the conditions of energy democracy, the benefits of ownership must stay with the community.[2] In order to identify the extent to which utility-scale energy benefits the community, procurement, ownership structures, and use of renewable energy credits (RECs) are evaluated.

Procurement refers to how the energy is installed and brought onto the grid. Evaluation is based both on where the energy is sited and who installed it. The latter provides additional information as to who is receiving the benefit and therefore the installer is assessed as to its diversity, including: women or minority-owned businesses, worker co-ops, or

1 For definitions' sake, individual renewable energy refers to a single household's renewable energy installation, while community renewable energy refers to renewable energy projects where multiple community members can opt in and gain the benefits of ownership.

2 Community benefits mean both that the community has agency in the process and that they benefit from the renewable project's outcomes (Walker & Devine-Wright, 2008).

Table 4: **Indicators for Economic Conditions**

Economic Conditions	Indicator
Ownership	Individual or Community Ownership: ownership opportunities/structures for individual net metering and community renewable energy, where multiple community members can opt in and gain benefits of ownership
	Utility-Scale Procurement: the extent to which energy is procured locally (service area, state, or out of state) and built by whom (local, women or minority owned businesses, etc.)
	Utility-Scale Ownership: ownership opportunities/structures of renewable energy over 1 MW for utility use
	Utility-Scale Renewable Credits: where emissions are being accounted, evaluated through buying, retiring, and selling of RECs
Distribution of Wealth	Energy Poverty: the cost of electricity, rate structure, energy efficiency programs, and cutoff rates
	Revenues: Where revenues from utility sales are allocated, including taxes (or payment in lieu of taxes), shareholders, the amount of money provided to philanthropy and where it is allocated, and how wealth is distributed internally – specifically the relationship between average lineman salary and highest paid employee
Just Transition	Worker Democracy: the extent to which structures for co-leadership have been enabled (worker-ownership, allocated board seat for workers, unionization)
	Diversity in Leadership: including the Board and upper management and if they have representation from a race and gender perspective
	Training/Retraining Fossil Fuel Workers: The extent to which mechanisms have been put in place to transition fossil fuel workers

organizations/companies that are considered part of a historically underutilized business (HUB) zone. Ownership structure refers to who actually owns the energy generation. The wholesale energy market means that there are multiple ways for energy to be supplied by a utility. The three major ways the utility can access energy is to buy it off the market, enter into long-term power purchase agreements (PPAs), or own the assets outright. Use of renewable energy credits refers to how renewable energy is accounted for. RECs are tradable commodities that either can be retired with the renewable energy generator or sold and retired elsewhere (Angel, 2015). This study evaluates the extent to which RECs are bought by the utility to compensate for their emissions, the extent to which they are retired within the service area, and the extent to which they are sold elsewhere.

Distribution of Wealth: One of the major rallying concepts behind public power is the fact that wealth can be more equitably distributed and not solely funneled into stockholders' pockets (Sweeney, 2012). In this study, the distribution of wealth is measured using two major indicators: the ability to limit energy poverty and the distribution of revenues. The first refers to the affordability of the energy itself. Low-income households consistently spend a higher portion of their income on energy because available housing is less efficient (Drehobl, et al, 2016) as well as changing utility rates (Southern Environmental Law Center, 2015). In order to evaluate the utility's commitment to tackling energy poverty, this study evaluates the expense and structure of rates, process for energy cutoffs, and available subsidies for low-income efficiency. The second refers to how revenues are allocated and the extent to which the benefit stays local and is not limited to an elite few. This study evaluates revenues distribution through taxes or payment in lieu of taxes, the extent to which revenues are acquired by local stockholders, and the income differential internal to the utility. Philanthropy as an allocation of revenue also has implications of redistribution of wealth and is also evaluated.

Just Transition: The relationship between the energy transition and workers has long been a thorny one. A transition away from fossil fuels means the inevitable elimination of many high-paying, unionized jobs. Then again, as the saying goes, "there are no jobs on a

dead planet (Burrow, 2015)." Positive, well-paying, and unionized jobs are a major tenet in providing a just transition and building energy democracy (Sweeney, 2012).

The just transition and workplace democracy are two integral and intertwined tenants of energy democracy. It reasons that a utility will be better equipped to enable a just transition if they provide workers with a voice within their structures. In order to determine the extent of the just transition and workplace democracy within utilities, three criteria are evaluated.

First is the extent to which there is actual workplace democracy—which means establishing formal mechanisms to involve workers in decision-making processes. This can include worker representation on boards (often called co-determination) and/or through unions, who have provided democratic structures to workplaces as well as lobbied on their behalf (Sweeney, 2012).

Second is the extent to which leadership is reflective of the larger community. Workers (and their families) are also community members, and representative leadership at the organization helps to achieve levels of inclusion key to energy democracy and helps to ensure that different perspectives are valued at the executive level. Although not perfect indicators for community representation, this study evaluates the extent to which the board and management have racial and gender diversity, while recognizing that there are additional types of diversity.

Last is the opportunity to transition those workers within the fossil fuel industry to new jobs based on the green economy. Energy industry workers and unions have come into conflict with environmentalists on the issue of renewable energy because such a move comes at a high cost for workers in fossil fuels (Sweeney, Benton-Connell, & Skinner, 2015). Without plans for a just transition for workers, unions and utility workers will continue to oppose renewable energy expansion (Sweeney, Benton-Connell, & Skinner, 2015). The actions or plans for transition of fossil fuel workers are evaluated for the purposes of this study.

Background on the U.S. Electricity Sector

Generation, Transmission, and Distribution

Electricity systems consist of three major structures: generation, transmission, and distribution. In most areas, vertically integrated utilities operate all the stages in coordination with the federal, state, and local level regulators (Booher, Proano, & Kash, 2016). However, as renewables enter the scene, how the grid and its actors interact is under question.

Centralized power plants are the heart of the current electricity system. Large-scale power plants generate massive amounts of on-demand power to a widely distributed public (Bakke, 2016). More often than not, the electricity is generated from fossil fuels. In 2016, 65 percent of electricity in the U.S. was produced from fossil fuels like coal and natural gas (US Energy Information Administration, 2017). After generation comes transmission; the bulk power is transferred from the power plant to local substations, where it continues on to local distribution lines. The United States' electricity network is divided in four interconnected transmission grids: The Eastern Interconnection, the Western Interconnection, the Quebec Interconnection, and the Electricity Reliability Council of Texas (US Energy Information Administration, 2017). Transmission is owned in piecemeal parts by utilities that grant indiscriminate access to generators and is exchanged on wholesale markets run by nonprofit Regional Transmission Operators (RTOs) and Independent System Operators (ISOs) (See Figure 2).

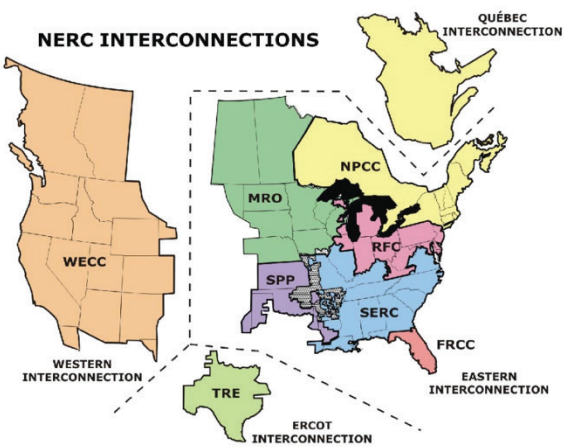


Figure 2: **United States transmission systems and wholesale energy markets.**

Last comes distribution—the local electrical lines that run to houses and businesses in different utilities' service areas. The evolution of the grid has left it a patchwork of power lines and inefficiencies—to the point that the U.S. has two times the number of power plants that it needs because of lost efficiency (Bakke, 2016). What is more, higher penetration of local renewables means we need less centralized capacity and more responsive loads, demand-side management (including batteries), and two-way meters that allow those plugged into the grid to both take energy off and put energy into the grid. National

Renewable Energy Lab (NREL) estimates that, with a properly managed grid, the U.S. could have as much as 80 percent of its energy coming from renewables (Mai, Sandor, Wiser, & Schneider, 2012).

Types of Utilities

In the United States, there are three major types of utilities: investor-owned utilities, publicly owned utilities, and rural cooperatives (US Energy Information Administration, n.d.; see Table 5). Rural electric cooperatives are owned by their rural members and usually provide electricity to a sparsely populated, but large geographic area. Rural electric cooperatives have been excluded from this study for scope reasons, but continue to be vital institutions within the electricity sector.

Investor-owned utilities serve around 68 percent of the nation's residential power needs (American Municipal Power, 2017a). They are often large companies with a high volume of customers over a significant swath of land. Depending on the regulatory landscape of the state in which they operate (often more than one), they can either be vertically integrated or unbundled. Their power comes from a combination of their own generation and purchased power from wholesale entities. They are owned by shareholders or investors who do not need to be located in the geographic location in which the utility operates.

Publicly owned utilities are owned by the local government body with a service area limited to the jurisdiction of that government. This means that they are often smaller than investor-owned utilities. They receive benefits as government-owned entities, including exemption from the federal income tax and access to municipal bonds for financing. Similar to investor-owned utilities, their energy mix is a combination of their own generation and purchased power. Publicly owned utilities will also often coordinate with each other through joint action agencies (considering size) to invest collectively in energy generation via nonprofits governed by themselves, such as American Municipal Power (AMP) on the East Coast (American Municipal Power, 2017b).

Regulatory Overview

This study focuses on state-level regulation and smaller, but it is important to understand the larger regulatory system at play. The Federal Energy Regulatory Commission (FERC) is the federal-level regulator overseeing the electric industry, including the regulation of the natural gas industry, hydroelectric projects, oil pipelines, transmission, and wholesale rates for electricity (Federal Energy Regulatory Commission, 2017). One of the Commission's major concerns is to ensure a fair and reasonable price for all electricity users in the U.S. (Federal Energy Regulatory Commission, 2017). The North American Electric Reliability Corporation (NEARC) regulates grid reliability, consisting of seven regional entities. In addition, The Environmental Protection Agency (EPA) regulates certain emissions from power plants, the Nuclear Regulatory Commission (NRC) regulates nuclear power plants, the Department of Energy (DOE) promotes scientific innovation on the federal level (Booher et al., 2016).

In the 1990s, FERC commenced an effort to deregulate the electricity system by requiring a competitive wholesale market for energy generation and open access to transmission. This allowed wholesale marketers and energy traders to come onto the scene, changing the traditional electricity market (Booher et al., 2016). These markets are regulated by voluntarily-formed Regional Transmission Operators (RTOs) and Independent System Operators (ISOs)—nonprofits managing wholesale supply and demand.

On the state-level, there are regulatory bodies that focus on in-state generation, transmission, and electricity rates, often called Public Utility Commissions (PUCs) (Booher et al., 2016). Some states have enacted portfolio standards that must be reached by the utilities, often including a certain threshold of renewables. In states

Table 5: **Adapted from California Energy Commission, 2017 "Differences Between Publicly and Investor-Owned Utilities."**

	Publicly Owned Utilities	**Investor-Owned Utilities**
Ownership	Owned by local government, limited to service area	Owned by shareholders or investors, not limited to service area
Structure	Nonprofit that is managed by either elected officials or public employees	Private, for-profit company. Shareholder elected board and private employees
Regulation	Rates set either in a city council public forum or by governing board. Must also comply with some state and federal regulations. State economic regulations do not apply	Depending on regulatory structure, rates set in compliance with state and federal regulations
Size	Usually small to mid-sized	Large customer base, often across states
Financing	Finance via tax-free bonds	Finance via shareholders, bonds, and bank borrowing

with regulated monopolies, the state government negotiates with the utility in a process called rate cases to determine a fair and reasonable rate for the utility to charge in the region and a new rate of return for the utility. The Federal Public Utility Regulatory Policies Act (PURPA) requires the opportunity for consumers to intervene in rate case proceedings but does not ensure that those interventions will be incorporated into the final ruling (Booher et al., 2016). PUCs do not regulate publicly owned utilities, since rates are determined via the local government. State-run departments of environmental protection also regulate specific components of the electricity sector, mainly around project siting and emissions.

As part of the larger scheme to deregulate the market, some states have further broken down, or unbundled, their electricity sector to separate the three stages of the electricity system into different companies. This eliminates energy supply monopolies in the state and allows for the market to take larger control of the energy price, with consumers choosing their provider. In the case that there is unbundling, the grid still continues to be a monopolized piece of the system to ensure that there is equitable access (Regulatory Assistance Project, 2011). Often, the investor-owned utilities were previously vertically integrated prior to the regulation change and transferred their assets to subsidiaries within the same parent corporation to deal with the new regulations (Regulatory Assistance Project, 2011).

Local governments usually regulate plant and transmission siting processes, though often the permits are also approved by a state governing body. In the event that there is a publicly owned utility, then more decisions are made at the city-level (Regulatory Assistance Project, 2011).

Energy Democracy "Score" Methodology

In the following sections, we analyze the extent to which publicly owned and investor-owned utilities can realize energy democracy by applying the core values, or conditions, to five case utilities in three states. The three states represent different prevailing regulatory structures: Ohio has unbundled market with consumer choice in supplier, Virginia is comprised of regulated monopolies, and Nebraska only has publicly owned utilities. In each state, we evaluate an investor-owned and publicly owned utility, except in Nebraska's case where there are only publicly owned utilities.

In order to compare utilities systematically, we built a scoring system based on the conditions of energy democracy described above. Each condition—energy portfolio, political, and economic—has a set of indicators that can receive between 0 (unacceptable) to 4 (Excellent) points. For an in-depth breakdown of the scoring system by condition and indicator, please see Appendix 6.

A utility's points are tallied together and then divided by the total possible points for that condition. Then, utilities receive a fractional score between 0 and 1 for the condition. The simple equation is described below:

$$\frac{\textit{Utility's Total Condition Points}}{\textit{Total Possible Condition Points}} = \textit{Condition Score}$$

Table 6: **Condition Indicators Scored for Energy Democracy**

Condition: Technical	**Indicator**
Energy Portfolio	Percent of renewable energy
Types of renewables	High quality vs. Low quality

Condition: Political	**Indicator**
Transparency	Visibility, Inferability
Participation	Scope, Quality
Accountability	Formal, Informal

Condition: Economic	**Indicator**
Ownership	Procurement, Individual/ Community Renewable Ownership, Emissions
Distribution of Wealth	Energy Poverty, Revenues
Just transition	Worker democracy, diversity in leadership, worker (re)training

See Appendix 6 for in-depth breakdown of system scoring

Case Study Background

Nebraska

Region: **West/Midwest**
Deregulated or Monopolized: **Regulatory monopoly—whole state has public power**

Nebraska is the only state in the nation that gets 100 percent of its electricity through publicly owned sources. Altogether there are 166 utilities, comprised of municipal electric systems, public power districts, and cooperatives (Nebraska Power Association, n.d.). The utilities are governed by either locally elected or appointed officials.

Publicly owned power has been a way of life since 1887 (Nebraska Power Association, 2017). In the 1920s IOUs came into the state, consolidated the energy industry, and used their financial and political power to stop new public power districts from forming. In 1930, Nebraskan residents proposed a revenue bond financing proposal that allowed them to create publicly owned utilities (Hanna, 2015). In 1933, the Public Power District Enabling Act allowed voters to petition for public power, the Public Utility Holding Company Act of 1935 forced the breakup of investor-owned monopolies, and the Rural Electrification Act of 1936 brought electricity to rural areas (Hanna, 2015).

In the 1960s, there were three major changes: 1) Generation and transmission were consolidated in the state; 2) the Power Review Board was formed to resolve disputes between districts, to review proposed generation and transmission plants, and to provide an opinion on rate disputes; and 3) the Nebraska Power Association was founded to improve coordination between districts. In comparison with other states (PUCO in Ohio and SCC in Virginia), the Nebraska Power Review Board does not have the ability to set rates—rhat is done at the municipal or power district level (Hanna, 2015).

Omaha Public Power District

Omaha is the most populous city in Nebraska, with 466,000 people living in the city (US Census, 2017). The Omaha Public Power District (OPPD) is therefore the largest utility in the state, providing power to the city and surrounding areas. It serves 374,831 customers (OPPD, 2016). In the 1920s, American Light and Power's subsidiary in the area, Nebraska Power Company, ran the utility in the city. In 1946, the company was forced to divest and transfer power to public ownership (OPPD, n.d. a).

Different power districts in Nebraska supply energy in different ways—for instance, Nebraska Public Power District works mostly as a wholesale provider to smaller municipalities. In OPPD's case, it operates

as a retail power provider for most all cities within its service area. There are certain cities who have opted out of OPPD service, and instead run a municipal utility with wholesale energy provided by NPPD (Nebraska Power Authority, n.d.).

Virginia

Region: **Mid-Atlantic**
Deregulated or Monopolized: **Regulated monopoly, where utilities have a contract with the city for control over utility provision**

Virginia has regulated monopolies in which vertically integrated utilities contract with specific cities or territories for control over utility provision—regulated by the Virginia State Corporation Commission (VSCC). There are three major investor-owned utilities: Dominion Power, Appalachian Power Co, and Kentucky Utilities (Virginia State Corporation Commission, 2016). There is a certain amount of energy choice for industrial-scale customers, but overall it is a monopoly-based system (Virginia State Corporation Commission, 2016). During the wave of deregulation and unbundling in the 1990s, the state of Virginia did unbundle its electricity sector, but was faced afterwards with significant opposition from utilities.

In order to become a regulated monopoly in Virginia, a utility must serve all customers in the regulated area and ask for reasonable rates that are established in coordination with the regulators. In return for complying with rate regulation and indiscriminate access to the grid, the utility receives a monopoly on the supply market, the power of eminent domain, and assured reasonable return on investments (Greene Hurlocker, 2017).

Dominion Power, Dominion Virginia Power

Dominion Virginia Power, the largest utility in Virginia and its parent company is one of the largest in the nation (Dominion Energy, n.d.b). A Virginia-based company, Dominion Power's headquarters are based in Richmond, the state capital. In addition to Virginia, it also operates in North Carolina, Ohio, West Virginia, Utah, Wyoming, and Idaho. It generates and transports a total of around 26,000 MW of energy and 14,000 miles of natural gas transmission (Dominion Energy, n.d.b).

Danville Utilities

Danville is on the southern border of the state. It has one of the largest and oldest municipal-owned utilities in Virginia. Danville currently serves around 42,000 residential, commercial, and industrial customers (Danville Utilities, n.d.-a). In an attempt to revitalize the city with businesses and jobs, Danville was also one of the first cities in the country to put in public broadband (a network called nDanville).

Ohio

Region: **Midwest**
Deregulated or Monopolized: **Deregulated, with consumer choice from industrial to residential level**

The Publicly Owned Utilities Commission of Ohio (PUCO) acts as the regulatory body overseeing the utilities (PUCO, 2017). It enforces relevant utility laws, provides consumers with information on their rights and responsibilities, assists consumers in disputes, and regulates rates (PUCO, 2017).

Ohio began to deregulate its energy systems in 2001 in an attempt to lower electricity rates for customers and create efficiency within the sector (Direct Energy, n.d.). As the system works now, energy generators sell to a wholesale market, where the energy is bought by retailers and sold to the customer. Electric distribution utilities (EDUs) facilitate transmission and distribution and still act as regional monopolies in order to limit grid access discrimination and redundancy in infrastructure (Thomas, Bowen, & Hill, 2016). In the deregulated system, Ohio energy consumers, from residential to industrial, can choose from any of the

certified retail electric suppliers (CRES) serving their area. Industrial consumers can elect to go straight to the wholesale market to buy their energy (Thomas, Bowen, & Hill, 2016).

Prior to deregulation, there were 8 vertically integrated investor-owned utilities within the state that had regulated monopolies; providing power to 91 percent of Ohio (Thomas, Lendel, and Park, 2014). With market deregulation, these vertically integrated utilities were required to unbundle their services by placing their generation capacity into subsidiary businesses in order to legally compete. Publicly owned utilities were still allowed to stay vertically integrated. Unlike some more deregulated areas, the utilities did not need to fully divest from generation but instead could create 100 percent owned subsidiaries (Thomas, Lendel, & Park, 2014).

In 2008, SB 221 was imposed as an update to the deregulation process. Most importantly, this introduced the concept of a standard service offer (SSO), wherein utilities must provide a fair and equitable rate for customers not interested in actively choosing a retail provider. Utilities can choose to provide the SSO via market rate options, where the market dictates the cost, or an electricity stability plan (ESP). ESPs allow utilities to recover their costs of electricity generation or purchasing, as well as an approved profit. The ESP is regulated by PUCO in a form similar to that of a rate case (Thomas, Lendel, and Park, 2014).

Cleveland's deregulated policy context and history of utility presence has created a unique situation in which the city has both an investor-owned and publicly owned utility vying for the same customers. The city has two predominant energy providers that are often described as being in cutthroat competition with each other (Atassi, 2014). Cleveland Electric Illuminating Company (CEI), a subsidiary of FirstEnergy, is the largest investor-owned utility in the greater Cleveland area. Cleveland Public Power (CPP) is the municipal utility. Although they market for the same customers, they play by different rules. The FirstEnergy subsidiary is regulated by PUCO and must operate in an unbundled manner. In contrast, CPP is a vertically integrated utility that is primarily regulated by the municipality.

