ROADMAP to

CLEAN & EQUITABLE POWER

in MICHIGAN

UNIVERSITY OF MICHIGAN

Law School Problem Solving Initiative
Winter 2024 Course

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U-M Law School Problem Solving Initiative Class, Winter 2024

Executive Summary

The state of Michigan has recently adopted some of the most progressive clean energy policies in the nation - including Governor Gretchen Whitmer's MI Healthy Climate Plan and a new set of energy laws – in an effort to address climate change, affordability, grid reliability, and energy injustice. Despite some impressive goals and benchmarks, our laws and policies are proving inadequate to solve our energy problems, given a spiraling climate crisis, increasing energy consumer demand, rapidly increasing costs, and decreasing grid reliability.

Through the University of Michigan Law School's Problem Solving Initiative (PSI), a multi-disciplinary series of courses designed to teach how to solve real-world problems with real-world solutions for non-University partners, 20 U-M graduate students produced a roadmap to clean and equitable power in Michigan that stakeholders can use to assess the new policies, procedures, and programs that our state needs to address climate change, energy affordability, reliability, and energy justice. We assessed the prospects and implications for these options with short-term political feasibility outside of our scope.

This roadmap examines alternatives to the traditional Investor-Owned Utility (IOU) model for providing the state of Michigan electricity, assessing the four options against climate, energy justice, reliability, and affordability goals. The four options are:

- Reforming the Michigan Public Service Commission's (MPSC) authority, authorizing legislation, and rules overseeing IOUs, focusing on those that alter IOU incentive structures;
- Taking over existing IOUs to create a statewide public power authority;
- Creating municipally-owned utilities to replace IOUs at the local level.; and
- Utilizing Sustainable Energy Utilities (SEUs) to provide a municipal utility alternative that works alongside (and can compete with) the existing IOUs.

The following executive summaries provide a broad overview of each proposed alternative, the analytical scope and key considerations of each assessment, and an introduction to the most salient findings.

Introducing Each Alternative Pathway

Michigan Public Service Commission (MPSC) Reform

The Michigan Public Service Commission (MPSC) oversees public utilities in Michigan, including electric utilities. Recent legislative reforms in 2023 have expanded the MPSC's authority, particularly in renewables siting, energy waste reduction targets, and broader considerations—going beyond reliability to also consider climate, energy justice, and

affordability—in electric utility planning. However, further measures that leverage the transition period after recent reform and build on current MPSC governance and resources could improve the MPSC's ability to address reliability, affordability, energy justice, and climate challenges.

The proposal for MPSC reform put forward in this document has four elements:

1. *Performance-Based Regulation (PBR).* A regulatory approach that links utility revenues and rate-making proceedings to performance metrics.
2. *Innovation Promotion Policies.* A policy package for the MPSC to enhance flexibility for innovation in the electric utility sector that also prioritizes energy justice and climate.
3. *Percentage of Income Payment Plans (PIPPs)*. A program to determine and implement a reasonable rate for charging low-income customers for electricity based on their current income.
4. *Office of Consumer Advocate (OCA)*. A new state oversight entity that represents the state's utility customers in MPSC docket proceedings, federal regulatory agencies, and state and federal courts.

These four elements would work jointly to enhance utility performance, promote innovation, ensure affordability, and protect consumer interests. This proposal is based on the analysis of current policies and trends in Michigan and a review of lessons from six case studies of other Public Service Commissions in Hawai'i, Connecticut, Illinois, California, Ohio, and Pennsylvania.

The strongest arguments for this proposal are in terms of reliability and affordability. The proposal provides a strong potential to substantially decrease outages and modernize the grid, as performance-based regulation and innovation promotion policies would directly have these objectives. The weakest criterion is climate, as it is likely—but to some degree still uncertain—that the proposed measures would decarbonize the grid. The potential for positive equity outcomes is fair, and this report provides some considerations to improve the likelihood of positive outcomes.

While some elements of this reform would require further legislative and executive action, they are founded on recent reforms and the current MPSC structure and governance, strengthening their technical and financial feasibility. Moreover, the four elements of this proposal have varied implementation timelines, providing some actions that could be enacted in a matter of months while others would require years to be fully implemented. Overall, this proposal provides a vision of what the MPSC could be while still factoring in the present regulatory landscape, utilizing current resources and expertise, and harnessing the opportunities that come with the transition period after the recent MPSC reform.

Statewide Publicly-Owned Power (SPO)

This report evaluates how the state of Michigan can acquire the state's investor-owned utilities (IOUs) to establish a statewide publicly-owned (SPO) utility structure. Under this model, the Michigan government would forcefully buy IOUs' distribution infrastructure such that statewide electricity transmission would be publicly owned by the state government, municipalities, or ratepayer-owned cooperatives. The SPO would be unique in its ability to unlock up to an estimated $1.6 billion (the current annual profits of the two major IOUs) in profit-savings to invest in the utility, adopt a governance structure that prioritizes equitable improvements to the quality of its services, and be systematically accountable to ratepayers rather than shareholders.

From a legal perspective, the power of eminent domain allows the state to take IOU's distribution infrastructure. Through this power, the state can acquire private property if it converts the property to public use and fairly compensates the original owner. The state will likely need to pay additional compensation as "goodwill" because IOUs have an exclusive license to operate and because the state will make use of the existing IOU workforce. Michigan law also has a "quick-take" feature, allowing public agencies to rapidly and smoothly acquire title to the property prior to the completion of litigation around fair compensation. Via a citizen initiative, the legislature and voters can create a new government entity to take IOU distribution infrastructure and issue revenue bonds to finance the acquisition.

This report examines the financial cost of acquiring the distribution assets of Michigan's two primary IOUs—DTE and Consumers Energy. Using a net book value approach, the baseline cost to acquire DTE's distribution assets is $10.468 billion, and Consumers' is $8.195 billion. The report discusses why a variety of acquisition multiples could be feasible and provides a range of total acquisition costs for both companies between $18.663 billion and $55.989 billion. Likely, the actual cost would fall somewhere in the middle. The report also discusses how the new SPO can be financed through revenue utility bonds because utility revenues are so secure.

It is critical that the governance policies and management structures of a SPO allow it to act in the best interest of the public. This report outlines a recommended framework for a SPO framework to maximize reliable and affordable electricity services while contributing to statewide climate action and energy justice goals. Recommendations include the creation of a Governance Board comprised of locally-elected representatives and interdisciplinary energy experts, transferring the current electric distribution-related policymaking and regulatory duties from the Michigan Public Service Commission to the Governance Board, and establishing an Office of the Consumer Public Advocate to meaningfully advance the priorities of SPO customers.

The substantial profit savings generated through a transition from a private to a publicly-owned utility introduces powerful opportunities to advance energy justice and climate goals statewide. This unlocked funding can support efforts to improve grid infrastructure and reliability, implement affordability mechanisms such as a Percentage of Income Payment Plan, and establish programs and procedures for ratepayer-centered, participatory engagement and decision-making. With regards to climate, this unlocked capital can also be invested into cleaner distributed generation resources while retaining the existing rate structure.

The proposed energy justice and climate action recommendations are framed as necessary components of a SPO Governance Charter, which would ensure that energy justice and climate goals are concrete and prioritized. Democratic processes unique to a publicly-owned entity also help to hold the utility accountable for these activities.

Municipalization

The report examines the possibility of widespread municipalization as a means to improve the electric utility services of Michigan relative to those provided by its current investor-owned utilities (IOUs). Widespread municipalization in Michigan would require municipalities at the township and county level, specifically in the lower peninsula of Michigan, to buy out the distribution assets in their municipality that are currently owned by Michigan's IOUs. After acquiring these distribution assets, the municipality would create its own electric utility, owned by the municipality, which would serve all residents and businesses located within municipal boundaries.

Under the Michigan Constitution, municipalities have the express ability to form an electrical utility within their corporate limits.[1] However, any new municipal utilities may only provide electric service to areas that were within the municipal corporation as of June 1974.[2] As a result, for widespread municipalization to occur, the majority of municipalities must choose to municipalize.

To assess the feasibility of municipalities to municipalize electricity supply across the state, we examined municipalization in the context of its technical, financial, and governance implications. From a technical lens, we assess that municipalization is possible for the vast majority of municipalities in Michigan. However, there will be several challenges municipalities would face because they may need to pay to upgrade any infrastructure they acquire from the utilities, build new infrastructure like substations, use eminent domain as a means to acquire land for any new infrastructure, and find the talent necessary to operate a new utility. Additionally, the cost to acquire the distribution assets from an IOU may be very expensive. For example, we assess that the value of the distribution assets owned by DTE in

[1] Mich. Const. Art. 7, §24.
[2] M.C.L. 124.3(1)(a).

Wayne County, which houses Detroit, is $3.94 billion. However, municipalities including Wayne County would need to pay a premium for these assets which would inflate the value of the final bill, potentially doubling it or more. In order to ensure a municipal electric utility is well-run, municipalities would need to create effective legal structures, including establishing a board or commission to manage the utility and endowing them with general responsibilities, management structures, and legal authorities among other powers. In sum, we found that municipalization is possible in Michigan, but would require a serious level of financial commitment from municipalities to acquire, improve, and build out distribution assets as well as concrete legal frameworks to ensure the effectiveness of any new utility.

The assessment of municipalization in Michigan reveals a nuanced landscape shaped by climate impact, reliability, equity, and affordability considerations. While climate goals can be advanced through municipalization via renewable energy procurement, its success hinges on local priorities. Reliability emerges as a strength, potentially benefiting both individual municipalities and the state. Equity, while achievable at the municipal level, raises concerns for widespread municipalization, notably regarding utility death spirals and inequities. Affordability, though initially impacted by transition costs, may improve in the long term. Despite offering local control and potential community investment, municipalization poses challenges in valuation, infrastructure, and scalability. The complex interplay of benefits and risks underscores the need for careful consideration by stakeholders contemplating widespread municipalization in Michigan.

Given the variation in outcomes based on local factors, municipalities must carefully assess their circumstances, priorities, and capacities before proceeding. Additionally, efforts to expand public power should prioritize community interests, transparency, and accountability. Leveraging municipalization as a tool for enhancing energy democracy requires addressing legal, financial, and technical challenges to ensure success and maximize benefits for all residents. Key considerations include legislative amendments to empower municipalities, coalition building, technical solutions for infrastructure challenges, and investment in workforce development. Complementary avenues, such as cooperative utilities, also play a vital role in ensuring renewable, equitable, and clean energy for all Michigan residents. While municipalization may face obstacles, pursuing better outcomes for communities remains imperative, necessitating strategic approaches and collaboration to navigate complex energy landscapes effectively.

Sustainable Energy Utility (SEU)

A Sustainable Electrical Utility (SEU) is a flexible and nimble model that seeks to provide customers with options for sustainable energy generation and improvements to energy efficiency and conservation. The variable nature of the SEU enables communities to decide what combination of renewable energy and energy efficiency services they need.

While the SEU governing structure can mimic that of any traditional utility (investor, state, municipal, or community ownership), it departs from traditional utilities due to its ability to prioritize sustainability goals and community needs. Our proposed ownership structure for our SEU model is that of a municipal utility, which, in this case, enjoys the strengths of municipalization but not the weaknesses, such as high asset acquisition costs and long litigation battles. Other SEUs operate either as nonprofit entities or have contractual agreements with local agencies. The only two other functional SEUs, in Delaware and the District of Columbia, provide weatherization and efficiency services, and income-qualified solar panel installations, respectively. In Michigan, the SEU's ability to circumvent legal barriers that exist for utilities seeking to compete or replace existing utilities and start operations with a smaller consumer base can provide a faster route to achieving sustainability and equity goals.

In the interest of providing equitable, reliable, affordable, and climate-friendly electricity to all Michigan residents, we present our vision for the best, and legally feasible, SEU model that centers on distributed solar generation, and electrification and efficiency upgrades. Our vision presents a conservative layout of how an SEU might be initially implemented in Michigan, structured to be municipally owned and to provide only distributed solar generation and energy efficiency. This model defines an opt-in SEU that would compete with or complement, but not replace the traditional utility.

Since SEU customers would have access to SEU-generated energy while remaining connected to the existing grid, it is not necessary for the SEU to serve the entire electrical load of a community. Because our model focuses on the initial offerings of a newly formed SEU, we analyze a case study in a community underserved by the existing IOU, Tract 5334 in Detroit. We find that even in this low-income, heavily energy-burdened community, it is possible to install solar capable of supplying 36-64% of the community's energy demand while keeping electricity costs below the energy poverty line. In this model, the SEU will take out a loan to cover the initial cost, and the ratepayers would pay back this investment over time. The timeline for paying back expected costs in Tract 5334 is expected to be approximately 13-26 years for scenarios involving only DS, and a future expanded scenario that also accounts for microgridding but is not part of our current model. This analysis demonstrates the flexibility an SEU deployed at the local level, where each Michigan community can make the decision on whether an SEU is appropriate for their unique needs.

SEUs present a potentially favorable impact on electricity affordability. Solar panels produce electricity at no cost but require a significant upfront investment, which is cost-prohibitive to the average Michigander. Similarly, efficiency services are hard to finance for many Michiganders. Our SEU model allows consumers to spread out the significant upfront cost of solar panel installation and efficiency services across multiple years. The rate for solar in Michigan is predicted to be 12-22 cents per kWh, which is lower than the current IOU 13-25

cent rate. The lower range of our rate prediction comes from the rate projections SunStore Energy did for the Ann Arbor SEU, while the higher end of the range comes from our Levelized Cost of Energy calculation using the Ann Arbor SEU's 27-year costs and total generated energy. The cost of energy efficiency services is harder to predict beyond the average cost per household and will depend on the needs of individual households and communities. Using an LCOE of 22 cents per kWh that is based on the Ann Arbor SEU and SunStore Energy's predictions, solar generation on average is expected to cost Michigan cities $1.2 annually for each locality, covering the annual electricity consumption of around 650 households, although costs will likely widely vary depending on the size of each city or village. Communities interested in establishing an SEU can use bond financing to cover upfront installation costs and operational costs in the first years since launch and can recover such costs through their rate. Because SEUs would maintain connectivity to the grid, communities avoid the cost-shifting phenomenon–the costs to non-SEU communities would rise to compensate for a lower consumer base to cover grid costs.

We also identified good potential energy reduction measures for SEU funding and deployment, which would reduce climate emissions without requiring significant infrastructure updates, such as electric water heaters, electric/heat pump clothes dryers, and electric/induction cooktops. We find that these technologies could be deployed by the SEU in an underserved, energy-poor community to reduce energy consumption, though the exact amount would depend on the energy assessment of a specific home. Our assessment of these technologies against climate and reliability criteria suggests that implementation of the SEU could provide increased speed in addressing climate issues, and increase reliability for customers.

Lastly, we find that our proposed SEU structure can meet energy justice standards by implementing key aspects of recognition, procedural, distributive, and restorative justice. Best practices include community engagement opportunities, accountability mechanisms, local hiring, equity and justice prioritization in utility culture, low-income customer-specific programs, and transparency. Implementation of these aspects would together create a SEU that successfully prioritizes energy justice.

The SEU model presents an opportunity to advance our state's energy affordability, energy justice, and climate-friendly goals. Ultimately, the SEU model not only performs adequately in these metrics, but also can serve as an initial phase to other clean energy pathways, such as municipalization and statewide takeover of electric utilities. The SEU's speed, flexibility, and scalability allow it to be anything communities want, including a first step towards community- or state-owned power.

Assessing Alternative Pathways

Through a multifaceted, cross-disciplinary analytical approach, this report holistically and comprehensively evaluates each alternative utility pathway based on a set of common metrics: climate, energy justice, reliability, and affordability. For a description of the sub-criteria for each of these four metrics, please refer to the Introduction section of the *Roadmap to Clean, Equitable Energy in Michigan Report.*

In addition to detailed assessments of each alternative path against these criteria, summative ratings are provided and defined as having either a "strong," "fair," "weak," or "highly variable" probability of achieving the outcomes expected for each assessment criterion. You may find individual evaluations embedded within each chapter of the report, as well as a cumulative, comparative assessment matrix in the Conclusion section of the *Roadmap to Clean, Equitable Energy in Michigan Report.*

Criteria	**Overall Rating**				
	Michigan Public Service Commission (MPSC) Reform	**Statewide Publicly-Owned (SPO) Power**	**Individual Municipal-ization**	**Statewide Impacts of Widespread Municipal-ization**	**Sustainable Energy Utility (SEU)**
Climate	Fair	Fair	Fair	Highly Variable	Strong
Reliability	Strong	Strong	Strong	Strong	Fair
Energy Justice	Fair	Strong	Strong	Weak	Strong
Affordability	Strong	Fair	Fair	Fair	Strong

Table 1. Matrix of assessments of each proposed alternative against key criteria.

Conclusion, Gaps, and Next Steps

Each of the four pathways to clean and equitable electricity in Michigan analyzed in this report has unique strengths and weaknesses. Our research provides communities and legislators with valuable information on the qualities of each solution and their costs and implementation processes and establishes a foundation for future discussion on our state's clean and equitable energy transition. Each pathway performs differently according to our four chosen metrics, but collectively they demonstrate that communities and the state have numerous impactful and achievable solutions to Michigan's energy goals and challenges. Each pathway also presents unique opportunities and challenges with consideration for scalability, speed to transition, and risk to successful establishment and operation.

This report is part of a discourse that will stretch into the future as communities and states across the country reckon with a quickly looming mass energy transition, increased demand for energy, and climate-change-induced obstacles. As communities begin to think about each of the four pathways analyzed in this report, they should carefully evaluate their climate and reliability goals, and identify which approach best aligns with their goals and their communities' needs. Moreover, communities should further the research presented in this report by assessing how each approach performs locally. Additional areas for future research and consideration include scalability, speed to transition, and risks to the establishment and operation of alternative utility structures. While the methodology of this report is data-driven and expert-informed, numerous aspects of these pathways and their intricacies are in their nascent stages, requiring further careful consideration.

Overall, we are optimistic in presenting four options to choose from, which we believe have the potential to transform Michigan for the better.

Introduction

The state of Michigan has recently adopted some of the most progressive clean energy policies in the nation, including Governor Gretchen Whitmer's MI Healthy Climate Plan and a new set of energy laws, in an effort to address climate change, affordability, grid reliability, and energy injustice. Despite these impressive goals and benchmarks, our laws and policies are inadequate to solve our energy problems, given a spiraling climate crisis, increasing energy consumer demand, rapidly increasing costs, and decreasing grid reliability.

Now, more than ever before, the need to invest in clean, equitable, renewable, affordable, just energy is paramount. However, Michigan's electric utilities are largely failing to aggressively pursue clean energy and energy equity even as they charge increasingly higher rates for poor service, with a disproportionate burden falling on those who can afford it least. Yet the Investor-Owned Utilities (IOUs) across Michigan are often unwilling or unable to make the significant changes needed to address these challenges. DTE and Consumers Energy are

the largest IOUs in the state, with each providing electricity to over 1 million customers (serving approximately 90% of the state's residents collectively), and thus are the focus of this analysis.[3,4]

Through the University of Michigan Law School's Problem Solving Initiative (PSI), a multi-disciplinary series of courses designed to teach how to solve real-world problems with real-world solutions for real-world partners, our group of U-M graduate students produced this roadmap to clean and equitable power in Michigan that stakeholders can use to assess the new policies, procedures, and programs that our state needs to address climate change, energy affordability, reliability and energy justice.

Throughout the semester, we attended lectures and participated in discussions with experts in the fields of energy law, utility economics, finance and management, energy justice, and energy policy. This report's recommendations were further informed by expert interviews, and quantitative and qualitative data collection and analysis.

This roadmap examines alternatives to the traditional Investor-Owned Utility (IOU) model for providing the state of Michigan energy, assessing the four options against climate, energy justice, reliability, and affordability goals. The four areas we explored include:

1) Reforming the Michigan Public Service Commission's (MPSC) authority, laws, and rules overseeing IOUs, focusing on those that alter IOU incentive structures;
2) Taking over existing IOUs to create a statewide public power authority;
3) Creating municipally-owned utilities to replace IOUs at the local level; and
4) Utilizing Sustainable Energy Utilities (SEUs) to provide an alternative that works alongside (and can compete with) the existing IOUs at the municipal level.

Problem Statement

Customer satisfaction for DTE is consistently low. According to the J.D. Power 2023 Electric Utility Residential Customer Satisfaction Study, 2023 was the third consecutive year of decreasing satisfaction among DTE ratepayers.[5] Consumers Energy ranked higher than DTE in 2023 in customer satisfaction but still below the regional average.[1] An assessment of the current landscape of utilities across Michigan points to four domains that persistently fuel this dissatisfaction: grid reliability, energy burden, energy democracy, and climate impacts. Each landscape is outlined below. These realities paint the current landscape across Michigan and underscore critical focus areas for the utility to prioritize moving forward.

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[3] DTE Energy, "About DTE." n.d. Accessed April 18, 2024. https://www.dteenergy.com/us/en/business/about-dte/about-dte/about-dte.html.

[4] Consumers Energy, "What We Do." n.d. Accessed April 18, 2024. https://www.consumersenergy.com/company/what-we-do.

[5] J.D. Power. "2023 Electric Utility Residential Customer Satisfaction Study." n.d. Accessed February 15, 2024. https://www.jdpower.com/business/press-releases/2023-electric-utility-residential-customer-satisfaction-study.

Current Reliability Landscape Across Michigan

For decades, Michigan has experienced severe issues related to its electrical grid reliability under the IOU structure. Michigan's power outage rate currently surpasses the national average by two times.[6] In 2021, the average electricity customer in Michigan experienced 14.6 hours of outages. The average time to restore electricity services following an outage in 2021 was over 8 hours, which was the third worst response time in the US.[7]

Importantly, energy infrastructure failures are not experienced equally across the state. Experts point to the pervasive practice of "utility redlining" across DTE's purview, in which the company has historically invested more resources into maintenance, improving electricity systems, and addressing outages in wealthier, whiter communities rather than in lower-income communities of color across Michigan.[8]

Across the state, and particularly in Detroit, the vast majority of areas serviced by outdated infrastructure are home to low-income communities and communities of color.[9] Electrical lines served by 4.8 kilovolt (kV) systems are considered archaic in Michigan for reliability, safety, and efficiency, as most of these systems were installed over 60 years ago.[5] Newer, 13.2 kV systems have greater voltage capacity and are thus more resilient against outages. DTE has historically failed to prioritize "grid hardening" and modernizing efforts in communities with 4.8 kV systems, where poverty and unemployment rates are already high and where the impact of persistent outages would be most burdensome.[5] The cumulative lack of equitable investment in utility infrastructure over many years is a key driver of unreliable services and frequent, prolonged outages for frontline ratepayers.

Current Affordability Landscape Across Michigan

Energy burden is quantified by the percent of household income spent on energy bills, with a high energy burden deemed to be 6% or higher. In 2022 in Michigan, households below 50% of the Federal Poverty Level were paying, on average, 34% of their annual income

[6] Samuel Robinson. "Michigan Power Outage Rates Double the National Average - Axios Detroit." n.d. Accessed February 15, 2024. https://www.axios.com/local/detroit/2023/09/05/michigan-power-outage-rates-double-the-national-average.

[7] Contributer. "OPINION: Energy Assistance Programs Don't Keep the Lights on. Energy Affordability Will. – Planet Detroit." n.d. Accessed February 15, 2024. https://planetdetroit.org/2020/06/opinion-energy-assistance-programs-dont-keep-the-lights-on-energy-affordability-will/.

