Public v. Private:

Municipalization in the Electric Utility Sector

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Steven Driest

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Advised By Catherine Hausman

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Abstract

In recent years, interest in the municipalization of electric utilities has increased in the United States. Frequently occurring wildfires in California and a recent ice storm in Michigan have catalyzed public dissatisfaction with incumbent investor-owned utilities. Previous research on this topic has focused primarily on the cost of electricity and the reliability of service, but little attention has been paid to the role of climate change. To explain the recent shift in the reasoning behind efforts to municipalize, I provide a series of case studies. I find that lower electricity rates and greater service reliability have been, and continue to be, major incentives driving conversion campaigns, but increased community demand for renewable energy is now playing a notably larger role in these efforts.

Introduction

In late February 2023, the City of Ann Arbor experienced a severe winter ice storm that left tens of thousands of residents without electricity. In some cases, residents waited over a week before their power was restored by DTE, the investor-owned utility whose territory of control includes Ann Arbor. As a result of this event and previously mounting frustration over the cost of electricity, the frequency of outages, and dissatisfaction with DTE's generation mix, Ann Arbor for Public Power (A2P2), a local non-profit organization, doubled down on their efforts for the City to take over from DTE and establish their own utility.[1] While A2P2 had been advocating for public power before this event, the ice storm and its impact on residents served to amplify and reinforce the pre-existing grievances and advocacy efforts of the organization.

Prior to this event, Pacific Gas & Electric (PG&E), one of the nation's largest utilities, was found to be the cause of at least two of California's largest wildfires that culminated in the destruction of hundreds of thousands of acres of public land and private property.[2] Due to failure to properly maintain their transmission lines and update outdated infrastructure, PG&E pleaded guilty to 84 felony counts of involuntary manslaughter for a wildfire that devastated the town of Paradise.[3] While PG&E is perhaps unique in its level of safety violations, such events have led to inquiries into whether municipalization or a state takeover of the utility could potentially offer more dependable and resilient services, especially in the face of climate-change-induced extreme weather events.[4]

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[1] Hakala, Josh. "In Wake of Mass Power Outages, Ann Arbor Organization Pushes for Public Power Utility." WEMU, February 27, 2023.
[2] Obeid, Matthew. "Up in Flames: Charting a Sustainable Path Forward for California Investor-Owned Utilities Subject to Wildfire Liabilities." George Washington Journal of Energy and Environmental Law, vol. 12, no. 1, 2021.
[3] "California's Embattled Utility Leaves Criminal Probation, but More Charges Loom." NPR, January 24, 2022.
[4] Bade, Gavin. "San Francisco Considering Municipal Utility as PG&E Prepares Bankruptcy Filing." Utility Dive, January 15, 2019.

While investor-owned utilities (IOUs) often seek to maximize profits because of their responsibility to shareholders, advocates of public power argue that publicly-owned utilities (POUs) or municipally-owned (MOUs) can improve transparency and public accountability, increase the reliability of service, lower consumer costs, and implement policies that reflect community priorities.[5] In order to address these concerns over cost, transparency, reliability, and sustainability, some cities have decided to—or are in the process of exploring whether to—convert their provider to MOUs. This manifestation of local control is often referred to as "public power."

In this context, a central question arises: *Why do some municipalities with an investor-owned electric utility convert to a publicly-owned utility while others do not?* In an attempt to answer this question, I utilize information provided by the American Public Power Association covering significant MOUs (~10,000 or more customers) that were established from 1973 to 2022 and analyze seven cases of cities that attempted conversion to public power. Some were successful, some failed, and some are still in progress.

The question of why some municipalities choose to convert from IOUs to POUs is not just a matter of local governance but also a topic of scholarly interest with broader implications. Understanding the factors driving these decisions can provide insights into the dynamics of public service provision, regulatory environments, and the balance between public and private interests in the utility sector. This research aims to contribute to the scholarly understanding of how and why municipalities make these critical decisions, offering insights for policymakers, utility providers, and researchers in the field. Such lessons include but are not limited to, the factors influencing municipalization efforts, the impact on service provision, community engagement and participation, and financial and economic implications. Such insights can

[5] *American Public Power Association,* 2023.

inform future decisions about what to consider when providing utility services that best align with community interests.

This paper begins with a brief background section to explain the various regulatory and theoretical components that are necessary to develop an understanding of the sector. Next, I conduct a review of existing literature on the motivating factors behind municipalization efforts. Following this, I utilize historical databases, pertinent newspaper articles, and official statements from utility providers to conduct an analysis by employing the aforementioned case studies to examine the underlying causal factors propelling constituencies toward municipalization. Ultimately, my findings suggest that cost has been the primary factor influencing conversion efforts, particularly in historical cases. In recent cases, the increasing frequency and severity of natural disasters, such as wildfires and ice storms, have underscored the vulnerabilities of existing electric utility infrastructure. This has led to a growing emphasis on reliability and the need for more resilient and sustainable energy systems. Additionally, there is a noticeable rise in community desire to address climate change, driven by a growing recognition of the role of electric utilities in contributing to climate change through the use of fossil fuels. This has resulted in a greater emphasis on transitioning to renewable energy sources.

Background

Types of Utility Providers

There are three primary ownership types in the United States for electric utilities: Investor-owned, publicly-owned, and cooperatives. While IOUs only make up a small portion of the total number of electric utilities (i.e., 168 out of 2,938), they provide electricity to 72% of total customers. Meanwhile, in 2017, there were 1,958 publicly-owned utilities that served

roughly ~15% of total electricity customers and 812 cooperatives that served ~13%.[6] Although there are significantly fewer IOUs than the other types, they are often the sole service provider within largely populated areas which explains the discrepancies between these counts. See Figure 1 below for a visual representation of the above data and Figure 2 for the full geographic breakdown of ownership type.

Figure 1.

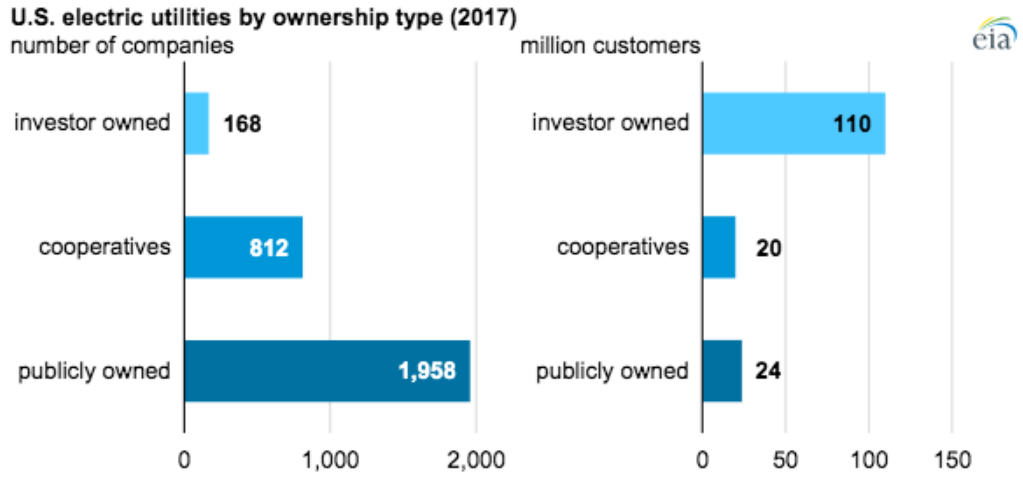

Image obtained from the U.S. Energy Information Administration.

Figure 2.[7]

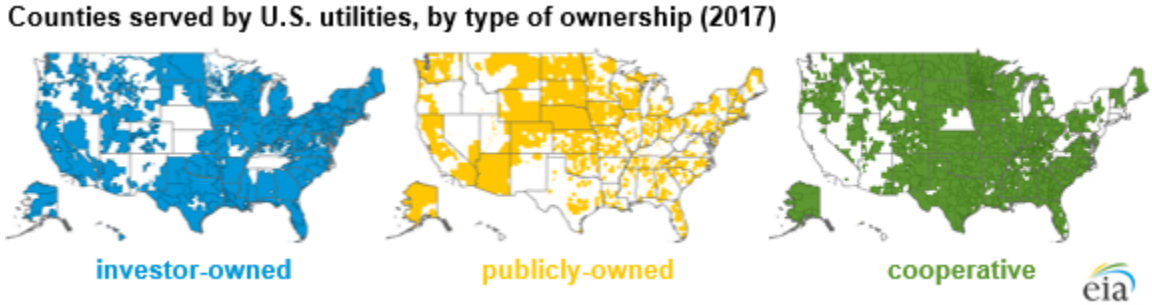

Image obtained from the U.S. Energy Information Administration.

[6] "Investor-owned utilities served 72% of U.S. electricity customers in 2017." U.S. Energy Information Administration (EIA), August 15, 2019.
[7] Apparent in Figure 2, a county may be served by more than one type of utility.

Ownership and/or governance structure(s) vary across these ownership types. Like any investor-owned company, IOUs sell stocks to shareholders with the expectation of receiving dividends, which are a portion of the profits earned by the company. These profits are generated from the revenue streams of the company, which, in the case of electric utilities, come from providing electricity service to customers. In terms of governance, IOUs are overseen by utility executives, granting them centralized decision-making authority.[8] As will be expanded upon later in this section, these utilities are primarly regulated by state-level public utility commissions, and opportunities for public engagement include rate cases, ratepayer advocacy groups, and other utility-focused non-profit groups.

On the other end of the spectrum, POUs, which include federal, state, and municipal utilities, are owned and operated by the public entity to which they belong (e.g., a city or state), similar to public school districts. These utilities are run by elected or appointed officials who are held liable by the constituents of their respective communities.[9] While most POUs are not subject to state-level regulation, they are subject to local regulations that can function similarly to that of a public utility commission.

Finally, cooperatives exist as somewhat of a hybrid model in that they are not-for-profit and are owned by their employees and members (i.e., the customers they serve). However, they differ from POUs because they are private businesses with a board of directors, similar to that of an IOU. While public utility commissions regulate some co-ops, they may not have to pay taxes to local governments, partly due to their community-oriented nature.[10]

[8] "Investor-owned utilities served 72% of U.S. electricity customers in 2017." U.S. Energy Information Administration (EIA), August 15, 2019.
[9] "An Analysis of Municipalization and Related Utility Practices." DOEE, 2017.
[10] "What Is Public Power?" publicpower.org. Accessed February 23, 2024.