Cleveland Public Power (CPP)

CPP's services are only provided in the greater Cleveland area. Originally called Cleveland Municipal Light, it was founded in 1914 by Mayor Johnson, a politician who believed that utilities like electricity, railroads, and trash removal should be owned by local governments, "If you do not own them they in turn will own you," he argued. "They will rule your politics, corrupt your institutions and finally destroy your liberties" (Dreier, 2012). The municipal utility's entrance into the market threatened Cleveland Electric Illuminating Company and provided cheap electricity for the community (Braunlich & Sisson, 2012). Ever since, the two utilities have been in competition—even when investor-owned utilities were still vertically integrated. In 1977, CEI offered to buy the monopoly but the then-mayor refused to sell, which has created a unique situation where distribution lines from both utilities cross the city (Braunlich & Sisson, 2012).

FirstEnergy, Cleveland Electric Illuminating Company (CEI)

In addition to running the Cleveland Electric Illuminating Company that provides Ohioans power. FirstEnergy provides services in Pennsylvania, West Virginia, Maryland, and parts of Virginia. FirstEnergy serves 6 million customers in total and CEI specifically serves as an EDU to 700,000. Its headquarters is based in Akron, Ohio (FirstEnergy, n.d.-a). Since CEI is an EDU, this study looks specifically at the SSO to evaluate CEI. CEI uses an electricity stability plan for its SSO customers. When data is lacking, the study uses FirstEnergy since many services are shared, for instance, lobbying.

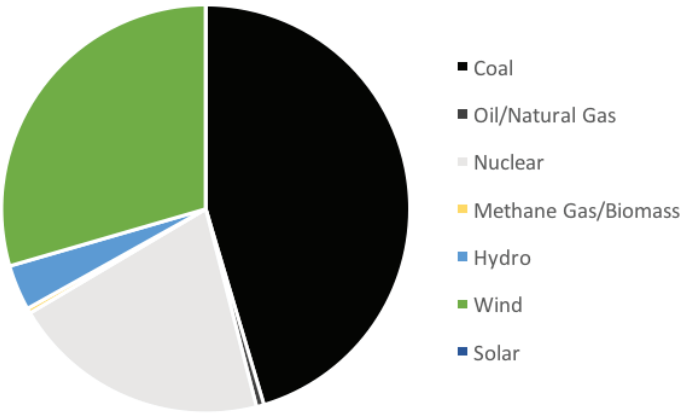
Results: Case Studies

Omaha Public Power District

Energy Portfolio Conditions

Coal powered the majority of Omaha Public Power District's (OPPD) sales through 2016 (Omaha Public Power District, 2017a). The fossil fuel source makes up about 50 percent of its entire portfolio (see Chart 1). As of 2016, when OPPD released its Integrated Resource Plan (IRP), only 13 percent of its portfolio was renewable—primarily from wind. However, as of December 2017, OPPD reported that 33.5 percent of its retail energy capacity comes from renewable energy, primarily through wind (Omaha Public Power District, 2017f).

Chart 1: **Omaha Public Power District Energy Portfolio by Capacity**



Source: Integrated Resource Plan (Omaha Public Power District, 2017). In December, 2017 OPPD announced it had achieved 30 percent renewable energy. Thus, this portfolio reflects the new composition, based on the assumption that the additional renewable energy capacity came online from wind and replaced energy from the decommissioning coal plant. (Omaha Public Power District, 2017f).

OPPD has audacious and concrete goals to expand renewable generation (see Table 7). A long-run advocacy campaign to shut down the North Omaha coal plant—located in one of the lowest income areas of Omaha with the highest percentage of black households—won a partial victory in 2015 (Interview 20, 21, 23, 2017). A full shutdown was originally expected, but now three of the five cycles will be transitioned to natural gas. OPPD also initiated a shutdown of its nuclear plant

Table 7: **Energy Portfolio Conditions | OPPD**

Energy Portfolio Conditions	**Indicator**	**Omaha Public Power District**	**Total Possible Points**
Transition to Renewables	Percent of Renewable Energy	4	8
	Type of Renewable Energy	3	4
	Total	7	12
Score		**0.58**	

because it was "hemorrhaging money" (Interview 21, 2017). Wind will be the primary source fueling the gap; it has entered into power purchase agreements (PPAs), bringing its sourcing to over 40 percent wind by 2019 and over 50 percent renewables by 2020, part of a newly implemented strategic directive of the utility (Interview 19, 2017).

Political Conditions

Visibility and Inferability of Transparency

OPPD had a high amount of transparency on its energy portfolio in part because it gets hydroelectric energy from the Western Area Power Administration (WAPA), a federal hydro project that requires an integrated resource plan (IRP). It also provides multiple reporting mechanisms, including consistent annual reports, financial disclosures, and IRPs (Omaha Public Power District, 2017a; OPPD, 2016; see Table 8). In 2014 it also published a sustainability report (Omaha Public Power District, 2014). Although there is ample information on the energy portfolio, OPPD is criticized for a lack of visibility related to the extent its green energy option is made available to customers, with advocates saying that they were not given information on how or if the energy was renewable (Interview 20, 21, 2017).

Regarding decision-making processes, the utility has televised meetings open to the public with notes and recordings available online afterward (Interview 25, 2017; see Table 9). OPPD makes its information accessible on the OPPD website. The information was specific to OPPD and regarded only issues related to electricity (Omaha Public Power District, n.d.). As one board member described, "We are not hiding." (Interview 19, 2017).

While visibility is high, inferability was relatively lower. For instance, there were questions raised about the community's understanding of their rights—interviewees are unsure if residents are aware of their opportunity to engage in OPPD's participation processes nor if they understand the content in question (Interview 20, 21, 2017). OPPD attempts to close this knowledge gap to a certain extent with town halls and online forums (Interview 25, 2017).

Scope and Quality of Participation

Representative Democracy: Decision-Maker Appointments

OPPD has an elected board with representatives from different jurisdictions (see Figure 3). These elected officials set strategic directives, sign off on final rate changes, and OPPD management reports directly to them (Interview 19, Interview 24, 2017). OPPD allows for community members to elect their peers to specifically represent them on energy issues. However, to an extent the board has become known for "rubber-stamping" management's decisions (Interview 23, 2017).

Table 8: **Visibility in Energy Generation**

Annual Report	Financial Disclosure	Sustainability Report	Integrated Resource Plan	Corporate Social Responsibility Report
Yes	Yes	2014	2017	No

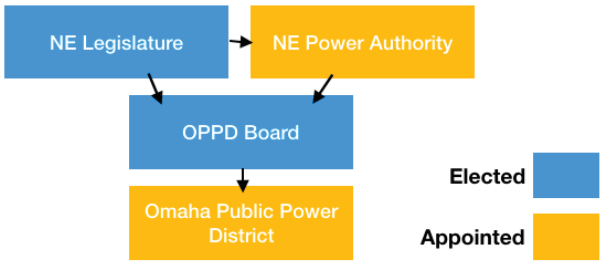
Available information on energy portfolios. Yes indicates consistently published and a year indicates inconsistent and identifies the most recent published piece. Financial disclosure included as information is often provided on energy generation and purchasing.

Table 9: **Visibility in Decisionmaking**

Type	Open to the public	Televised	Notes available	Consistency
Board meetings	Yes	Yes, online	Yes, on OPPD website	Monthly

Visibility of decision-making forums to the public. This does not comprise all venues for decisionmaking, but instead physical spaces in which strategic decisions are made with stakeholder input.

Figure 3: **Omaha Public Power District Governance Structures.**



Studied entities that govern utility.

Nevertheless, the elected board's ability to set strategic directives increases the quality of the participation significantly. By enabling strategic directives, the board can steer the values and goals of the utility (Interview 19, 2017). The utility enabled a new strategy on environmental protection in in 2015 (Interview 20, Interview 24, 2017). This was in part catalyzed by a wave of elected representatives who have a specific focus on sustainability (Interview 19, 20, 24, 2017). From a perspective of state policy making, OPPD cannot make campaign contributions to elected officials. However, it does have its own lobbyists at the state-level. Historically, it has pushed back on state renewable mandates, particularly because it could not take advantage of the tax credits associated with renewable development as a nonprofit entity (Interview 22, 2017).

Direct Democracy: Public Meetings

OPPD provides multiple forums for community input in decisionmaking, including leadership board meetings, public hearings, roundtables, and online commenting mechanisms to increase the scope of participation (Interview 25, 2017). Some opportunities for participation can be prohibitive for those who do not have flexibility in their jobs—often low- to middle-income people. For example, the most consistent forum for participation is the monthly leadership board meeting, located in downtown Omaha in an imposing building with inaccessible parking (Interview 24, 2017). Some steps have been taken to enable two-way online engagement, but this is still lacking (Interview 24, 2017). While OPPD does invite specific groups to have roundtable discussions on issues like community solar (Interview 25, 2017), it is not clear that OPPD seeks out underrepresented voices, such as indigenous, minority, or low-income people.

There is low participation in the majority of the community forums. The utility representative interprets this as residents' confidence in their decision-making abilities (Interview 25, 2017), while advocates and board members believe that this was more likely due to inaccessibility, both in location and content (Interview 19, 20, 2017). Thus, the opportunities for engagement are high, but the scope—the variety of stakeholders—is relatively limited. Similarly, recent hearings about proposed rate changes demonstrate that while the opportunities for participation exist, the quality of direct democracy is lacking. This echoes a larger critique of the utility that it has already made up its mind before it asks for public input (Interview 20, 2017).

Formal and Informal Accountability

Advocates, utilities, and government officials see the main lever of accountability to be local elected officials (Interview 19, 20, 21, 22, 25, 2017; see table 10). Although there has been low turnout in the past, interviewees mention that the public has become more engaged and is running candidates that will question the staff and advocate for the energy transition—changing the culture of rubber-stamping and therefore the quality of participation (Interview 19, 20, 24, 2017). Proximity of both officials and the utility within the community is a major source of accountability by both advocates and utility (Interview 25, 2017).

Most organizing referenced occurs around formal participation and accountability avenues discussed above, and less information is provided on informal mechanisms of accountability (Interview 20, 21, 2017). However, the ability for scandal exposure is significantly increased due to the level of transparency,

Table 10: **Political Conditions | OPPD**

Political Conditions	Indicator	Omaha Public Power District	Total Possible Points
Transparency	Visibility	3	4
	Inferability	2	4
Participation	Scope	3	4
	Quality	2	4
Accountability	Formal	4	4
	Informal	3	4
Total		17	24
Score		**0.71**	

which has steered some decisionmaking by management (Interview 25, 2017).

Economic Conditions

Democratized Ownership: From Energy Procurement to Allocation of Renewable Energy Credits (RECs)

Utility-Scale Renewable Energy

OPPD owns its first and smallest wind installation, but otherwise the energy is supplied through power purchase agreements (PPAs). The utility representative explains that this is because publicly owned utilities do not have access to the current 30 percent federal renewable energy tax credit since it is not a taxpaying entity and the for-profit contractor can help in sending through some of the tax-cut benefits (Interview 25, 2017). All of the utility's renewable assets are located in-state and communities can reap the benefits of local jobs and property taxes. However, the PPAs mean that OPPD does not own the majority of its renewable assets, but instead contracts with for-profit companies out-of-state, like investor-owned utility NRG, that will extract some amount of generated wealth (see Appendix 3). This is a significant change for OPPD, which previously owned close to all of its generation. On process, while the energy is still procured by a publicly owned utility and the described deliberative avenues are available, the public loses some form of process control when the project is given to a private company, other than what is stipulated in the contract.

None of the prime contractors for OPPD's renewable energy could be considered local, minority- or women-owned, or operating in a historically underutilized business (HUB) zone. There is Nebraskan legislation that incentivizes locally owned PPAs called community-based energy development (C-BED) (Community-Based Renewable Energy Development, 2014). However, it does not appear that the utility has incorporated such a project into their assets. The utility prioritizes local energy, but both board members and the utility representative said that price was still an overriding factor (Interview 24, 25, 2017).

OPPD decided not to sell their renewable energy credits (RECs). This is a decision made on a utility basis in Nebraska. OPPD's large utility neighbor, Lincoln Electric System (LES), opted to commodify—or sell—its RECs (Interview 25, 2017).

Individual and Community Scale Energy

OPPD provides a green power program that is used to stimulate renewable energy by members who are particularly activated on the issue. However, this does not supply the enrollees with ownership (see Table 11). Although OPPD represents a relatively large and population-dense part of Nebraska, it only had 99 net metering customers as of December 2017 (Omaha Public Power District, 2017g). Advocates lamented

Table 11: **Omaha Public Power District Renewable Energy Options**

Name	Description	RECs		Required by Law?	Cost
Green Power Program	Opt-in monthly payment to stimulate renewable energy generation by OPPD.	Retired at OPPD	Unknown	No	Charge varies based on Consumer's participation level in addition to usual bill; L1: $4.50, L2: $7.50, L3: $15, L4: $30.
Net Metering	Cap aggregate at 25 kW. Net metering accepted until generation meets 1% aggregate peak demand.	Retired with Owner	Owner	Yes	Customer pays for net flow of energy at the end of month. Customer billed for non-energy charges, including service, demand, and minimum billing charges. Rolls over each month. Net excess generation (NEG) $0.04 in Summer and $0.035 in Winter
Community Solar	TBD; current proposal to develop a PPA with a contract for OPPD. Customers buy solar at a premium rate without access to ownership.	Retired at OPPD	NextEra PPA with OPPD	No	TBD, must be fully covered by customers buying in, paid for over time based on the market value of solar at the time.

Options for individuals and community customers (excluding commercial and industrial options) to gain access to renewable energy. Including ownership structure, REC retirement, and effect on utility bills. Source: (Omaha Public Power District, 2017e), (Omaha Public Power District, 2018).

the cap on renewable energy generation at one percent because it could be a serious inhibitor for integrating more distributed generation (DG) in the longer term (Interview 20, 2017). They also mentioned that the utility applied a relatively negative narrative around net metering (Interview 20, 2017). On a positive note, OPPD provides payment for net excess generation (NEG), which is a relatively unusual benefit from utilities (Omaha Public Power District, 2017e).

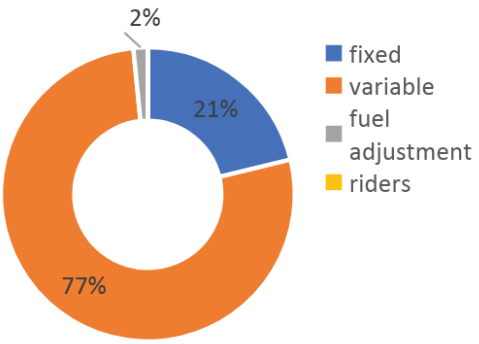
OPPD is in the process of rolling out a plan for community solar (Interview 25, 2017). Although it is called "community" solar, it does not provide distributed ownership of the assets. Instead, the pilot installation will be a PPA with OPPD, where customers sign up for the solar at a premium fee (Sanderford, 2018). As the program was explained, the customers will not be owners and will not benefit from zeroed energy bills (Interview 25, 2017).

Distribution of Wealth

Energy Poverty

The average residential cost of energy was 11.47 cents per kWh for OPPD customers. This was low for the average cost of energy in the United States, but slightly higher than the Nebraskan average (US Energy Information Administration, 2016). While this is a benefit to customers, it makes the payback period for renewable energy longer (Interview 21, 2017). OPPD had high fixed costs, which disproportionally affects low-income or low-use customers (see Chart 2). An advocate in OPPD's service area discussed how the utility has a low-income efficiency upgrade program, but the execution rate is low, money was consistently left over from the program, and uptake will most likely be negatively affected by recent rate changes (Interview 21, 2017). It also essentially eliminates the benefits of net metering because it makes payback periods long (Interview 20, 21, 2017). OPPD pays for NEG, but limits on the size, percent of peak energy use, and a new fixed rate could "zero out" this benefit.

Chart 2: **Omaha Public Power District Rate Structure**



Based on a 1000 kWh basic residential monthly bill. Excludes taxes from calculation

Table 12: **Economic Conditions | OPPD**

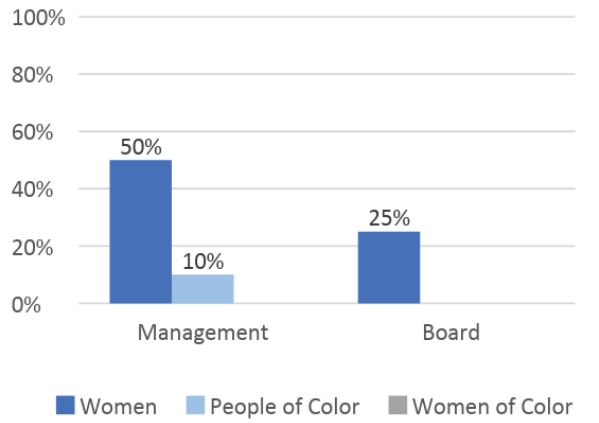
	Indicator	Omaha Public Power District	Total Possible Points
Ownership	Procurement	2	4
	Utility Scale Ownership	2	4
	Renewable Energy Credits	4	4
	Individual/Community Scale	2	4
Distribution of Wealth	Energy Poverty	1	4
	Revenues	4	4
Just Transition	Worker Democracy	2	4
	Worker Training/Retraining	3	4
	Leadership Diversity	2	4
Total		22	36
Score		**0.61**	

Further analysis would be needed to understand more deeply the implications of these conflicting policies. The utility's cutoff practices includes a late fee worth four percent of the bill, and when energy was cutoff, it costs customers $75 for reconnection in addition to the full balance due. The days delinquent before cutoff vary by context and the utility does not cut off energy in cold temperatures (Omaha Public Power District, 2017e). The utility provides an Energy Assistance Fund with no age or income qualifications, but solely based on financial need, for those who are struggling to pay bills (Omaha Public Power District, 2017c).

Revenues

OPPD is an enterprise fund—a branch of local government that works autonomously and has its own budget. Its status means that it treats its service area as the shareholder and transfers back a certain amount of its earnings into the so-called "General Fund" used to distribute money for services like schools and transportation. The utility pays the equivalent of what it would pay in terms of property taxes and five percent of its gross revenue (OPPD, 2017h). OPPD's General Fund payments fluctuate by year, but it most recently reported $33,022,000 in 2016; or around $91 per customer (see Chart 19; OPPD, 2017h). Regarding distribution of wealth within the company, the highest paid position (the CEO) receives annual compensation eight times higher than the average lineman salary (Epley, 2016) (see Appendix 4). Publicly owned utilities cannot make donations and therefore philanthropy cannot be assessed.

Chart 3: **Leadership Diversity | OPPD**



Includes the representation of women and people of color in leadership positions. Management refers to OPPD upper management and the elected OPPD board. (OPPD, n.d.)

Just Transition

Worker Democracy

No co-leadership structures were identified other than union participation. Sixty percent of the utility's

workers were unionized, which provided them with collective bargaining power (Winchester, 2014). OPPD has tried to facilitate relationships within the utility through groups such as the LGBTQ, Women, and Black Worker Working Groups that meet and create community within the company (Interview 24, 25, 2017).

Worker Training/Retraining

The utility recently decommissioned its nuclear power plant and transitioned its oldest coal fired power plant to gas, while retiring part of the plant. In both cases, OPPD works to keep the majority of its employees within the utility by re-training and providing them with preferential hiring treatment (Interview 25, 2017).

Diversity in Leadership

50 percent of OPPD's upper management were women (see Chart 3). Both advocates and board members take issue with the lack of representation from people of color—Omaha is one of the most diverse areas of Nebraska yet people of color have barely any representation (Interview 19, 20, 2017). As elected representatives, the diversity on the board relates back to the issues of participation.

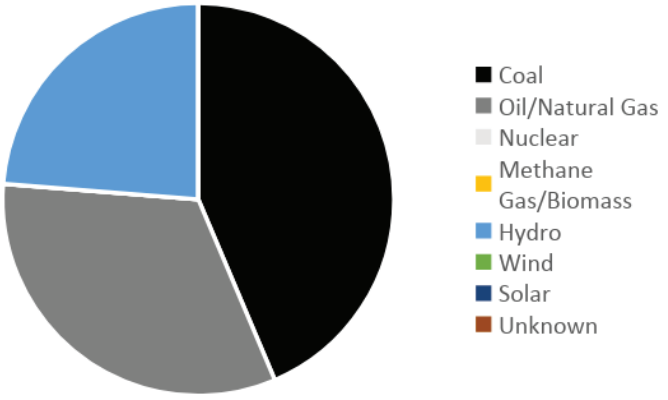
Danville Public Utilities

Energy Portfolio Conditions

There are two major ways in which Danville Public Utilities (Danville) collects its energy: through market-based power blocks (Interview 5, 2017) and through its joint action agency, American Municipal Power (AMP)—a coalition of East Coast publicly owned utilities that collectively builds generation units and provides associated services (American Municipal Power, 2017b). Since power blocks are sold in 24/7 quantities of energy, without a characterization of the type of energy, they could not be evaluated. The energy portfolio information provided is therefore based on Danville's AMP investments and is not fully representative.