[8] Tom Perkins. "'Utility Redlining': Detroit power outages disproportionally hit minority and low-income areas." October 6, 2022. The Guardian. https://www.theguardian.com/inequality/2022/oct/06/detroit-power-outages-impact-minority-low-income-neighborhoods

[9] "Utility Redlining: Inequitable Electric Distribution in the DTE Service Area." August, 2022. We The People Michigan, Soulardarity, MEJC. https://wethepeoplemi.org/wp-content/uploads/2022/08/DTE-Utility-Redlining-V3_20220822-FINAL.pdf

towards DTE's household energy bills, a rate that is well above the energy burden threshold.[10] DTE currently charges ratepayers the 10th highest rates for their utilities in the US.[11] Many households are forced to forgo electricity or other basic needs such as food or rent to pay their utility bills. Research from the American Council for an Energy Efficiency Economy (ACEEE) highlights that such instances of energy poverty disproportionately burden racial minorities, older adults, renters, and low-income families across Michigan.[6]

Notably, DTE routinely performs shutoffs to enforce bill collection: according to data from the Michigan Public Service Commission, DTE has cut off power to over 200,000 households every year since 2014 while continuing to raise residential rates.[12] While an array of energy assistance programs for ratepayers exist for DTE and Consumers customers, data on persistent shut-offs across the state suggest these programs are insufficient in keeping the lights on for countless households across the state and also do not work towards achieving affordable rates.[13,14,15]

Current Energy Democracy Landscape Across Michigan

Under the current IOU structure, a common complaint among ratepayers is the lack of systematic, participatory mechanisms that allow individuals to have a voice in key decisions and policies related to their utility. There are few existing pathways under the IOU model to enable widespread and meaningful energy democracy. Concurrently, DTE and Consumers Energy have well-documented, outsized influence over state energy policy through political spending.

[10] Goldberg, Laura. "Energy Efficiency: Key to Affordable Energy in Michigan." n.d. Accessed February 18, 2024. https://www.nrdc.org/bio/laura-goldberg/energy-efficiency-key-affordable-energy-michigan.
[11] "Michigan Electricity Rates." n.d. ElectricityRates.Com. Accessed February 15, 2024. https://electricityrates.com/michigan/.
[12] Contributer. "OPINION: Energy Assistance Programs Don't Keep the Lights on. Energy Affordability Will. – Planet Detroit."
[13] "General Assistance". n.d. DTE Energy. https://www.dteenergy.com/us/en/business/billing-and-payments/energy-assistance/general-assistance.html
[14] "Payment Plans & Assistance". n.d. Consumers Energy. https://www.consumersenergy.com/residential/programs-and-services/payment-assistance
[15] Contributer. "OPINION: Energy Assistance Programs Don't Keep the Lights on. Energy Affordability Will. – Planet Detroit."

IOU influence can be seen across legislation, including laws related to lobbying transparency,[16] renewable energy siting,[17] net-metering,[18] and the distributed solar generation cap.[19] For example, in 2020, the IRS revealed that DTE made $5.7 million in political contributions through a partnership with Michigan Energy First, a 501(c)(4) dark money nonprofit.[20] Until July 2023, dark money nonprofits were able to make financial contributions towards political campaigns without disclosing where the money came from. According to the Energy Policy Institute, 93% of state legislators have received campaign contributions from DTE through its Political Action Committee (PAC).[21]

Transparency and accessibility regarding policy processes and financing on behalf of the utility are central tenets of energy democracy. Although significant advancements have been made in recent years to increase channels of communication between ratepayers and the Michigan Public Service Commission (MPSC), constituents continue to request more meaningful opportunities for impactful community engagement and participatory decision-making.

Current Climate and Clean Energy Landscape Across Michigan

The MI Healthy Climate Plan was released in 2022 by the Michigan Department of Environment, Great Lakes, and Energy (EGLE) as a result of Executive Order 2020-10. The MI Healthy Climate Plan set a goal of 100% carbon neutrality in Michigan by 2050, with an interim goal of 52% Greenhouse gas emissions (GHG) reductions from the 2005 baseline by 2030.[22] Specific to the electric grid, the goal is to "generate 60% of the state's electricity from renewable resources and phase out remaining coal-fired power plants by 2030." While Michigan has sufficient wind and solar power potential to reach these goals, there are

[16] Weinmann, Karlee. 2023. "DTE Energy Shareholders Reject Transparency Proposal." Energy and Policy Institute. May 15, 2023. https://energyandpolicy.org/dte-rejects-political-spending-disclosure/.
[17] Allnutt, Brian. 2024. "Who's behind a Ballot Initiative to Repeal Michigan's Renewable Energy Siting Laws?" Planet Detroit. February 8, 2024. https://planetdetroit.org/2024/02/whos-behind-a-ballot-initiative-to-repeal-michigans-renewable-energy-siting-law/.
[18] Martinez. 2021. "Campaigning for Community Power in Michigan". Work for ME, DTE!. https://powerlines101.org/wp-content/uploads/2021/05/LittleSisCampaignStory_DTE.pdf
[19] Perkins, Tom. 2023. "New Settlement Agreement Aims to Put Spotlight on DTE-Linked Dark Money." Planet Detroit. August 28, 2023. https://planetdetroit.org/2023/08/new-settlement-agreement-aims-to-put-spotlight-on-dte-linked-dark-money/.
[20] "Putting a Spotlight on DTE's Dark Money –." n.d. Accessed February 15, 2024. https://planetdetroit.org/2023/08/new-settlement-agreement-aims-to-put-spotlight-on-dte-linked-dark-money/.
[21] Weinmann, Karlee. 2023. "DTE Energy Spends Big on Michigan Lawmakers, Nearly All Accept." n.d. Accessed February 18, 2024. https://energyandpolicy.org/dte-energy-political-contributions-michigan/.
[22] Michigan Department of Environment, Great Lakes, and Energy, "MI Healthy Climate Plan," April 2022.

barriers in the form of local pushback to renewables siting, local zoning ordinances, and low legislative clean energy requirements for utilities.[23]

In 2022, renewables provided 12% of electricity net generation in Michigan, with wind energy accounting for two-thirds of this.[24] As of November 2023, non-hydroelectric renewables accounted for 1,215 MWh of net electricity generation. Nuclear energy accounted for 2,050 MWh. Natural gas still leads the state in net electricity generation, as seen in Figure 1.

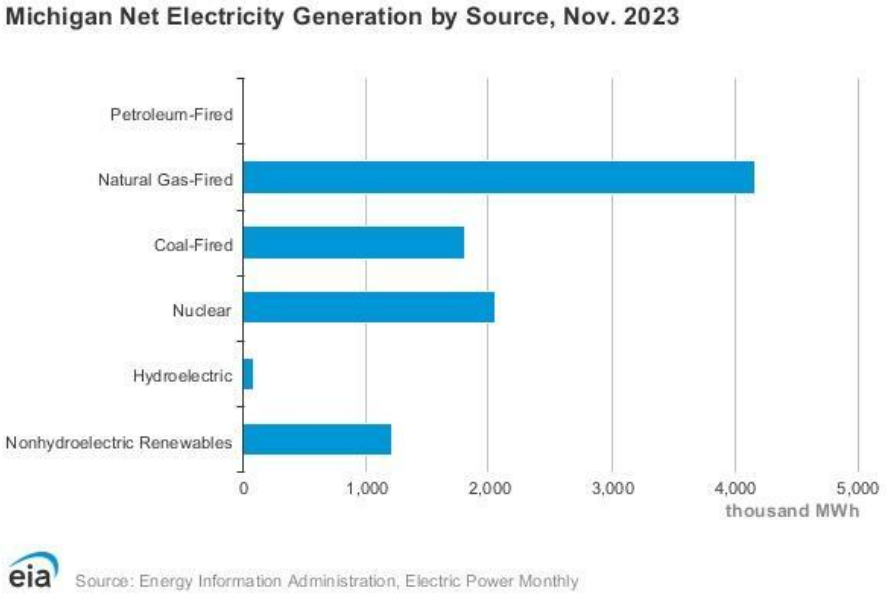


Figure 1. Michigan net electricity generation by source.[25]

To reach the clean energy and electricity goals set in the MI Healthy Climate Plan and overcome some of these barriers, the Michigan legislature passed key climate legislation in November 2023. Senate Bill 271 sets a renewable and clean energy standard that requires utilities to reach 100% clean energy by 2040 and 60% renewable energy by 2035.[26] It also establishes a 2,500 Megawatt (MW) storage standard by 2030 and increases the rooftop solar cap to 10%. Senate Bill 273 increases the energy efficiency standards for natural gas and

[23] Koch, Christian et al., "State of Michigan Renewable Energy Policy Analysis" (Center for Local, State, and Urban Policy, December 2021).
[24] U.S. Energy Information Administration, "Michigan State Profile and Energy Estimates," 2023, https://www.eia.gov/state/?sid=MI.
[25] U.S. Energy Information Administration.
[26] Charlotte Jameson and Carlee Knott, "An Overview of Michigan's Landmark Climate Legislation" (Michigan Environmental Council, n.d.); Department of Environment, Great Lakes, and Energy, "Michigan Becomes a National Leader in Climate Action with New Legislation, Making Progress on the Goals of the MI Healthy Climate Plan," Department of Environment, Great Lakes, and Energy, November 28, 2023, https://www.michigan.gov/egle/newsroom/mi-environment/2023/11/28/michigan-becomes-a-national-leader-in-climate-action-with-new-legislation.

electricity utilities, allows for electrification and fuel switching for energy efficiency programs, and requires utilities to offer low-income energy efficiency programs. Senate Bill 502 expands MPSC authority to factor equity, climate, and affordability in the decision-making process for Integrated Resource Plan (IRP) case proceedings. Senate Bill 519 establishes the Community and Worker Economic Transition Office to provide workers with more resources during the clean energy transition.[27] House Bills 5120 & 5121 give the MPSC authority to site wind farms with a nameplate capacity over 100MW and solar farms and energy storage facilities with a nameplate capacity over 50MW.

While much progress has been made toward deploying renewable energy in Michigan, there are still major concerns surrounding the legislation. The Michigan Environmental Justice Coalition (MEJC) outlined the following climate and clean energy concerns related to this legislation and where work is still needed:[28]

- The definition of "clean energy" still includes natural gas
- It has carve-outs for incinerators
- The initial target of 15% renewable energy by 2029 prevents Michigan residents and the economy from benefiting from renewable energy resources like solar, wind, and battery storage
- There are ways for utilities to elude regulatory compliance, such as:
    - "Allowing the use of unbundled Renewable Energy Credits
    - Double-counting energy waste reduction credits toward renewable energy
    - Carve-outs for industrial energy customers and utilities'
    - Voluntary Green Pricing programs that falsely inflate the proposed renewable energy standard"
- Exclusion of distributed generation and community solar programs, which would improve the deployment of renewables in frontline and low-income communities

Overall, there is a need for faster, more equitable deployment of renewable energy in Michigan to take advantage of recent federal and state investments and funding and make sure benefits are reaching as many people as possible.

Current Energy Justice Landscape Across Michigan

A driving motivation for considering an alternative utility structure in Michigan is the pursuit of energy justice, with the goal of reducing energy burdens and uplifting energy

[27] Charlotte Jameson and Carlee Knott, "An Overview of Michigan's Landmark Climate Legislation."
[28] Pavan Vangipuram, "Environmental Justice Communities Disappointed with Passage of Senate Dirty Energy Bills," Michigan Environmental Justice Coalition, October 27, 2023.

democracy among ratepayers. The current landscape of grid reliability, affordability, energy democracy, and climate across Michigan frames serious energy injustice concerns due to the clear disproportionate burden of these problems among frontline ratepayers. Regarding grid reliability, utility redlining underscores the systematic neglect and disinvestment in energy infrastructure in low-income communities and communities of color. These are the same communities most burdened by energy poverty and the looming threat of shutoffs enforced by the utility. The lack of meaningful and accessible opportunities for community engagement in key decisions related to energy policy further limits democratic participation among ratepayers who experience the energy justice concerns of utilities in Michigan firsthand.

Pathways Forward

This report focuses on public power solutions to the State of Michigan's most significant energy challenges. Here, we introduce four options with the potential to improve Michigan's energy system. These include:

Michigan Public Service Commission (MPSC) Innovation & Regulation

We explore a comprehensive MPSC reform centered around Performance-Based Regulation (PBR), combined with an innovation promotion framework, Percentage of Income Payment Plans (PIPP), and an Office of Consumer Advocate (OCA). First, PBR is a regulatory approach that links utility revenues and rate-making proceedings to performance metrics through various approaches, including Performance Incentive Mechanisms (PIMs) and Multiyear Rate Plans (MYRPs). PIMs are ratemaking mechanisms that tie a portion of a utility's earnings or revenues to its performance in a particular metric based on measurable utility systems, policies, or customer outcomes.[29] MYRPs are multiyear plans that establish a revenue requirement needed to cover the cost of providing service over a time period for utilities to be approved by regulators.[30] Second, a regulatory sandbox, a framework that allows businesses to experiment with new and innovative technologies, services, and programs under a regulator's supervision, coupled with an innovation fund will build on MPSC's Expedited Pilot Program to foster innovation and flexibility in Michigan's energy sector.[31] A regulatory sandbox will provide a structured environment for companies to test innovative services, products, and regulatory approaches without immediately adhering to existing regulations, while the innovation fund will provide financial support for the

[29] Daniel Shea, "Performance-Based Regulation: Harmonizing Electric Utility Priorities and State Policy," National Conference of State Legislatures, April 7, 2023, https://www.ncsl.org/energy/performance-based-regulation-harmonizing-electric-utility-priorities-and-state-policy.
[30] Daniel Shea.
[31] State of Michigan, "Case No. U-20898," February 23, 2023.

regulatory sandbox.[32] These policies can be used by the MPSC, utilities, and other companies to pilot PIPP and PBR approaches. Third, the PIPP programs would determine a reasonable rate to charge customers for electricity based on their current income, which would directly lead to fewer electric service shut-offs enforced by the utility.[33] Lastly, an Office of Consumer Public Advocate is a state agency representing utility customers in MPSC proceedings, federal regulatory agencies, and state and federal courts.[34]

Statewide Publicly-Owned (SPO) Utility

We assess the viable pathways to create a statewide publicly-owned (SPO) utility that involves government acquisition of current investor-owned utilities' assets and the creation of a board of officials and experts to manage the utility. We also recommend additional mechanisms to be built into the structure of a SPO in Michigan based on the guiding principles of advancing statewide climate goals, grid reliability, energy justice, and ratepayer affordability.

Utility Municipalization

We investigate the feasibility and implications of widespread municipalization of electric utilities in the state. Our focus is on assessing the existing legal framework and evaluating the potential for municipal utilities to address energy equity, climate goals, state reliability, and affordability.

Utilization of Sustainable Energy Utilities

A Sustainable Energy Utility (SEU) is a flexible model that provides some combination of energy efficiency services and/or access to renewables. The flexible nature of the SEU enables this model to meet the unique and variable needs of communities across the country. SEUs are fairly uncommon in the U.S., but the few that exist showcase the SEU's ability to function alongside IOUs, quickly serve communities, and nimbly navigate legal, regulatory, and financial challenges. Our analysis assesses how the SEU model, if it is designed to increase renewable energy generation and encourage energy efficiency investment, meets many of our four metrics of climate, energy justice, reliability, and affordability. We provide a cost estimation and governance structure for equipping ten percent of Michigan households with

[32] Guidehouse, "Electricity Regulation for a Customer-Centric Future: Survey of Alternative Regulatory Mechanisms," 2020.
[33] Sarah Alvarez and Agnel Philip, "Lights out: Profitable Michigan Utility Shut off Electricity to Homes Hundreds of Thousands of Times," Energy News Network, March 22, 2022, http://energynews.us/2022/03/22/lights-out-profitable-michigan-utility-shut-off-electricity-to-homes-hundreds-of-thousands-of-times/.
[34] PA.gov, "PA Office of Consumer Advocate - Pennsylvania Office of Consumer Advocate," accessed March 17, 2024, https://www.oca.pa.gov/.

solar panels, informed by financial statements of other existing or theoretical SEUs and governance best practices.

Common Analytical Approach

This report adopts a multifaceted analytical approach, combining methodologies to assess the various public power pathways for Michigan. Our investigation involves a thorough analysis of existing literature, delving into existing research, policy documents, and case studies to establish a foundational understanding of alternative power initiatives both within and outside the state. Our research methodology also incorporates interviews with industry leaders, policymakers, regulators, community representatives, technical experts and other stakeholders to gather firsthand insights and perspectives into Michigan's energy landscape. The interviews offer invaluable qualitative data, shedding light on the social, political, and practical considerations surrounding public power initiatives in Michigan.[35]

Through this framework, this report evaluates each option based on common criteria, including equity in access to energy resources, environmental sustainability, reliability of power supply, and cost-effectiveness. *The table below highlights key considerations that inform each of these criteria.*

Definition of Metrics

Metric	**Criteria**
Climate	To what extent is the proposed option expected to set Michigan on a path to meet or exceed MI Healthy Climate Plan goals, such as meeting targets for GHG reductions for 2030 and 2050? Is the proposed option expected to reduce the per-ton costs of GHG reductions, increase clean energy generation over baseline predictions, incentivize investments and innovative approaches to reducing GHGs, and substantially reduce overall electricity usage?
Energy Justice	Proposed utility structures are measured against the four established pillars of energy justice – recognition, procedural, distributive, and restorative - to assess the potential of current and alternative models to uplift energy justice across Michigan.[36] ● Within the context of utilities, **recognition justice** means understanding *who* is vulnerable to energy burden, outages, and shutoffs and *how* these systematic processes of disadvantage operate and are experienced.

[35] See Interview Catalog in Appendix.

[36] Cooper. 2019. "Executive Summary." *Initiative for Energy Justice* (blog). December 23, 2019. https://iejusa.org/executive-summary/.

	● **Procedural justice** centers transparency and accountability on behalf of the utility, with participatory practices embedded in the utility model to meaningfully integrate ratepayer's perspectives in energy policy. ● **Distributive justice** is concerned with the equitable allocation of benefits and burdens brought about by the utility. ● **Restorative justice** is grounded in the practice of systematically remedying past harms to communities caused by the utility.
Reliability	Considerations include expected customer satisfaction, outage response time, overall outages, opportunities for investment in grid hardening and modernization, and general accountability to ratepayer priorities associated with reliability.
Affordability	The highest-performing alternatives will result in cost savings and reduced energy burden for Michigan residents while also maximizing the number of beneficiaries.

Table 1. Key considerations and definitions of criteria this report will be assessing each alternative based on.

These criteria will be assessed in each chapter in accordance with the following guidelines for whether or not the proposed reform improves the above mentioned outcomes:

- "Strong" implies a high possibility of achieving outcomes expected for the assessment criteria with limited dependence on external factors such as energy market conditions, consumer adoption, etc. Strong implies that achieving outcomes does not exhibit significant volatility based on internal factors such as decision-making by the governance board or allocation of priorities and available funds.
- "Fair" implies a moderate possibility of achieving outcomes expected for the assessment criteria without the dependence on external factors such as energy market conditions, consumer adoption, etc. Fair implies that achieving outcomes exhibits some volatility based on internal factors such as decision-making by the governance board or allocation of priorities and available funds, and the outcomes are likely to incline towards other assessment criteria based on these decisions and priorities.
- "Weak" implies a low possibility of achieving outcomes expected for the assessment criteria without the dependence on external factors such as energy market conditions, consumer adoption, etc. Weak implies volatility due to internal factors that are not easy to overcome due to legal or governance constraints.
- "Highly Variable" implies that a possibility of achieving outcomes expected for the assessment criteria cannot be determined through the scope of this document, or that the variability is so high that it's possible to categorize. Outcomes are highly likely to vary on a case-by-case basis or on external factors such as energy market conditions, consumer adoption, etc. Outcomes likely exhibit volatility based on internal factors

such as decision-making by the governance board or allocation of priorities and available funds.

In conclusion, the energy landscape in Michigan presents a complex array of challenges, including issues of climate change, affordability, grid reliability, and energy justice. Despite recent progressive policies, the current state of affairs remains inadequate to address these pressing concerns effectively. However, through the collaborative efforts of the University of Michigan Law School's Problem Solving Initiative (PSI), a roadmap has been developed to pursue clean, affordable, and reliable public power over the long-term. This roadmap explores public power solutions with the aim of improving Michigan's energy system, and with the exclusive of focusing on short-term political feasibility. By evaluating each option against defined criteria of climate goals, energy justice, reliability, and affordability, this initiative seeks to provide evidence-based recommendations for sustainable and equitable energy development in the state. Through thoughtful analysis and stakeholder engagement, the path forward toward clean and equitable power in Michigan can be realized, paving the way for a more resilient and just energy future for all.

Chapter One:

A Commission for Clean and Equitable Power: Assessing the Impact of Recent Legislation and Exploring Further Reform of the Michigan Public Service Commission (MPSC)

Tim Dalrymple, Ally Martin, Francisco Rentería, Amar Shabeeb, Carmen Wagner

1.1 Introduction

The Michigan Public Service Commission (MPSC) is the regulatory body that approves ratemaking, regulation, and governance structures for Michigan public utilities. Public utilities provide goods and services to the public within exclusive territories. Specifically, the MPSC regulates electric, natural gas, and telecommunications utilities in Michigan. The stated mission of the MPSC is "to serve the public by ensuring safe, reliable, and accessible energy and telecommunications services at reasonable rates."[37] States vary in calling their regulatory authority a Public Service Commission (PSC) or Public Utility Commission (PUC), so we will use them interchangeably throughout.

[37] Michigan Public Service Commission. michigan.gov/mpsc

The MPSC was created by the Public Utilities Act of 1939, codified in MCL 460.[38] The Public Utilities Act imbued the MPSC with "complete power and jurisdiction to regulate all public utilities in the state except a municipally owned utility."[39] The "complete power" of the MPSC includes the power and jurisdiction to regulate "all rates, fares, fees, charges, services, rules, conditions of service, and all other matters pertaining to the formation, operation, or direction of public utilities."[40] The broad language of MCL 460.6(1) "complete power and jurisdiction" only refers to the MPSC as the sole regulator of public utilities, but this phrase does not furnish specific powers.[41] This means that the MPSC is the only regulatory authority that controls public utilities, but other laws define the limitations and boundaries of MPSC regulatory power.

The MPSC oversees Michigan's investor-owned electric and natural gas utilities (IOUs), determining if they have met relevant state legislative requirements, including Renewable Energy Standards (RESs).[42] In particular, they provide numerous actions related to reliability, ratemaking, customer assistance, facility siting & need determination, public safety, and more.[43] The MPSC acts as a collective body and exercises its authority by issuing decisions through a written order process under which orders are the official action of the Commission.[44] In terms of ratemaking, the MPSC may allow an energy provider to recover costs if the costs are "reasonable and prudent."[45] Cost recovery refers to the money the PSC collects from ratepayers to fund their capital expenditures and operation/maintenance costs.

Why MPSC Reform is Needed

Cost-of-service ratemaking for electric utilities traditionally works by determining the revenue requirement necessary to cover operating expenses and capital costs as well as provide a reasonable return on investment to shareholders.[46] This process begins with utilities estimating their future costs, including expenses for generating or purchasing electricity, maintaining infrastructure, and providing customer service. These costs are then allocated among different customer classes based on factors such as the cost to serve each group and the principle of cost causation. Finally, rates are designed to recover these costs from customers, typically through a combination of fixed charges and usage-based charges.

[38] MCL 460.6. Public service commission.
[39] MCL 460.6(1) "The public service commission is vested with complete power and jurisdiction to regulate all public utilities in the state except a municipally owned utility, the owner of a renewable resource power production facility as provided in section 6d, and except as otherwise restricted by law."
[40] MCL 460.6(1)
[41] Huron Portland Cement Co, v. Michigan Public Service Commission, 351 Mich. 255,263. (1958).
[42] State of Michigan, Michigan Public Service Commission. "Regulatory Information."
[43] State of Michigan
[44] State of Michigan. "Regulatory Information."
[45] MCL 460.1095(3)
[46] MPSC. 2014. "Cost of Service Ratemaking."