Underlying Structure of the Electricity Sector

The electricity sector consists of four separate but interconnected components: generation, transmission, distribution, and retailing. Generation refers to the production of power or electricity from various energy sources. Power plants and other generation forms, such as solar arrays or wind farms, generate electricity by converting energy from primary sources (e.g., coal, natural gas, wind, etc.) into usable electricity. After the electricity has been generated, it then needs to be transmitted over long distances via high-voltage transmission lines to distribution centers and/or substations. These distribution substations then transform the voltage levels to lower frequencies for eventual distribution to homes, businesses, and buildings. Finally, meters actively keep track of how much electricity is being used by a specific customer and utilities, and then charge these customers accordingly (i.e., retailing). While the grid is an extremely complex system, these four parts ultimately explain how the commodity of electricity is produced and supplied for consumption.

Natural Monopolies

Before delving into the regulatory bodies governing the electric utility industry, it is necessary to understand why utilities often need to be regulated. The phenomenon of a natural monopoly emerges when "the production of a particular good or service by a single firm minimizes cost."[11] Under this definition, electric service providers qualify as natural monopolies due to the fact that they are a single firm that benefits from economies of scale by continuing to expand output and lower its costs, eventually gaining nearly total control over the entire market. In order to ensure that these firms do not charge a monopoly price for their service, regulators seek a set of prices where total revenue equals total costs.

[11] Viscusi, W. Kip, Harrington, Joseph E., and Vernon, John M. "Economics of Regulation and Antitrust." Book. Cambridge, Mass.: MIT Press, 1995. Pg. 401.

Outside of regulation, the other solution to solve this problem is government ownership. In this case, a government entity, like a city or a state, owns the right to be the sole service provider within a specific area. Theoretically, with government ownership, there would not be a need for regulators if profit-maximization efforts were more in line with public interest. In other words, if the service provider kept the interests of their customers at the core of their business model and did everything they could to advance these interests (e.g., providing cheap and reliable electricity), then monopolistic behavior, such as price gouging or neglect of infrastructure, would be non-existent. However, it is important to note that many government-owned enterprises can suffer from various inefficiencies, and the actual implementation of a purely publicly oriented firm is easier said than done.[12]

As was covered in the previous section, there are four components a bundled utility provides: the combined services of generation, transmission, distribution, and retailing. Some of these fall under the definition of a natural monopoly, while others do not. The generation of electricity is not a natural monopoly because multiple firms outside of the utility can bring power to the grid. For example, third-party developers, such as renewable energy developers, connect their assets (e.g., solar and/or wind farms) to the grid via power purchase agreements (PPAs).[13] Utilities do not own these assets; instead, they purchase the power from the developers. Therefore, generation cannot be described as a natural monopoly since multiple firms actively compete for the rights to produce and sell electricity.

In contrast, transmission and distribution are natural monopolies because utilities own the infrastructure, and it would not make sense for other firms to reproduce this infrastructure. In other words, due to the high fixed costs and the nature of the infrastructure, it may not be

[12] Ibid.
[13] PPAs are contractual agreements where a third-party developer commits to supplying electricity to a utility for an agreed-upon price and duration.

economically feasible or efficient for multiple firms to duplicate this infrastructure. This kind of redundancy would lead to increased costs and a lack of economies of scale. Meanwhile, retailing is not a natural monopoly because multiple retail providers can exist and compete in the market. Unlike the infrastructure-heavy transmission and distribution services, retailing involves supplying electricity to end-users and managing customer relationships, which does not inherently require a single, dominant provider. For example, retail choice allows consumers to choose their suppliers based on their preferences and values.[14] In these deregulated or partially deregulated markets, the consumer has the freedom to switch between retail providers, thus eliminating the existence of a natural monopoly.

State Public Utility Commissions

Provided that electric utilities have near-total control over their respective service areas, Public Utility Commissions (PUC) serve to regulate these entities, which all fifty states possess in some form or another. In most cases, the governor appoints the regulatory commission, but in others, the commissioners are elected or appointed by the legislature.[15] Traditionally, these commissions intend to ensure that prices are reasonable via rate cases in which experts testify (e.g., an economist might testify on the cost of production) in order to determine the rate the utility is allowed to charge.[16] A major focus of each rate case surrounds the problem of how much return the firm should be able to gain on investment. For example, a utility that builds a generation facility with significant cost overruns might only be able to collect a fraction of what it actually cost to build the plant due to the commission's determination that the firm was poorly

[14] "An Introduction to Retail Electricity Choice in the United ..." National Renewable Energy Laboratory, 2017.
[15] "An Overview of PUCs for State Environment and Energy Officials." *EPA*, May 20, 2010.
[16] Ibid.

managed during construction (e.g., the California Public Utility Commission and the Diablo Canyon nuclear power plant).[17]

Their purview also extends to overseeing Renewable Portfolio Standards (RPS) and integrated resource plans (IRPs). Regarding RPS, the commissions ensure utilities meet mandated quotas for renewable energy generation as part of their generation mix, utilizing tracking systems for renewable energy credits (RECs), requiring regular compliance reporting, and imposing enforcement actions, including financial penalties and alternative compliance payments, for non-compliance. While these standards can vary dramatically between states, as discussed in a later section, they set the baseline for how much utilities use renewable energy for their generation mix. In conjunction with RPS, PUCs also approve and oversee utility IRPs, which are used by utilities to ensure that adequate and reliable service will be available to meet future demand.[18]

FERC

Central to understanding electric utilities in the United States is the role of the Federal Energy Regulatory Commission (FERC), a government agency that oversees the regulation of various energy sectors, including the interstate transmission and trade of electricity. While FERC does regulate the movement and sale of wholesale electricity in interstate commerce, it does not regulate retail electricity sales or activities of municipal power systems. Most of these areas outside FERC's regulatory capacity fall under the jurisdiction of State Public Utility Commissions. According to FERC, "the Commission's core responsibility is to 'guard the consumer from exploitation by non-competitive electric power companies.'"[19]

[17] Zonana, Victor, and Donald Woutat. "Accord Reached on Diablo Canyon." Washington Post, 1988.
[18] "Electricity Resource Planning and Procurement." EPA, 2022.
[19] "What FERC Does." Federal Energy Regulatory Commission, February 12, 2024.

Regarding wholesale power markets, FERC operates under national policy which has historically been aimed at stimulating competition by aiding the entry of new power generators to compete with incumbent or traditional utilities. While regulation has been the primary intervention in wholesale generation services and continues to be for wholesale transmission, in recent years, encouraging and assisting with competition has become the main approach in dealing with wholesale generation services. This is partially due to technological advancements in generation and the limited capacity of economies of scale to increase benefits to consumers.[20,21,22] In other words, there comes a point where further production increases may not result in significant cost savings under a monopoly power.

Public Utility Districts & The Rural Electrification Act

Understanding the history of Public Utility Districts (PUDs) is necessary, as it provides important insight when deployed in the forthcoming case study section. During the early twentieth century, numerous electricity providers were reluctant to provide service for rural customers due to economic viability issues such as the substantial resources needed and the limited profits generated from smaller customer populations. To cater to rural residents, states such as Oregon, California, and Washington enacted laws that allowed for the creation of PUDs. This initiative aimed to grant local residents authority over electricity and other crucial utility services.[23] Some of these PUDs possess or continue to possess the power to tax, and the revenue

[20] To regulate electricity rates, the Commission grants authorization for market-based rates for wholesale sales to producers that prove that they do not benefit from, or have adequately diminished horizontal or vertical market power.
[21] "Electric Market-Based Rates." Federal Energy Regulatory Commission, December 4, 2023.
[22] Horizontal market power refers to when a firm owns a significant share of production, which often leads to fewer competitors. Vertical market power refers to when a firm controls multiple parts of the production and distribution process.
[23] Betty L. Brown, "People's Utility Districts in Oregon," Oregon Law Review 20, no. 1 (December 1940): 3-73

generated could be earmarked for building necessary infrastructure such as substations and distribution networks.[24]

Meanwhile, President Franklin Roosevelt also realized the need to electrify rural areas of the United States and subsequently passed The Rural Electrification Act of 1936 under the transformational New Deal to connect these areas with the twentieth-century economy. Under this law, the federal government became able to give low-cost loans to help create and assist non-profit electric cooperatives, many of which still exist today.[25,26] In many cases, PUDs sought the assistance of the Rural Electrification Administration to access funding and technical expertise to expand electric power to constituents of their respective domains. The legacies of PUDs and the Rural Electrification Act are highlighted within the Oregon PUD cases.

Summary of Background

In this section, we have explored the background of the electric utility industry in the United States, focusing on the various types of utility providers, the underlying structure of the electricity sector, and the role of regulation in ensuring fair and efficient service delivery. We have learned that there are three primary ownership types for electric utilities: investor-owned, publicly-owned, and cooperatives. While investor-owned utilities (IOUs) serve the majority of customers, publicly-owned utilities (POUs) and cooperatives also play significant roles in the market.

Moreover, the electricity sector consists of four interconnected components: generation, transmission, distribution, and retailing. While generation and retailing are open to competition, transmission, and distribution are natural monopolies due to the high fixed costs and

[24] Ibid.
[25] "The Rural Electrification Act Provides a 'fair Chance' to Rural Americans." National Parks Service, August 8, 2021.
[26] Initially, the intent of this research was to examine both publicly and cooperatively owned electric utilities. However, due to the fact that the vast majority of the nation's electric cooperatives were formed under The Rural Electrification Act, not dissatisfaction with IOUs, cooperatives were realized to be out of scope.

infrastructure requirements. Regulation by PUCs and federal agencies like FERC ensures utilities provide reliable service at reasonable prices. The history of PUDs and the Rural Electrification Act highlights the role of government intervention in expanding access to electricity in rural areas. These historical developments have shaped the current landscape of the electric utility industry.

Overall, the key takeaways from this section are the importance of regulation in ensuring fair and efficient service delivery, the role of different types of utility providers in the market, and the historical context that has shaped the industry.