Danville Public Utilities' energy is primarily provided by coal and oil, to the extent that information was available (see Chart 4). Twenty-four percent of its portfolio consists of hydro supplied by AMP (Interview 5, 2017). Hydro is renewable, but low-quality according to this study. The utility has also made its first leap into solar by entering into a PPA to provide 6MW of solar to help mitigate peaking (Interview 5, 2017). The project had not yet come online in mid-2018, but is expected to provide around 1.5 percent of Danville Public Utilities' capacity, used mostly as a peaking resource. The city has not set a local renewable portfolio standard (RPS) (see Table 13). Looking forward, Danville has purchased power blocks until 2020 and will reconsider

Chart 4: **Danville Publicly Owned Utilities Energy Portfolio by Capacity**



Source, Danville Utilities Privatization Report (Danville Utilities, 2015), (Interview 5, 2017). This only reflects the energy sources associated with AMP.

Table 13: **Energy Portfolio Conditions | Danville**

Energy Portfolio Conditions	Indicator	Danville Public Utilities	Total Possible Points
Transition to Renewables	Percent of Renewable Energy	4	8
	Type of Renewable Energy	2	4
	Total	6	12
Score		**0.50**	

the most cost-effective energy source moving forward (Interview 5, 2017).

Political Conditions

Visibility and Inferability of Transparency

Danville has little public reporting on its energy sources. Information on its energy portfolio had to be stitched together through meeting minutes (see Table 14).

Danville has higher transparency on meeting processes. The utility provides archives of notes on its utility commission page within the larger Danville government site. The information in the notes relates to all utilities provided by Danville; namely electricity, gas, water, waste, and broadband (Danville Utilities, n.d.-b; see Table 15).

While some information is available to Danville residents, inferability is low (Interview 8, 9, 2017). As one interviewee from Danville noted, "They do provide the information, I can say that. But what people understand and what not—that's a different story" (Interview 8, 2017). In sum, Danville has mixed transparency. It fails to provide ample information about its generation assets but does provide access to meetings and notes. However, inferability is perceived to be quite low within the community (Interview 7, 8, 2017).

Scope and Quality of Participation

Representative Democracy: Decision-maker Appointments

Danville has a Utility Supervisory Commission that community members apply to and are vetted and approved by the Appointments Committee, tasked with providing

Table 14: **Visibility in Energy Generation**

Annual Report	Financial Disclosure	Sustainability Report	Integrated Resource Plan	Corporate Social Responsibility Report
No	Yes – but only part of Comprehensive Annual Financial Reports	No	No	No

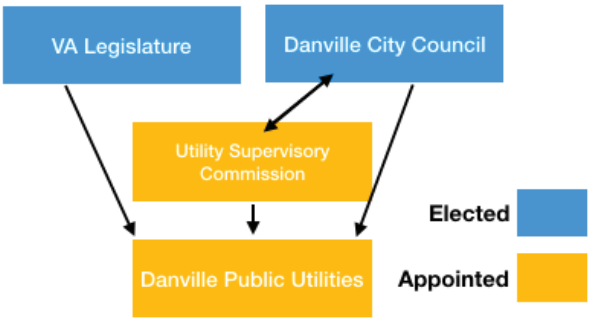
Available information on energy portfolios. Yes indicates consistently published and a year indicates inconsistent and identifies the most recent published piece. Financial disclosure included because information often provided on energy generation.

Table 15: **Visibility in Decisionmaking**

Type	Open to the public	Televised	Notes available	Consistency
Supervisory Board Meetings	Yes	Yes	Yes, on the Utility Supervisory Board page of the Danville.gov website	Monthly
City Council Meetings	Yes	Yes	Yes, on the Danville.gov website	Varies

Visibility of decision-making forums to the public. This does not comprise all venues for decisionmaking, but instead physical spaces in which strategic decisions are made with stakeholder input.

Figure 5: **Danville Publicly-owned utilities Governance Structures**



Studied entities that govern utility.

diversity of opinion (Interview 6, 2017; see Figure 5). There is a total of seven appointed members, including the city manager and a non-voting city councilmember to create ease of dialogue between the commission and the council (Interview 5, 6, 2017). The commission provides an advisory role to the city council that makes final determinations, though the commission itself can approve or deny smaller fees (Interview 6, 2017).

To a certain extent, Danville lacks the community capacity to engage in the energy process. The community struggles with high incarceration rates, evictions, and job losses, which means that low-income and minority community members do not have the bandwidth to also advocate on energy issues (Interview 7, 2017). From a representative democracy perspective, the low capacity of community members paired with low inferability means that they do not feel they had the capacity to apply for this position, which lowered the quality of engagement. Previously, there had been no people of color on the board. That trend has recently turned to include two women of color on the commission (Interview 5, 7, 2017).

On a state level, Danville can not pay campaign contributions to candidates to influence representative democracy. Danville does not have any of its own lobbying representation at the state or federal level, but instead relies exclusively upon representation by public power associations, most specifically AMP, that advocate on their behalf (American Municipal Power, 2017c; Center for Responsive Politics, 2017; National Institute on Money in State Politics, 2017; see Chart 17).

Direct Democracy: Public Meetings

The majority of Utility Supervisory Commission meetings are open to the public and provides opportunity for public comment. Nonetheless, many of the meetings held by the utility are in the mid-afternoon. This makes it hard for community members either to organize around commission meetings or apply to be a Commission member because of restraints like inflexible jobs and childcare, which limits scope (Interview 7, 2017). An advocate also referenced the consistency in which those who attend the open meetings feel that they have limited effect—particularly because they feel that the decisions are"three steps into a four-step process" (Interview 7, 2017). This lowers the quality of participation and the ability for the utilities to achieve deliberative democracy.

Table 16: **Political Conditions | Danville**

Political Conditions	**Indicator**	**Danville Publicly owned utilities**	**Total Possible Points**
Transparency	Visibility	2	4
	Inferability	1	4
Participation	Scope	3	4
	Quality	2	4
Accountability	Formal	3	4
	Informal	2	4
Total		13	24
Score		**0.54**	

Formal and Informal Accountability

One of the major formal accountability measures for Danville is proximity to officials. As one advocate mentioned, "The scale is favorable for us. We don't have to deal with Dominion… we live a five-minute drive from [officials]" (Interview 7, 2017). No informal accountability measures are specifically mentioned for Danville. This may be due to the lack of organizing capacity within the service area.

Economic Conditions

Democratized Ownership: From Procurement to Renewable Energy Credits (RECs)

Utility Scale

Danville no longer owns any of its own generation (Interview 5, 2017). Danville's major renewable energy source is large-scale hydropower located out of state and supplied by its joint action agency, AMP (Interview 5, 2017). The joint action agencies are governed by the municipal utilities members, which does provide them more agency than a for-profit relationship might. Danville independently invests in a 6 MW solar installation that will be located within its service area, but the contracted company executing the PPA is out of state (Sack, 2017). Much like OPPD, there will be property tax and jobs benefits that stay local, but a certain amount will be extracted by the for-profit company. Although market-based power blocks make up a major portion of its generation, there is no information on the supplier or who owns that energy (Interview 5, 2017). Danville does not have a supplier diversity policy and none of its renewable energy assets are procured from organizations or companies qualified as diverse under the definition of this study.

Since Danville has not set a local RPS, it monetizes the Renewable Energy Credits (RECs) associated with its utility renewable generation (Interview 5, 2017). This increases affordability because it offsets energy costs (Interview 5, 2017), but means its renewable energy generation is accounted for elsewhere.

Individual & Community Energy Ownership

The only option for individual or community renewable energy ownership is through individual net metering, capped at 25 kW and not exceeding one percent of aggregate peak (see Table 17). Only 12 of Danville's 48,000 customers are registered as distributed generators as of 2017 (Interview 5, 2017).

Distribution of Wealth

Energy Poverty

Energy poverty is of major concern to interviewees in Danville because the service area has a significant number of households earning well below the median household income (Interview 5, 7, 2017).

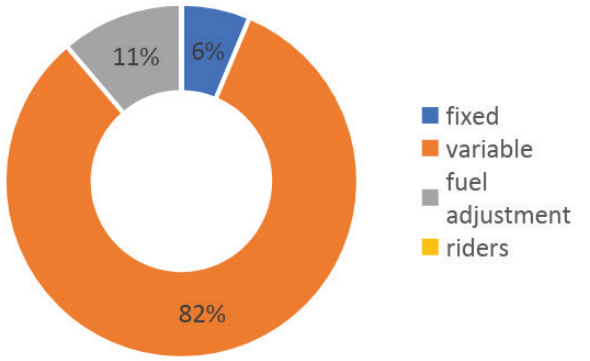
The average residential cost of energy is 12.91 cents per kWh for Danville customers. This is higher than the average cost of energy in the United States and the average Virginian cost (US Energy Information

Table 17: **Danville Publicly Owned Utilities Renewable Energy Options**

	Description	RECs	Ownership		Cost
Net metering	Cap aggregate at 25 kW. Net metering accepted until generation meets 1% of aggregate peak demand.	Retired with Owner	Owner	Yes	Customer pays for net flow of energy at the end of the month. Customer required to pay non-usage sensitive charges for that billing period. Rolls over for one year. No NEG.

Options for individuals and community customers (excluding commercial and industrial options) to gain access to renewable energy. Including ownership structure, REC retirement, and effect on bill. Source: Danville Rate Structures, (Danville Utilities, 2017)

Chart 5: **Rate Structure—Danville Publicly-owned utilities.**



Based on a 1000 kWh basic residential monthly bill. Excludes taxes from calculation.
Sources: (Danville Utilities, 2017)

Administration, 2016). The majority of the bill is made up of variable costs, with the fuel adjustment cost changing on a yearly basis, depending on the cost of market energy (Danville Utilities, 2017; see Chart 5). Danville built a robust efficiency program after it received a stimulus package to weatherize buildings (Interview 5, 7, 2017) but it struggles to identify candidates to participate (Interview 7, 2017). One of the advocates in Danville worked with the utility to develop a project that connects efficiency measures to positive job growth in the community (Interview 7, 2017). Danville has a strict policy to cut off energy after 35 days of delinquency. In the past, Danville had provided payment plans to those struggling to pay energy bills but found that its customers were getting significantly behind in their energy bills (Interview 5, 2017). Customers have to pay the full balance due plus an additional 1.5 percent of their bill, but there was no reconnection fee (Danville Utilities, 2017; Thibodeau, 2015a).

Revenues

Danville is structured as an Enterprise Fund (Danville Virginia City Government, 2017). Utility and government officials advocate for public ownership benefits and mention that this payment acts both as a tax and a payment to shareholders that then is used to finance public services and keep tax rates on community members low (Interview 5, 6, 2017). Danville makes payments in lieu of taxes plus a return. Although there is no data on the formula used to calculate Danville's payment to the General Fund, Danville provides $9,896,610 annually (see Chart 18). When normalized, this is the equivalent of $205 per customer (Danville Virginia City Government, 2017). Regarding internal distribution of wealth, the highest paid employee makes two times the average lineman salary (Thibodeau, 2015b). While not a large differential, this still constitutes one of the highest paid positions within the municipality (see Appendix 4).

Table 18: **Danville Publicly Owned Utilities Economic Conditions**

	Indicator	**Danville Publicly owned utilities**	**Total Possible Points**
Ownership	Procurement	1	4
	Utility Scale	2	4
	Renewable Energy Credits	1	4
	Individual/Community Scale	1	4
Distribution of Wealth	Energy Poverty	2	4
	Revenues	4	4
Just Transition	Worker Democracy	1	4
	Worker Training/ Retraining	2	4
	Leadership Diversity	2	4
Total		16	36
Score		**0.44**	

Just Transition

Worker Democracy

There are no co-determination mechanisms identified and none of city government is unionized. Danville Utilities' City Manager is required to be a continued fixture on the Utility Commission (Interview 6, 2017). However, the City Manager's position on the board is not to represent the worker voice in decisions.

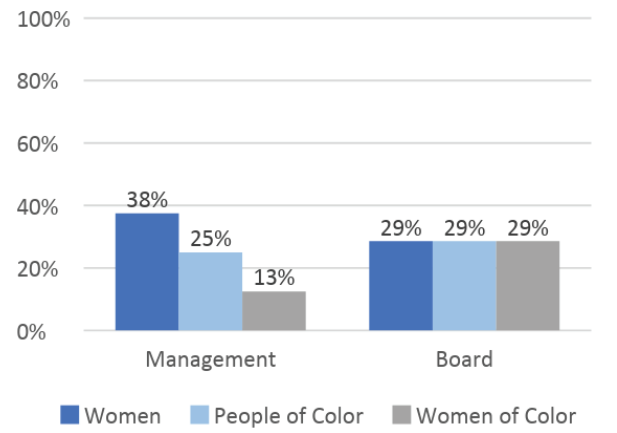
Worker Training/Retraining

Since Danville does not own any of its own energy, it has not implemented any programs to transition those working in fossil fuel industries.

Diversity in Leadership

Over half of the population in Danville's service area comprise of people of color (US Census a, 2017). The utility has some representation of both women and people of color in management and board (see Chart 6). However, just two years ago there were no people of color and only one woman on the Danville Utility Commission (Interview 7, 2017). Even if there is a certain amount of diversity in both board and management, the utility is still critiqued for its lack of engagement with minority, particularly low-income, community members (Interview 7, 2017).

Chart 6: **Leadership Diversity—Danville Publicly-owned utilities**



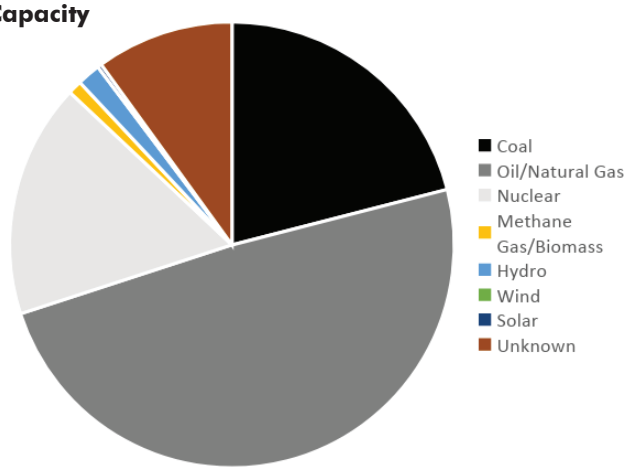
Identifies the number of women and people of color in leadership positions. The management references the Danville Utilities management staff and the Commission references the Supervisory Commission. The board's 29 percent in all three categories show that there are two women of color on the board, and therefore qualify in all categories.

Dominion Energy

Energy Portfolio Conditions

The majority of Dominion Energy Virginia's (Dominion) energy is sourced from natural gas, followed by nuclear and coal (Dominion Energy, 2018; see Chart 7). Dominion gets three percent of its power from renewable energy—the majority hydro power. It complies with the voluntary 7 percent Virginia renewable portfolio standard (RPS) in large part by buying additional RECs (Virginia State Corporation Commission, 2017). In the utility's integrated resource plan (IRP), more natural gas generation is under construction than renewable energy sources (Dominion Energy, 2018; see Table 19). Many advocates are opposed to this natural gas expansion, expressing economic, climate, and justice concerns (Interview 10, 12, 15, 2017).

Chart 7: **Dominion Virginia Power Portfolio by Capacity**



Source: Dominion Energy, 2018.

Political Conditions

Visibility and Inferability of Transparency

Dominion has a significant amount of transparency in its energy portfolio because it is required to write an integrated resource plan (IRP) to fulfill the requirements for the power it receives from WAPA (Dominion Power, 2017; Western Area Power Authority, 2017; see Table 20). It has a host of different customer-facing documents including an annual report, sustainability report, and citizenship report. However, the trustworthiness of this information comes under fire from advocates. "The information you get from legal discovery leading up to a state corporation case, you get a totally different story than the story they tell the public," one said (Interview 15, 2017).

Dominion's regulatory body, the State Corporation Commission, holds forums open to the public, televised, with recorded minutes (Interview 14, 2017). Dominion's other major governing entity is the Virginia General Assembly. The General Assembly lacks visibility, in part because the state has one of the shortest legislative sessions in the U.S., with a total of only 40 working days (Interview 9, 2017). Furthermore, the obscurity concerning the relationship between governmental officials and Dominion is a serious issue for advocates in both cases (Interview 9, 12, 2017). Shareholder meetings are not open to the public and only limited information is published after the fact (Interview 10, 2017).

Table 19: **Technical Score | Dominion**

Energy Portfolio Conditions	**Indicator**	**Dominion Virginia Power**	**Total**
Transition to Renewables	Percent of Renewable Energy	0	8
	Type of Renewable Energy	2	4
Total		4	12
Score		**0.17**	

Dominion held stakeholder meetings when its IRP came out "but it was pretty opaque" according to advocates (Interview 11, 2017), which shows not only that there is not a comprehensive understanding of the energy system but also that Dominion is ineffectively educating the public. One advocate mentioned the timing in which the utility provides transparent information

directly affects inferability because it is often not given in time for the community to process and make a decision (Interview 12, 2017). Dominion's trends on transparency show a contradictory picture. Even though it publishes a significant number of reports and information on its business, it has identified ways in which to limit transparency and inferability (see Table 21).

Scope and Quality of Participation

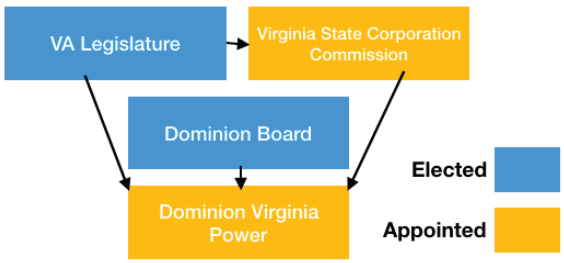
Representative Democracy: Decision-makers

There were two major spaces for representative democracy: stockholder votes for the Board of Directors and elections for the Virginia General Assembly (see Figure 6).

Dominion's board of directors is elected by shareholders and the board steers the direction of the company. Scope is limited to those who have the ability to buy stock, not providing equitable access. Even for those who are able to engage in the process, the extent to which their vote is taken seriously is based on the amount of stock they own (Investopedia, n.d.)—limiting the quality considerably.

The major public avenue for representative democracy is the Virginia General Assembly. Representatives are elected on more than their stance on energy. Scope and quality in participation for legislation were negatively affected by Dominion's campaign contributions and lobbying, as well as their economic power in the state at large—in the form of philanthropy, jobs, and taxes (Interview 9, 15, 2017). Environmental advocates believed that their influence on the political system allows the utilities to manipulate regulation in its favor. Dominion is the largest political donor in a state without a campaign contribution cap, and donates generously on both sides of the aisle, which allows for bipartisan support of the utility (Interview 12, 2017). Its campaign contributions totaled $810,711 state and $1.25 million federal in the 2016 election cycle, not including other payments in the form of philanthropy or jobs within jurisdictions (see Appendix 2 and Chart 19;National Institute on Money in State Politics, 2017).

Figure 6: **Dominion Virginia Power Governance Structures**



Studied entities that govern utility.

Table 20: **Visibility in Energy Generation**

Annual Report	Financial Disclosure	Sustainability Report	Integrated Resource Plan	Corporate Social Responsibility Report
Yes	Yes	Yes	Yes	Yes

Available information on energy portfolios. Yes indicates consistently published and a year indicates inconsistent and identifies the most recent published piece. Financial disclosure included because information often provided on energy generation.

Table 21: **Visibility in Decisionmaking**

Type	Open to the public	Televised	Notes available	Consistency
Stockholder Meetings	No – only shareholders	No	No	Annual
State Corporation Commission hearings	Yes	Yes	Yes, available on SCC website	When proposal on SCC docket
Virginia Legislative Hearings	Yes	No	Limited	During legislative session

Visibility of decision-making forums to the public. This does not comprise all venues for decisionmaking, but instead physical spaces in which strategic decisions are made with stakeholder input.

Direct Democracy: Public Meetings

When it comes to direct democracy, there were three spaces for engagement: the utility's direct regulator, the State Corporation Commission (SCC); deliberative spaces within the General Assembly; and the annual shareholder meeting.

As a regulated monopoly, Dominion is party to regulatory oversight and must get sign-off on everything from rate changes to infrastructure projects from the SCC (Interview 14, 2017). Many interviewees engage in the public hearing process, but feel relatively ineffective and unheard (Interview 9, 10, 15, 2017). Dominion's grip on state politicians has influenced the SCC's ability to regulate. First, SCC Commissioners are appointed by the legislature, which helps the utility to put sympathetic commissioners in place. Second, if Dominion is unhappy with an SCC decision, the utility has the tendency to go to the General Assembly to navigate around the problem (Interview 11, 2017). This recently occurred in relation to a rate freeze implemented by the state legislature (described in the Energy Poverty section).