The regulatory authority, such as the MPSC, reviews and approves these rates through rate cases to ensure they are "reasonable and prudent" while also providing the utility with the opportunity to earn a fair return.[47]

There are several issues with the current regulatory system, including the traditional cost-of-service ratemaking. Traditional cost-of-service ratemaking, while relatively straightforward, has been criticized for creating misaligned incentives between the utilities and those they serve.[48] There is often a lack of direct connection between utility profits and desirable outcomes such as energy justice, reliability, and affordability. The determination of what is "reasonable and prudent" is ambiguous and at the discretion of regulators and often does not include considerations for affordability.[49]

Furthermore, the necessary speed of the energy transition towards clean, reliable energy requires innovative regulation that matches this speed.[50] There is also a window of opportunity through recent federal legislation that prioritizes investment in energy infrastructure, which states can take advantage of by pursuing regulatory reform to ensure utilities help drive cost-effective, equitable, and rapid energy sector decarbonization.[51] Michigan has started to do so with recent climate legislation, but more work is still needed to ensure a fast, equitable, and affordable energy transition.

2023 Michigan State Climate Legislation Implementation by the MPSC

On February 8, 2024, the MPSC announced the steps they will take to implement changes made to Michigan's energy laws in 2023, which included an increase of the Renewable Energy Standard (RES) to 60% by 2035 and requiring 100% "clean energy" by 2040.[52] In particular, MPSC authority will be expanded to include the siting of large renewable energy developments, work to implement and respond to the new RES, and consider climate, equity, and affordability within Integrated Resource Plans (IRPs). The chart below summarizes the 2023 legislation that the MPSC is taking action on and the steps they are taking to implement this legislation. While these changes reduce some major renewable energy deployment barriers throughout Michigan, there are still major equity concerns about how the MPSC will implement this legislation, and there are worries that these bills will not

[47] Isser, Steve N. 2015. "Just and Reasonable: The Cornerstone of Energy Regulation." SSRN.
[48] "Economic Regulation of Utility Infrastructure." 2013. In Infrastructure and Land Policies, edited by Gregory K. Ingram and Karin L. Brandt, 87-97. N.p.: Lincoln Institute of Land Policy.
[49] "Economic Regulation of Utility Infrastructure."
[50] Herman K. Trabish, "'Dramatic Shift' in Utility Regulations, Better Pilot Designs Needed to Propel Energy Transition, DOE Report Finds," Utility Dive, May 31, 2022, https://www.utilitydive.com/news/dramatic-shift-in-utility-regulations-better-pilot-designs-needed-to-pro/623780/.
[51] Dan Slanger, "Five Lessons from Hawaii's Groundbreaking PBR Framework," RMI, February 8, 2021, https://rmi.org/five-lessons-from-hawaiis-groundbreaking-pbr-framework/.
[52] Matt Helms, "MPSC Kicks off Implementation of Changes Made to Michigan's Energy Laws in 2023."

adequately address greenhouse gas emissions or improve reliability and affordability.[53]

Legislation	Description Relevant to MPSC	MPSC Action
PA 233	Expands renewables siting authority to the MPSC for wind farms with a nameplate capacity over 100 MW and solar farms with a nameplate capacity over 50 MW	Directed MPSC staff to engage with developers, local governments, and experts to produce recommendations for filings, ordinance guidance, & more.
PA 229	Increases the energy waste reduction target for utilities, requires program participation for cooperative and municipal utilities, and requires spending on low-income customers	Directed MPSC staff to work with utilities, state government, and low-income advocacy groups to develop income verification strategies and program coordination to minimize barriers to participation
PA 235	(1) Increases the RES to 50% by 2030 and 60% by 2035 and requires 100% clean energy by 2040 (2) Distributed Generation (DG) floor increase to 10% (3) Establish a 2,500-megawatt storage standard by 2030 (4) Requires that MPSC study and report electric issues unique to the Upper Peninsula (UP)	(1) Set dates for all Michigan electricity providers to file amended REPs in 2024 & 2025 (2) Seek comments on issues related to the DG cap and other relevant matters (3) Directed staff to draft a proposal to aid in determining a standard methodology for determining energy suppliers' energy storage targets and to develop a report on energy storage resources. They will also require IOUs to file energy storage reports (4) Directed staff to engage with UP utilities and interconnection groups to develop the study, conduct at least one public hearing in the UP, and provide an opportunity for public comments
PA 231	Allows MPSC to consider climate, equity, and affordability in Integrated Resource	Directed staff to commence studies on the potential for energy waste reduction,

[53] Pavan Vangipuram, "Environmental Justice Communities Disappointed with Passage of Senate Dirty Energy Bills" (Michigan Environmental Justice Coalition, October 27, 2023), https://3033118a-6dde-4489-a560-4fcd6254addf.usrfiles.com/ugd/303311_d0ebc75b8b2e4a02a5d528b8d5feb1e5.pdf?emci=8ecc7f17-c292-ee11-8925-002248223f36&emdi=4bf27b82-569b-ee11-bea1-002248223f36&ceid=4304602.

	Plans (IRPs)	transportation electrification, demand response, buildings, and industry. Directed staff to update IRP filing requirements.

Table 1. Description of 2023 Climate Legislation and actions the MPSC is taking in response.

1.2 Brief Description of Proposed Reform

To address the deep-rooted problems of reliability, affordability, climate, and equity in the current IOU structure of the Michigan energy system, we have developed a comprehensive proposal to alter how the MPSC regulates utilities. We propose a combination of four reform policies: Performance-Based Regulation (PBR), Innovation Promotion, Percentage of Income Payment Plans (PIPPs), and an Office of Consumer Advocate (OCA). One of these policies alone will not comprehensively address all these issues. Therefore, all four should be implemented together to cover the various issues.

Performance-Based Regulation

Performance-Based Regulation (PBR) is a regulatory approach that links utility revenues and ratemaking proceedings to performance metrics through various strategies, including Performance Incentive Mechanisms (PIMs) and Multi-Year Rate Plans. PIMs are targets, metrics, and financial mechanisms designed to improve utility performance in certain areas.[54] Multiyear Plans require the electric utilities to plan for certain time intervals between rate cases to account for adjustments to the revenue requirement.

Innovation Promotion

Innovation promotion is a framework of four elements for the MPSC to build on current efforts and enhance flexibility for innovation in the electric utility sector that *also* prioritizes energy justice. These four elements are 1) an expanded regulatory sandbox, 2) an innovation fund, 3) an equitable innovation adoption program, and 4) a transparency and communication strategy. A regulatory sandbox is a framework that allows businesses to experiment with new and innovative technologies, services, and programs under a regulator's supervision. The regulatory sandbox, under the guidance of an Innovation Advisory Council, would expand the current MPSC's expedited pilot program to allow the Commission to fast-track pilots for both IOUs and other stakeholders that are intended to increase system reliability, affordability, equity, and renewable energy goals. The innovation fund would allow the MPSC to operate other innovation-related programs, as the current pilot program is

[54] Daniel Shea, "Performance-Based Regulation: Harmonizing Electric Utility Priorities and State Policy," National Conference of State Legislatures, April 7, 2023, https://www.ncsl.org/energy/performance-based-regulation-harmonizing-electric-utility-priorities-and-state-policy.

managed by IOUs. One such initiative could be the equitable innovation adoption program, which would provide zero-interest loans and grants to adopt successfully piloted innovations in underserved communities. Lastly, a transparency and communication strategy would involve more comprehensive monitoring and reporting of pilots and other innovation-promotion activities through communication channels such as newsletters and podcasts.

Percentage of Income Payment Plans

The basic premise of a PIPP program is to determine a reasonable rate to charge customers for electricity based on their current income, which is intended to produce fewer electric service shut-offs imposed by the utility.[55] For qualifying customers, PIPPs cap monthly payments at a percentage of monthly income.[56]

Office of Consumer Advocacy

The Office of Energy/Consumer Public Advocate is an independent state agency with regional representatives. The OCA focuses on 1) customer service and education; and 2) representing community interests to the MPSC while ensuring the Commission incorporates equity, affordability, and reliability into its consideration.

1.3 Scope of Analysis and Methods

To assess the impact of the above MPSC policy reforms on reliability, climate, affordability, and justice, we will first look at case studies of Hawai'i, Connecticut, Illinois, California, Ohio, and Pennsylvania to form our proposal and assess the potential outcomes of their policies. Each state has at least one of our proposed reform policies at varying levels of implementation and success. We will then define our proposal for these reforms in Michigan based on literature and case studies. Then we will discuss the potential legal and legislative avenues for the implementation of these reforms. Based on these case studies and our reform proposal, we evaluate whether the proposal is expected to reach certain criteria on reliability, climate, affordability, and justice. We used academic literature, utility and regulatory reports, articles, and interviews to inform our case studies and proposals. Appendix C summarizes the expert interviewees.

[55] Sarah Alvarez. "Lights Out: DTE Energy shut off electricity to homes hundreds of thousands of times." March 18, 2022. Planet Detroit. https://planetdetroit.org/2022/03/lights-out-profitable-utility-company-shut-off-electricity-to-homes-hundreds-of-thousands-of-times/.
[56] Ohio Department of Development. "Percentage of Income Payment Plan." https://ohio.gov/residents/resources/percentage-of-income-payment-plan-plus

1.4 Case Studies

A number of other states have implemented, or are in the process of implementing, forms of these policies with varying levels of success. Therefore, we will summarize and analyze these other states' policies to identify best practices and lessons learned from these policies. These case studies will serve as the basis for creating the MPSC reform proposal.

Hawai'i

For the Hawai'i case study, we discuss the 2021 implementation of Performance-Based Regulation, the Division of Consumer Advocacy, and the Innovation Pilot Framework. Within the last decade, Hawai'i has conducted a major overhaul of its PSC proceedings and utility oversight and has recently been touted as a leader in performance-based rate making (PBR). .

Performance-Based Regulation (PBR)

Hawai'i established a unique PBR framework following Senate Bill 2939 in 2018, which has the purpose of "protecting consumers by urgently and proactively ensuring that the existing utility business and regulatory model is updated for the twenty-first century by requiring that electric utility rates be considered just and reasonable only if the rates are derived from a performance-based model for determining utility revenues."[57] The PUC, with the support of stakeholders and consultants, adopted three guiding principles: (1) a customer-centric approach, (2) administrative efficiency, and (3) utility financial integrity.[58] They also focused on three regulatory goals and 12 priority regulatory outcomes to inform the development of the PBR framework, as seen in Figure 1. The framework also builds on Hawai'i's RPS of 100% renewable energy by 2045.[59] The PBR framework was approved in December 2020 and took effect on June 1, 2021.

[57] State of Hawaii, "Ratepayer Protection Act; Public Utilities Commission; Electric Utilities Board," 2018, https://www.capitol.hawaii.gov/sessions/session2018/bills/SB2939_.HTM.
[58] Ulupono Initiative, "Performance-Based Regulation" (Ulupono, January 2021).
[59] State of Hawaii, "Hawaii PUC Drives Transformation Of Hawaiian Electric With New Performance-Based Regulation," December 23, 2020.

PBR Goals and Priority Outcomes

Goal	Priority Outcomes	
Enhance Customer Experience	Traditional	Affordability
		Reliability
	Emergent	Interconnection Experience
		Customer Engagement
Improve Utility Performance	Traditional	Cost Control
	Emergent	Distributed Energy Resources Asset Effectiveness
		Grid Investment Efficiency
Advance Societal Outcomes	Traditional	Capital Formation
		Customer Equity
	Emergent	Greenhouse Gas Reduction
		Electrification of Transportation
		Resilience

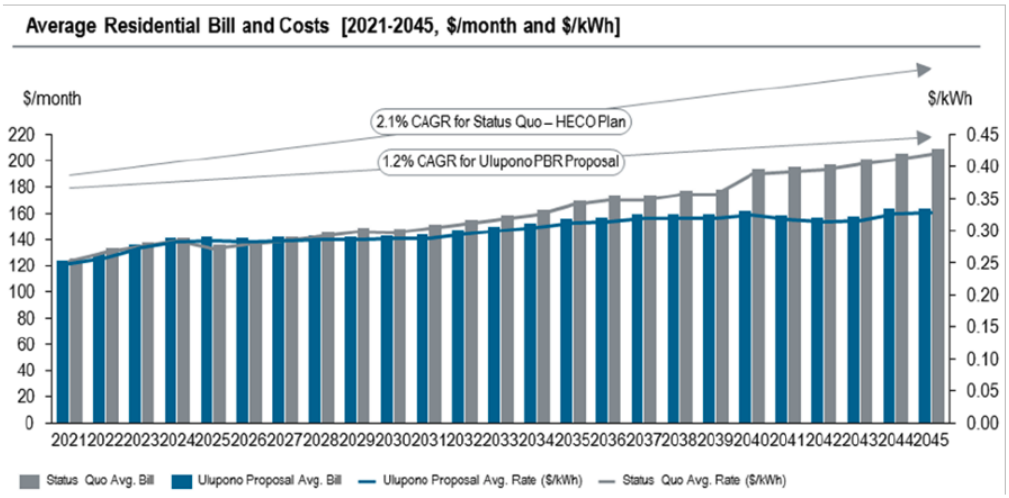
Figure 1. PBR goals and priority outcomes defined by Hawaii PUC.[60]

Under PBR, the revenue requirement will be adjusted using an Annual Revenue Adjustment Formula (Adjustment Formula).[61] This formula adjusts the electric utility's revenues by inflation, improvements to its business operations, and a Customer Dividend, which provides customers with the cost savings expected under PBR. The Adjustment Formula also accounts for unexpected financial events, such as changes to tax laws or natural disasters. Two important aspects of this formula are the X-factor and the Customer Dividend, as shown in Figure 2.[62] The X-factor's purpose is to create an economic incentive to improve the overall productivity and efficiency of the electric utility by allowing the utility to keep cost savings generated by improved business operations. However, regulators must be careful in setting this factor to avoid extremes, as one set too high will result in insufficient revenue to cover costs, and one set too low will generate excessive profits. The Customer Dividend acts as a commitment by the utility to give customers a share in cost savings generated through improved business operations, which results in revenues and, potentially, rates going up by less than inflation on average, as visualized in Figure 3.[63] Therefore, it challenges the utility to become more productive and create cost savings beyond what the X-factor allows.

[60] Ulupono Initiative, "Performance-Based Regulation."
[61] Ulupono Initiative.
[62] Ulupono Initiative.
[63] Ulupono Initiative.

I-Factor (inflation) *= Gross Domestic Product Price Index*
X-Factor (productivity) *= a pre-determined annual productivity factor set at 0%*
Z-Factor (exogenous events) *= ex post adjustment, determined annually, to account for exogenous events outside of the utility's control*
Customer Dividend *= mechanism to ensure customers share in the benefits of the PBR framework*

Figure 2. Annual Revenue Adjustment formula.[64]



Ulupono Initiative modeling under a proposed PBR framework shows ratepayers' bills increasing by less than inflation over the long-term, representing real savings.

Figure 3. Modeled average residential bills and costs from 2021 to 2045 in Hawai'i.

Their framework also requires the electric utilities to plan for five-year intervals between rate cases to account for adjustments to the revenue requirement.[65] In year four of the multi-year plan, the PUC will review the PBR framework to determine if adjustments or revisions are needed. Other factors impacting the utilities' revenue requirement include an Earnings Sharing Mechanism (ESM), a Re-Opener Mechanism, and an Exceptional Project Recovery Mechanism (EPRM). The ESM shares excessive costs or earnings between the utility and its customers to ensure financial health while protecting ratepayers from disproportionate utility profits.[66] The Re-Opener Mechanism provides for examination of the regulatory framework during the multi-year plan to determine if adjustments are necessary,

[64] Ulupono Initiative.
[65] Ulupono Initiative.
[66] Ulupono Initiative.

applied at the PUC's discretion. The EPRM allows for additional revenues for large, unique projects on a case-by-case basis.

Furthermore, Hawaii has also adopted a number of PIMs that financially reward the utility for outstanding performance in areas that the PUC identified as key outcomes, which include interconnection experience, customer engagement, and distributed energy resources asset effectiveness.[67] The PIMs introduced include: (1) Interconnection Approval PIM; (2) Grid Services PIM; (3) Low-to-Moderate Energy Efficiency PIM; (4) Advanced Metering Infrastructure PIM; and (5) Renewable Portfolio Standard-Accelerated PIM (RPS-A). The first four can provide Hawaiian Electric with a maximum reward of $8.5 million and maximum penalties of $900,000.

The RPS-A PIM provides the utility with an opportunity to earn $10 million for the first multi-year plan.[68] This PIM is pivotal because it incentivizes the utility to quickly add more electricity from renewable energy sources in excess of the regulatory requirements set for target years. Essentially, it provides an incentive to exceed the RPS goals while balancing the $20 per MWh penalty the utility could incur if they fall short of RPS goals. According to the Ulupono initiative, this PIM is expected to help the state eliminate dependence on imported fossil fuels and reduce greenhouse gas emissions from existing oil-fired power plants, which will provide environmental, health, and economic benefits.[69] It is also expected to improve service performance to customers and renewable energy developers, stabilize and make customer rates more affordable, and allow for a reasonable return on capital to upgrade and modernize the electric grid.

Overall, this PBR framework is expected to add 15,467 gigawatt-hours (GWh) of renewable energy onto O'ahu's electric system during the first five years.[70] This, in turn, has great potential to reduce greenhouse gas emissions. It is also predicted to reduce electricity rates for utility customers.

Many have touted Hawaii's approach to PBR as a pioneer.[71] It had a strong stakeholder engagement process that led to a common understanding between consumers, interested parties, utility companies, and regulators in Hawai'i. This engagement process was necessarily slow but showed a commitment to diverse voices, resulted in innovative thinking and balance, and led to broadly supported outcomes. RPS-A has also been widely praised and

[67] Ulupono Initiative.
[68] Ulupono Initiative.
[69] Ulupono Initiative.
[70] Ulupono Initiative.
[71] Herman K. Trabish, "Upheaval in Utility Regulation Emerging Nationally as Hawaii Validates a Performance-Based Approach," Utility Dive, July 5, 2022, https://www.utilitydive.com/news/upheaval-in-utility-regulation-emerging-nationally-as-hawaii-proves-a-perfo/625529/; Slanger, "Five Lessons from Hawaii's Groundbreaking PBR Framework."

is one example of something that has worked, according to the president of the Ulupono Initiative.

However, there are some concerns and limitations to this PBR framework despite it only being implemented in 2021. The Ulupono Initiative is concerned that the reduction of greenhouse gas emissions from ground and air transportation, the largest source of emissions in Hawai'i, was a major missed opportunity.[72] They had proposed an Electrification of Transportation PIM to provide utilities with a small incentive for the sale of electricity at EV charging stations, but this was not something included in the final PBR framework. Others have noted the need for balancing between interests. For example, the PIMs were expected to provide 2% or more of revenues to Hawaiian Electric but have only provided about 0.6%, and this could threaten Hawaiian Electric's 2021 credit rating upgrades, which were based on the PBR framework's listed potential benefit.[73] Furthermore, a Hawai'i consumer advocate stated that while PIM modifications may be needed, current metrics may be inadequate to verify they would deliver concrete customer benefits.

Office of the Consumer Advocate (OCA)

The Division of Consumer Advocacy, or the DCA, was created to "protect and represent consumer interests before the Hawai'i Public Utilities Commission, the Federal Communications Commission, and other local and federal agencies."[74] It is unclear if there was a specific event that prompted this office to be established, although it was likely induced by a combination of high electricity costs and the need for stronger action on climate change.[75] The DCA is composed of "attorneys, accountants, economists, engineers, an education specialist, analysts, and support staff," along with an executive director.[76] The executive director and other staff members are required to attend "public hearings held by the PUC to get input from the public."[77] The public is able to speak directly to the DCA or the PUC in addition to being able to comment publicly.

The DCA is essentially an oversight board for the Hawaii Public Utilities Commission (HPUC).[78] It reports directly to the HPUC after consulting the application that is filed by the utility, which is generally used to raise rates. The DCA is responsible for "keeping rates low

[72] Ulupono Initiative, "Performance-Based Regulation."
[73] Herman K. Trabish, "Upheaval in Utility Regulation Emerging Nationally as Hawaii Validates a Performance-Based Approach."
[74] Department of Commerce and Consumer Affairs. "DCA Overview/Seervices"
[75] Hawaiian Electric. "Average Price of Electricity." https://www.hawaiianelectric.com/billing-and-payment/rates-and-regulations/average-price-of-electricity.
[76] Department of Commerce and Consumer Affairs. "DCA Overview/Seervices"
[77] Department of Commerce and Consumer Affairs. "DCA Overview/Seervices"
[78] Department of Commerce and Consumer Affairs. "DCA Overview/Seervices"

while ensuring that the utility provides safe, reliable, and adequate service to consumers."[79] State energy policies are often promoted and advanced by the DCA as well.[80]

As recently as February 2024, the DCA was involved in the creation of a pilot program called "Shift and Save" that incentivizes customers to alter their peak electricity usage from the evening hours to the daytime hours.[81] This one-year program involving up to 16,000 customers, which spans the islands of Maui, Moloka'i, Lana'i, Oahu, and Hawai'i Island, is meant to both reduce bill costs and lessen the extent to which greenhouse gas emissions are released into the atmosphere.[82] It is unclear whether this program has had any impact on the price that customers pay for electricity, but it is plain that the DCA is, at the very least, attempting to accomplish the goals that it was tasked with.

Innovation Promotion

The Innovation Pilot Framework (IPF) was established by the HPUC in Decision No. 37507 on December 23, 2020.[83] This framework aims to promote innovation by providing an expedited process for testing new technologies, programs, and business models. Guided by the principles of Hawaii's PBR, the Framework emphasizes a customer-centric approach, administrative efficiency, and utility financial integrity. Collaboration with stakeholders, including Hawaiian Electric—Hawaii's IOU—the Commission, the Consumer Advocate, and others, focus on identifying pilot projects that benefit Low-to-Moderate Income customers across the State.[84] The IPF pipeline consists of four stages: 1) new ideas and opportunities, 2) sorting and refining opportunities, 3) prioritizing and deciding, and 4) execution. As of March 2024, there are five projects listed on Hawaiian Electric's webpage, most of them focused on EV grid integration and telematics,[85] with a total investment forecast of $12.5 million for the 2021-2025 period.[86]

Innovation promotion has been a shared priority between Hawaiian Electric and Hawaii's PUC. There is a shared agreement that the traditional utility model needs an update, and the utility needs flexibility in order to innovate.[87] This understanding, which stemmed from initial workshops led by Hawaii's PUC with Hawaiian Electric and other local stakeholders, appears to have been a key element for Hawaiian Electric to become "*fully on*

[79] Department of Commerce and Consumer Affairs. "DCA Overview/Seervices"
[80] Department of Commerce and Consumer Affairs. "DCA Overview/Seervices"
[81] Hawaiian Electric. "Shift and Save"
[82] Hawaiian Electric. "Shift and Save"
[83] Hawaii Public Utilities Commission (2020). Docket No. 2018-0088, Instituting a Proceeding To Investigate Performance Based Regulation.
[84] Hawaiian Electric (2024). Innovation Pilot Framework (IPF).
[85] Hawaii Public Utilities Commission (2024). Pilot Projects Listings.
[86] Hawaiian Electric (September 6, 2023). Innovation Pilot Framework (IPF) Portfolio Update.
[87] Connecticut PURA (April 21, 2022). Hawaii Stakeholders and Utility Regulator Discuss Performance-Based Regulation.

board" with PBR, as stated by Hawaiian Electric's Senior Vice-President of Customer, Legal, and Regulatory Affairs.[88]

Connecticut

For the Connecticut case study, we discuss its PBR framework and Innovative Energy Solutions Program. After Connecticut's Take Back Our Grid Act of 2020, the state has been consolidating a gradual and comprehensive transformation of its PSC's role through PBR implementation and other mechanisms.

Performance-Based Regulation (PBR)

In 2020, after enduring severe outages due to Tropical Storm Isaias, Connecticut's state legislature passed the Take Back Our Grid Act.[89] The Act explicitly allowed the PSC in Connecticut to establish reliability standards for utilities, develop metrics for assessing utility progress, and allow the commission to institute penalties for a utility's failure to meet the standard.[90]

Pursuant to the legislation, Connecticut's PSC set forth a two-phased approach to its rate reform.[91] In Phase 1, the PUC identified and evaluated the issues with the Connecticut regulatory framework, with the ultimate goal of establishing guiding principles and determining what regulatory mechanism and performance standard would be most effective. This phase lasted for two years. Connecticut moved to Phase 2 in 2023 and shifted focus to the design and implementation of the regulatory framework proposed in Phase 1. At each phase, the PSC incorporated procedural justice by collaborating with stakeholders.