Review of Literature

The following literature review is set up to reflect the factors that contribute to the transformation from IOUs to MOUs. This section begins with the factors that I have hypothesized to be the greatest historical contributors to conversion efforts based on which has received the most attention within the corresponding academic literature (i.e., price and reliability). As the section progresses, the role of factors outside the status quo are examined to reflect a shift in conversion efforts over time and my corresponding hypotheses. It is important to mention that nearly all of the literature considered within this section does not attempt to answer the overarching question of this paper, as the literature under consideration primarily focuses on the broader utility industry rather than delving into the specific causal efforts behind electric utility municipalization endeavors.

Cost of Utility

The cost of electricity is often the most cited factor as to why municipalities choose to convert to public power. On average, operations and management costs per kilowatt hour (kwh)

for IOUs are 4.00 cents v. 4.86 for POUs.[27] Although operation and management costs are generally higher for POUs, the lower maintenance cost for IOUs may be related to the unreliability of their service. Kwoka argues that public ownership of electric utilities is associated with substantially lower rates compared to that of privately owned utilities and that one of the key reasons is that IOUs are subject to higher degrees of regulation than POUs.[28]

Yet, degrees of regulation are not the only driving factor behind the cost of the utility as elected commissions also play a principal role in the price of the utility. Commissions with fewer members and whose governing bodies hold open meetings strongly influence the price-determination process as they possess more direct consumer influence.[5] While commissions can vary by state, all states have regulatory commissions today, and they have the authority to approve or adjust rates utilities can charge customers by factoring in operational costs, investments in infrastructure, and a fair rate of return for the utility.[5]

Moreover, the monopolistic nature of IOUs highlights the potential need for competition and economic regulation. Given IOUs usually control a large swath of territory and alternatives usually do not exist within specific geographic areas, consumers must buy from the IOU or do without power. Competition within the electric industry can be scarce, incentives to protect consumer interests can also be scarce, and therefore, there have been historic concerns about price gouging.[29] However, this is not to imply that price gouging is widespread today. The question of whether utilities engage in price gouging remains an area for future research.

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[27] Pazzalia, Joseph, "Sparking Debate: Private or Public? The Effect of Ownership on Electric Utility Performance" 2022. West Chester University Doctoral Projects. 138.
[28] Kwoka Jr., John, Governance Alternatives and Pricing in the U.S. Electric Power Industry, The Journal of Law, Economics, and Organization, Volume 18, Issue 1, 1 April 2002, Pages 278–294.
[29] Munkirs, John R., et al. "Rape of the Rate Payer: Monopoly Overcharges in the Regulated Electric-Utility Industry." Antitrust Law & Economics Review, vol. 8, no. 2, 1976, pp. 57-68.

This lack of cost-incentive will be further examined in the section on accountability. It is also important to note that POUs and COUs are capable of exhibiting monopolistic behavior as they can also be the sole provider of a specific utility within a municipality.

Reliability of Utility

Another aspect influencing municipalities' decision-making is the public interest in improving reliability. Reliability refers to the ability of a utility provider to consistently deliver safe, uninterrupted, and high-quality services to its customers. Given the frequency of storm-related power outages, many suggest municipalization of IOUs as they claim that profit-oriented utilities have a lack of incentive to prepare for storms and the power outages they cause, leading to more frequent service disruptions and outages, which can be especially problematic for critical services such as healthcare facilities and emergency response services.[30] The perceived value of electricity service by consumers is significantly influenced by the reliability of their electric utilities.[31] This finding not only supports the hypothesis that reliability is a factor in the decision to municipalize, but also expands the claim by examining reliability as one of the most crucial factors of consumer decision-making.

A common finding throughout the literature on the reliability of electric utilities is that extreme weather events have generally decreased the reliability of the U.S. power sector over time.[8, 32] Given this, it is intuitive to suggest that demands for municipalization have also increased over time as utility providers have become increasingly unreliable. Gibson et al.

[30] Boylan, Richard. “Power to the People: Does Ownership Type Influence Electricity Service ...” Chicago Journals, 2023.
[31] Sullivan, M J, et al. “Estimated Value of Service Reliability for Electric Utility Customers in the United States.” Estimated Value of Service Reliability for Electric Utility Customers in the United States (Technical Report) | OSTI.GOV, 1 June 2009.
[32] Larsen, Peter H. “Severe Weather, Power Outages, and a Decision to Improve Electric Utility Reliability,” Stanford University, United States -- California, 2016. ProQuest,

attribute the lack of reliability to the failure of IOUs to maintain their distribution lines.[33] This failure to maintain distribution lines is also a frequent finding in the literature on reliability; Boylan and Larsen also cite IOUs' neglect of infrastructure as a leading cause of the increasing unreliability of electricity in the United States.[8,10] This finding supports my hypothesis that reliability is a causal factor for municipalization because there is an apparent correlation between neglect of infrastructure at the hands of IOUs and public interest for municipalization. However, there is compelling evidence that storms actually disrupt service at a higher rate in areas served by MOUs than they do IOUs.[34] Despite this, whether or not MOUs are worse than IOUs when it comes to restoring power after storm-related outages may be beside the point as when it comes to answering the question of *why* cities convert their provider – it is more about whether or not the public *perceives* the IOU as a poor service provider and whether or not they believe an MOU model could provide stronger reliability.

Overall, the issue of reliability is widely supported by the literature. In addition, given the increased frequency of extreme weather events, I hypothesize that reliability as a causal factor is likely to hold more importance in recent decisions to convert. This hypothesis is not yet explored in the literature but is suggested by the Ann Arbor and PG&E cases.

Accountability of Utility

Crucial to the decision to municipalize an IOU is the lack of transparency and accountability within a privatized service. It is plausible that if customers had more information regarding outages and why they occur, they would be more willing to accept these outages as a natural process of utility service. Given IOUs are only accountable to their shareholders—and are thus primarily concerned with maximizing profit in order to secure continued investment and

[33] Gibson et al., Peters. "Transmission Line Reliability: Climate Change and Extreme Weather ..." ASCE Library, 2023.
[34] Boylan. Ibid.

satisfy their shareholders—the desire of a community to have a say in the decision-making process behind their utility is a desire that is commonplace within democratic regimes. From a theoretical perspective, the political economics of public sector governance examines the intersection between the actions of government and the preferences of constituents as expressed through their elected representatives.[35] This framing gives insight into the role constituents play in the actions of their representatives. Given this, it could be suggested that efforts to convert from IOUs to MOUs often take form via grassroots movements. The examined cases predominately support this claim, as the initial demand for a public takeover often comes from the ratepayers themselves.

Lack of accountability is an overarching cause for the multiple factors that drive the decision to municipalize. This can lead to issues such as pricing disparities,[36] service interruptions,[37] and inaction on community preferences over environmental regulation, which can, in turn, catalyze municipalities to explore other options such as public or cooperative ownership.[38] Although some of this research focuses on the water utility industry, it contrasts private ownership with a model of regulation, and there are frequent overlaps between the water and electricity industries. In the case of PG&E, multiple wildfire incidents have subsequently sparked public outcry and led to debates around the reliability and safety of investor-owned utilities. Regarding water utilities, the crisis in Flint, Michigan, serves as a stark example, igniting widespread public concern about the safety and dependability of water services following the discovery of elevated lead concentrations and an outbreak of Legionnaires' disease.

[35] Bertelli, Anthony. “Conclusion.” The Political Economy of Public Sector Governance, Cambridge University Press, Cambridge, 2012, pp. 166–172.
[36] Kwoka. Ibid.
[37] Boylan. Ibid.
[38] Beecher, Janice A. "Privatization, monopoly, and structured competition in the water industry: Is there a role for regulation." Journal of Contemporary Water Research and Education 117.1 (2000): 3.

As mentioned above, electric utilities have historically existed as monopolies in which very little competition or incentive exists to advance consumer interests.[39] However, whether or not monopolies in the electric utility industry are "natural" (or not) does not take away from the public's perception of the existence of a monopoly, which can ultimately play a factor in a municipality's decision to convert. For example, the recent push by A2P2 to convert Ann Arbor, Michigan's electric utility provider to a MOU is partially due to the movement's perception of DTE as a monopoly. Given this, the existence of a monopoly, natural or not, is still worth considering when determining why a city chose or attempted to convert their utility provider.

Sustainability of Utility

In tandem with the factor of accountability exists the unsustainable burning of fossil fuels used to generate electricity. Given cost is often one of the most cited reasons for the municipalization of electric utilities within the literature, it is reasonable to expect that the cost of electricity could be the primary causal factor influencing the decision to undergo municipalization. However, the growing influence of factors outside of cost—specifically public demand to address climate change—is likely to play a more significant role in recent cases, given the growing influence of politics surrounding climate change on public policy. The literature suggests that sustainability, or lack thereof, is an important consideration in the decision to publicize. This includes considerations such as the environmental impact of energy generation, the use of renewable resources, and the adoption of new technologies to reduce energy consumption and waste.[40] It is also plausible that communities with differing political compositions have differing interest levels in sustainability issues. For example, in the cases of

[39] Gegax, Douglas, and Kenneth Nowotny. "Competition and the Electric Utility Industry: An Evaluation." Yale Journal on Regulation, vol. 10, no. 1, Winter 1993, pp. 63-88.
[40] Wenderlich, Michelle C. Climate Municipalism: Attempts for Politics and Commons through Energy Municipalization Campaigns in Berlin and Minneapolis, Clark University, United States -- Massachusetts, 2021.

Ann Arbor and Boulder, which are predominantly Democrat, sustainability is a key aspect of why they began conversion efforts. On the other hand, areas with conservative voting records may not be as concerned with sustainability as it does not fit into their political radar to the same degree it does with those on the other end of the spectrum.

As the effects of climate change become more apparent, community preferences for sustainability have grown, and thus demands to hold IOUs accountable for their impact on climate change have subsequently grown. Advocates of MOUs ascertain that municipalization can allow local communities to take control of their energy provider and make decisions about what sources to use to generate electricity which would be of substantial interest to communities highly concerned with climate change.[41] While the focus here is on electricity, a similar trend is observed in water utilities, especially as water becomes scarce. Communities are increasingly interested in sustainable water management practices and are seeking more control over their water sources.[42] Thus, it could be suggested that water utilities can similarly empower communities to make decisions about water sourcing, treatment, and distribution, aligning with their sustainability goals and addressing concerns about water scarcity.