One of the best examples of deliberative democracy and participation regarding the General Assembly was the 2016 bill on a community solar pilot project spearheaded by the multi-stakeholder Rubin Group. However, it was criticized for lacking a consistent environmental voice (Interview 15, 2017). After the bill was passed, it added a sitting environmental lawyer to provide more representation (Interview 15, 2017). Although the Rubin Group expanded its scope, advocates did not feel it effectively incorporated their voice. Instead, they felt it was a forgone conclusion that their initiative would be shut down (Interview 11, 2017). Advocates were willing to move forward on the bill because it was a small step forward for renewables that are so often suppressed in Dominion's service area (Interview 11, 15, 2017).

Table 22: **Political Score | Dominion Virginia Power**

Political Conditions	Indicator	Dominion Virginia Power	Total Possible Points
Transparency	Visibility	3	4
	Inferability	0	4
Participation	Scope	1	4
	Quality	0	4
Accountability	Formal	0	4
	Informal	1	4
Total		5	24
Score		**0.21**	

The last opportunity for participation is Dominion's stockholder meetings. Again, it limits engagement to those who have the financial ability to engage in the process and this makes scope low. Significantly more people are affected by Dominion than those who own stocks in the company. This also affects quality because votes hold weight based on the amount of stock. "If you have five shares of Dominion, that doesn't matter," one interviewee explained (Interview 15, 2017).

Formal and Informal Accountability

Dominion is foremost accountable to its shareholders and the accountability structures implemented to regulate the company are deeply inhibited by the power it exerts on the participatory process. Interviewees also feel that their lack of choice lowers Dominion's accountability. "It's very hard to have accountability when there is no alternative supplier that consumers can turn to," one said (Interview 12, 2017).

Elections provided opportunity for formal accountability but were conceptualized as less effective in the current context because of the campaign contributions that sway the politicians. As an advocate in Dominion's territory notes, "The influence over the leadership is really corrosive there. It stops people from questioning the entire basis of how we are supplying electricity" (Interview 11, 2017). Recently in Virginia, advocates started a campaign against accepting Dominion money in the 2017 election and many of the candidates that pledged, won. This could limit Dominion's role in the legislature, though the implications are yet to be seen as of the end of 2017 (Interview 11, 2017).

Advocates utilize informal accountability in their actions, in part because they feel that formal accountability measures are inadequate (Interview 10, 11, 2017). For example, Dominion paid for the head of the Department of Environmental Quality to go to the Masters Golf Tournament. Advocates choreographed a skit on the Department of Environmental Quality (DEQ) lawn to expose the bribe, and it has since been consistently referenced in newspapers (Interview 10, 2017). However, Dominion has tried to suppress informal accountability. For example, at the shareholder meetings where protests occurred outside of the building, the utility used blackout curtains to block the image of protestors (Interview 10, 2017). The utility also had influence over scandal exposure through its relationships with the Virginia press, which would "just basically print Dominion's press releases and then throw in a quote from an environmentalist at the end of the column" (Interview 11, 2017). Advocates have been working to turn the tide on press coverage since it was seen as one of the major ways to keep the utility accountable. The press has been perceived recently as cracking down on Dominion (Interview 11, 2017).

Economic Conditions

Democratized Ownership: From Procurement to Renewable Energy Credits (RECs)

Utility Scale

All of Dominion's renewable assets were located in-state and owned by the utility, though it contracted a multinational corporation to build its three most recent solar installations (Dominion Power, 2017). Advocates criticized Dominion's continued ownership since the benefits of ownership will not be accrued by, or distributed to, community members: "Dominion is such a monopoly here and so it means that they are trying to keep everything in-house. In their IRP, they say they want to increase their solar up to 2,000 MW but again keep it under the Dominion name" (Interview 10, 2017). Dominion's supplier diversity plan includes working with government agencies, minority business groups, and advocacy groups to develop diverse sourcing (Dominion Energy, 2017c). However, none of the primary contracted groups investigated were considered by this study as diverse.

Dominion fulfills its renewable portfolio standard (RPS) using renewable energy credits (RECs), from its own projects as well as heavily from RECs bought on the market. In order to fulfill the green power program, Dominion buys RECs in addition to buying the RECs it gains from customers as part of the Solar Purchase Program—in which customers gain ownership of panels and therefore smaller bills but do not own the credit for renewable energy (Interview 11, 2017).

Individual and Community Energy Ownership

Dominion has multiple renewable energy programs. However, few of them allow for individual or community ownership over the energy. Dominion has 19,000 green power participants enrolled. Advocates did not like the green power option because it does not build out renewable energy in Virginia, but instead is largely fulfilled by buying out-of-state RECs (Interview 11, 2017). In the majority of the renewable energy programs, Dominion owns the assets (see Table 23). If the utility does not own the generation, it often tries to buy the RECs. Dominion had 2,170 distributed generators, but this represents just 0.03 percent of its customers (Dominion Power, 2017).

The utility has initiated a state-mandated community solar project. The quality of the community solar program was deeply criticized by advocates, particularly because of the lack of participation, as well as the fact that the solar is not community owned but instead customers pay a premium for access to solar—similar to that of Omaha (Interview 9, 10, 11, 15, 2017). The utility is required to procure the energy from a third party that will use a certain amount of local Virginian products. Additionally, there is language within the legislature to provide a benefit to low- to middle-income households, though Dominion has not yet identified how this will be provided (Interview 11, 13, 2017).

Table 23: **Dominion Virginia Power Renewable Energy Options**

Name	Description	RECs	Ownership	Required by Law?	Cost
Green Power Program	$0.013 per kWh of electricity used	$0.013 per kWh of electricity used	$0.013 per kWh of electricity used	No	$0.013 per kWh of electricity used
Solar Partnership Program	Demonstration program where Dominion constructs and operates 20 MW of Dominion-owned solar on leased property land settings	Retired with Dominion (unless sold)	Dominion	No	n/a
Net Metering	Cap aggregate at 20 kW for residential; 1,000 kW for industrial; 500 kW for agricultural. Net metering accepted until generation meets 1% of aggregate peak demand.	Retired with Owner	Owner	Yes	Pays for net flow of energy at end of month. Customer billed for non-energy charges. Rolls over every month for a year. No NEG.
Solar Purchase Program	Alternative to Net metering. Company purchases energy output including RECs at "premium rate" for 5 years.	Retired with Dominion - in part to supply the Green Power Program (unless sold)	Owner	No	Dominion pays $0.15 cents per kWh
Community Solar	Contract with Dominion with buy in from Dominion customers. No ownership by customers or option for buyout	Retired at Dominion	PPA	Yes	TBD

Options for individuals and community customers (excluding commercial and industrial options) to gain access to renewable energy. Including ownership structure, REC retirement, and effect on bill. Source: Integrated Resource Plan, (Dominion Power, 2017).

Distribution of Wealth

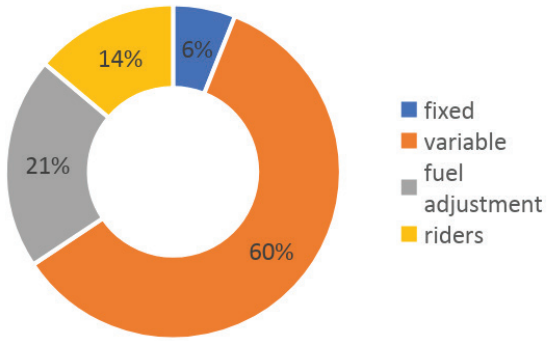
Energy Poverty

The average residential cost of energy is 11.19 cents per kWh for Dominion customers. This is slightly lower than the national investor-owned average cost of energy and average Virginian cost of 11.36 cents (US Energy Information Administration, 2016). The American Council for an Energy-Efficient Economy (ACEEE) ranked Dominion as the second-worst of 51 utilities in a study on utility energy efficiency programs (Relf, Baatz, & Nowak, 2017). The current rate structure is heavily affected by the frozen rate costs. The Virginia General Assembly froze the base rate (fixed and variable in Chart 8) in anticipation of the clean power plan. Since the plan has been halted, the rates continue to be frozen until 2023. This has created a situation in which the rate cannot go down, but it can increase via rate riders implemented by the SCC for capital infrastructure

Table 24: **Economic Score | Dominion**

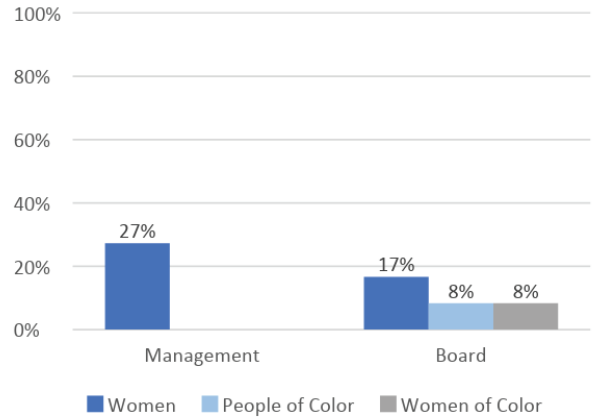
Economic Conditions	Indicator	Dominion Virginia Power	Total Possible Points
Ownership	Procurement	2	4
	Utility Scale	1	4
	Renewable Energy Credits	1	4
	Individual/ Community Scale	2	4
Distribution of Wealth	Energy Poverty	1	4
	Revenues	1	4
Just Transition	Worker Democracy	2	4
	Worker Training/ Retraining	0	4
	Leadership Diversity	1	4
Total		11	36
Score		**0.31**	

Chart 8: **Rate Structure | Dominion Virginia Power**



Based on a 1000 kWh basic residential monthly bill. Excludes taxes from calculation. Source: (Dominion Energy, 2017c)

Chart 9: **Leadership Diversity | Dominion**



Identifies the number of women and people of color in leadership positions. Management refers to Dominion Virginia Power's Executive Suite and the Board to the Dominion Board. Source: (Bloomberg, 2018)

projects (Interview 9, 2017) and Dominion does not need to refund its customers if the state deems its revenues excessive (Suderman, 2017).

Dominion cuts customers' energy off 10 days after a mailed notice of a customer's delinquent bills. The utility will provide an extension in the case of a medical condition. In order to have energy reconnected, the customer must pay the full balance due, including a late fee of 1.5 percent of the bill, and a reconnection fee of $23.70 during working hours and $61.30 during non-working hours (Dominion Energy, 2017a).

Revenues

For each capital investment, the state permits a certain rate of return and allows the expenses to be transferred onto the ratepayers. Dominion's reasonable rate of return is currently 10 percent (Schrad, 2016). In total, Dominion had a total revenue $2.3 billion in 2016 (Farrell, 2017). While some of this money stays in-state, particularly because the utility is headquartered in Richmond, Virginia, it is also paid out to shareholders internationally. Dominion has incentive to increase energy use because one major way that it makes money for shareholders is from capital investments (Kihm, Lehr, Group, Aggarwal, & Burgess, 2015). When it came to distribution of wealth internal to the company, the highest paid compensation was 179 times higher than the average lineman's salary. Dominion's executive management is also required to own a certain number of shares in the company to incentivize growth (Hamlin, 2017).

Dominion is consistently the largest taxpayer in Virginia due to its size (Dominion Energy, 2001). However, by customer, Dominion's contributions are significantly lower than their public counterpart, Danville, at only $44 paid in taxes per customer in 2016 (see Chart 19).

When it came to philanthropy, advocates felt that Dominion's charitable donations were less altruistic and more a method to build power (Interview 9, 15, 2017). In 2016 alone it provided $23.4 million in donations. Dominion's leadership sits on a huge number of boards across Virginia as a tactic to keep a grip on the state, according to advocates (Interview 9, 11, 2017). Its charitable contributions provide services to communities, but at a high cost in in terms of the political power that has allowed Dominion to influence the legislative system and gain social license (Interview 9, 11, 2017). Advocates also referenced how the utility used grantees to sway the public hearing process (Interview 9, 2017).

Just Transition

Worker Democracy

There were no identified co-leadership structures other than unionization. About 32 percent of Dominion's workforce is unionized (Dominion Energy, 2017d). The only type of ownership for workers is relegated to the management level, who all must own a certain amount of stocks to incentivize a return on investment (Hamlin, 2017).

Worker Training/Retraining

Dominion has a history of unionization and has worked alongside the unions to stave off the energy transition. One advocate explained that Virginia unions are "constantly under assault" and Dominion has created strong relationships with the unions, particularly when it comes to its pipelines. For its ACP pipeline, the utility guaranteed millions of union hours through project labor agreements (Interview 12, 2017). This means that the unions tend to side with Dominion and fight for fossil fuel projects.

Diversity in Leadership

Dominion has no people of color in upper management and only one woman of color on its board of directors (Dominion Energy, n.d.c; see Chart 9). One of the characteristics valued in a board member is their ability to influence Virginian politics to Dominion's advantage, according to an interviewee (Interview 11, 2017). The utility implemented executive and business unit diversity councils to set targets for its diversity strategy (Dominion Energy, n.d.a). However, its lack of diversity at the board and executive management level does not bode well for the Council's ability to engender diversity. Dominion is one of the largest employers of veterans in Virginia—one in three of their workers is a veteran (Interview 10, 11, 2017). The utility has also implemented a similar program to that of OPPD, facilitating employee resource groups for support. This includes African American, Latino, LBGTQIA & Ally, Veteran, Women, and Young Professional groups (Dominion Energy, n.d.a).

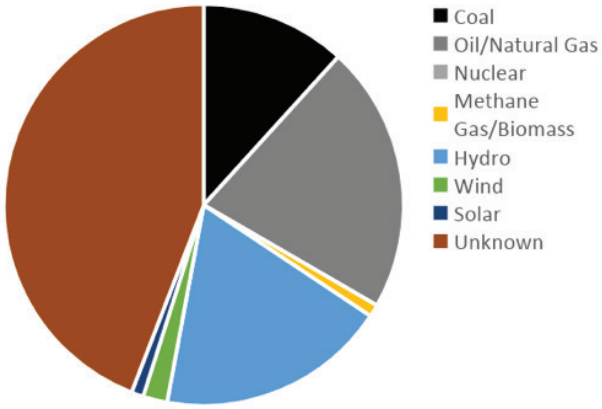
Cleveland Public Power

Energy Portfolio Conditions

Cleveland Public Power (CPP) gets the majority of its known generation from natural gas, followed by hydro (see Chart 10). Similar to Danville, CPP relies heavily upon American Municipal Power (AMP) to provide its energy services and then buys the remaining energy in bulk power block units (Interview 2).

Since CPP is a publicly owned utility, the City of Cleveland is able to enact a stricter renewable portfolio standard (RPS) than the state-mandate—15 percent renewable energy in 2015, ratcheted up to 25 percent by 2025. The RPS was characterized as an issue for competitive advantage by the utility because it operates in a deregulated market (Interview 2, 2017; see Table 25). The utility currently has about 23 percent renewable energy, relying heavily on AMP hydroelectric energy, which is considered a low-quality renewable energy. However, it has recently invested in two wind farms and one solar project on a brownfield CPP (Cleveland Public Power, 2017).

Chart 10: **Cleveland Public Power Energy Generation by Capacity**



Source: Cleveland Public Power, 2017

Political Conditions

Visibility and Inferability of Transparency

CPP did not have an annual or sustainability report that publicly provides information on its portfolio consistently. CPP sporadically provides utility-specific annual reports that includes information on new projects and investments (Cleveland Public Power, 2011). See Table 26 for an overview of energy generation visibility.

CPP has few reports and the only access to information is via City Council meeting minutes—indistinct from other processes (see Table 27). Its status as a competitive utility means that it has turned to competitive advantage to justify its lack of transparency (Interview 1, 2, 2017).

On inferability, CPP was recently criticized for lack of transparency and attempts to limit the community's understanding in its rate structure and the costs associated with a potentially illegal environmental cost adjustment (Atassi, 2014).

Table 25: **Energy Portfolio Conditions | CPP**

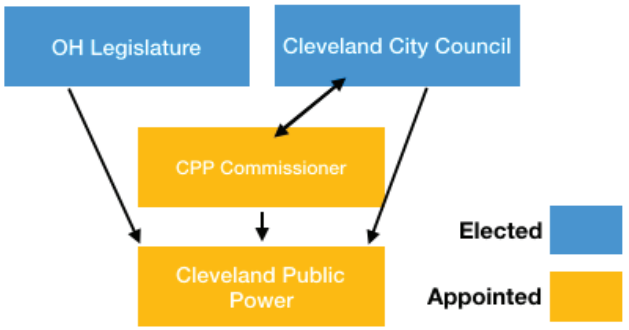
Energy Portfolio Conditions	Indicator	Cleveland Public Power	Total Possible Points
Transition to Renewables	Percent of Renewable Energy	4	8
	Type of Renewable Energy	2	4
	Total	6	12
Score		**0.50**	

Scope and Quality of Participation

Representative Democracy: Decision-makers

Cleveland Public Power's commissioner is appointed by the mayor and city council and reports to the larger utility commissioner (Interview 2, 2017, see Figure 7). Decisions related to the utility are made by either the commissioners or the City Council. There are 17 elected City Council members, who are elected by their wards on the basis of a variety of issues, not solely the utility. The scope is high because people are

Figure 7: **Cleveland Public Power Governance Structures**



Studied entities that govern utility.

able to engage in the election process, but quality is limited because it cannot directly elect the commissioner positions. CPP does not have any of its own lobbying representation at the state level, but instead relies exclusively upon representation by its joint action agency, most specifically AMP, that advocate on its behalf (American Municipal Power, 2017c).

Direct Democracy: Public Meetings

Although there are forums for the public to participate, there has been low turnout (Interview 2, 2017). The utility referenced that the engagement depends on the context (Interview 2, 2017).

One example where public participation has been high, however, is the new "Icebreaker" pilot project—a first-of-its-kind freshwater offshore wind project in Lake Erie. An advocate mentioned that participation levels were high and positive on this project, particularly since the process has been going for two years (Interview 4, 2017). Although it does not constitute as one of CPP's own renewable generation facilities, it will be utility-scale and CPP is an integral partner in providing the energy to two major customers from the project, the City of Cleveland and Cuyahoga County governments (Interview 3,4, 2017). This project is perceived by interviewees as relatively high in scope and participation (Interview 2, 3, 4, 2017).

Formal and Informal Accountability

While managing roles are appointed, interviewees still feel they had formal accountability through proximity and the fact that the City Council has jurisdiction over their hiring and firing (Interview 2, 2017). Another forum used for formal accountability is the courts. A current class-action lawsuit alleges that CPP hiked their rates using an environmental adjustment clause without alerting ratepayers effectively (Atassi, 2014).

Table 26: **Visibility in Energy Generation**

Annual Report	Financial Disclosure	Sustainability Report	Integrated Resource Plan	Corporate Social Responsibility Report
2012	Yes, but through Comprehensive Annual Financial Reports (CAFR)	No	No	No

Available information on energy portfolios. Yes indicates consistently published and a year indicates inconsistent and identifies the most recent published piece. Financial disclosure included because information often provided on energy generation.

Table 27: **Visibility in Decisionmaking**

Type	Open to the public	Televised	Notes available	Consistency
City Council Hearings	Yes	Yes	Yes	When proposal made to Council

Visibility of decision-making forums to the public. This does not comprise all venues for decisionmaking, but instead physical spaces in which strategic decisions are made with stakeholder input.

Table 28: **Political Score | CPP**

Political Conditions	Indicator	Cleveland Public Power	Total Possible Points
Transparency	Visibility	1	4
	Inferability	0	4
Participation	Scope	2	4
	Quality	2	4
Accountability	Formal	3	4
	Informal	2	4
Total		11	24
Score		**0.43**	

CPP was the only publicly owned utility studied where customers could choose their utility. While this may provide some informal accountability in an attempt to hold onto customers, it also provides a situation in which CPP is able to justify their lack of transparency as trade secrecy (Interview 1, 2017).

Economic Conditions

Democratized Ownership - From Procurement to Renewable Energy Credits (RECs)

Utility Scale Ownership

CPP has not owned the majority of its energy for many years and obtains generation principally through the market and its joint action agency American Municipal Power (AMP) (Interview 2, 2017). Power blocks do not allow CPP to evaluate the community benefit because there is no indication as to who owns that energy. In comparison, AMP is governed by the municipal utilities members, which gives CPP agency in decisions made by AMP. CPP explicitly states in a power supply report that it is in the process of transitioning from depending heavily on the market to having equity interest in long-term generation assets (Cleveland Public Power, 2017). For comparison, 95 percent of CPP's energy came from power blocks in 2011, scaling back to 45 percent in 2017 (Cleveland Public Power, 2017). As part of that transition, CPP invested in four AMP hydro projects and one wind farm. The utility is also working with the local Cuyahoga County government to host both a solar and wind project (Cleveland Public Power, 2017).

Of CPP's current investments in renewable energy, five of seven projects are Ohio-based. In part, this is because AMP's headquarters are in Ohio but the utility seems to also be taking steps to localize production (see Appendix 3). CPP, as part of the larger Cleveland municipal government, has an aspiration to reach 10 percent contracting to Cleveland-area small businesses (Opportunity, 2013).

Since the city enacted an RPS, CPP utilizes renewable energy credits (RECs) from its renewable energy projects and PPAs (Interview 2, 2017).