In 2023, Connecticut's PSC presented its Phase 1 findings and set out a goals-outcomes-metrics hierarchy with four goals: 1) excellent operational performance, 2) public policy achievement, 3) customer empowerment and satisfaction, and 4) reasonable, equitable, and affordable rates.[92] Connecticut's commission then developed definitions for each of these goals. First, in defining excellent operational performance, the commission strived to "achieve the highest standards for [electric distribution companies'] performance in terms of efficiency, reliability, resiliency, and supply." Second, the public policy achievement definition focused on meeting state-level greenhouse gas emissions, decarbonization, and

[88] Connecticut PURA, "Hawaii Stakeholders"
[89]Tina Detelj and Olivia Perreault, "'Take Back Our Grid Act' to Implement Performance-Based Incentives for Utility Companies," WTNH.com, April 26, 2023, https://www.wtnh.com/news/connecticut/take-back-our-grid-act-to-implement-performance-based-incentives-for-utility-companies/.
[90] Conn. Gen. Stat. § 16-244aa(b).
[91] Herman K. Trabish, "Upheaval in Utility Regulation Emerging Nationally as Hawaii Validates a Performance-Based Approach."
[92] Connecticut Public Utilities Regulatory Authority, "PURA 2023 Annual Report," CT.gov, February 14, 2024, https://portal.ct.gov/pura/about/annual-report, 23.

distributed energy resources (DER) deployment targets, as well as enhancing environmental protection and equity measures.[93] Third, the Commission set standards for evaluating customer empowerment and satisfaction, using typical metrics regarding customers.[94] However, the commission also specifically mentioned empowering IOU customers to "take greater control of their energy services (e.g., deploying DERs and other grid-edge technologies, reducing their carbon footprint, etc.) and expenditures (e.g., lowering their monthly utility bill)."[95] Lastly, the fourth goal of reasonable, equitable, and affordable rates addressed matters of income equality and affordability, stating clearly that "all socioeconomic classes receive reasonable rates and equitable access to the same products and services."[96]

Notably, these are hierarchical goals in terms of emphasis, with the final goal of "reasonable, equitable, and affordable rates" holding the least weight. The commission also laid out nine outcomes corresponding to the above goals, also listed in order of priority: 1) Business Operations and Investment Efficiency; 2) Comprehensive and Transparent System Planning; 3) Distribution System Utilization 4) Reliable and Resilient Electric Service; 5) Social Equity; 6) greenhouse gas reduction; 7) Customer Empowerment; 8) Quality Customer Service; 9) Affordable Service.[97]

Connecticut's commission also established five foundational considerations to help guide any further internal reform, including its ratemaking process. These considerations include safety, equity, economic opportunity, risk distribution, and transparency. The considerations were formulated after public comments sessions and various stakeholder workshops.

The efficacy of this type of regulatory framework remains to be seen, as there has yet to be data from this past year regarding outages, consumer satisfaction, and other proxies for success. The most recent multi-year rate decisions were under the previous framework, as the new PBR framework has only recently started Phase 2 and has yet to be fully implemented.

That being said, IOUs in Connecticut are currently petitioning for a rate increase. As of April 16, no decision has been made and public comment remains open. Concerning the performance of the IOUs after this type of framework was passed, there were several major outages in Connecticut in 2023, where tens of thousands of households were left without electricity for days after a storm.[98] In 2024, there have been a number of outages that have

[93] Connecticut Public Utilities Regulatory Authority.
[94] Connecticut Public Utilities Regulatory Authority.
[95] Connecticut Public Utilities Regulatory Authority.
[96] Connecticut Public Utilities Regulatory Authority, "PURA 2023 Annual Report."
[97]Connecticut Public Utilities Regulatory Authority., 24.
[98]Taylor Hartz and Justin Muszynski, "Tens of Thousands without Power as Heavy Rain, High Winds Slam Connecticut," Hartford Courant, December 18, 2023, https://www.courant.com/2023/12/17/heavy-rain-wind-expected-to-slam-ct-flooding-could-occur-as-rivers-remain-swollen/.

also left thousands of households without electricity as well as causing many school closures.[99] It will be important to see how this outage is treated by Connecticut's Commission when it makes its decision on the new proposed rates.

Experts predict that the Connecticut PBR will be successful in many ways, namely addressing and incorporating procedural and distributive justice through energy equity and environmental justice considerations and the incorporation of "diverse stakeholder voices in designing the core performance elements."[100] This research shows that the PBR metrics, incentives, and penalties will likely enable safer, more reliable, and more affordable service in accordance with the state's policy aspirations. However, the Connecticut Take Back Our Grid Act has some gaps, namely the fact that bills from rates only cover 71% of costs for meeting policy goals (i.e., reducing shutoffs), generation, and transmission.[101] Thus, its overall impact could be dampened, as IOUs will likely argue that increased rates are needed to meet climate and affordability goals.[102]

Innovation Promotion

Connecticut's Framework for an Equitable Modern Grid[103] is the central policy promoting innovation in the state's electric utility sector. Approved in 2019 by Connecticut's Public Utility Regulatory Authority (PURA), this framework outlines a long-term vision for the state electric utility sector and establishes the next steps for eleven near-term pathways, with the goal of achieving four main objectives: 1) supporting the growth of Connecticut's green economy, 2) facilitating a cost-effective transition to a decarbonized future, 3) improving customer access to a more resilient and reliable electricity supply, and 4) furthering the discussion on energy affordability, especially in underserved communities in the state.[104]

Under the Framework for an Equitable Modern Grid, PURA established the Innovative Energy Solutions Program (IES)—which operates as a statewide regulatory sandbox.[105] The IES Program, facilitated by Strategen Consulting,[106] identifies, tests, and scales up innovations. The program offers up to $5 million per project and support over a 12- to 18-month period. Successful projects demonstrating benefits, cost-effectiveness, and scalability may be implemented on a larger scale in Connecticut. The program also provides an opportunity for third-party innovators and technology developers to collaborate with Connecticut's investor-

[99] Peter Yankowski, "CT nor'easter Latest: Northwest Schools Close Due to Snow," CT Insider, April 4, 2024, https://www.ctinsider.com/weather/article/ct-weather-noreaster-power-outages-school-delays-19384928.php.
[100] Herman K. Trabish, "Upheaval in Utility Regulation Emerging Nationally as Hawaii Validates a Performance-Based Approach."
[101] Herman K. Trabish..
[102] Herman K. Trabish..
[103] Connecticut's Public Utilities Regulatory Authority (2024). PURA's Framework for an Equitable Modern Grid.
[104] Sabin Center for Climate Change Law (2024). Connecticut's Framework for an Equitable Modern Grid.
[105] Roberts, D. (Jan 10, 2024). A Connecticut reformer is shaking up utility regulation. Volts.
[106] Roberts, D. "Connecticut reformer."

owned electric distribution companies—Eversource Energy and The United Illuminating Company.[107] The fundamental idea is to prove that implementing certain technologies or regulations would reduce expected costs.

Projects are supported through cycles comprising four phases each. The first IES Program Cycle launched on January 20, 2023.[108] Seven projects were selected through cycle one, including electric vehicles (e.g., demonstrating the integration of EV school bus fleets with the grid to enable vehicle-to-grid capabilities), building optimization, and distributed energy resource management systems.[109] The four phases comprise 1) initial screening, 2) assessment of cost-effectiveness, economic benefit, and equity parameters, 3) pilot implementation and performance evaluation, and 4) deciding whether to scale up, iterate in the next cycle, or exit the program.[110] These four phases for cycle 2 are illustrated in the following Figure 4.

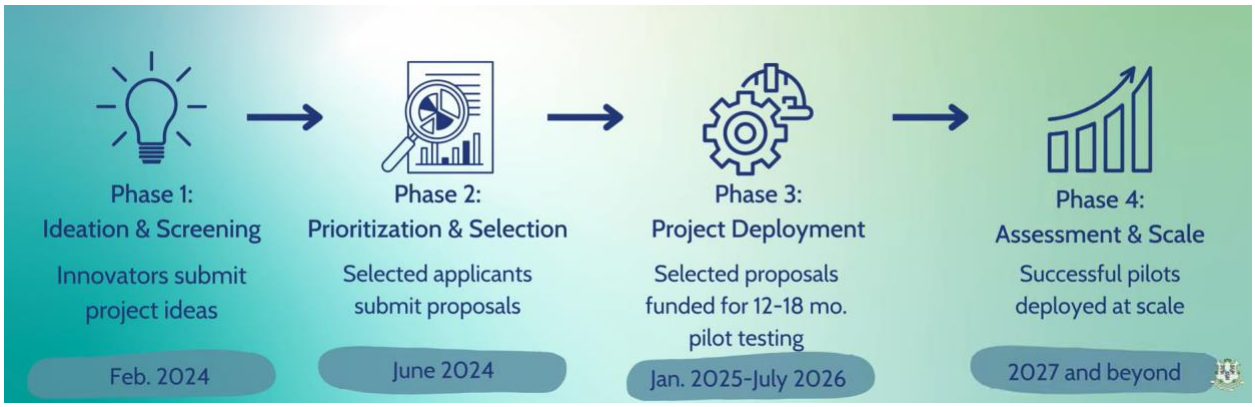


Figure 4. Four phases for cycle 2 of Connecticut's Innovative Energy Solutions Program.[111]

An Innovation Advisory Council screens projects during phases 1 and 2, comprised of consumer protection representatives (such as the Office of Consumer Counsel); innovator and venture capital representatives (such as the Connecticut Green Bank and Connecticut Innovations); technical representatives from each IOU; environmental, non government organization representatives and/or equity- or community-focused organization representatives; the Department of Energy and Environmental Protection, and

[107] Connecticut's Public Utilities Regulatory Authority (2024). Connecticut Innovative Energy Solutions Program.
[108] Connecticut's Public Utilities Regulatory Authority (January, 2023). Overview of the Innovative Energy Solutions Program.
[109] Roberts, D. "Connecticut reformer."
[110] Roberts, D. "Connecticut reformer."
[111] Connecticut's Public Utilities Regulatory Authority (January, 2023). Overview of the Innovative Energy Solutions Program.

representatives from academia.[112] This Council has the objective of guiding the pilot selection process and facilitating wider stakeholder engagement and exposure to innovation.

Illinois

The state of Illinois has examples of PBR and PIPP that serve as instructive in crafting a PSC reform solution that incorporates these programs. This case study considers the structure, incentives, and goals of Illinois' PBR system and the metrics by which Illinois evaluates efficacy. The Illinois PIPP provides an example of program structure, eligibility requirements, arrearage forgiveness, and financing mechanisms. Illinois also provides an example of a PIPP with inadequate financing to serve all eligible applicants.

Performance-Based Regulation (PBR)

By passing the Climate and Equitable Jobs Act (CEJA) in 2021, Illinois mandated a performance-based system for its utilities. While the legislature had previously incorporated and allowed performance-based considerations in its rate assessments, the legislation expanded Illinois' PUC's scope by delegating power to the Illinois Commission. This was done in order to establish performance-based system metrics and to require annual performance reports describing "the utility's performance under each metric" and identifying "any extraordinary events that adversely affected the utility's performance."

The overarching objectives presented by the Illinois legislature were to maintain and improve service reliability, decarbonize utility systems, direct utilities to make clean energy investments, maintain affordability, improve customer service performance and engagement, and increase workforce and supplier diversification.[113] Outside of new performance incentive mechanisms, CEJA also established multi-year rate plans and multi-year integrated grid plans.[114] In Illinois, multi-year rate plans establish base rates for IOUs for each delivery year of the 4-year period covered by the plan, with modifications allowed under circumstances written in the statute.[115]

Illinois' PUC established metrics in line with the objectives set forth by the state legislature. For instance, to meet and qualify for the affordability metric, the utility "must take proactive steps to reduce disconnections, and is not allowed to achieve this metric simply by

[112] Connecticut's Public Utilities Regulatory Authority (March 30, 2022). Docket No. 17-12-03RE05, PURA Investigation into Distribution Planning of the Electric Distribution Companies – Innovative Technology Applications and Programs (Innovation Pilots).
[113] "Illinois Compiled Statutes, Sec. 16-108.18. Performance-Based Ratemaking.," Illinois General Assembly - Illinois compiled statutes, https://ilga.gov/legislation/ilcs/fulltext.asp?DocName=022000050K16-108.18.
[114] "Illinois Compiled Statutes, Sec. 16-108.18. Performance-Based Ratemaking."
[115] "Illinois Compiled Statutes, Sec. 16-108.18. Performance-Based Ratemaking."

allowing" the amount of money owed to increase.[116] The utility must show that it has undertaken "proactive measures" to help customers afford their bills.[117] Furthermore, the Illinois system motivates affordability incrementally by rewarding incentives through basis points if there is a set percentage decrease in shutoffs in comparison to the previous year.[118] The incentive mechanism also penalizes a utility if it fails to meet the improvement goal relative to the previous year's target.[119] For example, if a utility's affordability performance falls under the previous year's target, the utility will lose 8 basis points.[120]

The Illinois rate model sets forth incentives and disincentives for reliability through the basis point system. The following factors are the performance-incentive metrics Illinois has adopted: 1) Reliability and Resiliency; 2) Peak Load Reduction; 3) Supplier Diversity Expansion; 4) Affordability; 5) Interconnection, DER integration, Rate Options, and Transparency; and 6) Customer Service.

The PIMs contain sub-categories used to assess and evaluate the IOU's efficacy in implementation. For instance, the reliability metric also interweaves equity, namely looking at "Equity Investment Eligible Communities" within counties. The reliability measure looks at the performance metrics, including but not limited to performance overall, in the counties, frequency, duration, and number of customers who experience interruptions. There is an additional incentive for reliability in vulnerable communities under the "Reliability and Resiliency in Vulnerable Communities Performance Metric," which can reward up to 10 basis points and penalize a maximum of 10 basis points.

The other assessment criteria operate similarly. For example, to meet and qualify for the affordability metric, the utility "must take proactive steps to reduce disconnections, and is not allowed to achieve this metric simply by allowing" the amount of money owed to increase.[121] The utility must show that it has undertaken "proactive measures" to help customers afford their bills.[122]

Despite these incentive structures, a report found that in 2022, major IOUs in Illinois like ComEd and Nicor Gas still ordered more shutoffs in 2022 compared with 2021.[123] The report found that ComEd canceled service for a staggering 225,827 accounts from the start of 2022 through October 2022, which constitutes a 27% increase in shutoffs from the same 10

[116] Ameren Illinois. "Performance Metrics Plan For Ameren Illinois." May 25, 2022, https://www.icc.illinois.gov/docket/P2022-0063/documents/325744/files/567074.pdf.
[117] Ameren Illinois.
[118] Ameren Illinois.
[119] Ameren Illinois.
[120] Ameren Illinois.
[121] Ameren Illinois.
[122] Ameren Illinois.
[123] David Roeder, "Utility Shutoffs for Nonpayment Soar across Illinois and the Chicago Area," Times, January 30, 2023, https://chicago.suntimes.com/business/2023/1/30/23575972/utility-shutoffs-for-nonpayment-soar-across-illinois-and-the-chicago-area.

months in 2021.[124] This strongly suggests that the Illinois' current system is inadequate in curbing and disincentivizing an IOU from increasing shutoffs.

The Illinois legislation also established an Energy Workforce Advisory Council, with voting members across trade associations, labor unions, workforce development programs, higher education, economic development organizations, environmental justice communities, community-based organizations serving low-income persons and families, small business development, BIPOC communities, and clean energy businesses.[125]

The Illinois statute also included distributive justice, specifically creating a Clean Energy Jobs and Justice Fund designed to "ensure that the benefits of the clean energy economy are equitably distributed" by providing innovating financing opportunities and grants to minority business enterprises, contractors of color, and businesses that serve low-income, BIPOC communities. The fund also aspires to have no-to-low cost financing and loans for said businesses.

Percentage of Income Payment Plans (PIPP)

In 2009, the Illinois state legislature passed legislation creating a PIPP program. The PIPP allows eligible customers to pay no more than 6 percent of their household income toward their electric and gas payments combined with a minimum monthly payment of $10.[126] However, if a household does not pay directly for heat, their payment should be less than 2.4% of their monthly income, with a minimum payment of $5.[127] The PIPP also includes an arrearage reduction component, allowing participants who make their PIPP payments on time will receive credits toward past due bills.[128]

PIPP Eligibility

The program targets households across the state with incomes up to 150 percent of the federal poverty level guideline, mirroring the state Low Income Home Energy Assistance Program (LIHEAP) requirements. LIHEAP is a federal social services program funded through Congressional appropriations that provides assistance to help reduce costs of energy bills, home weatherization, minor energy-related repairs, and energy crises.[129] However, PIPP eligibility may not exceed 200% of the federal poverty level guideline.[130] PIPP applicants are

[124] David Roeder.
[125] "Illinois Compiled Statutes, Sec. 16-108.18. Performance-Based Ratemaking.," Illinois General Assembly - Illinois compiled statutes, https://ilga.gov/legislation/ilcs/fulltext.asp?DocName=022000050K16-108.18.
[126] Senate Bill 1918 (2009). Illinois Senate
[127] Senate Bill 1918 (2009). Illinois Senate
[128] Illinois Governor's Office, "Illinois Governor Signs PIPP Legislation," The LIHEAP Clearinghouse, 2024, https://liheapch.acf.hhs.gov/news/july09/pipp.htm.
[129] Administration for Children and Families. Office of Community Services. Low Income Home Energy Assistance Program. https://www.acf.hhs.gov/ocs/programs/liheap
[130] Peoples Gas. PIPP. https://www.peoplesgasdelivery.com/payment-bill/percentage-income-payment-plan

required to show proof of income, a statement of their current bill, proof of social security numbers for all household members, and any relevant rental agreements for their household.[131]

PIPP Financing

The cost recovery mechanism set by legislation for the Illinois PIPP is a 20% monthly ratepayer increase from 40 cents to 48 cents for residential customers and a comparable increase for commercial and industrial customers, totaling $75 million annually.[132] The legislation also required utilities to make a one-time $22 million contribution for the program's costs.[133]

PIPP Efficacy

The Illinois' PIPP is not currently accepting additional ratepayer applicants and a lack of information relating to the current demographics of applicants exists.[134] The PIPP program is continuing to function as designed, but eligible households who are not already enrolled in the PIPP are not able to join the program at this time. This is likely due to inadequate financing mechanisms, but little data regarding the financing of Illinois' PIPP program is publicly available to confirm these suspicions. As it is now, the government is limited to statutorily defined increases, meaning that the government is unable to raise funds to cover the program without further legislation.

California

The state of California case study analyzes California's pilot PIPP started in 2023. The case study provides an overview of California's program, its eligibility requirements, and the mechanisms by which California finances its PIPP. California serves as an example of a PIPP that was implemented by the Commission without express legislative authorization.

[131] Peoples Gas.

[132] Senate Bill 1918 (2009). Illinois Senate. "Credits will be applied to PIP Plan participants' utility bills based on the portion of the bill that is the responsibility of the participant provided that the percentage shall be no more than a total of 6% of the relevant income for gas and electric utility bills combined, but in any event no less than $10 per month, unless the household does not pay directly for heat, in which case its payment shall be 2.4% of income but in any event no less than $5 per month.""

[133] Illinois Governor's Office, "Illinois Governor Signs PIPP Legislation."

[134] Illinois DCEO. "How to Apply."
https://dceo.illinois.gov/communityservices/utilitybillassistance/howtoapply.html

Percentage of Income Payment Plans (PIPP)

The Public Utilities Commission of California approved a pilot PIPP in 2021.[135] California's pilot PIPP requires the four largest energy providers in the state to implement payment caps: PG&E, So Cal Edison, San Diego Gas, and SoCal.[136] The pilot PIPP caps monthly electric and gas rates at 4% of a household's monthly income, for eligible participants within 200% of the Federal Poverty Guidelines (FPG).[137] The pilot PIPP enrolls up to 15,000 participants for the four-year pilot period.[138] The stated purpose of the California pilot PIPP was to carry out the statutory requirements of California Code PUC Section 718(a):

> a) The commission shall develop policies, rules, or regulations with a goal of reducing, by January 1, 2024, the statewide level of gas and electric service disconnections for nonpayment by residential customers, including policies, rules, or regulations specific to the four gas and electrical corporations that have the greatest number of customers. The commission shall convene stakeholders, including, but not limited to, public health officials, consumer advocates, and organizations representing low-income communities, to assist with the development of the policies, rules, or regulations.

under which the legislature directed the Commission to develop a policy to reduce electric service disconnections and nonpayment by low-income residential customers while also encouraging energy savings.[139] The Commission's decision to order the creation of a PIPP is notable because it is an example of the regulatory creation of a PIPP without an explicit legislative command to create a PIPP. California's pilot PIPP was not implemented until 2023.[140] An evaluation of the pilot PIPP's effectiveness was ordered to be conducted based on the first 18 months of PIPP data; this report has not yet been conducted or released.[141]

PIPP Eligibility

Participants are eligible for the pilot PIPP if they are within 200% of the FPG. Customers of the participating utilities and Community Choice Aggregators are also eligible if they are enrolled in the existing energy assistance program: California Alternate Rates for

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[135] California Public Utilities Commission. "CPUC Acts To Ensure Essential Utility Services for Consumers at Risk of Disconnections." https://www.cpuc.ca.gov/news-and-updates/all-news/cpuc-acts-to-ensure-essential-utility-services-for-consumers-at-risk-of-disconnections

[136] California Public Utilities Commission. Decision Authorizing Percentage of Income Payment Plan Pilot Programs. Page 2. 2021. https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M412/K735/412735667.PDF

[137] California Public Utilities Commission.Decision Authorizing Percentage of Income Payment Plan Pilot Programs.

[138] California Public Utilities Commission.

[139] California Public Utilities Commission.

[140] PG&E. Percentage of Income Payment Plan. https://www.pge.com/en/account/billing-and-assistance/financial-assistance/percentage-of-income-payment-plan.html

[141] California Public Utilities Commission. Decision Authorizing Percentage of Income Payment Plan Pilot Programs.

Energy Program. Ratepayers are also eligible for the pilot PIPP if they are located in zip codes with the highest rates of recurring energy disconnections.[142] Participants must verify their income and re-verification processes.[143]

PIPP Financing

The financing of the pilot PIPP is an electric service surcharge called the Public Purpose Programs Charge (PPPC).[144] The PPPC is a user bill surcharge to recover costs for administering PIPP and other discount/energy efficiency programs.[145] The pilot PIPP is financed entirely through the PPPC at an estimate of $23 million in subsidies and $15 million in administrative costs over the four years that the pilot is set to occur.[146] This is a total cost of $38 million. This breaks down to about $2.38 million per participating utility per year.

Ohio

The state of Ohio case study analyzes Ohio's PIPP, which has operated since 1983. It provides an overview of the program, its eligibility requirements, and the mechanisms by which Ohio finances its PIPP. Ohio's PIPP has served as a model for other states, particularly its arrearage forgiveness program.