Furthermore, it also allows for local-scale applications of renewable energy that would not be possible under IOUs.[43] Applying this to why municipalities choose to convert their utility provider, public pressure on government officials to adopt sustainable forms of energy production, as some scholars suggest, leads to two mechanisms: regulate or municipalize.[16] A further study has suggested that regulation has failed to achieve the desired outcome of meaningful carbon emissions reductions so a complete overhaul of the utility provider is

[41] "Public Power." American Public Power Association, 2024.
[42] Cosgrove, William, and Daniel Loucks. "Water Management: Current and Future Challenges and Research ..." Agupubs.org, June 20, 2015.
[43] Ambort, Lilli. "Utility Municipalization: Empowered by the People, for the People." Institute on the Environment, 27 Oct. 2020.

required.[13] Supported by the literature, municipalization stands as a primary alternative to the regulation of IOUs. However, I would disagree with the claim by Bertelli that a complete overhaul of electric utilities is required to achieve sustainability goals as more stringent regulations could also have the potential to achieve the desired outcome of sustainability, or more specifically, to reduce greenhouse gas emissions (GHG) to meet carbon-neutrality agreements. Additionally, if the utility responds proactively to public pressure to utilize more sustainable energy sources, it might obviate the desire for a public takeover. The Boulder case effectively supports this assertion.

Another determinant of why IOUs are often unreliable in terms of reducing GHG emissions is that IOUs may prioritize short-term profits over long-term considerations of environmental and social impacts.[44] This comes into play within the cases of Ann Arbor, Boulder, and Decorah, as these cases revolve around frustration with the incumbent IOU for not doing enough to address their GHG emissions. Ultimately, the building of wind farms and solar arrays is extremely capital-intensive and it is in the interest of IOUs and their shareholders to prolong the lifespan of their existing traditional generation plants (e.g., coal power plants) to maximize profits.[45] This intersection between sustainability and accountability is once again apparent as ultimately, to achieve sustainable production of electricity, utility providers must have some level of public accountability. The increasing role of public pressure concerning climate change on decisions to convert has been referred to as "climate municipalism".[18] This can partially be attributed to the ability of MOUs and COUs to deploy local-scale renewable energy technologies compared to the centralized generation prevalent in most IOUs. Given IOUs have historically lacked incentives to invest in renewable or "clean" forms of energy production,

[44] Ibid.
[45] Gowrisankaran, Gautaum, Ashley Langer, and Mar Reguant. "Energy Transitions in Regulated Markets." Mar Reguant · Research page, 2024.

it is apparent that transitioning to renewable energy is a costly endeavor, and MOUs as well as COUs also have poor incentives to invest in alternative forms of electricity generation outside of meeting community preferences. However, given utility-scale solar and wind are *currently* cheaper than other forms of energy generation (e.g., coal and natural gas),[46] the incentives for both IOUs and MOUs to invest in renewables have grown considerably, especially considering the passage of the Inflation Reduction Act (IRA).

The roles of interest groups in the decision to municipalize

While more environmentally focused organizations or constituencies may promote municipalization as a means to advance renewable energy sources and reduce greenhouse gas emissions, advocates of ratepayers might advocate based on affordability and reliability. Contrary to these interest groups exist the interest groups surrounding IOUs. These groups take form under industry associations, business groups, and other special interest assemblies funded by IOUs and their shareholders. Similarly, IOU interest groups often claim that municipalizing electricity utilities would lead to increased electricity rates and decreased reliability.[5] Despite that this claim is not supported by data, especially in regard to electricity rates,[8] these talking points of interest groups can often play an outsized role in the decision-making process.

Ultimately, given the prominence and power of special interests in American politics, the literature suggests that these groups can play a major role in the decision to municipalize utility services, as they can mobilize support or opposition to the idea. Given their influence, it is important to take into consideration the significant influence of interest groups on efforts to municipalize the electric power sector. While it is undeniable that lobbying is a powerful force in political decision-making, there is an apparent absence within the literature regarding the role of

[46] "Renewables: Cheapest Form of Power." United Nations. Accessed December 8, 2023.

lobbying expenditures on decisions to convert. Further research will need to be done in order to determine the role of lobbying organizations in political decisions to municipalize.

Further Alternative Explanations

Although some intuitive explanations of political ideology and local circumstances may exist, the current literature on this topic has little to say about the influence of factors of political ideology on decisions to convert utility providers. Gradus and Budding state that political party affiliation can shape preferences over municipalization and privatization.[47] However, the study was done in the Netherlands and there lies a major discrepancy between the political climate of the United States compared to that of the prior. Nonetheless, there is a general trend of traditionally left-leaning municipalities to advocate for public power in the US (e.g., Boulder, CO, and Ann Arbor, MI). With that being said, cities with a sizable Republican population have also municipalized or considered to convert (e.g., Winter Park, FL). However, even Winter Park is primarily left-leaning.[48]

Another alternative explanation pertains to local circumstances. Conditions such as the size and geography of the municipality can also influence decision-making for elected officials. For example, cities that are considering converting from an IOU to an MOU usually deploy a feasibility study in which a cost-benefit analysis is deployed in order to determine the economic cost of undergoing a transition to a new form of utility organization.[10] It should be noted that smaller, rural municipalities have a lower tax base which it makes more difficult to leverage taxpayer dollars to fund such a project. Furthermore, the size and skill of the localities' workforce are also important to consider as smaller municipalities are less likely to have citizens with the technical knowledge required to build and operate the necessary infrastructure. Lack of demand

[47] Gradus, R., & Budding, T., Political and Institutional Explanations for Increasing Re-municipalization. Urban Affairs Review, 56(2), 2020, p. 538-564.
[48] "U.S. Census Bureau Quickfacts: Winter Park City, Florida." census.gov, 2022.

can also play a role in the decision-making process as it can be difficult to justify the expense of municipalization.

These alternative explanations are supported by multiple findings previously stated in the literature review.[10,19] I agree that the size of the tax base and the skill of the workforce of a municipality are important considerations when comparing across municipalities. It is necessary to account for these variables in order to ensure that the municipalities that are being compared have similar demographics. Upon this finding, it is important to note that much of the existing literature does not take into account demographic differences when comparing across cases. Given this, an area of interest emerges when pondering how dominant political ideology can contribute to the willingness of a city to pay a significant amount to acquire the IOU's infrastructure.

Implications

Despite the proposed benefits of MOUs and COUs, there are a number of implications to take into consideration in regard to the general process of municipalization. Among these reasons are higher initial costs, reduced investor confidence, and thus limited access to capital.[49] In part due to economies of scale, it can be easier for a state-wide or region-wide utility (e.g., DTE) to maintain and invest in necessary infrastructure than it would be for a small-scale municipality. In order for a city to pay for these costs, higher tax rates can be levied on citizens resulting in any potential saving from decreased utility costs being undermined by an increase in taxes.[50] Given taxation is a central aspect of American politics, I agree with the assertion that increased taxes

[49] Daniel, David, and Douglas Gegax. "A Cautionary Tale on Municipalization." Forum for Applied Research and Public Policy, vol. 15, no. 2, summer 2000, p. 49.
[50] Albalate, D., Bel, G., Gradus, R., & Reeves, E. Re-municipalization of local public services: incidence, causes and prospects. International Review of Administrative Sciences, 87(3), 2021, p. 419-424.

such as a property tax could prevent citizens from supporting a proposal to municipalize and thus serve to partially explain why certain cities do not go through with the conversion process.

Although these implications are supported by the literature, the actual realization of these concerns does not always come to fruition as municipalities have the ability, like IOUs, to seek investments and earn government subsidies in order to ensure additional costs are not levied on the consumers themselves. However, it is clear that municipalization—as a process—is no easy undertaking as political interference can be a major obstacle to publicization as reflected in the section on the role of interest groups.

Summary of Literature

Upon synthesis of the academic literature regarding the causal factors behind municipalization, there have been significant contributions that have served to develop a collective understanding of variation among ownership types with respect to utilities. Notable takeaways emerge from academics such as John Kwoka Jr., who served to explain the cost variation between forms of ownership within the electric utility industry. According to Kwoka, a great deal of the average difference in the price of electricity can be explained by the tax-exemption status of MOUs. Another important contribution comes from Richard Boylan who explains the discrepancies of reliability between ownership types and notes that goals for advocates of municipalization are lowering electricity rates and using more renewable energy.

In lieu of these contributions by these respective authors, an in-depth analysis of the causal factors underlying conversion from IOUs to MOUs is an area of study with sparse evidence, both empirical and qualitative. The qualitative aspect is necessary when attempting to answer *why* cities choose to convert their utility provider. Given this, the overarching purpose of this study is to delineate the prevailing factors in order to determine which holds more weight in

the decision-making process. While previous works have been centered around ownership types and their limitations, this thesis uses such work as a foundation to build off of and later expand into analyzing why these conversions take place, to begin with, and then determine whether or not the respective MOUs actually achieve what they set out to achieve during their inception, provided data availability.

Ultimately, in tandem with my hypothesis, the literature suggests that cost and reliability are the primary factors that customers of electric utilities tend to care the most about. This finding is substantiated within the cases of the Oregon PUDs, Long Island, Decorah, Winter Park, and Ann Arbor. However, little attention has been paid to the role of community preferences regarding the environment. This factor is underscored in the Ann Arbor, Boulder, Decorah, and Long Island cases. Accountability, while identified as a significant factor, is closely intertwined with other contributors to community dissatisfaction. It appears that the community's demand for increased accountability stems from dissatisfaction with other aspects of service. Therefore, it is not an isolated factor but rather part of a broader set of concerns.

Underlying Theory

As was covered in the literature review section, the theory underlying the conversion of cities from IOUs to POUs is rooted in these factors: cost of electricity, reliability of service, desire for local governance, or the ability to have a say in the decision-making process, and community preferences for environmental stewardship and sustainability.

Figure 3*: *Hypotheses for Factors Influencing or Preventing Municipalization

Political Hypotheses	Economic Hypotheses	Environmental Hypotheses
H1: If a city is more liberal, then support for public power goes up. H2: If residents have a higher level of trust in local government, then they are more likely to pursue municipalization.	H3: If electricity rates are perceived to be high, then support for municipalization increases. H4: If service reliability is perceived to be poor, then constituents will be more likely to support conversion. H5: If the IOU is perceived to be adequately investing and maintaining infrastructure to improve reliability and/or increase resiliency, then support for municipalization decreases.	H6: If a city is more environmentally conscious, or perceives their utility to not be doing enough to address climate change, then support for municipalization increases. H7: If the IOU is perceived to be adequately investing in renewable energy infrastructure to meet or exceed renewable energy goals, then support for municipalization decreases.