Individual and Community Energy Ownership

There is no available data on the number of CPP distributed generators. The only data point available for both CPP and its private counterpart is the new solar cooperative started by Ohio SUN that crosses both territories. In total, there were 32 installations in 2017 (Interview 4, 17, 2017). CPP's interconnection regulations are progressive, with the only limit being 1,000 kW per customer premises (see Table 29). Although there is no net excess generation (NEG) written into the interconnection regulations, the energy rolls over every month until the termination of the contract and not just the end of the year (Division of Power and Light, 2006).

Table 29: **Cleveland Public Power Renewable Energy Options**

Name	Description	RECs	Ownership	Required by Law?	Cost
Net Metering	Division may limit interconnected DG to 15 percent of peak load of line or line segment. Total rated capacity shall not exceed 1,000 kW per customer premises	Retired with Owner	Owner	Yes	Customer pays for net flow of energy at the end of the month. Customer must also pay the rates and charge under applicable rate schedule. Rolls over every month until termination of contract.
Virtual Net Metering	Trial project with Cuyahoga County government buildings that allows for virtual net metering	Retired with Owner	PPA with Cuyahoga County and CPP	No	Pilot project, not enough information

Options for individuals and community customers (excluding commercial and industrial options) to gain access to renewable energy. Including ownership structure, REC retirement, and effect on bill. Source: (Division of Power and Light, 2006).

CPP does not provide community renewable energy options, but it is able to create a relationship with the local county government to set up a virtual net metering pilot program—a program that was not accepted by FirstEnergy (Interview 1, 2, 3, 2017). As a government official said, "FirstEnergy was not willing to play ball." There seems to be hope in CPP's ability to work with other government agencies and community members to provide creative solutions, including the offshore wind Icebreaker project (Interview 3, 2017).

One advocate expressed optimism at CPP's involvement in innovative renewable energy projects and the opportunity for the utility to be an ally in rebuilding Cleveland's infrastructure more generally (Interview 17, 2017). For instance, the new solar project placed on a brownfield in Brooklyn, Ohio—the biggest solar installation in the state to date—was installed by an Ohio-based solar company and the materials, such as the panels and racking systems, were procured from in-state companies (E. Miller, 2018). The large offshore wind project has similar locally-based installers and vendors (Interview 3, 2017). In both of these projects, CPP acts as the utility host for the projects, and the Cuyahoga County government is the direct energy purchaser.

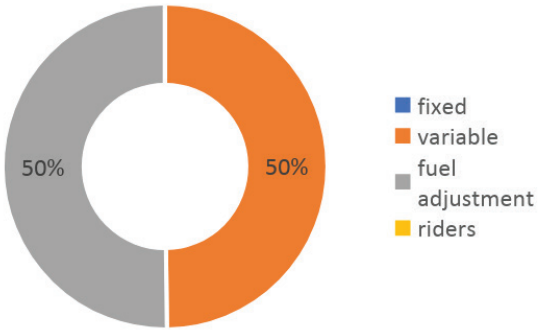
Distribution of Wealth

Energy Poverty

CPP has an average residential energy cost of 13.35 cents per kWh (US Energy Information Administration, 2016). This is relatively higher than the average cost of energy in Ohio (Division of Power and Light, 2006). CPP mentioned that it had no renewable energy or efficiency programs in effect currently for low-income households (Interview 2, 2017; see Chart 11).

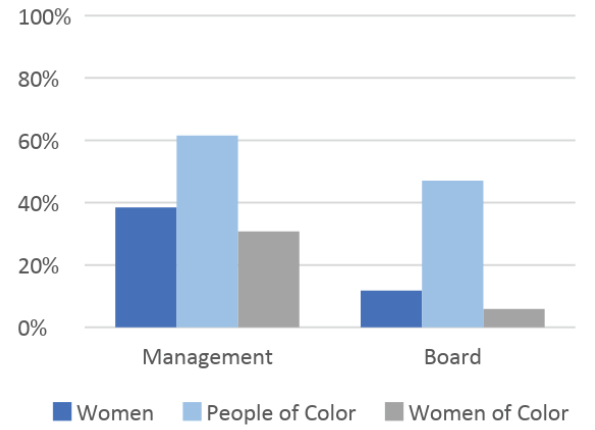
Even though CPP has the highest energy bills in comparison to the other utilities studied, its lenient net metering regulations allow for by far the largest residential installations at up to 1,000 kW with continued rollover of energy credit (although it does not pay for NEG). Paired with its lack of any fixed price, its net metering regulations provide more incentive to energy providers than other utilities. Cleveland Public Power cuts off energy to customers ten days after a mailed notice of a delinquent bill. In order to get energy reconnected, the full balance due must be paid, which is the cost of energy plus a late fee worth one percent of the unpaid bill. The utility is willing to set up a payment plan if contacted. Furthermore, it complies with state-level regulations that allow for a percentage-of-income payment plan, where utilities have to offer a six percent of income plan for low-income households that are below 150

Chart 11: **Rate Structure Cleveland Public Power**



Based on a 1000 kWh basic residential monthly bill. Excludes taxes from calculation.
Source: (Division of Power and Light, 2006)

Chart 12: **Leadership Diversity Cleveland Public Power**



Identifies the number of women and people of color in leadership positions. Management refers to CPP upper management and Board to City Councilmembers (who act as board)

percent of the poverty line to keep energy bills reasonable (Interview 19, 2017). The utility also has a state-mandated policy that disallows winter disconnections and provides an extension to senior or disabled customers (Interview 19, 2017).

Revenues

Unlike both Omaha Public Power District and Danville Public Utilities, CPP does not contribute any payments to the city, but instead operates at cost. CPP still has access to non-taxed financing in the form of bonds and is not beholden to any shareholders (Interview 1, 2, 2017). In theory, this would allow for CPP to provide significantly lower cost to Cleveland customers and it was previously able to operate at a cost advantage (Kwoka Jr., 1996). CPP currently has higher bills than Cleveland Electric Illuminating's (CEI) Standard Service Offer and have been in tough competition with CEI in recent years (Atassi, 2014). The CPP Commissioner is one of the highest paid

Table 30: **Economic Score| CPP**

Economic Conditions	**Indicator**	**Cleveland Public Power**	**Total Possible Points**
Ownership	Procurement	2	4
	Utility Scale	2	4
	Renewable Energy Credits	4	4
	Individual/Community Scale	3	4
Distribution of Wealth	Energy Poverty	2	4
	Revenues	3	4
Just Transition	Worker Democracy	2	4
	Worker Training/Retraining	2	4
	Leadership Diversity	2	4
Total		22	36
Score		**0.61**	

city employees, but makes about three times as much as the average lineman (Rus, 2013).

Just Transition

Worker Democracy
There are no visible co-leadership structures. CPP is unionized, but no numbers are available (Local No. 39 AFL-CIO, 2013).

Worker Training/Retraining
Much like Danville, CPP buys the majority of its energy either from AMP or on the power market, meaning it has little to no workers in generation—fossil fuel or otherwise (Interview 2, 2017).

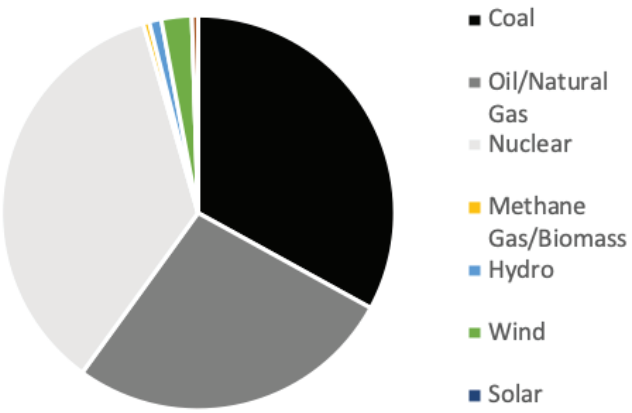
Diversity in Leadership
CPP has a relatively high level of diversity in both management and leadership—Cleveland also has the highest percent people of color of any of the service areas (see Chart 12). It also has a high percent of women either on the board or in management (Cleveland Public Power, 2011).

Cleveland Electric Illuminating Company

Energy Portfolio Conditions

Cleveland Electric Illuminating Company (CEI) relies heavily on fossil fuels and nuclear energy—only four percent of all CEI's energy comes from renewable sources (Cleveland Electric Illuminating Company, 2017b;see Chart 13). According to Ohio's Renewable Portfolio Standard (RPS), 12.5 percent of electricity sold by Ohio's energy suppliers must be renewable by 2027, of which 0.5 percent must come from solar (Public Utilities Commission of Ohio, 2017). CEI's low renewable capacity complies with regulations requiring 3.5 percent from renewable sources in 2016 (Public Utilities Commission of Ohio, 2017). The majority of CEI's renewable energy comes from wind (2.5 percent)—a high-quality renewable energy source (see Table 31).

Chart 13: **Cleveland Electric Illuminating Co. Portfolio by Capacity**



Political Conditions

Visibility and Inferability of Transparency

CEI is relatively visible in its energy portfolio since it is required by its regulator, the Public Utilities Commission of Ohio (PUCO), to release its energy portfolio on a quarterly basis. Unlike Dominion, there is no specific information beyond the energy type (FirstEnergy, 2017a). CEI provides annual financial disclosures and its parent company, FirstEnergy, consistently puts out annual reports and published a sustainability report in 2016, in which CEI is included (Atassi, 2014; FirstEnergy, 2016b, 2016a; see Table 32).

Even though CEI is based in a deregulated state, because it is an electric distributing utility (EDU) and

Table 31: **Energy Portfolio Conditions | CEI**

Energy Portfolio Conditions	Indicator	Cleveland Electric Illuminating Co.	Total Possible Points
Transition to Renewables	Percent of Renewable Energy	0	8
	Type of Renewable Energy	2	4
	Total	2	12
Score		**0.17**	

provides a standard service offer (SSO) to those who do not opt into choosing their energy supplier, it is more heavily regulated than other generation suppliers. PUCO has meetings open to the public, televised hearings, and recorded minutes. CEI is also regulated by the Ohio legislature, which records hearings and agendas are put on file (Ohio Public Broadcasting Center, n.d.). Annual stockholder meetings are not open to the public, not televised, and limited content is available afterwards (FirstEnergy, n.d.d).

PUCO acts to provide inferable information that outlines in lay terms both the process and outcomes of specific rate cases and disputes (Public Utilities Commission of Ohio, n.d.). In contrast, CEI's parent company (FirstEnergy) took part in an anti-clean energy campaign alongside other utilities and think tanks that perpetuated inaccuracies in the lead-up to the RPS review, lowering inferability by customers (Funk, 2017; see Table 33).

Scope and Quality of Participation

Representative Democracy: Decision-makers

There are two major opportunities for representative democracy: the election of FirstEnergy's board of directors and the Ohio legislature's election (see Figure 8). FirstEnergy's board of directors steers the direction of the company. Members are elected by shareholders, where the scope is limited to those who have the ability to buy stock, not providing equitable access. Even for those who are able to engage in the process, the extent to which their vote is taken seriously is based on the amount of stock they own—limiting the quality considerably (US Securities and Exchange Commission, n.d.).

Moving to the Ohio legislature, community members vote for their candidate based on more than energy issues. That said, CEI's parent company, FirstEnergy, has exerted a significant amount of pressure on

Table 32: **Visibility in Energy Generation**

Annual Report	Financial Disclosure	Sustainability Report	Integrated Resource Plan	Corporate Social Responsibility Report
Yes (Parent Company)	Yes	2016	No	2017

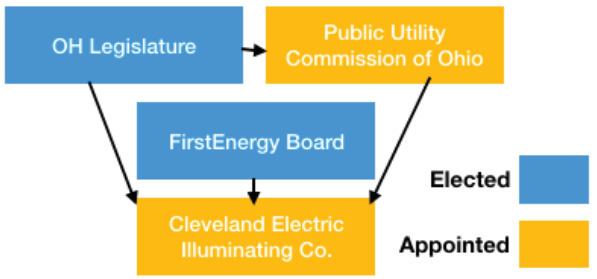
Available information on energy portfolios. Yes indicates consistently published and a year indicates inconsistent and identifies the most recent published piece. Financial disclosure included because information often provided on energy generation.

Table 33: **Visibility in Decisionmaking**

Type	Open to the public	Televised	Notes available	Consistency
Stockholder Meetings	No – only shareholders	No	Limited	Annual
PUCO proceedings	Yes	Yes, online	Yes, available on the PUCO website	When proposal on PUCO docket
Ohio Legislative Hearings	Yes	Yes	Limited	During legislative session

Visibility of decision-making forums to the public. This does not comprise all venues for decisionmaking, but instead physical spaces in which strategic decisions are made with stakeholder input.

Figure 8: **Cleveland Electric Illuminating Governance**



Studied entities that govern utility.

elected state officials. In 2016, FirstEnergy made over $33,000 in campaign contributions, a small amount in comparison to the 2014 election cycle when more than $395,000 in campaign contributions was spent on the state level (National Institute on Money in State Politics, 2017; see Appendix 2 and Chart 18). The most referenced outcome of this influence over politics from a renewable energy perspective was the RPS revision (Interview 16, 2017). In 2008, the Ohio legislature passed a bipartisan bill that enacted a relatively progressive RPS standard (Interview 17, 2017). But in 2011 a "network of coal companies, utilities, think tanks, nonprofit foundations and political action campaigns coalesced to roll back Ohio's alternative energy initiatives" (Funk, 2017). FirstEnergy aided this effort through campaign contributions to politicians like Representative Bill Seitz who championed the rollback (Funk, 2017). The utility also upped its lobbyist engagement around the time of the freeze (Interview 3, 2017) and have had consistently high numbers of lobbyists to influence legislation (National Institute on Money in State Politics, 2017).

Representative Seitz wrote to 10 utility, gas, and coal lobbyists, including FirstEnergy, in an email later discovered via a Freedom of Information Act (FOIA) request that "we should be meeting as a small group to figure out what this is going to say" (Funk, 2017). This example shows the outcome of funding both lobbyists and politicians as a tactic to influence decision-making by lowering the scope of participation and quality of other voices.

Overall, participation and quality are negatively affected by CEI's parent company's influence on the election process through major campaign contributions, as well as the influence on elected officials' actions once in power through lobbying activity.

Direct Democracy: Public Meetings

There are two identified places for direct democracy with CEI: in public commenting processes with its regulator, PUCO, and the voting mechanisms in its annual meeting. CEI is beholden to regulators for both its rates and infrastructure because it is an EDU that provides an SSO to those who do not opt into a competitive plan. This contrasts to competitive suppliers not beholden to rate cases for generation (Interview 18, 2017). Advocates identified the PUCO proceedings as key to enabling consumer voice and providing scope (Interview 17, 2017). However, the

Table 34: **Political Conditions | CEI**

Political Conditions	Indicator	Cleveland Electric Illuminating Co.	Total Possible Points
Transparency	Visibility	2	4
	Inferability	0	4
Participation	Scope	2	4
	Quality	1	4
Accountability	Formal	1	4
	Informal	2	4
Total		8	24
Score		**0.33**	

sentiment is that CEI and its parent company are primarily beholden to shareholders, so they question the quality of their voice in the proceedings (Interview 17, 2017). They also feel the strength of CEI's voice in the regulatory proceedings, facilitated by their economic power. As will be described in more depth in the Revenues section below, CEI takes advantage of its philanthropic donations in order to sway public comments about a rate case in its favor. One advocate also felt that consumer voice is nascent and volunteer, which is a hard contender against paid lobbyists both in deliberative and representative processes (Interview 17, 2017).

Similar to Dominion, another opportunity for engagement is the annual stockholder meeting to influence CEI. Stockholders can propose and vote directly on the proposals, but again votes are based on the amount of company stock owned, directly affecting scope and quality (US Securities and Exchange Commission, n.d.). Formal and informal accountability interviewees mentioned Ohio's deregulated structure as a way to keep utilities accountable. In the case that a customer is unhappy with the utility, they can transition to a different provider (Interview 18, 2017). About 73 percent of CEI customers choose their energy supplier, with the rest defaulting to the SSO (Interview 18, 2017). However, this has not enabled an energy transition nor distributed ownership of renewables. As one advocate mentioned, "Although we are deregulated, you are still seeing a lot of suppliers and distributors having a strong reluctance for ownership and resources belonging to anyone but the investor-owned utility itself" (Interview 16, 2017). FirstEnergy is also still able to unduly affect the legislative and regulatory landscape to their favor in a deregulated market (Interview 3, 16, 2017).

From an informal perspective, scandal exposure through reporting is a major source of accountability for CEI, with one dogged news organization, The Plain Dealer/Cleveland.com, tracking much of CEI and its parent company's movements (Interview 16, 17, 2017).

Economic Conditions

Democratized Ownership

Utility Scale Ownership

CEI's SSO conducts a competitive bidding process for its energy and has entered into a procurement agreement with companies to provide SSO customers energy until 2024 (FirstEnergy, 2017d). According to the competitive bidding process, the energy suppliers are not required to provide alternate or renewable energy supply. It buys about 40 percent of its energy from its affiliates (Cleveland Electric Illuminating Company, 2017a) as well as from other large investor-owned utilities, including American Electric Power Service, ConocoPhillips, DTE Energy, Exelon, and NextEra (Miller, 2017). The utility has a procurement diversity policy, including procuring from small, women-owned, HUB Zone, and veteran-owned businesses (FirstEnergy, 2017c). However, none of the prime contractors that won the competitive bidding process can be considered diverse suppliers nor are they required to provide renewable energy (FirstEnergy, 2017c).

The utility buys renewable energy credits (REC) in a competitive bidding process in order to comply with Ohio's RPS standard (FirstEnergy, n.d.-e). Since the Ohio-deliverable requirement was eliminated, these RECs can be bought from anywhere that is supplied by the PJM wholesale market serving Ohio (Interview 18, 2017).

Individual and Community Energy Ownership

In a deregulated market, the theory is that the customer will transition to a competitive energy supplier to provide them with their generation at the renewable energy levels that they desire (Interview 18, 2017). By law, CEI must provide a net metering policy but otherwise it does not provide renewable options. CEI's distributed generators can sell their RECs to CEI to help the utility fulfill its renewable energy requirements (FirstEnergy, n.d.-e; see Table 35). The only data point available for both CEI and CPP is the aforementioned

Table 35: **Cleveland Electric Illuminating Co. Renewable Energy Options**

Name	Description	RECs	Ownership	Requred by Law?	Cost
Net Metering	Capacity requirement based on 120 percent of customer's average annual electric usage at the time the facility is connected	Retired with Owner, unless sold to CEI	Owner	Yes	Customers with SSO will be compensated with excess energy, whereas those with competitive supplier will be credited at rate agreed for contracted service. Rolls over every month for a year. No NEG.

Options for individuals and community customers (excluding commercial and industrial options) to gain access to renewable energy. Including ownership structure, REC retirement, and effect on bill. Source: (Cleveland Electric Illuminating Company, 2014)

new solar co-op started by Ohio SUN that crosses both CEI and Cleveland Public Power territories.

Distribution of Wealth

Energy Poverty

CEI has an average residential energy cost of 11.98 cents per kWh (US Energy Information Administration, 2016). This is lower than the average cost of energy in Ohio. This should stand to reason because CEI's SSO must provide customers with the least-cost option (Interview 18, 2017). However, the rates are still criticized by advocates. "As it stands, a lot of bills don't benefit ratepayers," one explained. "They are there to subsidize for-profit entities to make sure they have returns even though we are a deregulated market" (Interview 17, 2017). CEI is not evaluated by ACEEE like Dominion, so a comparative can not be provided (see Chart 14). The utility does have a Community Connections program to help enable efficiency for ratepayers 200 percent under the federal poverty line (FirstEnergy, n.d.b), but there is no information on the uptake by customers.

CEI works in the same locality as CPP but has a high reconnection fee at $170 in comparison with other utilities studied, in addition to the full balance due, including a late fee of 2 percent of the unpaid bill (Cleveland Electric Illuminating Company, 2014). However, the state of Ohio has some mandated programs that provide relief for low-income customers, including a percentage of payment plan, no winter cutoffs, and extensions for people with serious medical conditions or the elderly (see CPP).

Revenues

CEI made $17.35 million in revenues in 2016 (Cleveland Electric Illuminating Company, 2017a). Some of those revenues are distributed to stockholders internationally, but a certain amount will stay local to Ohio because the utility's headquarters are in Akron, Ohio. Ohio's competitive energy suppliers do not have regulated returns, but EDU's and SSO options do because they have to provide indiscriminate service (Interview 18, 2017). CEI's is around 10 percent (Advanced Energy Economy, 2017). While capital infrastructure is still key to turning a profit, the EDU does not build energy generation. There must be a caveat that there have been recent rate cases in which the parent company attempted to use its subsidiary to subsidize its coal plants by contracting with the energy sources, even if it meant burdening the ratepayers with the higher costs of coal and nuclear (Interview 17, 2017). Regarding taxes, CEI has a relatively high contribution per customer in comparison with Dominion, at about $154 in 2016 (Cleveland Electric Illuminating Company, 2017a). When it comes to the distribution of wealth within the utility, its highest paid employee makes 148 times the average lineman's salary (Bloomberg, n.d.; see Appendix 4).