Percentage of Income Payment Plans (PIPP)

The state of Ohio's PIPP is one of the oldest in the nation starting in 1983, running in its current format since July 1, 2000.[147] The Ohio Public Utilities Commission established Ohio's PIPP in its original format by Commission Order to reduce non-payment and service disconnections.[148] The Ohio PIPP offers low-income energy assistance for qualifying participants, which is determined based on the size of household and income run by the Ohio Department of Development.[149] The Ohio PIPP caps gas heating and electricity payments at 5% of monthly gross household income with a minimum monthly payment of $10.[150] Houses that have electric heating have the sum of their electricity and heating bills capped at 10% of

[142] California Public Utilities Commission., 2-3
[143] California Public Utilities Commission., 21.
[144] California Public Utilities Commission., 3.
[145] Southern California Edison. FAQ. What are the rate charges? https://www.sce.com/customer-service/rates/faq
[146] California Public Utilities Commission. Decision Authorizing Percentage of Income Payment Plan Pilot Programs., 3.
[147] Ohio Revised Code Section 4928.52. Universal Service Rider.
[148] State PBF/USF History, Legislation, Implementation Ohio. https://liheapch.acf.hhs.gov/dereg/states/ohio.htm
[149] Ohio Department of Development. "Percentage of Income Payment Plan." https://development.ohio.gov/individual/energy-assistance/2-percentage-of-income-payment-plan-plus
[150] Ohio Department of Development.

their gross monthly household income.[151] Ohio's PIPP also has an arrearage forgiveness program which operates on a credit system.[152] Each time a PIPP member household pays their monthly required payment on-time and in-full, they receive a 1/24th credit toward any debt.[153] If a PIPP member household makes 24 consecutive full, on-time payments, all arrearages will be forgiven.[154] Some small utilities are not required to offer PIPP to customers, but it appears all public IOUs are required to offer PIPP services.[155]

PIPP Eligibility

The Ohio PIPP eligibility requirements extend to residents with a household income at or below 175% of the Federal Poverty Guidelines.[156] The Ohio PIPP is by application only, public utilities are not required to reach out to potentially eligible households.[157]

PIPP Financing

Beginning in 2000, the Ohio PIPP has been financed through the Universal Service Fund (USF), a rider (additional charge) on the utility bills of all residential customers.[158] The USF rider is a surcharge on the utility bills of all residential customers of electric utilities.[159] The USF rider surcharge is assessed equally to all residential customers.[160] Though the gas PIPP rider is embedded in gas distribution charges which utilities collect "as needed".[161] The USF rider on retail electric service rates is determined by the Ohio Public Utilities Commission.[162]

Pennsylvania

The state of Pennsylvania's OCA case study will analyze the effectiveness of an office that is dedicated to maintaining customer satisfaction while concurrently amplifying customers' voices to ensure that they are not being exploited financially.

[151] Ohio Public Utilities Commission. "PIPP Plus." https://puco.ohio.gov/utilities/gas/resources/pipp-plus
[152] Ohio Public Utilities Commission.
[153] Ohio Public Utilities Commission.
[154] Ohio Public Utilities Commission.
[155] Ohio Public Utilities Commission.
[156] Ohio Department of Development. "Percentage of Income Payment Plan."
[157] Ohio Department of Development.
[158] Ohio Revised Code Section 4928.52. Universal Service Rider.
[159] Ohio Revised Code Section 4928.52.
[160] Ohio Revised Code Section 4928.52.
[161] State PBF/USF History, Legislation, Implementation Ohio. https://liheapch.acf.hhs.gov/dereg/states/ohio.htm
[162] State PBF/USF History

Office of the Consumer Advocate (OCA)

The Pennsylvania OCA is tasked with providing electricity customers with safe and reliable energy, as well as maintaining reasonable and affordable rates.[163] Similarly to the DCA in the state of Hawai'i, the OCA has begun to focus more on energy efficiency and other plans to help ensure Pennsylvania customers are prepared for the changing climate.[164] If the OCA believes that the PUC has made an erroneous decision, it is able to appeal this decision.[165] The OCA was established in 1976 by the Pennsylvania General Assembly, and operates an office within the Office of the Attorney General.[166] It would seem that there is no singular event that prompted the OCA to be created, but it is likely that the inflation that characterized the 1970s caused electricity prices to rise exponentially, which created a need for an office that would provide a voice for the consumers.[167]

Between 2022-2023, the OCA participated in 226 rate cases.[168] The resulting impacts were a reduction of requested rate increases by about $179 million.[169] In January 2023, a utility in Pennsylvania (UGI Utilities) requested an $11.4 million rate hike, of which $10.7 million would be collected from residential customers.[170] The OCA was able to dispute this request, and instead increased rates by $7.4 million, or 6.3% rather than the original rate of 27.5%.[171] The OCA was also able to accomplish lowering proposed fixed monthly residential rates from $13.50 to $10.75.[172] It is clear that this office is functioning at a level that is beneficial to customers, although there is certainly room for improvement, particularly where it pertains to hiring more local experts to serve in the OCA; currently, there is a singular Consumer Advocate in Pennsylvania.[173]

United Kingdom

The RIIO framework—Revenue = Incentives + Innovation + Outputs—was implemented in the UK in 2013, a PBR framework that incorporates an innovation promotion program.[174] This case study will focus on this innovation framework and provide some additional elements to the cases of Hawai'i and Connecticut's innovation programs.

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[163] Cicero. "Annual Report"
[164] Cicero.
[165] Cicero.
[166] Pennsylvania Office of Consumer Advocate. "Pennsylvania Office of Consumer Advocate"
[167] PAPUC. "History."
[168] Cicero. "Annual Report"
[169] Cicero.
[170] Cicero.
[171] Cicero.
[172] Cicero.
[173] Pennsylvania Office of Consumer Advocate. "Our Advocacy."
[174] Girouard C. (May 30, 2019). UK RIIO sets out to demonstrate how a performance-based regulatory model can deliver value. Utility Dive.

Innovation Promotion

The UK's Strategic Innovation Fund was launched in 2021 and complements other performance-based mechanisms in the regulatory model and targets areas of innovation that might not be incentivized effectively through existing mechanisms, particularly when the payback period is lengthy. The UK's regulator, Ofgem, oversees this fund, which operates the Network Innovation Competition, the Network Innovation Allowance, and the Innovation Roll-Out Mechanism.[175] These mechanisms provide a platform for energy companies to propose and implement innovative projects in collaboration with other stakeholders such as energy suppliers, universities, or technology providers. As of 2023, the Strategic Innovation Fund had launched 12 strategic innovation challenges and funded 121 projects.[176]

The communication strategy of the Strategic Innovation Fund reflects the prioritization of Ofgem for stakeholder engagement and transparency. Some elements of this strategy are a bi-monthly newsletter, the Bright Spark podcast, a blog, and annual reports—showcasing funded projects and detailed lists of involved partners.[177]

1.5 Proposal Description

To address issues of affordability, reliability, climate goals, and equity, we propose a comprehensive four-pronged approach to MPSC reform based on a combination of Performance-Based Regulation (PBR), an innovation promotion framework, Percentage of Income Payment Plans (PIPP), and an Office of Consumer Advocate (OCA). PBR serves as the central pillar for reform, with an innovation promotion framework, PIPP, and OCA as complements to best incorporate and address equity, affordability, and innovation. We will explore this proposal in more depth below.

Performance-Based Regulation (PBR)

Current State of PBR in Michigan

MPSC has been considering the implementation of PBR since 2016.[178] This exploration has been marked by several key milestones, including the release of a white paper in 2017 commissioned by the MPSC[179] and a comprehensive report in 2018[180] outlining the potential benefits and challenges of PBR.

[175] UK's Office of Gas and Electricity Markets (2024). About the Strategic Innovation Fund (SIF).
[176] Ofgem (2023). Ofgem Strategic Innovation Fund (SIF) Annual Report 2023.
[177] Ofgem (2024). Strategic Innovation Fund (SIF).
[178] Litell, D., and J. Shipley. 2017. "Performance-Based Regulation Options: White Paper for the Michigan Public Service Commission."
[179] Litell, D., and J. Shipley. "Performance-Based Regulation…"
[180] MPSC. 2018. "Report on the Study of Performance-Based Regulation."

Moreover, the MPSC has been successfully implementing performance-based mechanisms through some targeted programs, such as demand response and energy waste reduction incentives. The MI Power Grid Initiative is a workgroup through the MPSC, focused on three primary work areas of customer engagement, integrating emerging technologies, and optimizing grid performance and investments. The initiative came to a close in 2023, but led to new rules on performance and quality of service of the electric grid, a more streamlined approach to distributed energy interconnection, updated grid and resource planning processes, and expanded customer options. The final report was released in April 2023, with recommendations to initiate more focused action around PBR. Furthermore, in April 2023, the MPSC established its Financial Incentives and Disincentives workgroup, which has been instrumental in advancing this effort, with a recent report detailing plans for pilots, integration, and stakeholder engagement.[181] The workgroup's express goal is to evaluate financial incentives and disincentives to best ensure that utility financial performance aligns with customer value, specifically distribution reliability and safety.[182] The workgroup is in early stages and is currently gathering feedback and insights from stakeholders on MPSC's plans regarding PBR (Open case Case No. U-21400).[183]

The MPSC has faced pushback, particularly regarding concerns that PBR incentives could result in additional surcharges for residents. However, in Hawai'i, the PBR framework is set to reduce rates for utility customers. The topic is ever-evolving, and workgroup developments in the coming months will be highly relevant for future ratemaking in Michigan. In the past, the MPSC work groups have taken up to a couple years to consider and implement programs due to research, diligence, and comprehensive public feedback processes.

Michigan PBR Proposal

To fully connect Michigan's clean energy goals with utility performance, we propose implementing a complete PBR framework based on comprehensive studies of potential outcomes and an extensive community and stakeholder engagement process. While goals and metrics would ultimately be set by the MPSC commissioners and staff, the Michigan legislation can set their intended outcomes and goals through the legislative process. Hawai'i, Connecticut, and Illinois are a few examples of PBR frameworks with varying intended outcomes and goals, as well as initial levels of success in implementation. Based on these case

[181] Allnutt, Brian. 2023. "Michigan regulators release plan to link utility profits with performance." Planet Detroit, August 31, 2023.
[182] State of Michigan, "Financial Incentives/Disincentives," Michigan Public Service Commission, 2024, https://www.michigan.gov/mpsc/commission/workgroups/mi-power-grid/financial-incentives-disincentives.
[183] MPSC. 2023. Case No. U-21400 "In the matter of the Commission's own motion to establish a workgroup to investigate appropriate financial incentives and penalties to address outages and distribution performance moving forward."

studies and current workgroup efforts by the MPSC, we propose the following PBR framework for Michigan:

Annual Revenue Adjustment Formula

Instead of the traditional Cost-of-Service formula, the framework would use an adapted Annual Revenue Adjustment ratemaking formula, similar to that of Hawai'i.[184] This formula adjusts the electric utility's revenues by inflation, improvements to its business operations, and a Customer Dividend, which provides customers with the cost savings expected under PBR. The Adjustment Formula also accounts for unexpected financial events, such as changes to tax laws or natural disasters. Two important factors of this formula are the X-factor and Customer Dividend. The X-factor sets an economic incentive for utilities to improve their overall productivity and efficiency.[185] The Customer Dividend acts as a commitment by the utility to give customers a share in cost savings generated through improved business operations, which results in revenues, and likely rates, to go up by less than inflation on average. This pushes the utility to control costs and be more productive.

Multi-Year Rate Plan

A Multi-Year Rate Plan is an important part of the PBR framework. In line with Hawai'i, we propose a five-year multi-year plan, with the MPSC reviewing the PBR framework in year four to see if any adjustments are needed. Multi-year plans provide time for utilities to improve performance and flexibility to test innovations.[186] Further, these plans reduce regulatory costs and burdens by limiting the number of rate cases.[187] Research suggests that "a shorter duration weakens cost incentives." They also provide time for Performance Incentive Mechanisms that drive new technologies to demonstrate revenue impacts, as testified by PBR expert Rabago to Illinois' PSC.[188]

Performance Incentive Mechanisms

This PBR framework would also include a number of PIMs based on state goals. PIMs are a regulatory tool that would be employed by the MPSC to causally tie utilities' earnings to the utilities' performance on a stated desired regulatory outcome set forth by the MPSC.[189] Our proposed PIMS are as follows: 1) Reliability and Resilience; 2) Grid Services; 3) Advanced

[184] Ulupono Initiative, "Performance-Based Regulation."
[185] Ulupono Initiative.
[186] Herman K. Trabish, "Upheaval in Utility Regulation Emerging Nationally as Hawaii Validates a Performance-Based Approach."
[187] Kenneth W. Costello, "Design Considerations for Multiyear Public Utility Rate Plans," *Utilities Policy* 59 (August 1, 2019): 100923, https://doi.org/10.1016/j.jup.2019.05.009.
[188] Illinois Commerce Commission, "Document for 22-0063," 2024, https://www.icc.illinois.gov/docket/P2022-0063/documents/324445.
[189] RMI, "Performance Incentive Mechanisms (PIMs) Database," RMI, 2024, https://rmi.org/pims-database/.

Metering Infrastructure (AMI) Utilization; 4) Accelerated Renewable Portfolio Standard (RPS-A); 5) Interconnection; 6) Affordability; and 7) Customer Service.

Reliability and Resilience

We first propose a Reliability and Resilience PIM, which penalizes utilities for a high frequency of power outages and long duration of power outages during extreme weather. This PIM is based on similar mechanisms in Hawai'i and Illinois, and is something already being considered by Michigan in the FID workgroup.[190] For outage duration measurement, this PIM would use the System Average Interruption Duration Index (SAIDI), which measures the average duration of an outage, defined as the sum of all customer interruption durations in minutes divided by total customers served. For frequency of outages, the PIM would use the System Average Interruption Frequency Index (SAIFI), which measures the average frequency of outages, defined as the annual number of customer interruptions divided by the total customers served. Lastly, the Customer Average Interruption Duration Index (CAIDI) measures the average time required to restore service, defined as the total minutes of customer interruption divided by the total number of interruptions. Lower SAIDI minutes, CAIDI minutes, and SAIFI numbers equate to better reliability (i.e., fewer minutes of outages, faster service restoration, and fewer overall outages).

The MPSC currently measures these three mechanisms using data from the utilities for all days, no matter the weather, and days that did not have major weather events. We propose an initial benchmark for these indices at the 2nd quartile (from the previous year) from the Institute of Electrical and Electronics Engineers (IEEE) survey of electric reliability metrics to give utilities time to adjust.[191] After the first 4 to 5 years of PBR implementation, we propose moving to the 1st quartile. Utilities would be penalized for going beyond these benchmarks. Charts showing SAIDI, SAIFI, and CAIDI data from all Michigan utilities through 2022 can be seen in Figures 5 to 7.

Following the Illinois model, the MPSC reliability PIM would also interweave equity, by identifying historically and presently disadvantaged communities across the state, potentially using the MiEJScreen Tool, and focusing on reliability within said communities.[192] In particular, it would focus on measuring SAIDI, SAIFI, and CAIFDI in vulnerable communities, or communities experiencing hardships related to the environment, income, unemployment,

[190] Hawaiian Electric Company, Inc., "Performance Incentive Mechanism Provision," June 1, 2021, https://www.hawaiianelectric.com/documents/billing_and_payment/rates/hawaiian_electric_rates/heco_rates_pim.pdf; State of Michigan, "Distribution System Reliability Metrics," Michigan Public Service Commission, 2024, https://www.michigan.gov/mpsc/consumer/electricity/distribution-system-reliability-metrics; Ameren Illinois, "Performance Metrics Plan For Ameren Illinois," May 25, 2022.

[191] State of Michigan, "Distribution System Reliability Metrics."

[192] State of Michigan, "MiEJScreen: Environmental Justice Screening Tool (DRAFT)," Department of Environment, Great Lakes, and Energy, 2024, https://www.michigan.gov/egle/maps-data/miejscreen; Ameren Illinois, "Performance Metrics Plan For Ameren Illinois."

education, poverty, and more that make them more susceptible to hardship related to extended outages. At each review, the MPSC would assess the performance of the IOU in identified vulnerable communities, and if the performance remains the same or worse, the IOU would be penalized with a percentage of common equity.

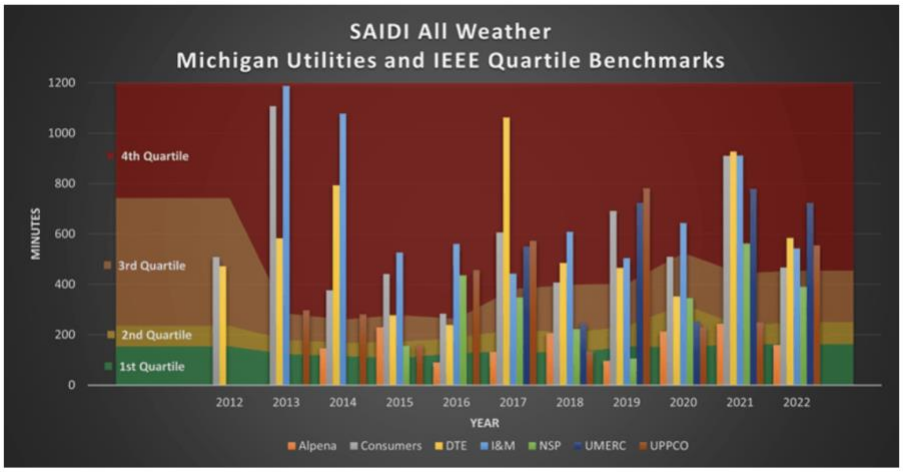

Figure 5. Michigan utilities SAIDI metric in all weather.[193]

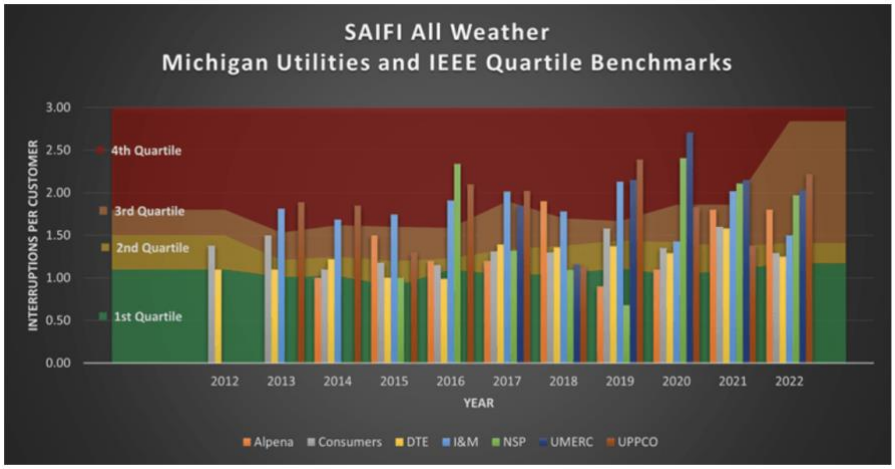

Figure 6. Michigan utilities SAIFI metric in all weather.[194]

[193] State of Michigan, "Distribution System Reliability Metrics."
[194] State of Michigan.

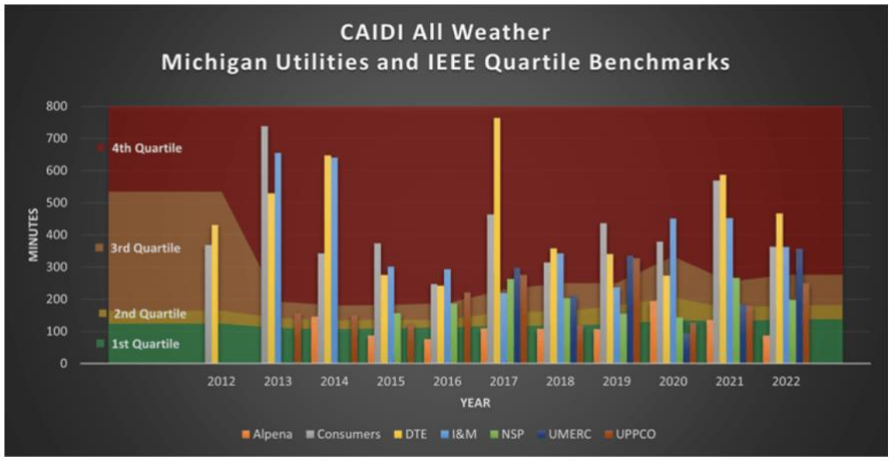

Figure 7. Michigan utilities CAIDI metric in all weather. [195]

Grid Services

The next PIM is Grid Services, which would help accommodate and leverage the anticipated growth of renewables, distributed generation, electric vehicles, and other Distributed Energy Resources (DERs). Grid services are various services needed to keep the frequency and voltage of the power grid stable. In particular, this is an interim PIM that rewards the acquisition of grid services through programs or procurement within three years of PBR implementation.[196] Eligible grid services include load build, load reduction, and/or Fast Frequency Response (FFR). Load build refers to a program intended to increase electricity consumption whenever it is most cost-effective regardless of timing, which would support increased electrification, reduced reliance on fossil fuels, and decarbonization.[197] Load reduction is complementary to load build, it refers to electricity ordinarily supplied by the utility, displaced by on-site generation or demand reduction.[198] FFR is defined as "power injected to (or absorbed from) the grid in response to changes in measured or observed frequency during the arresting phase of a frequency excursion event to improve the frequency nadir or initial rate-of-change of frequency."[199] The flexibility provided by FFR and load build and reduction allows for a higher share of renewables to be integrated into the grid and increased grid reliability. The reward for one of the services would be the total kW capacity of the acquired service multiplied by the eligible grid service incentive as determined by the MPSC (example from Hawai'i seen in Figure 8.)

[195] State of Michigan.
[196] Hawaiian Electric Company, Inc., "Performance Incentive Mechanism Provision."
[197] "Load Building Definition," Law Insider, accessed April 14, 2024, https://www.lawinsider.com/dictionary/load-building.
[198] "Load Reduction Definition," Law Insider, accessed April 14, 2024, https://www.lawinsider.com/dictionary/load-reduction.
[199] North American Electric Reliability Corporation, "Fast Frequency Response Concepts and Bulk Power System Reliability Needs," White Paper (North American Electric Reliability Corporation, March 2020).

Grid Service	Grid Service Incentive
FFR1 & FFR2	$13.30 per kW
Load Build	$6.30 per kW
Load Reduction	$25.60 per kW

Figure 8. Hawai'i Grid Services PIM reward.[200]

Advanced Metering Infrastructure (AMI) Utilization

Next is the Advanced Metering Infrastructure (AMI) Utilization PIM, which incentivizes utilities to leverage grid modernization investments and engage customers, beyond that of the MI Power Grid Initiative.[201] AMI, also called smart meters, are meters that wirelessly transfer electronic readings to the utility, removing the need for on-site meters.[202] While Michigan currently has AMI in place, the utilization PIM will build and expand on efforts of the MI Power Grid Initiative. The AMI Utilization PIM's performance would be determined by a percentage calculation if the consumer has installed an advanced meter and two of three benefits are delivered to the consumer by the end of the year:[203]

- The "Consumer Authorization" benefit is delivered if customers with advanced meters authorize the sharing of interval data with third parties.
- The "Energy Usage Alert" benefit is delivered if customers with advanced meters receive energy usage alerts from the utility.
- The "Program Participation" benefit is delivered if advanced meter customers enroll in open and next-generation Distributed Energy Resource and Time-of-Use (TOU) programs.

This PIM would be set for three years, after which metrics, targets, and incentives would be re-evaluated. This PIM would use rewards to incentivize utilities, with metrics evaluated annually based on the number of AMI Utilization Customers at year-end divided by the total number of customers at year-end.

Accelerated Renewable Portfolio Standard (RPS-A)

[200] Hawaiian Electric Company, Inc., "Performance Incentive Mechanism Provision."
[201] State of Michigan, "MI Power Grid," Michigan Public Service Commission, 2024, https://www.michigan.gov/mpsc/commission/workgroups/mi-power-grid.
[202] Michigan Public Service Commission, "Advanced Metering Infrastructure," February 13, 2024, https://www.michigan.gov/-/media/Project/Websites/mpsc/consumer/info/tips/Advanced_Metering_Infrastructure.pdf?rev=39654d31c1b74fffb62402256fdfda3c.
[203] Hawaiian Electric Company, Inc., "Performance Incentive Mechanism Provision."

The Accelerated Renewable Portfolio Standard (RPS-A) rewards utility achievement of Michigan RES goals in advance of the statutory RES prescribed in PA 235 and in advance of interpolated values between statutory RESs. Measured performance is calculated annually for each utility on a consolidated basis, calculated as total system renewable generation (by the utility) divided by total system electricity generation (by the utility). Rewards apply if the RPS-A Renewable Percentage for the year exceeds the RPS-A Target Percentage for the year. The reward, which takes after Hawai'i, is calculated as the total system renewable generation MWh for each utility that is attributable to the portion of the RPS-A Percentage that exceeds the RPS-A Target Percentage, multiplied by $20/MWh in years 1 and 2, $15/MWh in year 3, and $10/Mwh in remaining years of the MYRP.