Encapsulated within this theoretical framework are seven hypotheses, each delving into different realms of political, economic, and environmental considerations that potentially sway public opinion and action towards a publicly controlled utility model.

H1 posits that cities with more liberal populations tend to exhibit greater support for public power, likely due to the association of public ownership with the promotion of communal welfare and equity. Similarly, trust in local governance plays a substantial role, as seen in H2, where increased confidence in municipal government correlates with the pursuit of local utility control.[51] Economic factors are examined in H3 and H4, where high electricity rates and poor service reliability feed the support for municipalization.[52,53] These hypotheses recognize that

[51] Bertelli, Anthony. “Conclusion.” The Political Economy of Public Sector Governance, Cambridge University Press, Cambridge, 2012, pp. 166–172.
[52] Gegax, Douglas, and Kenneth Nowotny. "Competition and the Electric Utility Industry: An Evaluation." Yale Journal on Regulation, vol. 10, no. 1, Winter 1993, pp. 63-88.
[53] Boylan, Richard. “Power to the People: Does Ownership Type Influence Electricity Service ...” Chicago Journals, 2023.

economic dissatisfaction is often a catalyst for change. H5 suggests that if an IOU is viewed as sufficiently investing in and maintaining infrastructure—thereby improving reliability and resiliency—community support for taking over the utility decreases. Trust in the existing provider's commitment to infrastructure reflects a satisfaction that can reduce the desire for change.

The environmental element lies at the heart of H6 and H7. An environmentally conscious city, or one that perceives its IOU to be underperforming in climate change mitigation efforts, is more likely to support a shift towards municipalization (H6). This is predicated on the belief that local control can better align utility practices with communal environmental objectives. In contrast, if the IOU is deemed to be making substantial investments in renewable energy and meeting environmental goals, the impetus for municipalization is likely diminished (H7), as the environmental needs of the community are being addressed under current management.

Together, these hypotheses frame an argument that municipalization is influenced by a confluence of political beliefs, economic assessments, and environmental priorities. By scrutinizing these factors, we can understand the complex motivations behind communities advocating for or resisting the move towards public utility ownership. The change reflects not just a simple preference, but a collective judgment on the effectiveness and alignment of their current utility's practices with the community's broader social, economic, and environmental goals.

Methodology

Case Selection & Data Collection

In studying efforts to municipalize from the 1970s to the present, selecting appropriate cases for analysis is crucial to understanding the multifaceted nature of this phenomenon.

I chose to begin my study in the 1970s because this decade marked a significant increase in public awareness of environmental issues, exemplified by the inaugural Earth Day celebration. Moreover, the 1970s serve as a practical starting point, as it represents the earliest period for which information was provided by the American Public Power Association.

Additionally, the following cases were selected to highlight the progression in the reasoning behind efforts to municipalize. The selection process aimed to account for geographical diversity, varying degrees of success, relevant factors influencing municipalization efforts, and accessibility of data and information.

This combination of cases allows me to investigate the relevance of factors influencing municipalization efforts. The selected cases provide insights into the complex interplay of factors shaping the trajectory of municipalization initiatives. Moreover, by accounting for diverse geographical contexts, including urban, suburban, and rural areas across the United States, the study aims to provide insight into how different regions with varying community preferences can affect the decision to convert. Cases are selected from different regions, such as the Northwest, Midwest, Rocky Mountains, and the South, to capture regional variations in municipalization dynamics, should they exist.

Municipalization efforts exhibit variability in terms of success and outcome. The following cases are selected to reflect a range of outcomes, including instances of successful conversion (e.g., Winter Park), failed attempts (e.g., Boulder), and ongoing initiatives (e.g., Ann Arbor). By examining cases with different trajectories, the study seeks to identify factors contributing to the success or hindering progress in municipalization efforts.

Regarding data collection, it became apparent that many utilities, especially those with low customer counts, do not report to the primary publicly available database on utility costs and

revenues, the Energy Information Administration's Annual Electric Utility Industry Report (Form EIA-861).[54] Moreover, many cases that were considered for this study lacked comprehensive documentation, making it challenging to reconstruct the sequence of events, decision-making processes, and outcomes associated with these events. Due to these data-collection issues, cases with well-documented histories and comprehensive data are prioritized to facilitate the accuracy of analysis and conclusions.

In documenting each case, I employ a range of sources to ensure comprehensive analysis. Census data and a report from the Department of Energy and Environment provide community statistics. For utility statistics, I refer to the latter report for overlapping cases and to Form EIA-861 for details on customer counts and electricity sales across the residential, commercial, and industrial sectors. "Nexus Uni," the historical database, supplies documents relevant to the cost of infrastructure acquisition and the establishment dates for the PUD cases, as well as for the Long Island and Winter Park cases. Official perspectives on the reasons for each utility's formation, its establishment timeline, and acquisition expenses are provided by utility and city websites. National and local newspaper articles offer additional insights into the motivations behind the formation or lack thereof of a utility, while statements from the IOU not only confirm these factors but also present alternative viewpoints.

Case Studies

This section presents an insightful examination of case studies encompassing diverse geographical locations and distinctive contexts, highlighting the efforts and outcomes of municipalization endeavors in several cities across the United States. Each case study—Emerald,

[54] "U.S. Energy Information Administration - EIA - Independent Statistics and Analysis." Annual Electric Power Industry Report, Form EIA-861 detailed data files. Accessed March 12, 2024.

Columbia River, Long Island, Winter Park, Boulder, Decorah, and Ann Arbor—offers a lens into the complexities, challenges, and successes encountered in the pursuit of municipalizing electric utilities. The cases are presented chronologically to reflect the shift in the reasoning behind municipalization efforts throughout the last fifty years.

Emerald People's Utility District, OR

Figure 4: Emerald PUD Utility Statistics[55, 56]

Governance Structure	Utility Board, Elected
IOU Service Territory	572 sq. mi.
Year Municipalized/Effort Began	1970/1983
Estimated Number of Customers[57]	22,655
Percent of Residential Customers	87%
Percent of Commercial and Industrial Customers	13%
Annual Electric Sales (MWh)	487,505
Percent Residential Sales	60%
Percent Commercial and Industrial Sales	40%

In the early 1970s, residents of rural Lane County, Oregon, paid twice as much as other county residents who MOUs were serving. Given the outsized rates, a group of residents came together to discuss the possibility of purchasing the electric system from Pacific Power and Light (PPL), an investor-owned utility company. However, the system was deemed "not for sale," and many legal battles ensued over the acquisition of PPL's infrastructure. 13 years and 14 lawsuits

[55] "Service Territory." Emerald People's Utility District, 2024.
[56] "Annual Electric Power Industry Report (861 Data File)." U.S. Energy Information Administration, 2021.
[57] "Customers" refers to the number of customer-meters served. The population served would be some multiple of this number.

later, PPL agreed to negotiate, and a purchase agreement of $26 million was decided. Four months later, the switchover was complete and Emerald People's Utility District (EPUD) was designated as an official operating utility.[58] Today, the MOU is responsible for providing electric service to 22,655 meters, of which most are residential.[59]

The goal of EPUD was to provide "better, consumer-oriented service, at lower rates."[60] In a 1984 report, the utility had achieved rates that were 5 percent lower than they were charged by PPL.[61] According to data extracted from EIA Form-861, in 2021 the utility charged an average of ~$.105 per kilowatt-hour (kWh), and PacifiCorp, the former IOU, also charged an average of ~$.104 per kWh. These rates, which are considerably lower than the national average, can largely be explained by the sheer abundance of hydroelectric power capacity within the Pacific Northwest. In the case of EPUD, they currently purchase 60-75 percent of their electricity from the Bonneville Power Administration which sources its power from federal dams on the Columbia River.[62]

In addition, the utility has supported regional renewable energy projects through the "Giving Renewable Energy to Emerald Neighborhoods" (GREEN) Grant program, assisting with five local renewable energy projects. This program provides the chance "to win up to $40,000 for the construction of new, non-residential, renewable energy projects."[63] For customers who want to invest in renewable energy development, EPUD offers to purchase 50% or 100% of the energy they consume via Renewable Energy Credits (RECs) from clean energy sources. Furthermore, to meet the growing consumer demand for solar energy, EPUD started a community solar project in

[58] "History." Emerald People's Utility District, March 6, 2017.
[59] American Public Power Association., 2022.
[60] Ibid.
[61] "PACIFIC-POWER; Sells electric distribution system to the Emerald People's Utility District for $25 million". Business Wire. November 18, 1984.
[62] "Power Generation." Emerald People's Utility District, April 26, 2015.
[63] "Renewable Energy Program." Emerald People's Utility District, April 26, 2015.

2016, giving the opportunity for residents to buy into an off-site array in which customer benefits from energy generated by solar panels are distributed to the respective stakeholders. This program is intended for customers who cannot afford their own solar system or who do not have access to an ideal amount of sunlight.[64] For customers who do own their system, EPUD provides a credit to be used towards future bills when the panels produce more energy than the home consumes.[65] EPUD's generation mix and the variety of renewable energy programs they provide aim to meet growing customer preferences for sustainably derived energy.

Ultimately, under PPL, consumers were reluctantly paying high electricity bills, which led to community interest in developing an MOU after realizing that nearby MOUs provided a cheaper alternative. Therefore, *cost* played the largest role in the decision-making process. However, it is important to note that demand for public accountability also contributed to the conversion as the forming coalition of EPUD set out to provide "consumer-oriented service"[25] and "a say in the future of their power company."[66] This indicates that, beyond cost concerns, there was a desire for a more participatory and accountable utility structure as well as a broader theme of consumer empowerment. Therefore, the community's interest in the MOU appears to be shaped not only by economic considerations but also by a desire for greater control and accountability.

[64] "Solar Programs." Emerald People's Utility District, February 16, 2021.
[65] Ibid.
[66] "Emerald PUD 30 Year Anniversary." EmeraldPUD, November 14th, 2023.