There was only information from CEI's parent company, FirstEnergy, on philanthropic decisions. All of FirstEnergy contributed $4,923,077 in donations to a variety of grantees in 2016 (FirstEnergy, 2016a). Advocates generally believe that charitable contributions should be made by for-profit businesses, but they cite examples of how utilities used contributions to

garner political power (Interview 9, 15, 16, 2017). The best example for CEI refers to its parent company's campaign to subsidize failing nuclear and coal power plants. FirstEnergy askes its philanthropic grantees to submit comments to FERC on the 90-day ruling, and in some cases even files the comment on the organization's behalf (Interview 16, 2017). Thus, the utility uses its philanthropic arm to influence regulation.

Just Transition

Worker Democracy

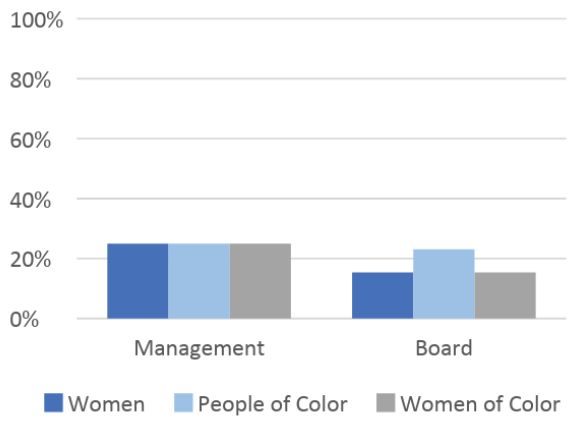
There are no specific co-leadership structures identified, but the utility is unionized. There are no specific numbers on CEI's unionization; its parent company has a relatively high unionization rate at 51 percent (FirstEnergy, n.d. c).

Worker Training/Retraining

CEI is in a similar position to Cleveland Public Power and Danville Public Utilities in which it does not own any of its generation. Its SSO requires CEI to buy the cheapest energy regardless of the energy type and therefore it is not implementing programs to transition fossil fuel workers. Its parent company employs many employees working directly with fossil fuel infrastructure.

Diversity in Leadership

Chart 15: **Leadership Diversity Electric Illuminating Co**



Identifies the number of women and people of color in leadership positions. Management refers to CEI upper management and Board of FirstEnergy Source: (Bloomberg, n.d., FirstEnergy, 2017b)

CEI has very little representation from people of color on their board or management—it had one woman of color (Bloomberg, n.d.;see Chart 15). Much like Dominion, CEI does not have many women on the board, either. It also has an Executive Diversity and Inclusion Council for an integrated diversity strategy as well as recognition for diversity through awards, but again its executive leadership does not reflect diversity (FirstEnergy, 2016b).

Table 36: **Economic Score | CEI**

Economic Conditions	Indicator	Cleveland Electric Illuminating Co.	Total Possible Points
Ownership	Procurement	1	4
	Utility Scale	0	4
	Individual/Community Scale	1	4
	Renewable Energy Credits	0	4
Distribution of Wealth	Energy Poverty	3	4
	Revenues	2	4
Just Transition	Worker Democracy	2	4
	Worker Training/Retraining	2	4
	Leadership Diversity	1	4
Total		12	36
Score		**0.33**	

Results: Comparative Energy Democracy Scores

Energy Portfolio Conditions

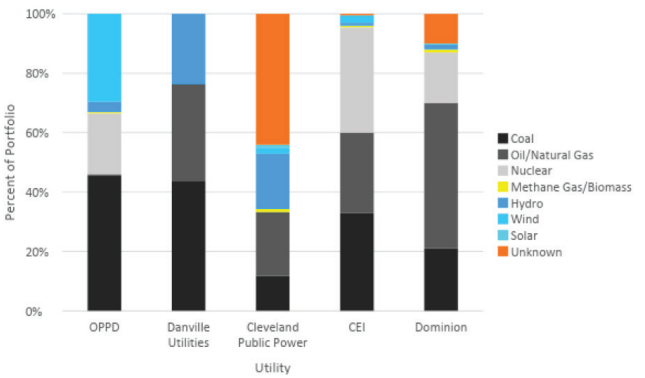
Publicly owned utilities consistently provides more renewable energy to their constituents than investor-owned utilities (see Chart 16). The renewable energy generating capacity of all three publicly owned utilities falls between 23 and 33 percent, whereas Dominion Virginia Power and Cleveland Electric Illuminating has 3 and 4 percent respectively—meaning that the lowest ranking public utility has over five times as much renewable energy as either investor-owned utility. There is a range of renewable portfolio standards (RPS), or lack thereof, that influenced the energy choices made by utilities. Cleveland Public Power is the only publicly owned utility that has an RPS—imposed by the local government. Neither Omaha Public Power District nor Danville Public Utilities has an RPS, but OPPD has explicit and audacious goals on how to increase renewable energy production. Danville has no RPS and therefore monetizes RECs from its renewable energy sources on the market. Virginia has a voluntary RPS of 7 percent in 2017, which Dominion meets in part through its own generation and the rest through buying RECs. The state of Ohio imposes a very low RPS of 4 percent, which CEI fulfills entirely with RECs.

When it comes to the type of renewable energy, OPPD relies mostly on Nebraska-based wind power, and Cleveland Public Power and Danville Utilities are comparatively dependent upon large-scale hydroelectric power for their renewable energy—a lower quality renewable energy source. Both of the smaller publicly owned utilities, CPP and Danville, rely heavily upon power blocks from the market, which means that they do not know what energy type enters their grids, though CPP has made an explicit transition away from power blocks. For CPP, 44 percent of its energy source is unknown. The minimal renewable energy provided by Dominion comes mostly from hydroelectric power and CEI buys wind power to cover its REC requirements.

Political Conditions

Investor-owned utilities generate more reports on their sustainability initiatives through annual, sustainability, corporate social responsibility, and other reports. However, the decision-making processes are distinctly more visible for publicly owned utilities. Inferability is consistently low across the utilities, but both the investor-owned utilities receive no points because of the actions interviewees referenced to limit community understanding. CPP stands out in this respect as a publicly owned utility that also did not

Chart 16: **Comparison of Energy Portfolios**



Includes compiled information from each utility and their generation.

receive points because of its alleged attempts to obscure bill line items.

Representational governance varies on a wide spectrum. OPPD provides the most direct example of a utility in which the board is elected by its peers, creating both high potential in scope and quality. The other two publicly owned utilities has leadership structures based on appointments by city council members elected by the public. This provides a less direct opportunity for participation but is enabled by publicly elected officials. The election process for the investor-owned utilities board of directors is elitist and provides those with the most wealth, or in this case shares, with the most say.

Both the public and investor-owned utilities are beholden to state regulation to varying degrees and therefore engage with those forms of representational government. How they engage is distinctly different. Publicly owned utilities cannot make campaign contributions, but investor-owned utilities can and do in large amounts (See Appendix 2). Both types of utilities can employ lobbyists, but investor-owned utilities employ them at a much higher rate (see Chart 17). Investor-owned utilities exert additional influence over representational structures by strategically using their economic power. While OPPD also use its economic power at the state level, as evidenced by their reticence in enabling a statewide renewable portfolio standard, it is nominally smaller.

Board meetings and public hearings are the main avenues used to assess direct democracy in this study. Board meetings for the publicly owned utilities, with the exception of CPP, are consistent monthly meetings in which the board makes decisions and the public is able to provide input. In contrast, investor-owned board meetings are closed other than the annual meeting, which is only open to those who have stock in the company. The publicly owned utilities' meetings provides more scope and quality because they allocate spaces to speak, whereas at Dominion's annual meeting, the public is physically blacked out with curtains.

Consistently across all the utilities, the timing and placement of the public hearings affects engagement and are prohibitive to low-income communities with inflexible work schedules. This significantly limits the scope of engagement for participation. When community members engage in the public hearing process, they find that there was a culture of rubber-stamping the wants of the utilities. This is more extreme in the cases where investor-owned utilities has provided campaign contributions, but still did show up in a public power context. It made community members who are able to overcome the hurdle of inferability feel their efforts ineffective. Community members in Dominion's service area feel that their fate is already determined because the utility is able to manipulate the outcome of legislative bills, permits, and more.

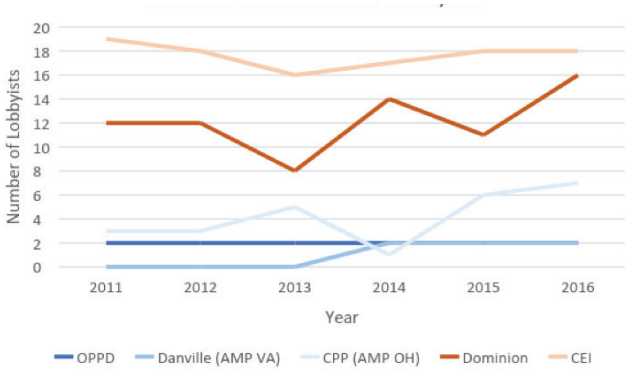
The accountability structure embedded in publicly owned utilities is one of the major reasons that those within their service area advocate for them. The overriding sentiment is that having local decision-makers creates a higher level of access and provides more accountability through local elections or other means.

In contrast, Dominion regulates its regulators. It has so effectively captured Virginian politics and economics in the form of jobs, philanthropic donations, and more, that it has little accountability. For that reason, advocates utilize informal accountability structures more consistently than any of the other utilities. Advocates often mention their lack of choice in utility

as the reason why Dominion could operate the way it does without accountability.

Two of the utilities are located in the deregulated state of Ohio that allows consumer choice. While switching suppliers does provide an informal measure of accountability, it does not curb CEI's parent company, FirstEnergy, from manipulating the state to its advantage. The power large corporations like CEI's parent company, FirstEnergy, are able to exercise reduces the ability for deregulation to provide benefits. It also means that the publicly owned utility, CPP, is reticent to provide information on generation. Generally, CPP is one of the least able to achieve political capabilities of the publicly owned utilities.

Chart 17: **Number of Lobbyists**



Lobbying information from 2011 to 2016 at the state level. American Municipal Power (AMP) lobbying information is used in the case of Danville and CPP since their joint action agency lobbies on their behalf. Source: (National Institute on Money in State Politics, 2017)

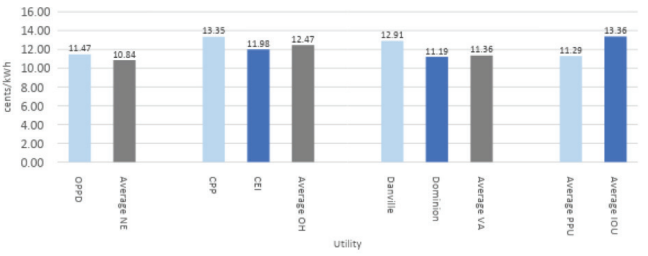
Economic Conditions

Overall, publicly owned utilities provides economic conditions better than investor-owned utilities, but by less of an extreme measure compared to political or energy portfolio conditions. First, publicly owned utilities do not own the majority of their generation but instead receive renewable energy via power purchase agreements (PPAs), through their joint action agency, or bought power blocks on the market. For investor-owned utilities, ownership is dependent on the state of regulation, since Dominion owns nearly all of its renewable generation assets but CEI is unable to own any. Procurement practices generally do not reflect the utilities' policies in place when it comes to primes on contracts, with the exception of local siting. Almost all of the utilities have robust diversity sourcing programs but none of the utilities have used a company that qualifies for their renewable energy projects (See Appendix 5). This study does not investigate the owner or contractor's subcontracts, which may show more diversity.

There is low uptake for all utilities on individual net metering. Only two of the utilities researched have any example of community energy projects, but both fail to qualify as genuine community energy according to this study because it does not provide the benefits of ownership to the person opting into the community renewable energy. Overall, there was little indication from either the advocates or utilities that any of the utilities provide specific scope for low-income communities in the design of their renewables programs. The use of RECs varies by utility greatly, depending primarily upon whether the utility needs to comply with a specific renewable portfolio. A clear distinction is the fact that none of the publicly owned utilities bought RECs, whereas investor-owned utilities bought RECs specifically to achieve their respective RPS. The average cost of energy for residential rates seems to be in the favor of private utilities (see Chart 18). This bucks the national trend that identifies publicly owned utilities as more affordable on average (American Public Power Association, 2017b).

When it comes to revenues, Dominion has the most incentive to build more infrastructure in order to turn a profit. CEI, as an EDU, does not have an incentive to build new generation but is influenced by its parent company. In order to gain an understanding of the distribution of wealth within the utility, the highest paid employee was contrasted with an average lineman salary. All of the publicly owned utilities' highest-paid employees make below ten times the average lineman salary, while both investor-owned utilities pay their top executives more than one hundred times the average

Chart 18: **Average Retail Cost of Energy**



1,000 kWh of retail energy use for each of the utilities, as well as the state average.

lineman. What publicly owned utilities contribute to their states' general fund varies by utility—Danville and OPPD contributes significantly to their state's general fund, whereas CPP provides nothing at all. The amount contributed through taxes by investor-owned utilities has sizeable range as well. In part, this may be due to the property tax structure in their operating area. While each county varies, Cuyahoga County (CEI) has a property tax rate of around 2.23 percent, while Virginia's property tax rates are rarely above 1 percent (Smartasset, 2017; see chart 19).

None of the utilities have evident co-leadership structures in their workplaces, other than unionization. Danville is the only utility without union representation. The majority of the utilities (CPP, Danville, and CEI) do not own their energy generation and therefore do not have any transition programs for fossil fuel workers. OPPD has recently transitioned its major coal plant and shuttered its nuclear plant, and therefore describes plans for reintegrating workers. In contrast, Dominion continues to build out natural gas infrastructure and works with unions to resist efforts to shut down the use of fossil fuels.

Diversity is lacking in nearly all of the utilities' boards and management. The publicly owned utilities do marginally better, but are still mostly dominated by white men. CPP has the most diversity in their management and CEI has the worst. Of note, they are both located in Ohio.

Final Scores

Publicly owned utilities consistently received higher scores in all of the conditions as compared to investor-owned, as well in their composite score (see Figure 9). Of those publicly owned utilities, OPPD outperformed in all conditions except for "economic condition," in which it achieves the same score as CPP, another publicly owned utility (see Appendix 7 for composite scoring). On the other side of the spectrum, investor-owned Dominion performed the worst in all categories. The difference in the mean scores between publicly owned and investor-owned utilities is identified to be statistically significant, using a two-sample t-test (see Appendix 8). While the small sample size should be acknowledged, this means that publicly owned utilities are significantly better equipped to achieve the conditions of energy democracy than investor-owned utilities.

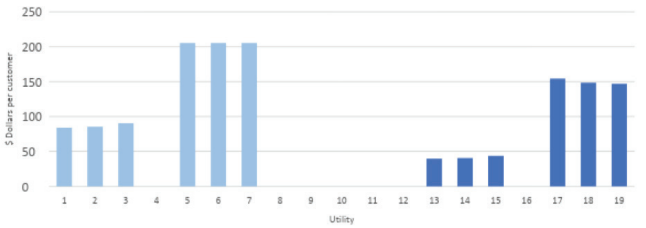
The scores are the most spread in "political conditions," which has a standard deviation of 0.21 in scoring, with Dominion achieving a score of 0.17 and OPPD a score 0.71 out of 1. "economic conditions" had the least, with a standard deviation of 0.16. Overall, the utilities' order from most able to meet conditions to least was relatively consistent, except for CPP and Danville, which consistently flipped places, potentially indicating a relationship between all three conditions. In other words, if a utility is more likely to achieve the political conditions of energy democracy, it is also more likely to achieve the economic conditions.

Discussion and Recommendations

Less than Rapid Transition to Renewables

All of the utilities studied run primarily on fossil fuels and have had a hard time making the transition to renewables, particularly decentralized renewables. Within that context, publicly owned utilities are better able to provide renewable energy but are still far from rapid mobilization. Publicly owned utilities'

Chart 19: **Taxes Paid / Contributions to General Fund**



historical investment in hydroelectric power may have a role in their more advanced renewable energy portfolios, the energy type that makes up the majority of Cleveland Public Power and Danville Public Utilities' renewable energy mix. However, this is a lower-value renewable energy than technologies like renewable energy and solar because of the social and environmental harm that could be inflicted.

While all the studied utilities are closely comparable to other utilities in the U.S.—the average renewable utility capacity is eight percent for investor-owned and 18 percent for publicly owned utilities in 2015 (American Public Power Association, 2017a) – the limited renewable sources do not achieve energy democracy's goal of rapidly transitioning from fossil fuels and towards renewables.

In order to move at a clipped pace towards more renewable energy that serves the people, public utilities need to start investing and planning for a more rapid ramp up of high-value renewable energy assets. They should set high goals with outlined plans to achieve those goals. The use of renewable energy credits becomes important in this conversation, as well. There is a range of treatment towards RECs across all the utilities. No publicly owned utility bought RECs and this was mostly because they are exempt from renewable portfolio standards (RPS) unless imposed at the local level.

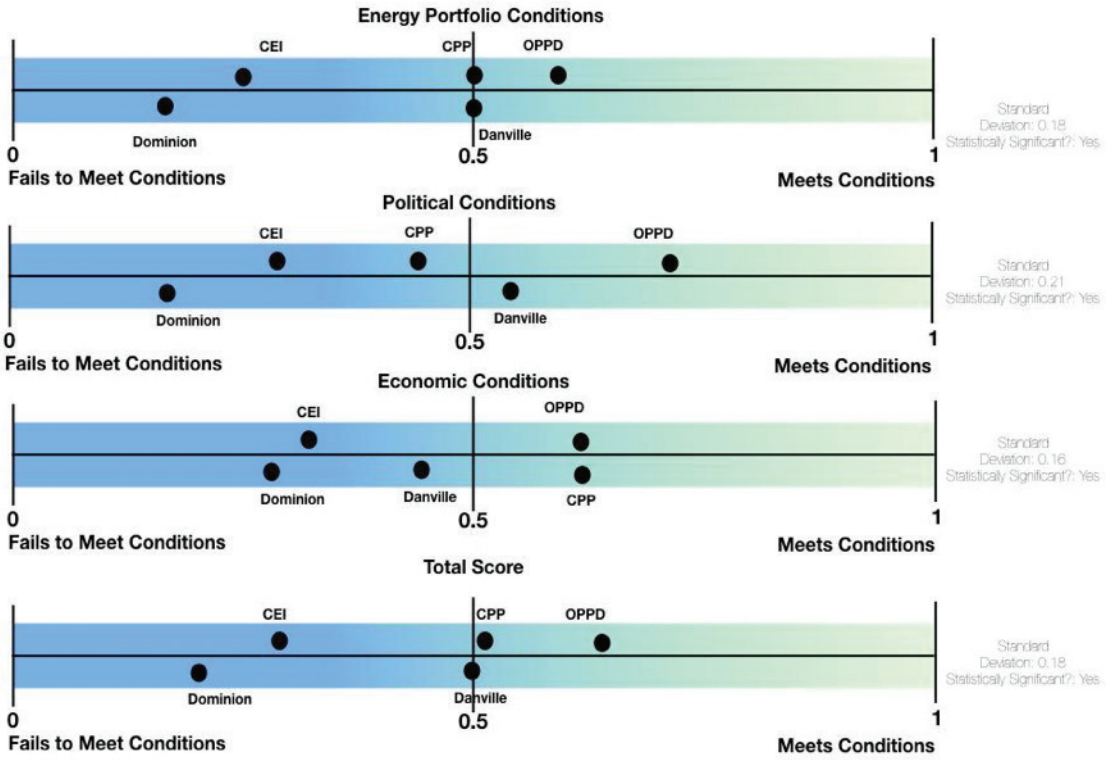
Moving forward, publicly owned utilities should be mindful to build capacity for the long term. In other words, RECs should not be bought to achieve high renewable energy goals unless within a close radius that effectively builds capacity within the range of the utility's grid. In other words, do not buy RECs from Colorado if the utility is based in Connecticut, because that does not help build a renewable grid in the utility's area once the coal-powered plant turns off. Danville monetized its RECs because it did not have a local RPS—which has short-term gains of providing a profit to its customer-owners. This comes with a word of caution, because it does not help those buying the RECs to build capacity.

Decentralized Energy Gets in the Way of Business Models

While the utilities are lackluster on renewable energy, there is an even smaller expansion of decentralized energy in their service areas. This hurts all of the utilities' ability to meet the economic conditions of energy democracy because ownership is not distributed, and more specifically not distributed equitably. Individual and community-scale ownership of renewable energy is low across all of the utilities. This seems to be a combination of the interactions between energy rates and payback periods, contradictory policies, and pushback by the utilities. Advocates generally feel that the utilities are unwilling to provide effective incentives for individual or community renewables and little to no programming that includes low-income communities. The utilities instead seem to discourage programs like net metering—often referenced as an unwillingness to change their business model, even in the case of the publicly owned utilities.