Distributed Energy Resource (DER) Interconnection

The MPSC can set an interconnection PIM to incentivize a reduction in the amount of wait time for DER systems. In accordance with the Hawai'i standard, interconnection time would be measured by the mean to determine the average number of business days within one calendar year that it takes the IOU to complete all steps within the IOU's control to interconnect DER system to the electric grid and IOU distribution system greater than 100 kW in size.[204] This PIM is important, as it indicates whether customer requests for interconnection are being fulfilled and how fast. In line with the Illinois model, further attention can be given to how the IOU responds, namely the improved average service reliability index for applicable consumers with interconnected DER, rate options offered, the net metering system, whether and how the IOU has responded to consumer demand and interest, and whether the IOU was forthcoming about information in response to consumer interest regarding DER interconnection.[205]

Affordability

Paralleling the Illinois system, the MPSC would set an affordability PIM to motivate IOUs to incrementally incorporate affordability. The MPSC can set a percentage decrease in shutoffs to be the target in comparison to the previous year. The MPSC would provide a financial incentive for incremental improvement if it exceeds a previously set percentage decrease in shutoffs. Equivalently, the MPSC would also symmetrically penalize a percentage of common equity if the IOU's percentage of shutoffs remains the same or increases in comparison to the prior year. The MPSC would have an additional affordability PIM that symmetrically incentivizes shutoff rates in redlined communities and areas with higher rates of poverty.

[204] Hawaiian Electric Company, Inc., 13.
[205] Ameren Illinois, "Performance Metrics Plan For Ameren Illinois."

Customer Service

Finally, the MPSC would implement a customer service PIM to encourage IOU accessibility and beneficial assistance to consumers. Extrapolating from the Hawai'i model, the accessibility of customer service can be measured by the percentage of calls answered within 30 seconds.[206] The MPSC would institute a penalty and reward for how the IOU performs. For example, in Hawai'i, the PUC institutes a penalty if calls answered ranging between 83.14 % to 89.14% of calls answered and institutes a financial incentive when greater than 89.14 % of calls are answered within the 30-second period. The financial rewards and penalties would be symmetric, and the performance target would be based on average (mean) quarterly data over the span of 2 years. Further, the MPSC would look at the average abandoned call rate across this same time period.[207] The MPSC would also incorporate customer satisfaction relative to other IOUs in the Midwest region. The customer satisfaction would be measured by a vetted and reputable third-party organization. This too would ensure that IOUs are not only fielding and answering calls but are responsive to the requests and needs of their customers.

Other Mechanisms and Data Transparency

Three other mechanisms that impact the utilities' revenue requirement include a Re-Opener Mechanism, an Earnings Sharing Mechanism (ESM), and an Exceptional Project Recovery Mechanism (EPRM). The Re-Opener Mechanism gives the MPSC the opportunity to examine the PBR framework during the MYRP to determine if adjustments are needed. The ESM shares excessive earnings or costs between the utility and customers to ensure financial health while protecting ratepayers. The EPRM allows for additional revenues for large, unique projects on a case-by-case basis.

Lastly, each utility would be required to improve transparency and data collection through an MPSC-approved website of PBR scorecards and related metrics, which would be available to customers, the MPSC, and partners. Hawaiian Electric provides a strong example of this on its website as part of Hawai'i's PBR implementation and includes metrics such as affordability, cost control, customer engagement, customer equity, resilience, GHG reduction, and more.

Percentage of Income Payment Plans (PIPP)

Given the lack of existing regulatory authority for the MPSC to create a statewide PIPP for all public utilities, a PIPP would need to be established legislatively. An ideal PIPP

[206] Hawaiian Electric Company, Inc., "Performance Incentive Mechanism Provision," 9.
[207] Ameren Illinois, "Performance Metrics Plan For Ameren Illinois," 4.

legislative proposal would establish a PIPP under which the MPSC monitors public utilities' compliance with the PIPP and processes applications from ratepayers.

Application Process

The ideal application process should include automatic enrollment for households that are already eligible for Low Income Home Energy Assistance Program and other low-income energy assistance programs. Automatic enrollment of households that are eligible for other low-income energy assistance programs would reduce administrative costs of identifying eligible customers. Further, a PIPP proposal should require public utilities to engage in identification and outreach to potentially eligible customers.

PIPP Income Cap and Arrearage Structure

The proposed PIPP should set the income cap for monthly electricity bills at 6% (or less) of household monthly income. The American Council for an Energy-Efficient Economy (ACEEE) recommends that the energy burden of a household should be no more than 6% of household monthly income.[208] Of course, the lower the income cap is set, the more affordable that energy would be for qualifying households. Alternatively, the lower the cap, the larger the program subsidy would need to be and the more the program would cost.

Furthermore, the arrearage structure adopted by states like Ohio would be a beneficial component of a Michigan PIPP. Buildup of arrearages is a serious problem for low income households.[209] Adopting an arrearage forgiveness component to a PIPP significantly increases the affordability and equity of energy service for low-income households. Michigan should ideally adopt an arrearage forgiveness program similar to that of Ohio's PIPP, under which 24 on-time payments would result in complete arrearage forgiveness.[210]

PIPP Eligibility

In the state of Michigan there is the issue of charging preferential rates to customers, therefore, any proposed PIPP would likely need to be expressly exempted from the preferential rates by the legislature.[211] To maximize the equity and effectiveness of a PIPP proposal, eligibility guidelines should be as expansive as possible. An ideal PIPP proposal would extend eligibility to households within 200% of the Federal Poverty Guidelines (FPG).

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[208] ACEEE. Energy Burden Report. https://www.aceee.org/energy-burden
[209] NEADA. "Press Release: One out of six households are now behind on their energy bills". https://neada.org/press-release-neada-releases-end-of-winter-energy-update/
[210] Ohio Department of Development. "Percentage of Income Payment Plan". https://development.ohio.gov/individual/energy-assistance/2-percentage-of-income-payment-plan-plus
[211] Walcott, Eric. "What is the Headlee Amendment". https://www.canr.msu.edu/news/what_is_the_headlee_amendment_and_how_does_it_affect_local_taxes

Ideally, public utilities would be tasked with identifying and reaching out to customers informing them of their eligibility for the PIPP.

PIPP Financing

Many states with existing PIPPs utilize riders for their financing.[212] Riders are not included in the rate base, their money is usually provided by legislative appropriation. Therefore, regardless of whether or not a PIPP is paid for by legislative appropriation or paid for by the public utilities, ratepayers or taxpayers would be charged with financing the PIPP.

Innovation Promotion

To foster innovation and flexibility in Michigan's energy sector, we recommend building upon MPSC's Expedited Pilot Program,[213] by expanding its role as a regulatory sandbox. A regulatory sandbox is a framework that allows businesses to experiment with new and innovative products, services, and programs under a regulator's supervision—its scope can go beyond testing new technologies. The main addition to MPSC's current pilot program would be the inclusion of pilots that are implemented by other entities besides IOUs—e.g., startups, technology companies, co-ops, municipalities—with the option of developing and scaling up the pilot in partnership with an IOU. This approach aims to facilitate the implementation of pilots for programs like PBR and PIPP—the current PIPP pilot program being managed by Consumers Energy is a relevant example[214]—with potential expansion to include community solar and microgrids in subsequent phases, for example.

PIPP and PBR programs do not necessarily require going through a pilot program before implementation, but this increases their likelihood of success and also allows them to prove their effectiveness through limited trials. Proving that a program creates net benefits for the grid—i.e., lowers electricity rates or improves reliability—provides the required legal argument for the MPSC to determine it would be unreasonable to implement it. Lastly, an Innovation Advisory Council established by the MPSC would guide the priorities and strategic plans of the sandbox, similar to the Council established by Connecticut's Public Utilities Regulatory Authority (PURA). Each element of the proposed approach is detailed below.

Regulatory Sandbox. The MPSC's Expedited Pilot Program provides the foundations for a more comprehensive regulatory sandbox. A relevant constraint is that IOUs are the only entities allowed to propose pilots. The regulatory sandbox could provide a structured environment for a broader range of stakeholders to test innovative products, services, and regulatory approaches without immediately adhering to all existing regulations. For example, this could take the form of a "Pitch Day," as done by Connecticut's PUC, or an Innovation

[212] Ohio Revised Code. Section 4928.52. Universal Service Rider
[213] MPSC (February 23, 2023). Case No. U-20898.
[214] MPSC (February 10, 2022). Case No. U-21021.

Competition, as done by the UK's Strategic Innovation Fund, where third-party stakeholders can propose pilots to the PSC and IOUs. Partnerships between IOUs, technology providers, startups, and academic institutions proposing a pilot could be prioritized—similarly as done by the Strategic Innovation Fund in the UK. Michigan can use this framework to further pilot PIPP and PBR, allowing companies to explore new approaches, such as Distributed Energy Resource Management Systems (DERMS) and demand response management. By creating a space for controlled experimentation and expanded stakeholder engagement, the sandbox would enable the state to gather valuable insights and data on the feasibility and effectiveness of these programs. We recommend the regulatory sandbox follows the implementation timeline of other programs, like New York and Connecticut which were implemented in multi-year phases and 3-month "innovation sprints," depending on the kind of innovation. Previous iterations of innovation sprints have focused on demand response and clean heating and cooling. Multi-year phases can help test technologies in earlier stages of development, while innovation sprints can help connect already established companies to explore and develop innovative ideas.

Innovation Fund. Funding for the MPSC's Expedited Pilot Program comes from electricity rates and is managed by IOUs, under the supervision of the MPSC. However, this mechanism constrains the role of the MPSC. While not mandatory for the expansion of the regulatory sandbox, the establishment of a fund can be used to support broader research, development, and demonstration projects related to energy innovation, ensuring that promising ideas can be tested and scaled up. By providing funding for initiatives that may have longer payback periods or uncertain outcomes, the innovation fund could incentivize investment in technologies and strategies that can drive long-term benefits for Michigan's energy system. Moreover, the Fund could be used to manage additional financial mechanisms, like an Equitable Innovation Adoption Program.

Equitable Innovation Adoption Program. Moreover, modeled after Illinois' Clean Energy Jobs and Justice Fund, the Innovation Fund could run a complementary program for equitable innovation adoption in low-income and underserved communities once innovations are successfully tested and ready to scale up. The Clean Energy Jobs and Justice Fund in Illinois could serve as a model for this complementary funding mechanism. For example, assuming a microgrid or community solar pilot is ready to scale up, this complementary Equitable Innovation Adoption Program could provide zero-interest loans to companies or municipalities implementing these innovations in underserved communities. This policy would explicitly encourage investment and development projects in disadvantaged communities, with a strong emphasis on equity and justice. For its implementation, the MPSC could partner with the Michigan Economic Development Corporation, which provides diverse

funding mechanisms and services for small to medium-sized businesses[215] and explore opportunities for connecting the program with the public benefits provision in House Bills 5120 and 5121 that were passed last year with the objective of reducing renewable energy barriers.[216]

Transparency and stakeholder engagement. The UK's Strategic Innovation Fund discussed in the case studies section provides several elements to be considered as the MPSC scales up its pilot program, to improve how it communicates the vision and results of the regulatory sandbox. These elements include comprehensive annual reports, newsletters, a podcast, and a blog. Moreover, the Innovation Advisory Council could be tasked with exploring further opportunities for transparency and stakeholder engagement. Stakeholder engagement and transparency can help in diversifying the partnerships that propose pilots through the regulatory sandbox.

All these elements together would create a dynamic ecosystem for energy innovation in Michigan. By broadening the range of stakeholders involved, integrating equitable innovation adoption, and establishing a transparency and communication strategy, Michigan could gradually integrate innovative approaches into its regulatory framework that promote reliability, equity, affordability, and climate goals simultaneously.

Office of Consumer Advocacy (OCA)

The Office of Consumer Advocacy, or the OCA, would be an independent state agency. It would have a customer-facing arm and a policy arm, meaning that its main purposes would be providing first-hand customer service and education while also representing customer policy interests in MPSC meetings and other formal decision-making processes that have the potential to incur financial harm upon rate-paying consumers.

Following Pennsylvania's model, the customer-facing arm of the OCA would have Consumer Service Representatives and Consumer Liaisons to offer assistance and consumer education to the public and be sure to dedicate time and resources to low-income and other disadvantaged communities.

This office would also act as an oversight committee for the MPSC, and would hopefully influence both the MPSC and IOUs to consider customer feedback when making all-encompassing decisions. The OCA would meet with the MPSC quarterly to provide and share customer voices with the Commission. The OCA would also solicit regional opinions for ongoing debates and compile them for MPSC review during public comment. The OCA would also evaluate and assess how the MPSC is performing in terms of affordability, reliability, climate goals, and equity.

[215] Michigan Economic Development Corporation (2024). Funding Resources for Small to Medium-Size Businesses.
[216] Michigan Environmental Council (2024). An overview of Michigan's landmark climate legislation.

As of 2024, there is no official OCA in the state of Michigan that specifically addresses energy concerns. There is, however, an Office of the Clean Water Public Advocate (or OCWPA), which is housed within the Michigan Department of Environment, Great Lakes and Energy (EGLE) following Governor Gretchen Whitmer's Executive Order 2019-06.[217] Additionally, there is also an Office of the Environmental Justice Public Advocate, which was also implemented by Governor Gretchen Whitmer and is a division of EGLE.[218] These offices are conducted similarly to how the OCA would if implemented. The OCWPA is a vital bridge of communication between state agencies and the public, and "ensures that the public can report drinking water concerns through the statewide concerns reporting system and that those concerns are heard and investigated by the appropriate entity,"[219] while the Office of the Environmental Justice Public Advocate serves as "an external and internal advocate and catalyst for ensuring Environmental Justice throughout the state."[220]

The size of the OCA would be variable, though there should be at least six regional offices of the OCA to precisely coincide with the number of unofficial regions in Michigan.[221] The regional offices would host quarterly meetings to both present and educate on current issues to the public and gather the perspectives of community members on related topics. In hiring, the OCA would take into consideration and prioritize geographic representation as well as other relevant diverse backgrounds/experiences from applicants.

While the office of the Attorney General currently represents ratepayers now, the onus should not fall on one entity to guarantee that customers are viewed as more than a number.[222] Further, while the Attorney General investigates and brings forth rate cases, the office does not educate members of Michigan's community regarding their energy rights and also does not serve as the mouthpiece of Michigan's people before the MPSC.

Equity Under the OCA

The OCA would specifically be designed to hire representatives from various regions throughout the state of Michigan. This would be an essential requirement in order to further ensure Michigan electric utility customers are being accurately represented. Similar to the Energy Workforce Advisory Council in Illinois, the OCA's regional representatives should proactively and regularly engage with members across trade associations, labor unions, workforce development programs, higher education, economic development organizations, environmental justice communities, community-based organizations serving low-income

[217] Department of Environment, Great Lakes, and Energy. "Office of the Clean Water Public Advocate"
[218] Department of Environment, Great Lakes, and Energy. "Office of the Environmental Justice Public Advocate"
[219] Department of Environment, Great Lakes, and Energy.
[220] Department of Environment, Great Lakes, and Energy.
[221] University of Michigan Center for Local, State, and Urban Policy. "Michigan Public Policy Survey - Regions of Michigan"
[222] Andy Balaskovitz. (2019). "Michigan AG focuses on clean energy, ratepayer support in shift for office"

persons and families, small business development, BIPOC communities, and clean energy businesses.[223] This engagement with customers may include the following: hosting informational sessions for customers; providing more opportunities for public comment in MPSC proceedings; and dispensing critical information through online sources for those who may not be able to attend said meetings. Engagement sessions should occur at least quarterly, and the OCA should regularly update its website as needed.

Additionally, the OCA would be required to create and utilize a screening tool similar to the Michigan Environmental Justice Screening Tool (or MIEJScreen). The MIEJScreen is "an interactive screening tool that identifies Michigan communities that may be disproportionately impacted by environmental hazards. The map allows users to explore the environmental, health, and socioeconomic conditions within a specific community, region, or across the entire state."[224] The OCA tool would be essential in determining the location of communities/regions in Michigan that pay disproportionately high electricity rates and would highlight frontline communities that have been intentionally invisibilized. This tool would help the MPSC assess how the IOU is performing in the most high-risk areas.

1.6 Legal, Policy, and Structural Landscape and Framework

The MPSC can establish a regulatory sandbox and innovation fund without legislative or executive authorization, as it falls under the scope of the MPSC's current authority. The use of the pilots' money would not require legislative authority, as evidenced by the MPSC's current oversight and financing of the Expedited Pilot Program as far as it is only managed by IOUs.[225]

However, the means of implementing PBR, PIPP, and an OCA are slightly less straightforward. Currently, there are three pathways that can be taken for adopting the other MPSC reforms: 1) through legislation, 2) by broadening the interpretation of the "reasonable and prudent" legal standard, and 3) by executive order.

Legislative Initiatives for Reform

Performance-Based Regulation (PBR)

The most common avenue to address the current gap in the utility framework is to broaden the Public Utility Commission's (PUC) power through legislation. Due to the

[223] "Illinois Compiled Statutes, Sec. 16-108.18. Performance-Based Ratemaking.," Illinois General Assembly - Illinois compiled statutes, https://ilga.gov/legislation/ilcs/fulltext.asp?DocName=022000050K16-108.18.
[224] Department of Environment, Great Lakes, and Energy. "MIEJScreen: Environmental…"
[225] State of Michigan, "Energy Programs and Technology Pilots," Michigan Public Service Commission, 2024, https://www.michigan.gov/mpsc/commission/workgroups/mi-power-grid/energy-programs-and-technology-pilots.

nondelegation doctrine, the legislature must authorize and delegate its authority to the PSC.[226] Otherwise, the PSC's exercise would be beyond its delegated authority and would constitute an overreach in violation of the state's Constitution. As such, at least 17 states and Washington, D.C. have passed legislation that either enables performance-based regulation (PBR) or requires the PSC to evaluate utilities under a performance-based regulatory scheme.[227]

Michigan has incorporated elements of performance considerations into its regulatory scheme, including its renewable energy standard and Energy Optimization (EO) program.[228] Together, these two initiatives have enabled the MPSC to "approve financial incentives for rate-regulated utilities when they exceed energy savings targets [goals previously set by the PSC] for a given year."[229] However, Michigan's current scheme fails to incorporate affordability and other equity considerations explicitly into its ratemaking assessment. It is important to note that legislation is but one way of initiating full PBR and would not be required if the MPSC adopted a different understanding of the legal standard already set by and written in law by the Michigan legislature.

Legislation would also be needed to amend the current time frame for rate adjustments. As Michigan law stands now, investor-owned utilities can seek 12 months "after the date of the filing of a complete prior general rate case application."[230] This law would need to be amended by the Michigan legislature to allow for 5-year multi-year rate plans instead.

Percentage of Income Payment Plans (PIPP)

Using similar rationale and mechanisms, a common pathway of enabling PSCs to establish PIPP programs is through statute. Illinois and California are examples of states that authorized the creation of the PIPP program after passing a bill through the state legislatures.[231] In Michigan, legislation is required to establish a mandatory PIPP program.

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[226] Randolph J. May, "The Nondelegation Doctrine Is Alive and Well in the States | The Regulatory Review," The Regulatory Review, October 15, 2020, https://www.theregreview.org/2020/10/15/may-nondelegation-doctrine-alive-well-states/.

[227] Dillon Cupryk, "NCSL Releases New Report on Performance-Based Regulation." National Conference of State Legislatures, April 12, 2023. https://www.ncsl.org/press-room/details/ncsl-releases-new-report-on-performance-based-regulation#:~:text=New%20regulatory%20frameworks%3A%20An%20overview,under%20this%20new%20regulatory%20structure.

[228] David Littell and Jessica Shipley , Performance-based regulation options, 2017, https://www.michigan.gov/-/media/Project/Websites/mpsc/workgroups/pbr/RAP_PBR_options_for_MI_PSC_7_14_171.pdf?rev=e9b44b80ad8f4322a6af9b54eab7c854, 4.

[229] David Littell and Jessica Shipley.

[230] Michigan Legislature, "MCL - Section 460.6a," accessed April 16, 2024, https://legislature.mi.gov/Laws/MCL?objectName=MCL-460-6A.

[231] Illinois Governor's Office, "Illinois Governor Signs PIPP Legislation."

Office of the Consumer Advocate (OCA)

The creation of an Office of Consumer Advocate (OCA) could be accomplished through legislation. Per MCL Section 21.234, it is within the Michigan legislature's authority to create a state agency by statute.[232]

Broadening the "Reasonable and Prudent Standard"

Performance-Based Regulation (PBR)

The legislative route is not the only one available for reforming a PSC's ratemaking process; commissions may also rely on their existing legal authority. In fact, in July 2023, Minnesota implicitly redefined its legal standard. Almost all states have a "just and reasonable" standard of review for rates. In Minnesota, the standard is that the commission, in the exercise of its powers under Minnesota law, is to "determine just and reasonable rates for public utilities."[233]

In a decision about IOU Xcel Energy's multi-year rate proposal, Minnesota's commission stated that affordability and reliability are implicit in its legal assessment of whether a proposed rate is "just and reasonable."[234] In its assessment, the commission addressed cost in broad strokes, addressing financial issues, cost of capital issues, class cost of service study (CCOSS) issues, and rate design issues while also emphasizing the importance of "energy justice tenets and remaining issues."[235] The commission incorporated "non-cost concerns" into its "just and reasonable" standard, namely:

> "[E]quity, justice, and reasonableness; the avoidance of discrimination, unreasonable preference, and unreasonable prejudice, continuity with prior rates to avoid rate shock; revenue stability; economic efficiency, encouragement of energy consideration; customers' ability to pay; and ease of understanding and administration."[236]

The commission stated that "it recognizes the importance of [assessing] Energy Justice tenets" in general rate cases and into its "just and reasonable standard," but rate cases should be made on a case-by-case determination, with relevance to the energy justice tenets.

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[232] Michigan Legislature, "Michigan Compiled Laws Section 21-234," Michigan Legislature, https://www.legislature.mi.gov/Laws/MCL?objectName=MCL-21-234 (accessed 16 April 2024).
[233]"2023 Minnesota Statutes," Sec. 216B.16 MN Statutes, 2023, https://www.revisor.mn.gov/statutes/cite/216B.16#:~:text=The%20commission%2C%20in%20the%20exercise,to%20meet%20the%20cost%20of.
[234] Minnesota Public Utilities Commission, "Minnesota Public Utilities Commission Reduces XCEL's Proposed Rate Increase by More than Half," Minnesota Public Utilities Commission, June 1, 2023, https://content.govdelivery.com/bulletins/gd/MNPUBUC-35dbd7f.
[235] Gabe Chan and Alexandra Klass, Pathways to Regulate for Energy Justice in Practice: Case Studies from U.S. States DRAFT, Unpublished article, 14.
[236] Gabe Chan and Alexandra Kloss.

The issue of affordability was a top priority, as the Commission Chair explicitly stated in the press release.

In applying its broader interpretation of what qualifies as "just and reasonable," the commission approved the rate proposal of Xcel Energy, the largest public utility in Minnesota, with significant changes. The commission approved a rate increase of 9.6%, which is significantly lower than Xcel's initial proposal of a 21.2% increase in rates.[237] Further, the commission required the IOU to establish a low-income rate and reduce monthly charges for residential and small business customers.[238]

This type of broader interpretation would be plausible in Michigan. Although Michigan's standard of review for rates is "reasonable and prudent," the MPSC has indicated that there is no material difference between the "just and reasonable" standard and Michigan's "reasonable and prudent" standard.[239]

Percentage of Income Payment Plans (PIPP)

Similarly, PSCs have been able to establish PIPP programs pursuant to its existing legal authority. For example, Ohio's Public Utility Commission (PUC) started a PIPP program without new legislation, drawing jurisdiction from its emergency powers as authorized by Ohio state law. The PIPP program was challenged in *Montgomery County Bd. of Comm'rs v. Puc of Ohio*, 28 Ohio St. 3d 171 (1986), where the Supreme Court of Ohio affirmed previous decisions stating that it was within the statutory authority of the Ohio PUC to create a PIPP program.[240] However, The emergency powers authorized by Ohio legislation grant broader power and oversight, allowing the Public Utilities Commission to temporarily alter, amend, or suspend any existing rates, schedules, or order "relating to or affecting any public utility or part of any public utility in this state" in times of emergency.[241] What constitutes an emergency is up to the Ohio PUC to decide so long as it bears "a real and substantial relation to the health, safety, morals or general welfare of the public" and is not "unreasonable or arbitrary."[242] This is a lenient standard and was easily met in *Montgomery*.