Columbia River People's Utility District, OR

Figure 5: Columbia River PUD Utility Statistics[67][68]

Governance Structure	Utility Board, Elected
IOU Service Territory	240 sq. mi.
Year Municipalized/Effort Began	1984/1970
Estimated Number of Customers	16,948
Percent of Residential Customers	94%
Percent of Commercial and Industrial Customers	6%
Annual Electric Sales (MWh)	494,257
Percent Residential Sales	47%
Percent Commercial and Industrial Sales	53%

As was a contributing factor in the EPUD case, in the 1970s, the global economy experienced dramatic price shocks in crude oil and other petroleum-based products. As a result, nearly every facet of the economy was impacted, and the electric utility industry was no exception. This era is often referred to as the 1970s energy crisis, forcing Portland General Electric (PGE) to levy triple-digit price increases on their customers. Due to these increases, residents of Columbia County voted to fund a feasibility study that would determine if the purchase of PGE's distribution infrastructure inside Columbia River PUD's (CRPUD) boundaries.[69] The study concluded that the PUD would be able to lower rates.[70] Similar to EPUD, CRPUD benefits from its close proximity to the Federal Columbia River Power System. Upon this, the respective stakeholders (i.e., ratepayers) would then approve a $17 million bond

[67] "PUD Service Area." Columbia River PUD, 2024.
[68] "Annual Electric Power Industry Report (861 Data File),." U.S. Energy Information Administration, 2021.
[69] Columbia River People's Util. v. Portland Elect., 40 F. Supp. 2d 1152 (D. Or. 1999)
[70] "PUD History." Columbia River PUD. Accessed January 30, 2024.

measure to acquire the distribution assets from PGE. Despite existing as a PUD since 1940, CRPUD officially came online in 1984 and began supplying electric service to 6,500 meters.[71]

Ultimately, the pivotal factor driving the decision to convert was the cost of electricity supplied by PGE. This aligns with the hypothesis that historical municipalization efforts were primarily motivated by cost considerations.

Long Island Power Authority, NY

Figure 6: Long Island Community Statistics[72]

Population	2,854,083
Land Area	1,197 sq. mi.
Population Density Characterization	Urban, Suburban
Median Age	41 years
Median Household Income	$94,064

Figure 7: Long Island Utility Statistics[73]

Governance Structure	Utility Board, Appointed
IOU Service Territory	LILCO
Year Municipalized/Effort Began	1998/1986
Estimated Number of Customers	1,119,104
Percent of Residential Customers	90%
Percent of Commercial and Industrial Customers	10%
Annual Electric Sales (MWh)	19,925,438
Percent Residential Sales	48%

[71] Columbia River People's Util. v. Portland Elect., 40 F. Supp. 2d 1152 (D. Or. 1999)
[72] "An Analysis of Municipalization and Related Utility Practices." DOEE, 2017.
[73] Ibid.

Percent Commercial and Industrial Sales	52%

Following the 1979 Three Mile Island accident and the 1986 Chernobyl disaster, which fundamentally shifted public trust in nuclear power as a safe and reliable form of energy generation, immense public opposition to the Shoreham Nuclear Power Plant (built by the Long Island Lighting Company (LILCO)) ensued via numerous protests; as a result, not enough local communities would sign on to the proposed evacuation plan – in the event of a nuclear disaster – for the plant to ever be able to produce electricity.[74] Part of the concern by protesters was the plant's proximity to highly populated municipalities, making a potential accident extremely hazardous for the millions of citizens that live in the surrounding area. Ultimately, LILCO's existing financial troubles were exacerbated by the inability to generate revenue from the Shoreham plant due to it never going into operation and generating electricity.[75]

As a result of LILCOs near bankruptcy in the mid-1980s due to Shoreham, the IOU continuously raised rates on consumers. Broad public support for municipalization occurred and the Long Island Power Authority (LIPA) was created in 1985 by the New York Legislature under the Long Island Power Authority Act. In 1989, the newly formed utility absorbed the massive amount of debt of LILCO by purchasing the Shoreham plant for $1 and incurring $6 billion of debt.[76,77] LILCO continued to provide electricity to Long Island but the debt was refinanced by LIPA to keep the firm afloat. However, by 1998 Long Island ratepayers were still paying high utility bills, and the State was forced to acquire LILCO’s infrastructure for a price of $6.7 billion.[78]

[74] “History of the Long Island Electric System.” ReimagineLIPA, October 31, 2023.
[75] Ibid.
[76] It is worth noting that massive amounts of debt are not unique to LILCO, as many utilities often have to take on extremely costly megaprojects, such as the Shoreham Plant, to meet growing baseload demand.
[77] Lambert, Bruce. “The End of Lilco, as Long Island Has Come to Know It.” The New York Times, May 28, 1998.
[78] Ibid.

However, the debt incurred by LIPA has not disappeared but instead increased from roughly $8 billion to over $9 billion.[79] In 2013, then-Governor Andrew Cuomo advocated for the full privatization of LIPA partly due to poor efforts to restore power following Hurricane Sandy, which led to the LIPA Reform Act of 2013. Today, LIPA exists as the only publicly owned and privately operated electric utility in the US. This hybrid model, combining public ownership with private operation, was established to leverage the strengths of both sectors. Today, LIPA and Public Service Electric and Gas Long Island supply power to over 1,000,000 customers.[26]

It can be stated that Long Island residents' dissatisfaction with electricity rates, in combination with the incurred debt due to the Shoreham plant, ultimately led to the conversion. However, it is important to know that while LIPA achieved initial rate reductions, financial troubles continue to plague the utility and there is an ongoing attempt to restructure the organization of the utility, once again.[80]

LIPA's formation was a response to financial difficulties, public opposition to nuclear power, and a desire for a more publicly accountable and cost-effective utility model on Long Island. Unique to this case, and a factor that has not been mentioned throughout this paper, was the impact of the financial troubles of LILCO in establishing LIPA. Furthermore, the Not In My Backyard (NIMBY) sentiment regarding the Shoreham plan—a factor that has hindered numerous nuclear projects across the United States (e.g., the Yucca Mountain Nuclear Repository)—also contributed to the establishment of the utility. This connection can be traced to community preferences regarding sustainability as the NIMBY syndrome often arises when communities express opposition to having potentially undesirable or environmentally impactful

[79] Hanley, James E. "Municipalized Lipa Won't Solve Long Islanders' Power Woes." Empire Center for Public Policy, November 15, 2022.
[80] Janis, Raymond. "LIPA and PSEGLI Wrestle for Control over Long Island's Electrical Grid." TBR News Media, September 14, 2023.

projects located in close proximity to their homes. Although the environmental issues at hand do not directly align with the hypothesis that community preferences for sustainable energy significantly impact utility takeovers, this case nonetheless lends support to the wider theory that environmental factors can influence decisions to assume control over utility providers.

Winter Park, FL

Figure 8: Winter Park Community Statistics[81]

Population	30,208
Land Area	9 sq. mi.
Population Density Characterization	Suburban
Median Age	43 years
Median Household Income	$59,405

Figure 9: Winter Park Utility Statistics[82]

Governance Structure	Utility Board, Appointed
IOU Service Territory	Progress Energy Florida
Year Municipalized/Effort Began	2005/2001
Estimated Number of Customers	14,393
Percent of Residential Customers	83%
Percent of Commercial and Industrial Customers	17%
Annual Electric Sales (MWh)	435,454
Percent Residential Sales	44%
Percent Commercial and Industrial Sales	56%

[81] "An Analysis of Municipalization and Related Utility Practices." DOEE, September 30, 2017.
[82] Ibid.

In 2001, the City of Winter Park, FL ended their 30-year service contract with Progress Energy (PE). Due to frequently occurring outages, city officials sought to improve the reliability and resiliency of service by undergrounding distribution lines.[83] However, PE refused to do so unless the costs were levied on ratepayers and sought to renew the 30-year contract with no out-clause for poor performance. This lack of local grid resiliency and poor reliability led city officials to consider purchasing utility assets as they had the option to do so under their agreement with PE. However, no city in Florida had attempted to take over since the 1940s and PE launched a litany of legal challenges and public information campaigns aimed at dissuading local interest from voting to convert. Ultimately, PE spent $523,000 to form a PAC named "Winter Park Taxpayers Against Government Owned Electric" to defeat the referendum and the city would raise and spend $50,000 with their own PAC named "Winter Park Power Options."[84]

Despite these obstacles, the city held several public forums and 69% voted in favor of the purchase. As a result, the City purchased PE's assets for $42,309,447.[85] equivalent to roughly $70 million today. While Winter Park is smaller than Ann Arbor, on a per-capita basis that would translate to about $300 million in Ann Arbor. This cost would be on the same order of magnitude as the "low" estimate from the Ann Arbor feasibility study.[86,87]

In 2005, Winter Park officially connected to the grid and began supplying power to roughly 14,000 customers. The city attributed its success to a strong City Commission, good attorneys and consultants, help from the APPA and other municipalities who have tried to do the same, an educated and involved community, and the backfiring of PE's persuasion tactics. In 2007, the City officially turned its first profit and has continued to turn a profit for years after.[87]

[83] Power lines can be put undergrounded to improve the resiliency of a grid by preventing collisions with trees or other scenarios that might cause outages.
[84] McCoy, Maria. "Institute for Local Self-Reliance." ilsr.org, 2023.
[85] Ibid.
[86] "100% Renewable Energy Pathways." a2gov.org, 2023.
[87] McCoy, Maria. "Institute for Local Self-Reliance." ilsr.org, 2023.

Regarding the effects on reliability, Winter Park has completed undergrounding a significant portion of its distribution lines and reliability has since improved. In 2014, the average outage time was diminished by 67.5% compared to that of its predecessor.[88] However, the undergrounding project has subsequently kept costs relatively high for the MOU and residents have had to shoulder the costs through voluntary rate increases.[89] Despite these rate increases, the City still sits between 2-12% below adjacent IOU rates.[90]

Ultimately, the story of Winter Park revolves around reliability. Given constituents have agreed to the tradeoff between higher rates and improved service reliability, this suggests that community preferences for the latter can take precedence over the prior. However, it is worth noting that Winter Park is a relatively affluent city, with a Median Household Income from 2018-2022 (in 2022 dollars) of $96,563 compared to Florida's total average of $67,917.[91] This indifference to marginal increases in rates might be a result of higher incomes. Overall, this case serves to provide evidence that local governments may seek to take control of their energy infrastructure to enhance grid resilience to extreme weather events, in line with the primary motive in the case of Ann Arbor.

[88] Ibid.
[89] Trabish, Herman K. "Iou, Co-Op or Muni? Experts Debate the Creation of Public Utilities." Utility Dive, September 16, 2015.
[90] Ibid.
[91] "U.S. Census Bureau Quickfacts: Winter Park City, Florida." census.gov, 2022.