This speaks to a pervasive problem with the utilities: Their business model is built on centralized energy. Increasing sufficiency through individual and community-scale renewable energy eats away at how they historically generate profits. Even though publicly owned utilities do not need to maximize their profit, by a significant percentage of their customer-owner base generating their own renewable energy, they invest in an outsized amount of generation for their constituency. All three publicly owned utilities are supplied almost exclusively through large-scale wind or hydroelectric

Figure 9: **Energy Democracy Condition Scores**



dams—energy types aligned with a more centralized model. There is a serious need for the buildout of large-scale renewable energy to shift the grid entirely, but the utilities seem to focus almost entirely on centralized renewable energy and limit decentralization.

Investor-owned utilities have even less incentive to facilitate decentralized energy. In addition to the money made off generation and distribution, they turn a profit for their shareholders by building capital infrastructure. They have to demonstrate need for that infrastructure in order to get it built as a regulated monopoly (as are the ones under scrutiny here) and they can't do that if their ratepayers are subsistent. This business model does not democratize ownership and instead works to suppress it. While the deregulated CEI have less incentive, the example of FirstEnergy's attempt to set up a power purchase agreement for its coal plants with CEI's standard service offer for customers shows it is not impervious to its parent's entrenched use on fossil fuels.

The two examples of supposed community energy provided by both a public and private utility also show that the utilities are fearful to relinquish the benefits of ownership to their customers. Both hold the PPA and have community members pay for their renewable energy at a premium instead of gaining the benefits of ownership. Dominion have some language that requires it to provide access to low-income households, but paying for such a premium without the benefits of ownership eliminates the potential benefit of community solar as a way to distribute ownership.

One component not evaluated in this study is the larger infrastructure changes necessary for a shift towards decentralized renewables—everything from battery storage to better metering technology. As more distributed generation comes online, all of these utilities will have to think about how distribution will function differently and how their workforces will adapt.

Moving forward, publicly owned utilities need to reorient their business models to allow for more decentralized renewable energy sources. While there is a need for centrally run renewable energy to achieve the type of decarbonization needed in the timeframe given, there is a place for decentralization. Comprehensive feed-in tariffs and community power programs will need to be established that do not just provide opportunities for higher-income customer-owners to gain access to lower electricity rates through renewables. Supported programs for community ownership of renewable energy, such as shared solar gardens or even windmills, act as a major leverage point to build equity in access to ownership if financial support mechanisms are effectively enable. The partial shift towards decentralized renewable energy will mean the publicly owned utility will need to reorient towards a more service, versus output, approach, to provide access to the grid and manage energy loads effectively.

Publicly Owned Utilities and Partial Privatization

Some publicly owned utilities are going through partial privatization. They rarely own any of their renewable energy generation assets, unless through hydro co-ownership, and instead have PPAs with large corporations and investor-owned utilities. This dynamic is in part facilitated by their inability to access renewable federal tax credits. Their joint action agencies also do not own wind and solar projects because of their lack of federal tax incentives as nonprofits. If not in the form of PPAs, the publicly owned utilities buy power in the market in blocks without a clear understanding of what type of energy they are using or from where it is being generated. Buying in power blocks significantly depresses the ability to bring the benefits of renewable energy ownership home. PPAs provide more opportunities to enable local ownership in comparison, but by having for-profit corporations own publicly owned utility's renewable generation assets through PPAs, they are taking a cut.

While the general trend to locate renewable energy within the state is a benefit to energy democracy, the fact that the majority of the companies contracted lack diversity and are large corporations indicates a significant portion of the benefits, including economic benefits, are leaving the community and that an inclusive lens is not given priority. It also limits some of the community's jurisdiction over those assets. However, one of the reasons that contracts rarely land with local communities may be technical capacity. This speaks to a larger systemic need to develop capacity within the community for this type of work.

Furthermore, renewable energy companies have developed a bad reputation for suboptimal labor practices and limiting unionization, a point that that Sweeney articulates when he appeals for a vertically integrated public utility model, where there is likely to be better union representation than for-profit renewable energy companies (Sweeney, 2017). If the majority of a publicly owned utility's generation is supplied by other for-profit corporations, it may be harder to provide jobs with high labor standards—key to energy democracy's commitment to the just transition—than if the publicly owned utility owned the generation.

There are ways to potentially localize the economic benefit of renewable energy through PPAs. One promising example is Nebraska's C-BED legislation, which incentivizes Nebraskan-owned wind energy. However, OPPD's renewable assets do not illustrate that this Nebraskan-owned energy generation opportunity is being taken up. This study suggests that large-scale energy, such as wind farms, could still fit within the framework of energy democracy, as long as the benefits are not extracted out of the community but instead creates continued community benefits, such as renewable power and long-term jobs. Procurement practices must be enhanced to achieve that goal at the publicly owned utility level. Cumbers' research on energy democracy references a Danish hybrid ownership design where community members own wind generation alongside the publicly owned utility in a cooperative format, which keeps the economic benefit local, and distance regulations help to require utilities to contract with them (Cumbers, 2017).

In comparison, Dominion continues to own close to all of its generation—renewable or otherwise. Their ownership was interpreted by interviewees as a consolidation of power. Generally, ownership by publicly owned utilities is more aligned with energy democracy because there are more avenues for participation, but this is directly connected to the ability of that publicly owned utility to achieve the political conditions of energy democracy (of which the publicly owned utilities are comparatively better in this study).

These suppositions must be tested in more depth, but illustrates a significant tension in the energy democracy movement. The benefits of publicly owned utility renewable ownership in comparison with a breadth of different PPA relationships—in terms of saved costs, localized wealth, and good jobs—should be researched further in order to construct a publicly owned utility that builds energy democracy and can help transition towards renewables at scale.

Inferability Affected Participation

The data shows that investor-owned utilities are often able to put together customer-facing reports on their energy portfolio better than publicly owned utilities. This seemed to be affected by regulation and what the utilities are required to produce but also may be in part due to capacity—OPPD was a larger publicly owned utility and had similarly available reports to investor-owned utilities. However, the decision-making processes are distinctly more visible for publicly owned utilities. The relationship between investor-owned utilities and their regulators also deeply affects the visibility of their decision-making processes. Even if content is produced, inferability poses as a noteworthy stumbling block for community members in all of the utilities surveyed.

Szulecki (2018) explains the energy sector as a technocratic space where knowledge enables an elite few to make decisions, and this study underlines the dissonance. Inferability directly affects the ability for community members to engage in opportunities for participation and organize because they do not feel that they understand the content. Both of the investor-owned utilities seem to take advantage of low inferability and engage in campaigns to limit the public's understanding. Moving forward, utilities will need to find ways to make energy issues approachable to eliminate the technocratic elitism.

Power and Participation

The representational governance available within a public power context allows for the public to steer their utilities' goals and values. While agency varies by publicly owned utility, they show that organizing can affect change. In contrast, investor-owned utilities' board decision-making is weighted by the amount that a shareholder owns. In the publicly owned utility context, "shares" are distributed equally among the public.

The major inequity inherent in the current system is the inferability and therefore the ability of the public, particularly marginalized communities, to take part in both representational and deliberative democracy. While publicly owned utilities structures provide additional scope through multiple avenues of entry for deliberative democracy, the scope is still far from embodying the values of energy democracy. Energy democracy puts the most marginalized communities as leaders in the transition. None of the utilities seek out specific voices other than the "usual suspects" for such things as stakeholder meetings or public comment unless their location is directly impacted by certain infrastructure. The limited diversity in both boards and upper management again illustrates the problem of unrepresented voices. The pervasive issue of inferability therefore creates a compounding power dynamic that limits marginalized voices.

Investor-owned utilities bring this to the extreme with their exertion of power on the participation structures. They use their financial power to exert undue influence on the election process and, much as critics of liberal democracy theorize, capture many elected officials. While there are still inequities in publicly owned utilities that affect the quality of decisions, the

distribution allows for a much larger scope of people who could participate and limits elitism comparably.

A clear problem moving forward for energy democracy in a public power context is how utilities foster community engagement on energy issues. Publicly owned utilities consistently say that their community is not participating. This was in part due to lack of understanding, but also because community members do not consistently feel heard. Both Dominion and FirstEnergy took this further and manipulated public comment by activating their philanthropic grantees to speak in their favor, regardless as to if these communities would benefit in the long term from the policies they help to enable.

Berliner Energietisch's proposed model provides some insight for opportunities to increase both scope and quality (Berliner Energietisch, 2017). Its bill outlines that direct elections be conducted so all citizens could elect six members, employees could elect seven, and two seats are reserved for the Berlin Ministers of Environment and Economy. They also plan decentralized deliberative democracy through neighborhood councils and require the utility to consult customers on an issue if it receives a petition with 5,000 signatures (Berliner Energietisch, 2017)). Implementing specific structures that disable power relationships, layered with better communication and vested interest in the energy system through ownership, could be keys to unlock the potential of publicly owned utilities to achieve the conditions of energy democracy.

Spaces for Accountability

In both the public and investor-owned utilities studied, interviewees mentioned elections as a way to hold the utility accountable. For OPPD, this accountability is most direct. When the community is unhappy with the direction of the utility as well as its reactions to public participation, it is able to put new representatives into the board seats. Advocates in the Dominion service area also saw the 2017 general election as a moment to enable accountability. Energy democracy emphasizes a plurality of spaces for democratic procedures, and the sentiments felt by the interviewees reinforce a liberal democratic theory. That being said, community members do not limit their engagement to elections and instead use it as an accountability structure so that they will be better heard in the deliberative process.

Overall, the ability of investor-owned utilities to manipulate the political context to their benefit, in direct and deliberative processes, means that they actively suppress energy democracy. Publicly owned utilities provide much clearer structures for transparency, participation, and accountability. All of the utilities have significant work to do in ensuring an inclusive lens to enable engagement of all community members.

The extent to which this is due to the market structure should be evaluated further. The ability for deregulation to enable the energy transition, particularly an equitable one, is a contentious issue within the energy democracy and climate movements at large. A deregulated market would allow the public to escape from utilities like Dominion, but the question is, at what cost? Deregulated markets give the public choice, but it is based on purchasing power, which creates differentials in the ability to act. As is clear from this study, it also eliminates avenues for transparency and participation, while not eliminating the power structures.

Scale's Effect

Danville and CPP are consistently ranked below OPPD in their ability to provide energy democracy as a publicly owned utility. There are several factors that play into this ranking, but it is evident that it is due in part to scale. To own and operate renewable assets, facilitate community energy projects, and pull together comprehensive and transparent annual reports takes significant capacity and may be a deciding factor as to why these utilities can meet some of the conditions of energy democracy. It is important to note that bigger does not necessarily constitute as better. While the smaller publicly owned utilities do not do as well as OPPD, they still outmatch the investor-owned utilities. The proximity of the decision-makers is key in both the utility and advocates'

minds with regards to keeping the utility grounded and accountable to the community.

Joint action agencies, like AMP, aid in providing services that the smaller publicly owned utilities cannot deliver themselves, but are not deeply studied in this paper. Joint action agencies can have the potential to catalyze change within publicly owned utilities and provide for the issues of scale, but more research needs to be conducted to understand how they operate now and the avenues forward.

Relationship between Revenues and Avenues of Power

Publicly owned utilities argue that they better distribute wealth because revenues are being paid out to the local government and not to shareholders, which then allows the benefits of their investments to continue to flow to local communities instead of the stockholders. This aligns well with values set forth by energy democracy in keeping value local and redistributing wealth within a community. If Danville and Omaha were to lose their publicly owned utility, they would see a tax increase in the service area as the city or county governments identified new cash flows to cover such items as public schools and transportation. It is worth expanding the breadth of utilities investigated to understand better the value that publicly owned utilities are providing in comparison with their investor-owned counterparts.

This is not to say that private utilities do not "give back" to their communities. The investor-owned utilities do bring wealth to their service areas, but CEI's example of the parent company threatening to move out-of-state raises questions about its roots in the community. Both Dominion and CEI also make huge amounts of donations. The utilities' actions trend towards opportunistic philanthropy. They make community members and other influential people within the state beholden to them in order to facilitate the utility's agenda. This significantly influences the utility's ability to build a large power differential between the utility and the public.

Moving Forward: Practices for the Field

(Re)municipalization campaigns have captured the imagination of energy democracy activists and scholars. They are often long and hard-won battles. In reflecting upon municipalization as a strategy to shift towards an energy system based on energy democracy, it is evident that publicly owned utilities have structures that allow them to better meet the conditions in comparison to their investor-owned counterparts. However, those campaigns should be mindful of the limitations of publicly owned utilities identified in this study when designing the publicly owned utility they seek to replace their current, investor-owned utility.

There is an additional consideration as well. This study suggests that it is worth fixing the publicly owned utilities that already exist to enable more capabilities for energy democracy moving forward. The United States alone has more than 2,000 publicly owned utilities, which together serve about 15 percent of electric customers (American Public Power Association, 2017a). By using the participation and accountability structures already available to them, campaigns could have more leverage to shift the publicly owned utilities to further meet the conditions of energy democracy and provide concrete examples of democratic, equitable shifts towards renewable energy.

Conclusion

Energy democracy is an evolving theory that represents and reconciles a broad array of values (Fairchild & Weinrub, 2017). This study surveyed utilities to see how their different structures and actions either achieve or oppose the conditions of energy democracy. Specifically, it examined a strategy prescribed by energy democracy scholars and activists—energy municipalization—and tested the extent to which it could be effective.

In sum, publicly owned utilities meet more of the conditions for energy democracy than investor-owned utilities but have a long road ahead before achieving the ideal of a renewable, democratically-governed and community-based utility. One of the major limitations in this study is its scope—only five utilities were investigated of thousands within the United States alone. Additional research should be done to better understand the variability in utilities and to validate that the results provided here are representative of the sector.

That being said, the results not only reveal what energy democracy values are currently being applied by utilities, but also provide strategies and roadmaps for building a publicly owned utility with a foundation in energy democracy. By looking to the strengths and pitfalls of the studied publicly owned utilities, energy democracy activists taking on municipalization or remunicipalization campaigns can intentionally ground them in energy democracy. It also can inform how to leverage the publicly owned utilities already operating to better meet the conditions of energy democracy.

As a budding field, there will continue to be developments in energy democracy in both theory and practical applications. This report provides a new way to look at energy democracy and a pathway to evaluate additional utilities.

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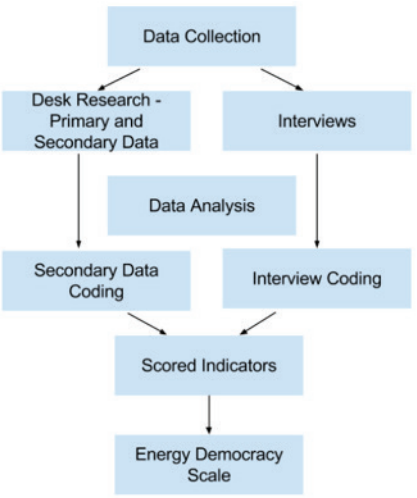
Appendix 1: Methodological Practices

This study uses a multiple case study design in order to allow for a robust comparison of both investor-owned and publicly owned utilities within differing regulatory contexts and its influence over the dependent variable: presence of energy democracy. The design uses replication logic, in which cases are chosen either to predict similar or contrasting results (Yin, 2008). Figure 2 provides an overview of the steps in the methods process and data triangulation.

Figure 10: **Methods Process and Data Triangulation**



Within the cases, electricity utilities act as the unit of analysis, with analysis confined to the geographic boundaries of the utility's service area. The service area can span from city boundaries to entire regions of a state. Investor-owned utilities often have multiple subsidiaries and thus this study focuses on a specific subsidiary, unless the parent company directly affects the outcome of the condition or there is missing data from the subsidiary.

Case Selection

Five utilities were investigated in this study. The sites represent a diversity in demographics, geography, and political climates. Each state represents a different regulatory structure; Ohio has deregulated generation market in which utility generation and distribution are disaggregated, Virginia is comprised of regulated monopolies, and Nebraska only has publicly owned utilities. An investor-owned and publicly owned utility are analyzed in each state, except in the event that regulation eliminates the possibility for both structures, as is the case with Nebraska.

Data Collection The data for this study was collected through a mixed methods approach of qualitative and quantitative data. This approach allows for data triangulation, which aids in the validity of a study (Yin, 2008). Semi-structured interviews were conducted, then validated and explored further through primary and secondary data sources.

Table 36: **Case Study Selection for Utilities**

State	Utility	Description of service area	Deregulated vs Monopolized
Ohio	FirstEnergy, Cleveland Electric Illuminating (CEI)	Cleveland, OH Population: 388,072 CEI customers: 700,000 CPP customers: 65,000 Demographics: 52% black, 37% white, 1.8% Asian Median HH income: $26,179; 37% below the poverty line	Deregulated, with consumer choice from residential to industrial
	Cleveland Public Power (CPP)		
Virginia	Dominion, Dominion Virginia Power	Dominion customers: 6,500,000 VA Demographics: 62.4% white, 19.8% black, 9.1% Hispanic, Asian 6.6%, American Indian 0.5% Median HH income: $66,149	Regulated monopoly, with some choice for industrial
	Danville Utilities Electric Services	Population: 42,450 Danville customers: 42,200 Demographics: 48% black; 45% white, 3% Hispanic Median HH income: $32,315; 23.7% below the poverty line	
Nebraska* ** Since the state of Nebraska only has public power, there are no IOUs to be evaluated.*	Omaha Public Power District (OPPD)	OPPD Customers: 820,000 Demographics: 66% white, 13% black, 3% Asian Median HH income: $51,407; 16.8% below the poverty line	Monopolized public power

Limitations in the case study descriptions: CEI, Danville, and OPPD provide services in the surrounding areas to the cities described above, but the city described represents the most populous areas. Dominion does not serve all of VA. Source: (US Census, 2017).

Interviews Interviewees were identified using purposive sampling—selected based on criteria relevant to the research area. In order to provide a breadth of perspectives and in-depth knowledge, semistructured interviews were conducted with three actor groups for each respective utility: (1) the utility itself, (2) the direct utility regulator, and (3) environmental advocates. The interviews were based on predetermined topics related to the analytical energy democracy framework described in Chapter 2 and allowed for the interviewee to discuss topics not initially included or go in more depth on specific points of interest.

A total of 25 interviews were conducted over the course of three months, primarily by phone. Between four to seven interviews were conducted per utility. There are only three interviewees for CEI and therefore that case study relies more heavily upon secondary sources.

Primary and Secondary Data Primary and secondary data used included both qualitative and quantitative information gathered from websites, annual or sustainability reports, legislative texts, meeting minutes and videos from public hearings, organizational records, etc.

Data Analysis

Interviews Interviews were analyzed using Nvivo software, using a deductive, or top-down, coding scheme. Deductive coding establishes a pre-set coding scheme based on theoretical framework indicators. Coding categorizes responses that are similar in in meaning in order to enable analysis and identify trends in data (Stuckey, 2015). In addition to being coded for energy democracy indicators, the interviews were coded according to their attitude: positive, neutral, unknown, mixed, or negative. This allowed

Table 37: **Interviewee Actor Groups**

Interviewee Actor group	Description	Example
Utility	A representative from the utility that has knowledge on the operations, energy portfolio, and renewable energy initiatives	Utility Commissioner Manager of Special Projects, Renewable Energy
Regulator	A representative from a direct regulator of the utility. For private utilities, this classifies as the Publicly owned utilities Commission within the state. For publicly owned utilities, this classifies as either the Supervisory Board or City Council	Private: Publicly owned utilities Commission of Ohio Public: Danville Utilities Supervisory Commission
E\Advocate	An advocate describes a community member directly advocating for values aligned with energy democracy	Activist Nonprofit representative Community organizer

Three types of actors were interviewed for the purpose of this study in order to provide a breadth of perspectives

for an exploration in the dissonances and similarities between interviewee classifications, as well as understand interviewee's values.

Primary and Secondary Data Sources Primary and secondary data sources were used to validate interview data, build out nascent ideas expressed in interviews, and fill in missing information. These items are stable and unobtrusive, but sometimes their accessibility may be low or the vast quantity of data creates biased selectivity.

Statistical Significance In order to understand if the difference between public and investor-owned utilities are statistically significant, a two-sample t test is used to compare the means. A confidence level of 95 percent is used in order to determine statistical significance. The test for significance is used for each of the three conditions as well as the final score to determine if the difference between public and investor-owned utilities is statistically significant depending on the weighting scheme.

Limitations

Case Study Sample Although the case studies we carefully identified to show the breadth of differences between investor-owned utilities and publicly owned utilities, it is a small sampling of the thousands of utilities based in the United States. This decision was made to allow for a depth of information per utility to be collected within the timeframe. Therefore, information provided here may not be fully representative of the larger utility landscape.

Availability and Accessibility of Data In many situations, the availability of reliable data was limited. In part, this has been explored in the "transparency" section of the thesis as it is an indicator of energy democracy itself. CEI was unable to accommodate an interview and therefore the utility perspective is missing for one of the case studies. Finding advocates for CEI also posed as a problem and therefore there are fewer interview data points, limiting the scope of study.

Furthermore, there was significant variation by utility in the number of people who could be identified and were willing to be interviewed. Dominion and OPPD had the highest response rate from interviewees at seven interviews conducted each.