However, the MPSC has not been granted the expansive emergency powers that the Ohio PUC was granted by legislation. This means that as the law stands now, the MPSC would likely be unable to demand investor-owned utilities institute PIPP programs pursuant to its

[237]Minnesota Public Utilities Commission, "Minnesota Public Utilities Commission Reduces XCEL's Proposed Rate Increase by More than Half," Minnesota Public Utilities Commission, June 1, 2023, https://content.govdelivery.com/bulletins/gd/MNPUBUC-35dbd7f.
[238] Minnesota Public Utilities Commission
[239] Scripps, Dan. "Overview of Michigan Energy Regulation." Lecture, University of Michigan Law School, Hutchins Hall, February 20, 2024.
[240] "28 Ohio St. 3d 171" (1986), https://casetext.com/case/montgomery-cty-bd-of-commrs-v-pub-util-comm.
[241] "Power to Amend, Alter, or Suspend Schedule of Rates.," Pub. L. No. House Bill 1, 4909.16 (1953), https://codes.ohio.gov/ohio-revised-code/section-4909.16.
[242] 28 Ohio St. 3d 171.

legislative authority. That being said, IOU Consumers Energy, *the largest IOU in Michigan,* has pursued a PIPP program by applying to the MPSC. The pilot program began in October 2022 and will last until October 2024, with MPSC maintaining approval and oversight authority.[243] If Consumers' Energy's pilot PIPP is successful, other public utilities/IOUs may adopt similar PIPPs at their own initiative. Nevertheless, as Michigan law stands now, the MPSC cannot mandate IOUs to institute PIPP programs. Thus, legislation would be required to mandate PIPP programs.

Reform by Executive Order

Office of the Consumer Advocate (OCA)

The creation of an Office of Consumer Advocate (OCA) could be accomplished by executive order. While the creation of an OCA was by legislation for Hawaii and Pennsylvania, the Michigan Constitution of 1963 expressly authorizes the creation of offices within agencies, pursuant to the executive branch of Michigan state government's role.[244] Similar state offices, namely the Office of the Environmental Justice Public Advocate and the Office of the Clean Water Public Advocate, have been created by Executive Order.

1.7 Technical Feasibility of Proposed Alternatives

The technical feasibility of our proposed MPSC reform is not a significant concern, although there are considerations to be made for each policy. PBR would likely require additional infrastructure or maintenance of existing infrastructure for the Reliability & Resilience PIM in order to reduce outages and the duration of outages. MPSC and utility tracking of SAIDI and SAIFI data is already in place, and therefore would not require more data collection or tracking by the utility and MPSC. The grid services PIM requires additional infrastructure to contribute to the grid, including that needed for load build and improvements in quality needed for load reduction. The RPS-A PIM would only require quicker deployment of renewable energy than the RPS requires, but not an overall increase, which should be technically feasible because of recent climate legislation in Michigan. The

[243] Matt Helms, "MPSC Marks Progress on Collaborative Efforts to Better Address Energy Affordability and Assistance," Michigan Public Service Commission, February 10, 2022, https://www.michigan.gov/mpsc/commission/news-releases/2022/02/10/mpsc-marks-progress-on-collaborative-efforts-to-better-address-energy-affordability-and-assistance.
[244] "Haw. Rev. Stat. § 26-9" (2024), https://casetext.com/statute/hawaii-revised-statutes/division-1-government/title-4-state-organization-and-administration-generally/chapter-26-executive-and-administrative-departments/part-i-organization-generally/section-26-9-department-of-commerce-and-consumer-affairs; PA.gov, "PA Office of Consumer Advocate - Pennsylvania Office of Consumer Advocate," Pennsylvania Office of Consumer Advocate, 2024, https://www.oca.pa.gov/; William C. Fulkerson and Dennis J. Donohue, "The Basics: A Practical Introduction to Administrative Law in Michigan," *Michigan Bar Journal*, January 2002.

Call Center Performance PIM might require increased staff for utilities in order to respond to customer calls quickly and improve overall customer service. The formula itself for PBR is technically feasible as it is simply an adjustment to the ratemaking proceedings in Michigan.

The technical feasibility of implementing a PIPP is not a significant concern. Many states around the country have previously implemented PIPPs or have administered PIPPs for many years. Therefore, there are several administrative models to choose from when designing and implementing a PIPP and there is existing knowledge on how to design and implement PIPPs. The difficulty of PIPP design and implementation is related to the tradeoffs in designing the program to be economically efficient and providing assistance for qualifying participants.

The regulatory sandbox and innovation fund would build upon and expand MPSC's existing pilot approval process. This policy has the intrinsic purpose of testing the technical feasibility—along with other factors—of technological and regulatory innovations in Michigan. MPSC's current Expedited Pilot Program and other similar programs previously discussed—like Hawaii's Innovation Pilot Framework (IPF) and Connecticut's Innovative Energy Solutions Program (IES)—are examples of how these frameworks are technically feasible. The main technical barrier to implementation would be scaling up resources within the MPSC for expanding the program and engaging other sets of stakeholders beyond the current purview and scale of MPSC's Expedited Pilot Program.

The OCA would not directly require additional infrastructure or technological advancements and is therefore technically feasible. However, it would require the creation of a new government office and expertise. Certainly, a concrete plan for implementation is required, but this office may be the easiest to install for the reforms mentioned.

1.8 Governance

Performance-Based Regulation (PBR)

Governance for performance-based regulation would rely on the existing MPSC structure and would expand the scope of its current regulatory power.

Percentage of Income Payment Plans (PIPP)

The MPSC would need to establish a compliance monitor to ensure that investor-owned utilities are adhering to PIPP programs. Consumer eligibility and applications would run through the MPSC. MPSC currently monitors public utilities and their ratemaking functions. There, the MPSC would be well-equipped to manage this role. However, the MPSC would require more employees and funding to ensure that the requisite personnel are staffed and can adequately process applications and monitor compliance.

Innovation Advisory Council

In the proposed framework for fostering innovation and flexibility in Michigan's electric utility sector, an Innovation Advisory Council would be established to guide the priorities and strategic plans of the regulatory sandbox. Composed of experts and stakeholders from diverse backgrounds, such as energy industry leaders, technology innovators, consumer advocates, NGO representatives, and academic researchers, this council would play a pivotal role in ensuring that the sandbox effectively supports the implementation of innovative pilots that also foster energy justice and decarbonization. Drawing from the model established by Connecticut's Public Utilities Regulatory Authority (PURA), the Council would provide support in selecting and facilitating the development and scaling up of pilots.

Office of the Consumer Advocate (OCA)

Michigan's OCA would consist of at least six regional representatives with a particularized focus on problems in their geographic locales. Like Hawai'i' and Pennsylvania's OCAs, Michigan's OCA would also be led by an executive director with staff composed of a customer education specialist, an engineer, customer service representatives, policy analysts, and support staff.[245]

1.9 Cost, Revenue, and Financing Feasibility

Performance-Based Regulation (PBR)

PBR would have major revenue impacts on utilities, as there are major rewards or penalties applied when PIMs are in place. They would also require additional financial investments in the grid, staff, renewable energy, and more. PIMs would also increase the cost of regulation by requiring in-depth tracking and oversight for utilities and regulators, although the MPSC and utilities already have some of this tracking (such as for SAIDI and SAIFI) in place.[246] However, the MYRP would likely provide utilities with operational flexibility, streamline the regulatory process, and reduce costs for utilities. There is also a concern about how utilities would offset penalty money incurred by the performance-incentive mechanism, as the MPSC has no authority over how they spend their money. However, the Customer Dividend incentivizes the utility to control costs as much as possible while improving business operations, which is a potential mechanism to prevent penalties from worsening customer

[245] State of Hawaii, "DCA Overview/Services," Department of Commerce and Consumer Affairs, 2024, https://cca.hawaii.gov/dca/about/.
[246] Daniel Shea, "Performance-Based Regulation: Harmonizing Electric Utility Priorities and State Policy."

service or other not-penalized matters. Furthermore, due to financial constraints and time limits of implementation, there may have to be tradeoffs in which PIMs can be implemented.

Percentage of Income Payment Plans (PIPP)

The cost feasibility of implementing PIPP does not appear to be outrageously high. The state of Ohio has administered its PIPP in its present financing structure continuously since 2000.[247] Averaging the costs of the state of California's 2023 pilot PIPP and *Consumers Energy* 2022 pilot PIPP estimates that a new PIPP could cost around $2.57 million per year to administer the program.[248] The cost of a PIPP depends on the number of eligible customers and the percentage at which the income cap is set. A lower income cap and broader eligibility requirements would make the program more affordable and more equitable, but also more expensive. The *Consumers Energy* pilot PIPP costs $2.75 million annually for a maximum of 1,500 customers, which breaks down to $1,833 per customer per year. While this number does not account for the lowered administrative costs per customer as the programs serve more customers, this number may serve as a conservative estimate of cost per customer. The financing of a statewide PIPP through the proposed rider would pay for the difference between PIPP participants' monthly payments and their actual total bill costs through a surcharge on all ratepayers bills. A rider would not be incorporated into the rate base for public utilities so utilities would not be receiving less revenue as a result of PIPP.

Innovation Promotion

The feasibility of implementing innovation promotion policies depends on several factors. The MPSC's current Expedited Pilot Program is being funded by each IOU's electricity rates. However, the Innovation Fund's financing could come from various sources, such as direct state funding—which would require support from the state legislature. The phased rollout of the regulatory sandbox, modeled after successful approaches in other states, allows for careful financial monitoring and gradual adjustments to ensure efficient use of resources. Nevertheless, there is a risk that innovations tested in the sandbox may not deliver strong enough outcomes to justify scaling up and significantly improve the electric grid. The oversight of the sandbox and innovation fund by the MPSC and the Innovation Advisory Council is therefore crucial to increase the likelihood of pilot projects succeeding and yielding greater benefits for the grid than the initial investment on pilot projects. Ultimately, while

[247] Ohio Revised Code. Section 4928.52. Universal Service Fund.

[248] California Public Utilities Commission. Decision Authorizing Percentage of Income Payment Plan Pilot Programs., Page 3. 2021. https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M412/K735/412735667.PDF; MPSC. "MPSC marks progress on collaborative efforts to better address energy affordability and assistance". https://www.michigan.gov/mpsc/commission/news-releases/2022/02/10/mpsc-marks-progress-on-collaborative-efforts-to-better-address-energy-affordability-and-assistance

investing in innovation carries inherent risks, it is a key strategy for improving the efficiency and operation of the grid.

Office of the Consumer Advocate (OCA)

The OCA would ideally be funded through a surcharge that is applied to existing customers' electric bills. A surcharge would likely be more permanent than any legislative appropriation of funds, as the legislature is subject to change as elections occur. This money would then be used for intervening in rate cases/potential legal fees, to pay employees, and to maintain the physical office space where this division is located.

1.10 Assessment against Key Criteria

Climate

As noted in the introduction, the Michigan clean energy legislation enacted in 2023 has complementary goals and provides the PSC with additional authority to achieve them. However, those goals will remain aspirational without additional action. Some of the reforms described in this chapter should help considerably. The Michigan Healthy Climate Plan, enacted through Executive Order 2020-10, has two primary goals: reduce greenhouse gas emissions "by 52% from 2005 baselines by 2030 in an equitable manner," and achieve 100% carbon neutrality by the year 2050.[249] Within the reform that is being proposed, the innovation reforms have the potential to supplement this plan. The innovation reforms that were described above include options for community solar and microgrids, as well as furthering the transition to electric vehicles. Furthermore, the PBR framework includes an Accelerated RES PIM, which would incentivize faster deployment of renewable energy. PBR would also prepare the grid to handle greater loads of renewable energy and distributed energy resources. These policies would work together to accelerate the clean energy transition and meet state climate goals.

PIPP is unlikely to have a major impact on the climate, as it does not specifically address clean energy generation or reducing greenhouse gasses. Similarly, the OCA would likely have a neutral effect on climate, as its main purpose is to advocate for reasonable and just rates for paying customers. While there is no clear path for these two reforms to assist with strategies such as reducing electricity usage, this does not necessarily mean that future versions of these reforms cannot do so.

Assessing Climate Criteria
Is this option expected to…

[249] Department of Environment, Great Lakes, and Energy. "MI Healthy Climate Plan"

- Set Michigan on a path to meet or exceed MI Healthy Climate Plan goals? This includes meeting targets for GHG reductions for 2030 and 2050.
    - Partially. The two reforms proposed that would align with the MI Healthy Climate Plan are the innovation promotion policies and PBR.
- Reduce per ton costs of GHG reductions?
    - The reforms that have been introduced would not address this criterion in the short term, although they have the ability to do so in future versions.
- Demonstrably increase/accelerate clean energy generation over baseline predictions?
    - Partially. The innovation promotion policies and PBR have the potential to fit this criterion.
- Incentivize investments and innovative approaches to reducing GHGs?
    - Together, the innovation promotion and PBR frameworks would address this portion of the criteria.
- Substantially reduce overall electricity usage?
    - The PBR grid services PIM includes incentives to reduce overall electricity usage while readying the grid for the anticipated growth of renewable energy, distributed generation, electric vehicles, and other Distributed Energy Resources (further research on this may be needed, and other PIMs could be implemented to incentivize further reduced electricity usage)

Reliability

Implementing the proposed regulatory reforms in Michigan would likely have a positive impact on the reliability of the electrical grid in the state. By implementing a comprehensive PBR framework that includes reliability metrics related to outages—such as average duration, average restoration time, and frequency of outages—Michigan is in the initial phases of aligning utility performance with reliability goals. Additionally, the establishment of an innovation fund and regulatory sandbox would encourage the development and implementation of new technologies and grid management strategies, further enhancing the reliability and adaptability of Michigan's electrical grid to new technologies and changes in the supply and demand of electricity—e.g., a growing adoption of electric vehicles. Overall, this regulatory reform proposal has the potential to significantly improve the reliability and resilience of Michigan's electrical grid.

There are a few critical assumptions for this assessment:

- *Adequate Funding and Resources.* Sufficient funding and resources must be allocated to support the implementation of the regulatory reform. This includes funding for the innovation fund, regulatory sandbox, and other

initiatives aimed at improving grid reliability. Adequate resources are also needed for monitoring and evaluation activities to ensure the effectiveness of the reform measures, particularly PBR.

- *Technical Feasibility and Scalability of Innovations*. Innovative technologies and grid management strategies piloted through the regulatory sandbox are technically feasible and scalable. This is crucial for ensuring that these innovations can be successfully integrated into the grid to enhance reliability and resilience on a broader scale.
- *Financial Incentives and Disincentives:* Financial incentives and disincentives within the PBR framework are significant enough to motivate IOUs to prioritize grid reliability measures.

Assessing Reliability Criteria

In the scenario these assumptions are met, is this option expected to…

- Substantially decrease outages?
    - Yes, PBR explicitly includes metrics to incentivize the reduction of outages.
- Substantially decrease the response times to outages?
    - Yes, PBR explicitly includes metrics to incentivize the reduction of outage duration.
- Increase the incentives for modernizing the grid and planning for future load increases?
    - Yes, both PBR and the innovation promotion proposal would incentivize the modernization of the grid.
- Result in higher customer satisfaction with electric service?
    - Yes, with the caveat that it might not be in the short term. Benefits of grid modernization might take at least one cycle of the Multiyear Rate Plan (MYRPs) and the regulatory sandbox.
- Increase accountability to communities and customers?
    - Yes, this would be directly tackled by the OCA.

Energy Justice

The proposed reforms mentioned above would likely have a hand in reducing some energy injustice concerns for consumers.

Recognition Justice:

- PIPP recognizes the differing burdens incurred by energy bills across socio-economic classes. Knowing that low-income customers have higher energy burdens, the program would work to lower costs and ensure low-income customers have affordable bills.

Procedural Justice:

- It would seem that half of the proposed reform touches on procedural justice. PBR would have mechanisms that incentivize investor-owned utilities to accurately report/update their websites regularly to provide transparency for their customers. The PIPP proposal does not appear to have touched on this aspect of energy justice, nor does the innovation reform. The OCA acts as a means through which communities all across the state of Michigan (particularly those from historically marginalized communities) can voice their concerns about electricity rates, which does seem to encompass many procedural justice principles.
- The OCA would ensure community members of each region's perspective are represented before the MPSC. Community engagement includes people from within each region, members across trade associations, labor unions, workforce development programs, higher education, economic development organizations, environmental justice communities, community-based organizations serving low-income persons and families, small business development, BIPOC communities, and clean energy businesses.[250]

Distributive Justice:

- This is perhaps the aspect of energy justice that is most comprehensively included in the proposed reforms. The PBR proposal does not specifically ban shutoffs, though outages in frontline communities are addressed. The PIPP reform is dependent on capping electricity rates for consumers, which is a primary aspect of this pillar of energy justice, as distributive justice is concerned with allocating resources equally.[251] The innovation fund/regulatory sandbox reform does not specifically address distributive justice in any comprehensive capacity. For the OCA, local hiring is a critical point of intervention for ensuring distributive justice is included in this reform. The OCA would also prevent electricity rates from becoming unreasonable/unjust.

Restorative Justice:

- It does not appear that any of the reforms proposed fully encompasses this aspect of energy justice; there are no active reparations being given to those who have been harmed through the extractive practices of electric utilities/the MPSC. However, arrearage forgiveness is a component of the PIPP prong of our reform. Arrearage forgiveness does remedy some of the past harms of

[250] "Illinois Compiled Statutes, Sec. 16-108.18. Performance-Based Ratemaking.," Illinois General Assembly - Illinois compiled statutes, https://ilga.gov/legislation/ilcs/fulltext.asp?DocName=022000050K16-108.18.
[251] A. Kaufman. "Theories of Distributive Justice"

households and individuals who are not able to pay unaffordable utility bills. But this forgiveness is limited to PIPP-eligible ratepayers.

Of course, there is always room for improvement in each of these categories. The state of Michigan and the MPSC can draw from the practices that worked in other states, while actively working to ameliorate practices that may not be energy justice oriented.

Assessing Energy Justice Criteria

Is this option expected to address and work toward…

- Recognition justice- acknowledgment and respect for all people
    - There is no specific provision in any of the proposed reforms that would address recognition justice accurately.
- Procedural justice- fair access to the process?
    - Establish or enhance transparent, democratic and inclusive governance structures and decision making, particularly for frontline communities?
        i. Partially. The OCA and the PBR reforms would address this criterion.
    - Result in meaningful and significant community engagement in public processes?
        i. Partially. The OCA and PBR proposals would encompass this criterion, but the improvements would not be system-wide.
    - Include effective reporting and accountability mechanisms?
        i. Yes, the proposed reforms would include effective reporting and accountability mechanisms.
- Distributive justice- outcome focused; equitable allocation of benefits and burdens?
    - Reduce projected residential electricity rates for low-income customers?
        i. Yes, the proposed reforms would reduce/set reasonable residential electricity rates for low-income customers.
    - Cap energy burden appropriately for low-income households?
        i. Yes, most of the proposed reforms would cap the energy burden appropriately for low-income households.
    - Ban shutoffs for low income customers?
        i. There is no set mechanism within the proposed reforms that would specifically address this criterion. However, if effective, PIPP will reduce (but not ban) shutoffs for low-income customers.
    - Result it in the adoption of effective low-income assistance programs?
        i. Partially. The PBR and PIPP reforms would encompass this criterion.
    - Modernize the grid in marginalized communities?
        i. Partially. The PBR and innovation reforms would mostly encompass this criterion.

    - Result in substantial local hiring?
        i. Yes, there are substantial opportunities for local hiring within most of the proposed reforms.
- Restorative justice- addresses issues of past harms?
    - Recognize and work to alleviate past harms?
        i. There is some alleviation of past harms, arrearage forgiveness does remedy some past harms of unaffordable energy bills by forgiving the energy debt of PIPP participants after 24 consecutive months of on-time payments in full.

Affordability

Our proposed MPSC reforms would have significant positive impacts on energy affordability for Michigan residents.

PBR systems have the potential to increase energy affordability for residents. The Illinois PBR system includes affordability metrics that incentivize a utility for meeting targets and penalizes them for failing to meet targets. This system theoretically should incentivize utilities to make energy more affordable, but in practice, more shutoffs have occurred in Illinois after it implemented its affordability incentives. Alternatively, Hawaii's PBR framework includes a customer dividend, which automatically provided about $12.6 million in rate reductions in 2021 and is estimated to provide nearly $70 million in total rate reductions through 2025. These savings break down to a savings of $1.27 per month per typical residential customer. A PBR system using Hawaii's model would be more likely to meet affordability outcomes given the proven rates of reductions. The Illinois incentives model has not yet yielded measurable, guaranteed affordability outcomes for ratepayers. Adopting Hawaii's model seems to have a much better chance of increasing the affordability of a PBR system in Michigan.

The proposed PIPP addresses affordability directly. It would create more affordable energy for low-income residents and households who are at the greatest risk of non-payment and service disconnection. Limiting energy bills to a percentage of a household's income would allow individuals and households to avoid paying energy bills that are unreasonably expensive. The more expansive PIPP eligibility criteria are, the more affordable energy and electricity would be for low-income Michigan residents. Further, an arrearage forgiveness program included in a PIPP would allow Michigan residents who are behind on their energy payments to begin paying their bills on time and in full. Reducing the energy burden for the most vulnerable residents would increase the overall affordability for ratepayers by eliminating the need for ratepayers to subsidize non-payment and service disconnections. However, a PIPP fails to increase the affordability of energy for middle-income individuals and households that do not qualify under the PIPP eligibility requirements.

The Office of the Consumer Advocate should have positive impacts on the affordability of energy in Michigan, as the OCA should encourage the MPSC to limit or prevent unreasonable rate hikes that would increase the energy burden. However, limiting the additional energy burden does not necessarily alleviate affordability concerns for customers already experiencing unaffordable rates. Thus, the OCA does have positive affordability impacts by limiting rate increases on customers but does not necessarily assist with lowering existing rates that are causing financial stress.

Assessing Affordability Criteria

Is this option expected to…

- Increase affordability for customers by reducing projected electricity rates?
    - Yes, the proposed options for PBR, PIPP, and the OCA are expected to increase affordability by reducing projected rates.
    - Utilizing a customer dividend through the PBR framework has been proven to provide savings for ratepayers. Adopting a customer dividend via PBR is likely to increase energy affordability.
    - Utilizing a statewide PIPP would increase affordability for qualifying low-income customers who are at the greatest risk of nonpayment, shutoffs, and disconnections. A statewide PIPP would reduce electricity rates for qualifying low-income households and cap payments at a percentage of a household's income, ensuring that bills are not too expensive to pay.
    - Implementing an Office of the Consumer Advocate is likely to prevent rates from continuing to increase over time, thus preventing unreasonable rate increases. Preventing continued rate increases may not necessarily reduce existing prices but rather prevent prices from rising, which does increase the relative affordability of future bills.

Key Criteria Matrix

Criteria	Overall Rating
Climate	Fair
Reliability	Strong
Equity	Fair

Affordability	Strong

Table 2. Key Criteria Matrix assessing the strength of the MPSC reform alternative.

*A more detailed Matrix can be found in Appendix D

Interpretation guide for the criteria

"Strong" implies a very high possibility of achieving outcomes expected for the assessment criteria without the dependence on external factors such as energy market conditions, consumer adoption, etc. It does not exhibit volatility based on internal factors such as decision-making by the governance board or allocation of priorities and available funds.