Boulder, CO

Figure 10: Boulder Community Statistics[92]

Population	108,090
Land Area	25 sq. mi.
Population Density Characterization	Urban, Suburban
Median Age	28 years
Median Household Income	$58,484

Figure 11: Boulder Utility Statistics[93]

Governance Structure	Utility Board, Appointed
IOU Service Territory	Xcel Energy Colorado
Year Municipalized/Effort Began	TBD/2011
Estimated Number of Customers	47,095
Percent of Residential Customers	83%
Percent of Commercial and Industrial Customers	17%
Annual Electric Sales (MWh)	1,396,324
Percent Residential Sales	19%
Percent Commercial and Industrial Sales	81%

In 2011, residents of Boulder, Colorado set out to create their own electric utility. This demand for a MOU came due to local demand to address climate change, as citizens of Boulder were frustrated with Xcel Energy's (the incumbent IOU) slow adoption of renewable energy resources and lack of accountability.[94] However, in 2020, after a decade-long battle that has been

[92] "An Analysis of Municipalization and Related Utility Practices." DOEE, 2017.
[93] Ibid.
[94] Cardwell, Diane. "Cities Weigh Taking over from Private Utilities." The New York Times, March 14, 2013.

likened to that of "David and Goliath" and millions of taxpayer's dollars, voters agreed to halt the process of municipalization and instead, work with Xcel to shift to cleaner forms of electricity generation.[95] This decision to not go through with municipalization was due to the fact that the city had spent most of the money it allocated for fighting Xcel. According to a city council member "going to voters asking for more money on an endeavor that really wasn't making a whole lot of progress, was probably not in the cards."[96]

Outside of financial constraints, by 2019, 28 percent of the IOU's generation mix had come from renewables and the company is on pace to source 60 percent of its mix by 2030.[97] In other words, Xcel received the environmental concerns of Boulder's residents and worked effectively to address them. Ultimately, advocates for the MOU have seen this as a success as the utility has taken drastic steps to outpace state-level renewable portfolio standards. As of this writing, if the IOU fails to live up to its clean energy pledges, the city can resume the conversion process.[98]

As is apparent among the findings, the overarching reason residents of Boulder decided to explore the option of an MOU was due to community preferences for sustainably generated electricity. In other words, the community was not satisfied with the IOU's use of fossil-fuel-derived energy and demanded the company increase its use of renewables, particularly that of solar power. While this case stands as an outlier, as cost and reliability were not cited factors for the desire of conversion, it does give credence to the growing importance of community preferences surrounding sustainability in affecting community desire for a locally operated and publicly managed utility structure. Moreover, despite not achieving the intended

[95] Sakas, Michael Elizabeth. "Boulder Ends Decade Long Pursuit of City-Owned Power Utility." Colorado Public Radio, November 20, 2020.
[96] Ibid.
[97] "Corporate Responsibility Performance Summary - Xcel Energy." xcelenergy.com, 2019.
[98] "City of Boulder Says No to Xcel Energy Rate Case Settlement." City of Boulder, 2023.

outcome of conversion, this case suggests public pressure on an IOU to transition to renewables from conventional sources can impact the IOU's decision-making, potentially leading the IOU to directly address the factor(s) that sparked conversion efforts in the first place.

Decorah, IA

Figure 12: Decorah Community Statistics[99]

Population	*7,680*
Land Area	*7.21 sq. mi.*
Population Density Characterization	*Urban, Suburban*
Median Age	*34.8*
Median Household Income	*$57,939*

Figure 13: Decorah Utility Statistics[100,101]

Governance Structure	Utility Board, Appointed
IOU Service Territory	Alliant Energy Iowa
Year Municipalized/Effort Began	TBD/2017
Estimated Number of Customers	992,189
Percent of Residential Customers	85%
Percent of Commercial and Industrial Customers	15%
Annual Electric Sales (MWh)	25,409,000
Percent Residential Sales	30%
Percent Commercial and Industrial Sales	70%

[99] "U.S. Census Bureau Quickfacts: Decorah City, Iowa." census.gov. 2023.
[100] "FERC: NERC Regions and Balancing Authorities."
[101] "Customer Interconnection." Alliant Energy - Customer Interconnection, 2022.

In 2017, a group of local residents in the city of Decorah, IA, formed an organization called Decorah Power to explore the viability of forming a MOU. Among their desires in a future energy system, as stated in their report titled "A Vision Shared: Owning the Future Through a Decorah Municipal Electric Utility," were economic benefits (e.g., lowering rates and job opportunities), investments in renewable energy, and the ability to determine their future (i.e., local control). While Decorah Power eventually added economic and governing benefits to bolster their case based on constituent desires, the underlying issue behind these efforts was Alliant Energy's (the incumbent IOU) consistent refusal to advance efforts for the development of renewable energy generation sources.

The corresponding feasibility study that the city commissioned stated that forming their own utility could save customers roughly $5 million annually and allow them to immediately start shifting their generation mix to renewable technologies. Given the study supported their case to take over from the IOU, the city put it to a popular vote to gauge public support and determine if they should continue with the conversion process. However, in 2018, the proposal was rejected by a margin of only four votes (i.e., 1,384 to 1,380 against municipalization). This outcome can be partially attributed to Alliant's outspending of nearly 5-to-1 during the campaigning process, as the IOU spent more than $100,000 while Decorah Power spent less than $23,000. However, outspending by the IOU may not entirely explain why residents decided to not go through with municipalization, as is evident in the Winter Park case.

Ultimately, while this case included factors of cost, local control, and community preferences regarding the environment, the latter played the preeminent role in starting the conversion efforts. This emphasis on sustainability aligns with the hypothesis that growing public demand to address climate change is influencing municipalization efforts in various

communities. By prioritizing environmentally conscious decision-making in energy governance, communities increasingly recognize the importance of reducing carbon emissions and promoting sustainable energy systems, as is also evident in the Boulder case.

Ann Arbor, MI

Figure 14: Ann Arbor Community Statistics[102]

Population	123,872
Land Area	28.20 sq. mi.
Population Density Characterization	Urban, Suburban
Median Age	27
Median Household Income	$78,546

Figure 15: Ann Arbor Utility Statistics[103]

Governance Structure	Utility Board, Appointed
IOU Service Territory	DTE Michigan
Year Municipalized/Effort Began	TBD/2021
Estimated Number of Customers	2,244,945
Percent of Residential Customers	90%
Percent of Commercial and Industrial Customers	10%
Annual Electric Sales (MWh)	41,481,966
Percent Residential Sales	40%
Percent Commercial and Industrial Sales	60%

[102] "U.S. Census Bureau Quickfacts: Ann Arbor, Michigan." Census.gov, 2023.
[103] "Annual Electric Power Industry Report (861 Data File),." U.S. Energy Information Administration, 2021.

As was briefly covered in the introduction, residents of Ann Arbor have grown increasingly frustrated with their IOU (DTE) due to historic outages, above-average electricity rates, and a particularly "dirty" generation mix. As a result of DTE's lack of urgency in addressing these consumer concerns, the City Council voted to implement a feasibility study to better understand the cost and ability of the municipality to form their own utility. The study finds that the formation of a MOU within Ann Arbor may be feasible if the infrastructure and/or asset acquisition value is at the lower end of the $281,000,000 and $1,150,000,000 range.[104]

In conjunction with the feasibility study, the city also commissioned a public survey to gain insight into what residents hope for in a future energy system. According to the survey results, the most important elements are: 1) resilience; 2) reliability; and 3) low-cost renewable energy.[105, 106] 33% of respondents said it is "extremely important" that Ann Arbor achieves its renewable energy goal by 2030, while 11.9% of respondents said it was "extremely unimportant." However, 22.7% said that it is either "extremely" or "somewhat unimportant" that the community owns the renewable energy system and it is operated as a segment of local government, with 56.4% taking the opposite stance.[107]

[104] "100% Renewable Energy Pathways." a2gov.org, 2023.
[105] Ibid., Pg. 16.
[106] "Resilience" refers to the ability of a utility's distribution system to withstand extreme events without losing power while "reliability" refers to the ability of the utility to restore power after an outage.
[107] Ibid.

Figure 16*: *Ann Arbor Constituent Top Three Priorities in Their Energy System

Priorities:	**Percentage of Respondents:**[108]
Resilience	66.0%
Reliability	48.6%
Cost	48.0%
100% RE By 2030[109]	36.3%
Community-Owned	23.2%
City Investment[110]	19.6%
MI-Based[111]	16.9%
Replicable[112]	15.2%

Overall, 9.8% stated that renewable energy and transitioning to renewables are their top energy priorities; 15.6% are most concerned with cost and affordability; 21.2% for resilience; and only 5.7% for local control and community ownership.[113] These findings support the claim that reliability and/or resiliency and cost are top priorities for electric utility customers while also supporting the claim that community preferences for sustainability are playing a larger role in the decision to convert.

As it stands, Ann Arbor's energy options that might be implemented include continuing service with DTE+ as the primary provider, starting a Sustainable Energy Utility (SEU), and starting a MOU.[114] According to the feasibility study, DTE+ would be a continuation of DTE as

[108] The percentages don't add up to 100% because each respondent picked their top three choices. In other words, the corresponding percentages show how often each factor was chosen among those top three choices.
[109] "100% RE by 2030" refers to the City's goal of being powered by 100% renewable energy by the year 2030.
[110] "City Investment" refers to investing in renewable energy projects thay would not happen without the City's involvement.
[111] "MI-Based" refers to the desire for deriving power from Michigan-based energy sources.
[112] "Replicable" means implementing solutions that can serve as a model to other communities.
[113] "Strategic Insights from the Ann Arbor Energy Future Survey." American Pulse Research & Polling, Sept. 15, 2023. Pg. 18-19.
[114] "100% Renewable Energy Pathways." a2gov.org, 2023.

the primary provider, in addition to achieving 100% renewable energy by 2030 via the City's promotion and support of behind-the-meter systems and purchasing of RECs to offset fossil fuel emissions. Meanwhile, the SEU would function as a separate municipal utility in conjunction with DTE, expanding clean energy resources and giving customers the choice of where they get their energy.[115] The MOU would be the complete acquisition of DTE's infrastructure within Ann Arbor's boundaries and the selling of electricity provided by third-party generators to its customers.