This is not to be taken as a full evaluation of energy democracy, but instead a survey of a significant swath of energy democracy values. Each indicator alone deserves extensive research and development beyond

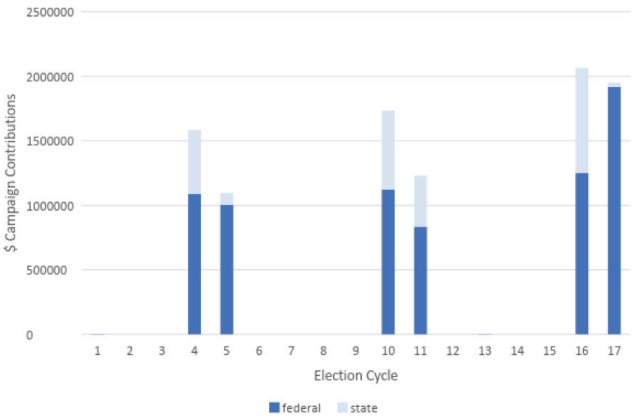
this thesis.

Bias Interviews provide insightful data that can be directly focused on the case at hand, but there can be inaccuracies or bias. Qualitative data collection runs the risk of the researcher's personal position influencing interviewees, called response bias. This study hopes to limit bias by utilizing a pre-set list of questions for semi-structured interviews and interviewing a range of actors within each utility system. Additionally, data triangulation through secondary sources allowed for validation of qualitative data through quantitative content.

Appendix 2: Federal and State Campaign Contributions by Utility

Publicly owned utilities cannot make campaign contributions as a public entity. The Center for Responsive Politics (federal data) provides contributions for individual donors from specific companies if over $200, no such information was recorded. National Institute on Money in State Politics (state data). Although not visible on the graph due to scale, individuals associated with OPPD provided $2,400 in 2012; $500 in 2014, and $1,583 in 2016. There was no data for Danville or CPP. Both Dominion and CEI make campaign contributions in multiple states; this chart shows Virginia and Ohio contributions, respectively. Sources include: Center for Responsive Politics, 2017; National Institute on Money in State Politics, 2017.

Chart 20: **Federal and State Campaign Contributions**



Appendix 3: Utility Renewable Energy Procurement and Ownership

The table below shows all published renewable assets. Capacities are not provided for specific AMP projects. Sources: (Omaha Public Power District, 2017a),(Omaha Public Power District, 2017d) (Buchanan, 2015), (Sack, 2017), (Danville Utility Commission, 2015), (Dominion Power, 2017) (US Securities and Exchange Council, 2016) (Cleveland Public Power, 2017), interviews. Since CEI is unbundled, it does not own energy generation.

Table 38: **Procurement and Ownership**

Utility	Source	Name	Ownership Type	Location	Owner and/or contractor		In State	
OPPD	Wind	Valley	Utility	Valley, NE	OPPD	0.66	Y	N
	Wind	Ainsworth	PPA	Ainsworth, NE	NPPD	10	Y	N
	Wind	Elkhorn Ridge	PPA	Bloomfield, NE	NRG Energy	25	N	N
	Wind	Flatwater	PPA	Humboldt, NE	Gestamp Wind Commercial	60	N	N
	Wind	TWP Petersburg	PPA	Petersburg, NE	Gestamp Wind Commercial	41	N	N
	Wind	Crofton Bluffs	PPA	Crofton, NE	NRG Energy	14	N	N
	Wind	Broken Bow 1	PPA	Broken Bow, NE	NRG Energy	18	N	N
	Wind	Broken Bow 2	PPA	Broken Bow, NE	NRG Energy	44	N	N
	Wind	Prairie Breeze	PPA	Petersburg, NE	SunEdison	201	N	N
	Wind	Sholes	PPA	Wayne County, NE	NextEra	160	N	N
Danville	Hydro	AMP Total	Utility Co-Ownership		-	27.1	-	-
		Smithland	Utility Co-Ownership	Smithland, KY	AMP, Contracted Voith Hydro		N	N
		Willow Island	Utility Co-Ownership	St Marys, WV	AMP, Contracted Voith Hydro		N	N

Danville (cont.)		Meldahl	Utility Co-Ownership	Maysville, KY	AMP		N	N
		Greenup	Utility Co-Ownership	Hamilton, OH	AMP		N	N
		Cannelton	Utility Co-Ownership	Hawesville, KY	AMP, Contracted Voith Hydro		N	N
	Hydro	Danville Hydro	Utility Co-Ownership	Patrick County, VA	Danville	10	Y	N
	Solar	Danville Solar	PPA	Danville, VA	TurningPoint Energy	6	N	N
CPP	Hydro	AMP Total	Utility Co-Ownership			66	N	N
		Greenup	Utility Co-Ownership	Hamilton, OH	AMP, Contracted Voith Hydro	6	N	N
		NYPA Hydro	Utility Co-Ownership	Lewiston, NY	AMP, Contracted NY Power Authority	16	N	N
		Meldahl	Utility Co-Ownership	Maysville, KY	AMP	9	N	N
		CSW	Utility Co-Ownership	unknown	AMP, contractor unknown	35	N	N
	Wind	Blue Creek	PPA through AMP	Blue Creek, OH	Avangrid	10	N	N
	Wind	LEEDCo	PPA	Lake Erie, OH	Lake Erie Energy Development Corporation	6.8	Y	N
	Solar	CV Kinsman Solar	PPA	Brooklyn, OH	IGS Solar	1	Y	N
	Biogas	Collinwood BioEnergy	PPA	Cleveland, OH	Quasar Energy Group	1	Y	N
Dominion	Hydro	Gaston Hydro Station	Utility	Roanoke Rapids, NC	Dominion	220	Y	N
	Hydro	Roanoke Rapids	Utility	Roanoke Rapids, NC	Dominion	95	Y	N
	Hydro	Cushaw Hydro	Utility	Big Island, VA	Dominion	2	Y	N
	Hydro	North Anna Hydro	Utility	Mineral, VA	Dominion	1	Y	N
	Solar	Scott Solar	Utility	Powhatan, VA	Dominion, Contracted Amec Foster Wheeler	17	N	N
	Solar	Solar Partnership Program	Utility	Distributed in VA	Dominion	7	Y	N
	Solar	Whitehouse Solar	Utility	Louisa, VA	Dominion, Contracted Amec Foster Wheeler	20	N	N
	Solar	Woodland Solar	Utility	Isle of Wight, VA	Dominion, Contracted Amec Foster Wheeler	19	Y	N
	Biomass	Pittsylvania	Utility	Hurt, VA	Dominion	83	Y	N
	Biomass	Altavista	Utility	Altavista, VA	Dominion	51	Y	N
	Biomass	Polyester	Utility	Hopewell, VA	Dominion	51	Y	N
	Biomass	Southampton	Utility	Southampton, VA	Dominion	51	Y	N

Appendix 4: Annual Compensation for Highest Paid Employees

Includes salary, bonus, stock gains, and other compensation perks. Year references last available data. Sources: "#143 Thomas Farrell II," 2016; "Charles E. Jones," 2016; Epley, 2016; Rus, 2013; Thibodeau, 2015b. Using Glassdoor Average Lineman Salary: $66,680.

Table 39: **Annual Compensation for Highest Paid Employees**

Utility	Name of Executive Director	Annual Compensation ($)	Year	Lineman Average Salary Comparison
Dominion	Thomas Farrell, CEO	$11.96 million	2016	179 times higher
CEI (FirstEnergy)	Charles E. Jones Jr., CEO	$9.84 million	2016	148 times higher
OPPD	Tim Burke, CEO	$503,511	2016	8 times higher
CPP	Ivan Henderson, Commissioner	$165,028	2013	3 times higher
Danville	Jason Gray, Director	$102,824	2015	2 times higher

Appendix 5: Comparison of Diversity in Leadership Positions

Composition of highest-ranked staff considered to be the "C-Suite", identified as leadership. Board members described as the ranking governing body directly above the utility. In the case of IOU's, it is the Board of Directors. For OPPD, it is the elected board, Danville is the Utility Commission, and CPP is the Cleveland City Council (latest publicized information from 2011). Sources: (Cleveland Public Power, 2011; Danville Utilities, n.d.-b; Dominion Energy, 2017b; FirstEnergy, 2017b; OPPD, 2017).

Chart 21: **Diversity in Management**

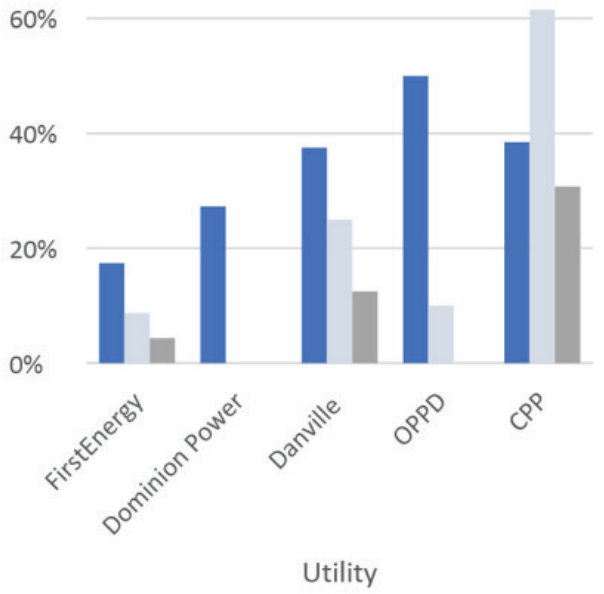
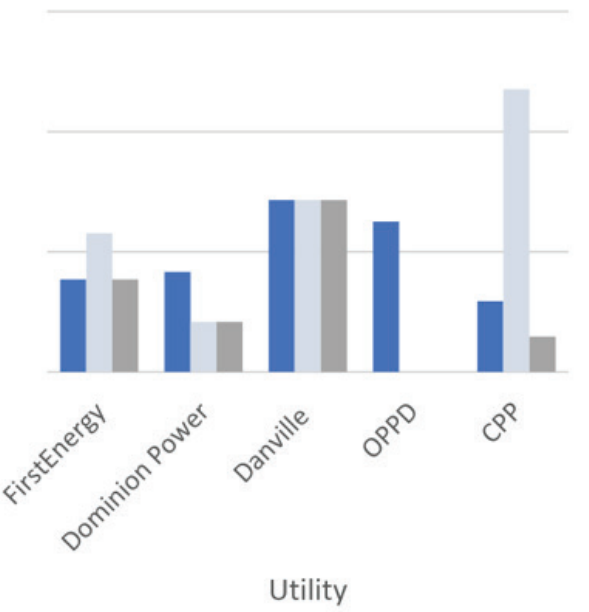


Chart 22: **Diversity in Board**



Appendix 6: Description of Scoring

Below is an in-depth description of scoring for different indicators. Absolute numbers, such as percent of renewable energy, allow some indicators to have concrete score delineations, whereas others are more interpretive (for example, quality in participation). Furthermore, there are subcategories within indicators that can make it difficult to make resolute decisions. For instance, if a utility had a relatively affordable average energy cost but the rate structure was prohibitive to low-income households, it would provide a score for the indicator "Energy Poverty" as 3 for affordable prices but 0 for structure amenable to low income. In this case, an average of 1.5 is used for the overall indicator score. Scores attempt to accurately reflect on-the-ground action to the extent possible, but we acknowledge that there are limitations in knowledge and application.

* = The percent renewables indicator is weighted two times the other technical indicator, due to the importance of transitioning to renewable energy. This is the only indicator in the scoring with this feature.

** = percent renewable "Acceptable" rate based off the Median RPS standard for states to achieve between 2020-2025. Choice made to be over the national average in 2017 due to the ambition of energy democracy.

*** = there was not sufficient data to use the average lineman salary for each utility. Therefore, an industry average provided by Glassdoor is used: $66,680.(Glassdoor, 2018)

Table 40: **Scoring**

Conditions	Indicator	Horrible (0)	Bad (1)	Acceptable (2)	Good (3)	Excellent (4)
Energy Portfolio*						
	Percent Renewables**	0-10%	10%-20%	20-40% (MEDIAN 24% by 2020)	40-60%	60-100%
	Type of Renewable	predominantly biomass, waste to energy	predominantly biomass, waste to energy, hydro	Mixed portfolio of biomass, waste to energy, hydro, solar, wind	Predominantly wind, little solar	Predominantly solar and wind

Political						
Transparency						
	visibility	no visibility, in portfolio and decisionmaking	little visibility in portfolio and	acceptable visibility, some records on energy sources and decisionmaking	good visibility, records on energy sources and processes of decision-making	excellent visibility, detailed records on energy sources, processes of decision-making
	inferability	action taken to actively deceive community	no action taken to increase inferability	little action to increase inferability	some action to increase inferability, so community understands in lay terms	significant action for community to understand in lay terms, and clarify
Participation						
	scope	action taken to actively limit scope of participation	no action taken to increase scope of participation	action taken to increase scope of participation, no targeted outreach to diverse stakeholders	action taken to increase scope of participation, some targeted outreach to diverse stakeholders	significant action taken to increase scope of participation, with a diversity stakeholders sought
	quality	work actively to stop community voice from being considered	community voice not considered	community voice considered, but not a significant factor in decisions	community voice considered and considered in decisions	community voice a driving force for decisions
Accountability	formal	stymies any formal accountability mechanisms and uses loopholes	tries to stop some formal accountability measures	some formal accountability measures available, with varying levels of responsiveness	formal accountability measures available, and utility relatively responsive to change	formal accountability measures available and utility responsive to change
	informal	actively suppress insurgence	not responsive to insurgence	Some acceptance to insurgence	accepting to insurgence and relatively responsive to insurgence	highly accepting and responsive to insurgence and adapts accordingly
Economic						
Ownership						
	Procurement	Entirety of renewable energy sited out of state. Procurement not local. No diverse procurement practices	Majority of renewable energy sited outside of state. Little procurement is local and little focus on diverse procurement practices	Mixed renewable energy siting and procurement. Diverse procurement practice policies implemented	Majority of renewable energy sited in state. Diverse procurement practices implemented and majority implemented	Renewable energy siting and procurement is local, with active diverse procurement practices
	Utility Scale Ownership	Shareholders gain all of the benefit of ownership	Shareholders gain majority of the benefits of ownership	Benefits of ownership are equally split between community and shareholders	Community gains the majority of the benefit of ownership	Community gains all of the benefit of ownership
	Individual and Community Scale Ownership	Ownership only available to the utility and/or bought off wholesale market	Ownership only available for individual net metering customers with restrictive policies	Ownership available for individual net metering customers	Ownership available in multiple structures (s.a. community solar)	Ownership available in multiple structures (s.a. community solar), with specific means of access for LMI communities

	Renewable Energy Credit	Little to no renewable energy owned, all bought off the REC market	Renewable energy owned, but RECs sold on the market	Mixed practice of RECs selling and retirement	Majority of RECs retired within the service area	All RECs retired within the service area
Distribution of Wealth						
	Energy Poverty	high energy rates with structures that hurt low-income users, and bad practices in energy cutoffs	relatively high energy rates with structures not amenable to low-income, relatively acceptable cutoff practices	acceptable energy rates, acceptable energy cutoff practices	affordable energy rates, with rate structure amenable to low-income, good energy cutoff practices	affordable energy rate with, rate structures designed with low-income users in mind, energy is rarely cutoff (if at all)
	Revenues***	No taxes/ payment in lieu and revenues headed out of state. Difference between highest paid employee and average lineman is over 200 times. Philanthropy is used as a tool for utility profit.	little paid in taxes/ payment in lieu, revenues headed out of state. Difference between highest paid employee and average lineman is between 100 and 200. Philanthropy is mostly used as a tool for profit.	some taxes/ payment in lieu, revenues mixed. Difference in highest paid employee and average lineman is between 25 and 100 times. Mixed philanthropic practices.	taxes/payment in lieu of taxes, majority of revenue stays local. Difference in highest paid employee and average lineman is between 10 and 25 times. Philanthropy used mostly to invest in community without strings attached.	revenues benefit the local community, either in taxes, payment in lieu of taxes, or investments in the energy system for renewable energy. Difference in highest paid employee and average lineman is between 1 and 10 times. Philanthropy used to invest in community without strings attached.
Just Transition						
	Worker Democracy	Actively work to stop unionization, no representation in managerial decisions	Unionization allowed but disincentivized, little representation in managerial decisions	Mixed practices	Unionization allowed, some representation in managerial decisions	Unionization allowed and high, workers are represented in managerial decisions
	Diversity	No to very little diversity in board members or management (less than 5% women or POC`)	Hardly diversity in board members or management (5-25% women or POC)	Mixed diversity in board members or management (25-50% women or POC)	Majority diversity in board members or management (50-75% women or POC)	High diversity in board members and management (75% + women or POC)
	Worker Retraining	Little ability to move up the ranks, and no indication of plans to transition fossil fuel workers	Some ability to move up the ranks, no indication of plans to transition fossil fuel workers	Mixed practices	Ability to move up ranks, some plans to transition fossil fuel workers	Positive work environment, significant ability to move up ranks, proven plans to transition fossil fuel workers

Appendix 7: Energy Democracy Utility Scores

Energy Portfolio		OPPD	Danville	Dominion	CPP	CEI	Total Possible
	Percent Renewables	4	4	0	4	0	8
	Type of Renewable	3	2	2	2	2	4
	Total	7	6	2	6	2	12
	Score	0.58	0.50	0.17	0.50	0.17	
Political							
	Transparency						
	visibility	3	2	3	1	2	4
	inferability	2	1	0	0	0	4
	Participation						
	scope	3	3	1	2	1	4
	quality	2	2	0	2	1	4
	Accountability						
	formal	4	3	0	3	1	4
	informal	3	2	1	2	2	4
	Total	17	13	5	10	7	32
	Score	0.71	0.54	0.17	0.42	0.29	
Economic							
	Ownership						
	Procurement	2	1	2	2	0	4
	Utility Scale	2	2	1	2	0	4
	Individual/ Community Scale	2	1	2	3	1	4
	Credit	4	1	0	4	0	4
	Distribution of Wealth						

	Energy Poverty	1	2	1	2	3	4
	Revenues	4	4	1	2	3	4
	Just Transition						
	Worker democracy	2	1	2	2	2	4
	Diversity	2	2	1	2	2	4
	Training/Retraining	3	2	0	2	2	4
	Total	22	16	10	21	11	36
	Score	0.61	0.44	0.28	0.56	0.31	
TOTAL ALL CONDITIONS	**Score**	**0.63**	**0.50**	**0.20**	**0.61**	**0.31**	**72**

Appendix 8: Statistical Significance

Total Conditions

Sample	N	Mean	Variance	df	P two tail	t critical two tail
Publicly owned	3	0.55	0.006	3	0.01	3.18
Investor-owned	2	0.24	0.003			

Energy Portfolio Conditions

Sample	N	Mean	Variance	df	P two tail	t critical two tail
Publicly owned	3	0.53	0.002	3	0.02	4.30
Investor-owned	2	0.21	0.003			

Political Conditions

Sample	N	Mean	Variance	df	P two tail	t critical two tail
Publicly owned	3	0.56	0.22	3	0.05	3.18
Investor-owned	2	0.23	0.008			

Economic Conditions

Sample	N	Mean	Variance	df	P two tail	t critical two tail
Publicly owned	3	0.55	0.009	3	0.04	4.3
Investor-owned	2	0.29	0.0004			

About the Author

Johanna Bozuwa is a Research Associate at the Democracy Collaborative. Her research focuses on transitioning from the extractive, fossil fuel economy and building towards resilient and equitable communities based on energy democracy.

Johanna received her M.Sc. in sustainable innovation from Utrecht University in the Netherlands. She first worked with The Democracy Collaborative as a Master's student while conducting research on how public ownership of electric utilities can be used as a strategy for energy democracy. She also has a B.A. in Environmental Policy from Barnard College, where she was an Athena Scholar for Women's Leadership. She has organized around climate both in the United States and the Netherlands and most recently worked on divestment campaigns for pension funds, universities, and cultural institutions alongside groups such as Fossil Free NL and BothENDS. She was previously an Earth Science Information Partners (ESIP) Fellow, working to bridge the gap between scientists and society.

The Next System Project

The Next System Project is an ambitious multi-year initiative housed at The Democracy Collaborative which is aimed at thinking boldly about what is required to deal with the systemic challenges the United States faces now and in coming decades. Responding to real hunger for a new way forward, and building on innovative thinking and practical experience with new economic institutions and approaches being developed in communities across the country and around the world, the goal is to put the central idea of system change, and that there can be a "next system," on the map. Working with a broad group of researchers, theorists, and activists, we seek to launch a national debate on the nature of "the next system" using the best research, understanding, and strategic thinking, on the one hand, and on-the-ground organizing and development experience, on the other, to refine and publicize comprehensive alternative political-economic system models that are different in fundamental ways from the failed systems of the past and capable of delivering superior social, economic, and ecological outcomes. By defining issues systemically, we believe we can begin to move the political conversation beyond current limits with the aim of catalyzing a substantive debate about the need for a radically different system and how we might go about its construction. Despite the scale of the difficulties, a cautious and paradoxical optimism is warranted. There are real alternatives. Arising from the unforgiving logic of dead ends, the steadily building array of promising new proposals and alternative institutions and experiments, together with an explosion of ideas and new activism, offer a powerful basis for hope.

Learn more at **thenextsystem.org**.

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