In response to these efforts, a recent statement by DTE not only reaffirms local frustrations regarding their service but attempts to explain why continuing with their service is in Ann Arbor's best interest.[116] Within the statement, DTE stresses that they have the economic resources to actualize the City's goal of reaching 100% renewable energy by 2030. Moreover, the IOU directly addresses reliability issues by stating that they are actively working to trim trees and replace outdated infrastructure and makes the point that acquiring DTE's infrastructure and operating their own utility would come at a significant cost to the City.[117]

Notably, in addition to releasing a public statement, DTE has launched a comprehensive ad campaign publicizing its efforts to address the community's concerns. This suggests that DTE feels it is necessary to allocate its resources to assuage the concerns of its ratepayers, which speaks to their legitimacy. This is indicative of the ability of municipalization efforts to persuade IOUs to take public action to address such issues, with the potential to prevent a local government from continuing efforts, as is apparent in the Boulder case.

[115] "Ann Arbor's Sustainable Energy Utility." a2gov.org, 2021.
[116] Vicci, Gino. "Group Continues to Fight for Public Utilities in Ann Arbor." CBS News, February 12, 2024.
[117] Ibid.

Discussion and Conclusion

Ultimately, as hypothesized, the cases of Ann Arbor, Boulder, Decorah, Emerald PUD, Columbia River PUD, Winter Park, and Long Island seem to support a shift in the rationale behind municipalization efforts from 1973 to the present day. This shift involves a historical change from price being the main driver for conversion to also include a growing demand for action against climate change. A breakdown of the findings for the generalized hypotheses by each case is shown in Figure 17 below, where support for the hypotheses is denoted by a checkmark.

Figure 17*: *Case Studies and Whether or Not They Align with the Identified Factors

	H1: Cost	**H2: Reliability**	**H3: Local Control**	**H4: Environmental**
Emerald PUD	✓		✓	
Columbia River PUD	✓		✓	
Long Island	✓	✓		✓
Winter Park		✓		
Boulder				✓
Decorah			✓	✓
Ann Arbor	✓	✓		✓

H1 (i.e., cost) appears to be the most prevalent contributor to municipalization efforts. In particular, the Emerald, Columbia, and Long Island cases demonstrate high community sensitivity surrounding electricity rates which ultimately propelled the respective stakeholders to take over from the incumbent IOUs. In terms of reliability, the community's desire to address this issue seems to be increasing with the occurrence of extreme weather events. This is apparent in the cases of Ann Arbor and Winter Park where both populaces began proposing a public power

option upon the occurrence(s) of extreme weather events. While a correlation between decreased reliability and extreme weather events due to climate change can be drawn based on these results, further research is needed to explore the causal link between these variables, as suggested in previous literature. In addition, community preferences to address climate change (i.e., H4) also seem to be growing with time. While the earlier cases did not involve environmental concerns, nearly all cases from Long Island onwards did, with the exception of Winter Park. This result is contrary to the findings of past literature, which sparsely mentioned the influence of environmental factors, suggesting that more research is needed into the effects of environmental politics on municipalization efforts.

Additionally, the cases of Ann Arbor and Boulder show that public pressure to create a MOU can influence the decision-making and resource allocation of IOUs. In Boulder, public dissatisfaction with Xcel Energy's GHG emissions and their lack of renewable energy investment led the company to significantly expand its use of renewables, effectively achieving the advocates' initial goal. Similarly, in Ann Arbor, DTE Energy has substantially increased their tree trimming operations and asserts substantial infrastructure investments are being made to enhance service reliability in response to specific customer concerns, as well as preparing actively to support the city's sustainability targets. These examples lend support to the idea that public pressure can compel private companies to make significant operational changes.

It’s worth briefly mentioning a related movement towards Community Choice Aggregators (CCAs).[118] This is similar to the municipalization cases because CCAs give residents the ability to purchase electricity from a local, publicly-run entity instead of an investor-owned utility, often with the goal of providing more affordable, sustainable, and

[118] Borenstein, Severin. “Is ‘Community Choice’ Electric Supply a Solution or a Problem?” Energy Institute Blog, April 11, 2018.

locally-controlled energy options. I have not focused on these cases due to time constraints, but the dynamics I've presented should be kept in mind when analyzing the movements towards CCAs. It is important to note that while CCAs do not replace traditional IOUs as the utility still owns the distribution network and is responsible for metering and billing electricity usage, they can lead to cleaner generation mixes and cheaper rates.

In order to meet growing consumer demand for sustainably generated electricity, CCAs often set out to increase the use of renewable sources or diminish and/or eliminate purchases from sources that produce greenhouse gases such as the burning of coal and natural gas. Advocates of CCAs correctly claim that renewable technologies like solar and wind are now cheaper and more competitive with traditional forms of generation terms and also argue that IOUs do not obtain power cost-effectively due to their ability to pass costs onto consumers.[119]

In the early 2000s, alongside Community Choice Aggregations (CCAs) empowering local renewable energy production, states introduced Renewable Portfolio Standards (RPS) to ensure a set portion of electricity is sourced from renewables due to environmental concerns. These standards vary by state in terms of targets, qualifying energy types, and affected utilities. For instance, Colorado's RPS, set in 2004, required investor-owned utilities (IOUs) to reach 30% renewables by 2020, with smaller utilities aiming for 10-20%. Additionally, larger Colorado utilities are tasked with achieving 100% clean energy by 2050. On the other hand, Indiana's 2011 voluntary goal aims for just 10% renewables by 2025 and includes clean coal and methane as renewables.[120] However, due to the unpredictable nature of wind and solar energy output—known as intermittency[121]—utilities face challenges when integrating these renewable

[119] Ibid.
[120] "Brief State Renewable Portfolio Standards and Goals." National Conference of State Legislatures, 2021.
[121] "Intermittency" refers to the problem that occurs when cloud coverage and/or lack of wind prevents the corresponding energy systems from operating cost-effectively.

sources consistently. RECs are thus utilized to facilitate the support and accounting of renewable electricity generation, allowing for flexibility amidst differences in renewable energy potentials across states.

As it relates to this paper, areas of future research could not only focus on what explains the variance between state-level RPS but whether or not these variances can impact a community's decision to municipalize. As was seen in Boulder, residents opted against municipalization primarily due to Xcel's rapid adoption of renewable energy systems, surpassing Colorado's RPS at the time. Moreover, Michigan recently passed Senate Bill 271, which expanded the State's RPS to 60% by 2035 and 100% by 2040.[122] As the case of Ann Arbor continues to develop, provided clean energy is among the primary reasons municipalization efforts are underway, Senate Bill 271 could hold the potential to prevent the conversion as DTE will be forced to dramatically expedite its transition toward renewable energy sources.[123]

Future Policy Considerations

As a long-established method of utility governance, municipalization allows communities to directly manage their energy services. However, it's important to consider alternative regulatory frameworks that could offer more effective solutions and potentially preclude the need for public takeovers of IOUs.

In terms of cost, utilities recoup their investment expenses through electricity rates that yield returns on debt financing and equity.[124] However, Stephen Jarvis, a professor at the London School of Economics, argues that US rates of return do not reflect historical changes in capital markets and the current average return rate can be up to four percent higher than it would be if

[122] "Michigan Becomes a National Leader in Climate Action with New Legislation, Making Progress on the Goals of the Mi Healthy Climate Plan." State of Michigan, November 28, 2023.
[123] Future research should also take into account the roles of franchise agreements between cities and utilities and state laws regarding municipalization as they could serve as barriers to conversion.
[124] Jarvis, Stephen. "Rate of Return Regulation Revisited." Grantham Research Institute on climate change and the environment, February 8, 2022.

they followed market trends, ultimately costing consumers $2-8 billion per year.[125] In other words, Jarvis is suggesting that current utility rates are higher than necessary for utilities to cover their costs and attract investors, indicating that utilities may be making more profit than is justified by market conditions. Therefore, PUCs could reevaluate the rates of return they approve for IOUs and lower them if they are higher than what is needed for covering costs and sustaining investor interest and confidence.

Regarding reliability, utilities need to constantly maintain their distribution infrastructure to prevent outages. This often involves trimming and/or cutting down trees that are at risk of colliding with power lines. However, regulations can vary from state to state and PUCs do not always have the enforcement capacity to accurately monitor a utility's infrastructure. PUCs could have stronger enforcement of utility power line maintenance in conjunction with greater input from public proceedings to ensure that utilities prioritize reliability and safety. This could include increasing regular inspections and audits of power lines, as well as penalties for non-compliance. Additionally, involving the public in decision-making processes regarding power line maintenance can help utilities better understand and address community concerns, ultimately leading to a more reliable and resilient electric grid while simultaneously increasing decision-making transparency.

Given community preferences for renewable energy are a growing reason communities are considering municipalization, a federal RPS could be set to reflect the nation's goal of being 100% carbon-neutral by 2050. Moreover, states could have more stringent RPS requirements, compelling utilities to significantly increase their use of renewable energy. This approach could serve as an alternative to municipalization if the community is primarily concerned with

[125] Ibid.

environmental sustainability, as utilities would be forced to transition to renewable energy sources while remaining under private ownership.

While none of these considerations stand as comprehensive policy proposals, such ideas are ripe for further discussion and research. Future policy deliberations should explore these mechanisms, assessing their ability to improve energy reliability, cost, sustainability goals, and transparency.

Conclusion

Ultimately, this research contributes to the literature on municipalization efforts and the differences between public and private provision of electric utility services. Future research into this subject should include a broader array of cases, such as those with lower customer counts. Cases with promising potential include but are not limited to: Jefferson County, Washington; Messana, New York; Lassen, California; Clyde, Ohio; Santa Clara, Utah; Washington, Utah; Williams, Arizona; Needles, California; Trinity County, California; and Page, Arizona.[126] Including cases that possess more political, socioeconomic, and geographic diversity in future research would serve to improve the explanatory power of the outlined hypotheses. With this being said, this research provides a framework for future analyses and stands as an original effort to identify the factors motivating municipalization efforts throughout the last fifty years. The results of this analysis suggest a pivot from community concerns primarily surrounding cost to the inclusion of environmental concerns revolving around grid reliability and renewable energy. To enhance the quality of electric utility services effectively, it is imperative that communities actively engage in holding their utility providers accountable by focusing on improving service reliability, affordability, and sustainability, even when faced with competing interests that may hinder meaningful progress.

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