"Fair" implies a medium possibility of achieving outcomes expected for the assessment criteria without the dependence on external factors such as energy market conditions, consumer adoption, etc. However, it does exhibit volatility based on internal factors such as decision-making by the governance board or allocation of priorities and available funds, and the outcomes are likely to incline towards other assessment criteria based on these decisions and priorities.

"Weak" implies a low possibility of achieving outcomes expected for the assessment criteria without the dependence on external factors such as energy market conditions, consumer adoption, etc. It exhibits volatility due to a determinate internal factor and is not foreseeably easy to overcome due to legal or governance constraints.

"Highly Variable" implies that a possibility of achieving outcomes expected for the assessment criteria cannot be determined through the scope of this document. Outcomes are highly likely to vary on a case-by-case basis or on external factors such as energy market conditions, consumer adoption, etc. It may exhibit volatility based on internal factors such as decision-making by the governance board or allocation of priorities and available funds.

1.11 Basic Steps to Adoption

Performance-Based Regulation (PBR)

PBR can be implemented in one of two ways in Michigan: 1) by legislation; or 2) the MPSC adopting a broader interpretation of "reasonable and prudent" ratemaking standard.

In many ways, the broader interpretation of "reasonable and prudent" is an appealing option for MPSC reform. It would not require time-intensive legislation and could cause quicker reform in rates. Yet, this broader interpretation in Minnesota is not as clearly defined as that of the PBR legislation in Connecticut, Illinois, and other states. Further, the interpretation of "reasonable and prudent" would be up to the discretion of the MPSC. This is a cause for pause, as MPSC commissioners serve six-year terms so an interpretation can be

subject to the whims of the Commission. As such, while more arduous, the legislative route ensures the codification and permanency of the ratemaking standard.

Developing a PBR system would likely take years to implement. Connecticut has only just moved to its next phase after two years of criteria to look for in the new design. Now, Connecticut has started to focus on the PBR design and its implementation in accordance with the framework and factors set forth in Phase 1. Hawai'i's PBR system took 3 years to implement. The implementation of the PBR would take deliberation and must include at every step representation and input from community members and stakeholders.

Percentage of Income Payment Plans (PIPP)

Instituting mandatory PIPPs for IOUs would require legislation to broaden the authority and scope of the MPSC. Given that it is legislative, we foresee that it may take a year or longer to get the Bill to pass due to the lengthy process of drafting and Committee review. The timeline for implementing a PIPP program would likely parallel the *Consumers Energy'*s current Expedited Pilot Program overseen by the MPSC. This pilot program is on a two-year timeline for full implementation.

Innovation Promotion

The Innovation Promotion framework is currently within the legal authority of the MPSC and would not require new legislation. The MPSC can re-organize their Expedited Pilot Program to be a regulatory sandbox with a corresponding Innovation Fund. In the short-term, it would be feasible for the MPSC to employ such reform. While the MPSC is currently able to afford their Expedited Pilot Program through IOU's electricity rates, the MPSC would need to seek state funds for non-IOU pilot initiatives and funds. This would likely come from legislative appropriations, to finance the more expansive sandbox and Innovation Fund. The timeline is more difficult to predict, but we predict this change would be incremental and foresee the MPSC taking more time to scale up the regulatory sandbox and fund.

Office of the Consumer Advocate (OCA)

The OCA's creation could be accomplished via an Executive Order by the Governor of Michigan. The timeline for the OCA would be much quicker than other reforms. For a helpful illustration, a state agency was created by Governor Whitmer in July 2023 and was launched in December 2023.[252] The OCA could also be created by statute, which may be a preferred route, as codification by statute would make it harder to repeal.

[252] Isabel Lohman, "Gov. Gretchen Whitmer Launches New Education Office, Seeking More College Grads in Michigan," Bridge Michigan, December 1, 2023, https://www.bridgemi.com/talent-education/whitmer-launches-new-education-office-seeking-more-college-grads-michigan.

1.12 Conclusion and Discussion

The four-pronged approach to MPSC reform based on a combination of Performance-Based Regulation (PBR), innovation promotion framework, Percentage of Income Payment Plans (PIPP), and an Office of Consumer Advocate (OCA) would be able to address and ameliorate issues of affordability, reliability, climate goals, and equity. Each component is not a solution in and of itself. To successfully address the embedded issues of affordability, reliability, climate goals, and equity, each reform would need to occur. Ultimately, this approach presents a scalable approach that has been tried and true in other states and would allow for a relatively expeditious solution to the aforementioned problems.

Summary of Proposal and Key Recommendations

Performance-Based Regulation

The PBR framework is an opportunity for Michigan to align state goals from the MI Healthy Climate Plan and customer needs with utility goals and finances. While we laid out a framework based on case studies and what we expect Michigan's goals to be, it is ultimately up to the MPSC and Michigan Legislation to establish and implement the framework. PBR development should emphasize inclusivity, foundation setting, and collaboration.[253] Extensive community engagement and a comprehensive study should be conducted to identify the goals of the state and various communities, to find common ground between various stakeholders, and to make sure benefits reach as many people as possible. If established legislatively, the Michigan legislation should make their goals for PBR clear, but also allow for future innovation and evaluation of the framework by the MPSC. The MPSC must also make sure they provide a clear vision for PBR at the outset and make sure stakeholder proposals stay on course.[254]

Designing the performance incentive mechanisms can be difficult and requires experimentation, as potential costs and benefits may not be clear, existing data for performance baselines may be minimal, and utility response to new incentives may be unpredictable.[255] Therefore, stakeholders and regulators must balance the uncertainty and challenges of PIM implementation with the risk of delaying implementation. For the design of more novel PIMs, data collection for a period of time may be necessary first. However, PBR processes should support alternative data-sharing opportunities to speed up PIM development where urgently needed.[256] Ensuring review of outcomes and integrating flexibility in PIM design also allows PIMs to evolve with experience. Continuing to look at and

[253] Slanger, "Five Lessons from Hawaii's Groundbreaking PBR Framework."
[254] Slanger.
[255] Slanger.
[256] Slanger.

assess the outcomes of PBR frameworks in Illinois, Hawai'i, and Connecticut would also help inform Michigan's PBR framework.

Furthermore, according to the Ulupono Initiative, only having disincentives limits the utility from exceeding expectations and being innovative.[257] Under a PBR framework with both rewards and penalties, regulators can both penalize the utility for not doing what's expected of it and reward the utility for producing more innovative outcomes and exceeding expectations.

PIPP

A statewide PIPP would ensure that all Michigan residents have access to the affordability benefits and protections provided by the program. Given the legal and regulatory landscape of Michigan, a statewide PIPP would likely need to be created by legislative action. The possible success of the *Consumers Energy* pilot PIPP may provide the legislature with ample evidence of the benefits of PIPPs for reducing nonpayment and service disconnections. Furthermore, lobbying the legislature to pursue the creation of a statewide PIPP would allow the MPSC to control the parameters of PIPPs to ensure that the programs are designed to maximize affordability and equity considerations. Leaving the establishment of PIPPs to individual utilities may not result in the programs being designed in the most affordable and equitable manner. Therefore, an ideal PIPP would be authorized legislatively to be administered and monitored by the MPSC. Lobbying the Michigan Legislature would likely be the most effective way to establish a statewide PIPP in the shortest amount of time possible.

Innovation Promotion

In the short term, the MPSC could establish an Innovation Advisory Council to guide the implementation of an enhanced Expedited Pilot Program, building upon the current framework. The Council should consist of diverse stakeholders, including representatives from startups, technology companies, co-ops, municipalities, and IOUs, to ensure a comprehensive approach to innovation promotion. Additionally, the MPSC could open a docket to explore the optimal way to expand the current Expedited Pilot Program and compile lessons learned from other states' regulatory sandboxes and innovation funds—using the insights gathered in this chapter as a starting point. This process would help tailor Michigan's approach to fit the state's specific needs and challenges in the long term. Furthermore, the MPSC could consider implementing an Equitable Innovation Adoption Program within the Innovation Fund—or the funding mechanism that the MPSC considers most appropriate—to ensure that innovative solutions are accessible to all communities, particularly low-income and underserved areas. This program would provide zero-interest

[257] Ulupono Initiative, "Performance-Based Regulation."

loans for scaling up innovations in these communities, fostering equity and justice in Michigan's energy sector.

OCA

The OCA may be implemented immediately through an executive order signed by the Governor. Obviously, there must first be lobbying at the state level for the OCA to become a reality. This office would be the most advantageous as an independent state agency, as it then has the ability to be a separate entity from the MPSC itself and therefore ensure that consumers' needs are met without internal divisional conflict. This would be the most similar to the Hawai'i Office of the Consumer Advocate model. Again, there should be at least six OCA members that represent the unofficial regions of Michigan in order to make certain that all Michiganders are spoken for. It would be beneficial for these members to have term limits, and they would be hired under the presumption that the geographic regions and other diverse backgrounds are kept in mind, instead of the members being granted the position by the Governor.

Key Takeaways

A major strength of this reform alternative is its potential to improve reliability for customers across the state through robust reliability and resilience performance incentive mechanisms. Innovation is also a major strength across these policies, as the MPSC can be creative with performance incentive mechanisms and pilot programs within the innovation promotion policies. Furthermore, because affordability is covered by both the PBR framework and PIPPs, customer electricity bills have a strong probability of decreasing, especially for low-income customers.

Another one of the major strengths of this alternative is that all aspects of the proposal are based on successful case studies in other states. There are best practices for these policies, and as many are very recently implemented elsewhere, there will hopefully be much more analysis of their outcomes in the future. This means that they are low-risk and there are strong examples elsewhere for Michigan to analyze and potentially replicate in implementation. Furthermore, all of these policies could be implemented within five years, are overall technically feasible, and are very scalable to the state of Michigan.

On the other hand, there is only a fair probability that justice and climate would improve as a result of this reform alternative. While these policies do aim to increase clean energy deployment and meet goals from the MI Healthy Climate Plans, there are still many unknowns related to equitable implementation of these policies. Furthermore, while renewable energy is incentivized and there is hope for improvement, another potential weakness of these policies is the lack of attention to distributed generation, such as rooftop solar and net metering, and community solar, although the innovation promotion framework

hopes to make strides in these areas through pilot programs. There is also little attention paid to restorative justice.

An overall weakness is that IOUs are still in control and do not typically have customer's best interests as goals, although PBR hopes to improve on this. IOUs cater to shareholders and are for-profit companies, and this would not change as a result of this reform, although PBR provides more incentives for providing more reliable, affordable, and equitable energy. Furthermore, the ultimate decision-making power is in the MPSC's hands, not the people's hands. Despite increased participation by customers and organizations throughout Michigan, decisions by the MPSC do not have to take their input into account, although they do consider climate, equity, and affordability in IRPs based on recent legislative changes. This weakness also means that this policy is potentially not very transformative, as IOUs and the MPSC are still in control of the energy system throughout the majority of Michigan.

A major opportunity for the MPSC and MI legislation within this reform is the ability to be creative and innovative in implementing all of these policies in order to prioritize reliability, affordability, justice, and climate. For example, PBR incentive mechanisms can cover almost any topic the MPSC decides to focus on in order to improve utility performance. The MPSC has the authority to implement many of these ideas, but they (and other PSCs) have historically been risk-averse and hesitant to do so.[258] This can be a major barrier to making innovative decisions needed to reach climate and equity goals, but our proposed policies could provide a change in the overall culture of regulation and the MPSC in Michigan. Furthermore, the 2023 climate legislation has the opportunity to have a major impact, and many of these policies could interact or build upon pieces of these policies to improve reliability, affordability, justice, and clean energy in Michigan. It will be interesting to keep an eye on this legislation, and what is succeeding and what still needs work.

There are some threats to the implementation and success of this reform alternative. Some of these policies may be opposed by utilities, and there are also major legislative barriers to implementing almost all of them, such as the political power of IOUs in Michigan. IOUs have considerable political power and influence in Michigan, which is a major barrier to implementing some of these policies through legislative means if they oppose such reform. Another threat is climate change and worsening impacts such as storms which could have major implications for reliability and the electricity grid. This could result in unanticipated burdens on the system, increased costs, and lower technical feasibility of these policies. There is also a possibility that penalties related to the PBR framework fall on consumers or result in lower outcomes in an un-incentivized area of regulation, as the MPSC does not currently have

[258] Cory Felder and Jessie Ciulla, "The Untapped Potential of Public Utility Commissions," RMI, July 12, 2021, https://rmi.org/the-untapped-potential-of-public-utility-commissions/.

the authority to tell IOUs how to spend their money (or control where it comes from for the penalties related to disincentives).

Furthermore, much of the implementation of these policies is reliant on the governor, commissioners, and their priorities (politically or otherwise). Ultimately, the three commissioners are appointed by the governor in staggered six-year terms, meaning that the Commission is ever-shifting and could be swayed by political pressures as time goes on. While the legislation would likely give some specifics and goals of these policies, much would also be up to interpretation by the current commissioners.

Although our proposal includes extensive community engagement in designing and implementing the policies, there is a possibility that these are not included, which would result in a potentially more inequitable system that exacerbates injustices, and the benefits of the energy system and these policies would not be received by all.

Areas for Future Research

Ratemaking

One of the gaps in the PBR framework is where and how disincentives fit into the PBR framework. There is not enough data to state with certainty that PBR disincentives are successful in increasing the reliability, affordability, equity, and climate goals of our report. Furthermore, there is some uncertainty about whether the MPSC has the authority to create disincentives for utilities rather than merely incentives to meet or improve upon targets.

Also, our report does not consider any change to the "reasonable and prudent" standard. The existing ratemaking formula creates incentives for public utilities to insert as many of their expenses as possible into capital expenditures, upon which they receive a rate of return.[259] This means that public utilities may have perverse incentives to invest available funds in capital expenditures rather than operation and maintenance, upon which utilities do not receive a rate of return. While our PBR proposal is meant to mitigate these perverse incentives, we have not considered any proposed change to the reasonable and prudent standard. Furthermore, our report does not analyze whether or not the MPSC currently has the authority under its "reasonable and prudent" ratemaking authority to simply reduce a utility's existing rate of return. For example, if a Michigan utility is currently receiving a 9% return on investment, would an 8% return be reasonable, would a 7% return be reasonable? These questions are the highly technical subjects of rate cases that may last years, but certainly, there is some regulatory or legislative ability to further limit the rate of return that regulated utilities are allowed to recover through cost-of-service ratemaking. Ratemaking

[259] MPSC. Cost of Service Ratemaking. https://www.michigan.gov/-/media/Project/Websites/mpsc/workgroups/dgpi/Cost_of_Service_Ratemaking-Value_of_Solar-3-18-14.pptx?rev=2598d6aed36b4c6e8449889547afefb0

reform is not a topic of our proposal, but ratemaking reform has a high potential for improvement across our evaluation metrics.

PIPP

Gaps in the PIPP analysis and proposal are mostly related to the cost and effectiveness of existing programs. There are good cost estimates from the California and *Consumers Energy* pilot PIPPs, about $2.57 million in administrative and program costs annually. But these are pilot programs, with a limited number of participants, and are certainly not representative of a statewide program. Driving down the costs of PIPPs would make the programs more effective and more practicable for states or even individual utilities to adopt. Future research should be done to analyze how PIPPs can be structured to reduce costs and maximize benefits for customers.

Furthermore, there do not appear to be any publicly available PIPP effectiveness studies in states with longstanding programs like Ohio or Illinois. Useful effectiveness studies would include enrollment numbers year-by-year, actual beneficiaries of arrearage forgiveness, and an estimate of the eligible households that are not beneficiaries of the PIPP. Expanded arrearage forgiveness programs would improve the equity of a PIPP and different arrearage forgiveness programs should be considered in future research.

Governance

Our chapter does not evaluate the potential for reforming the MPSC's governance structure. The MPSC could be restructured in order to better respond to the desires of ratepayers and may improve the MPSC's ability to meet the goals of our evaluation metrics. Possible reforms could include a change in the manner commissioners are selected. Currently, MPSC commissioners are appointed every two years by the Governor on staggered six-year terms. Whether elected commissioners, shorter terms, longer terms, or other reform options would make the MPSC more responsive to affordability, reliability, climate, or equity considerations is possible, but not evaluated by this chapter. However, possible reforms to the structure of the MPSC could have potential benefits when measured against our evaluation metrics. These reforms should be considered in future research.

One of the major gaps with the OCA approach is the permanence of the approach. Given that the OCA can most easily be established by Executive Order, the OCA could then also be removed by executive order. However, attempting to establish the OCA legislatively would require much more political capital than merely creating the office through executive order, the same as the Office of Environmental Justice Public Advocate and Office of the Clean Water Public Advocate.

Our chapter also does not evaluate what could happen to the MPSC and its authority under the other alternatives' structure, such as a statewide publicly owned utility or

statewide municipalization. In these cases, the MPSC may not be necessary, regulation could be done by another state body, or they could simply regulate different companies than IOUs.

Chapter Two:

Landscape Assessment of Statewide Publicly-Owned (SPO) Power in Michigan

Hannah Rubens, Prarthana Shevatekar, Sarah Cohen, Sarah Wells, Sneha Durgapal

2.1 Introduction

This chapter examines how the state of Michigan can take over all investor-owned electric utilities (IOUs) within the state to create a statewide publicly-owned (SPO) utility structure. Under an SPO model, the state would take ownership and control of the existing IOUs, creating public power for the state of Michigan. For the purposes of this chapter, we will analyze the two largest IOUs in the state, DTE and Consumers Energy. While there are other IOUs operating in the state, they are not financially material to the assessment. We recommend that the state acquire only IOU distribution infrastructure - the poles and wires that capture and transmit energy to homes and businesses around Michigan - and not acquire generation. Under this model, the Michigan government would forcefully buy (i.e., acquire the property regardless of whether the IOUs would like to sell or not) IOUs' distribution property such that electricity distribution statewide would be publicly-owned by either the state government, municipalities, or ratepayer owned cooperatives.

Because of its structure, an SPO will help the state achieve better electricity outcomes for customers, and we examine this model from the perspectives of climate, reliability, energy

justice, and affordability. Three key factors uniquely position an SPO to differentiate its actions from the IOUs current operational focus.

The capital locked away in IOU profits becomes available

By virtue of no longer being accountable to shareholders, the SPO frees up to $1.6 billion per year, with details and caveats of this number stated in the business case for an SPO section. A strategic balance in the division of this sum can help advance forward-facing action to meet not just the climate goals set out in the SPO charter but ones that also exhibit cascading effects on reliability, justice and long-term affordability.

The governance structure ensures focus on ratepayer benefit vs. shareholder profits

The IOUs prioritize shareholder profit over consumer satisfaction and climate action. By contrasts, we propose in an SPO that the governance board has expert members appointed for special emphasis on areas of clean energy, economic, and energy justice and equity. The experts will have a highly skilled and technically sound leadership and advisory perspective on the internal workings of each of these areas. As a result, they can take on an advocacy standpoint on the board to emphasize the advancement of the goals set in the charter in the key aspects of an SPO governance charter section.

Accountability to ratepayers promotes transparent progress tracking and decision making

A multitude of innovative programs and rate design structures can be introduced and iterated on through regularly collected consumer feedback; some are being implemented by IOUs. Being a publicly-owned entity, a SPO has the strongest incentive to prioritize consumer welfare and experience in the pursuit of cleaner alternatives to traditional energy, because they are accountable to the voters (ratepayers) as opposed to shareholders. Additionally, public pressure to innovate while keeping the rates down further incentivizes an SPO to proactively seek out more federal and state funding options for public entities in each of the areas of energy justice, reliability and clean energy.

With consideration for the landscape of persistent energy infrastructure failures across the state, this chapter evaluates the potential for a SPO to make concerted and equitable investments in the reliability of the infrastructure and services of DTE and Consumers. The transition from IOUs to a SPO would bring about substantial profit savings as the utility would not be required to pay shareholder dividends. This introduces considerable opportunities to invest in grid hardening and modernization, but these efforts will need to be balanced with the equally important priorities of investing in renewable energy and lowering consumer rates.

An SPO in Michigan could increase affordability for consumers, but it is not a given. Financially, the SPO does not need to retain a profit. Therefore, the IOUs' current profits

could either be returned to ratepayers in the form of rate cuts, or the state could choose to reinvest the profits in the business to improve reliability or meet climate goals. These approaches would impact affordability both in the short and long term, and they would be dependent on how the governance board chooses to prioritize investment and improvements.

To satisfy the requirements of MI Healthy Climate Plan, the state will need to incrementally forbear the use of fossil fuels and pursue cleaner energy sources, while keeping up with technological innovations and grid modernization to meet climate goals. An overarching goal, aligning with the MI Healthy Climate Plan's target is to achieve 60% renewable energy generation by 2030. It is foreseeable that the capital from shareholder profits, retaining the existing rate structure, can be invested into cleaner generation resources. One of the largest aspects of the SPO model that will accelerate the progress towards this goal, is the incentive to expand the generation through distributed energy resources, which is highly deprioritized by the IOUs in order to maximize investor profits. However, for distributed generation to be feasible, economical and reliable at utility scale, it is imperative for the SPO to innovate on rate programs and invest in grid-edge technology to maintain reliability. Overall, climate assessment demonstrates a promising future, but Michigan's heavy reliance on natural gas over the years, the correlation between grid-edge innovation, and the purchase of newer, cleaner generation assets is likely to induce strain on the delicate balance of affordability and climate action for a state-wide publicly owned power utility.

2.2 Scope of Analysis and Analytical Methods

To provide a comprehensive overview of the feasibility and scope of the state takeover, this chapter analyzes legal, governance and management, energy justice, climate, and cost considerations. The evaluations and recommendations offered are informed by an in-depth literature review of governmental reports and whitepapers, legal cases, articles from journals, blogs, and statutes in addition to interviews with several climate-change and business experts. Appendix C summarizes the expert interviewees. This chapter does not consider how the state of Michigan could expand municipalization efforts to create public power at a municipal level or how the state could support expansion of sustainable energy utilities. Other chapters consider these interventions. As with the rest of the report, this chapter does not cover short-term political feasibility.

This chapter describes how the Michigan state government can take over all existing IOUs to create a 100% public power structure in the state. The chapter analyzes a variety of considerations affecting the transition from IOUs to SPO power, including legal, financial, technical, governance, and energy justice. From a legal lens, this chapter describes how the

state can take the IOUs' private property and the legislative efforts that are needed for this takeover. Pressing financial concerns, such as the cost of the takeover, how the state can finance its acquisition of IOUs, and who will determine the cost of the acquisition, will be analyzed in detail. The governance section of this chapter describes the best governance, managerial, and accountability schemes to optimally serve the values of SPO power. Lastly, key equity concerns, like reliability and energy justice, will be discussed in the context of SPO power and recommendations are provided as to how the state can advance equity and justice.

This chapter also describes implementable lessons that Michigan can learn from based on the recent SPO takeover attempt in Maine. In Maine, a campaign called Pine Tree Power (PTP) attempted to acquire the state's IOUs to create a ratepayer-owned utility.[260] Maine voters gathered enough signatures to pose the question of a state takeover of IOUs on the ballot in late 2023.[261] The proposal was rejected, with less than 30% of Maine residents voting in favor of the state acquiring IOUs.[262] The sections below compare and contrast important components of the Michigan transfer of SPO power to PTP's and provide key learnings.

2.3 Legal Mechanisms to Effectuate SPO Power

From a legal perspective, and in the context of Michigan, SPO power means that the state owns the distribution infrastructure, like poles and wires, that transmit power to people's homes and businesses. Currently, investor owned utilities (IOUs) own the majority of distribution and generation apparatuses in Michigan.[263] This proposal recommends that the state uses legal mechanisms to acquire only IOUs' distribution assets, leaving the generation assets with the IOUs. The "technical feasibility" portion of this chapter will explain why purchasing only distribution, and not generation, assets is recommended.

Michigan has two options to transition to SPO power. It can either build its own new distribution infrastructure or take existing infrastructure from IOUs. Only the latter option will be discussed in this section because other chapters in this chapter will discuss the former. The IOUs in Michigan are private corporations and their assets, including distribution infrastructure and the real estate that it sits on, are private property. Whether the state government can claim this type of property relates to the legal concept of eminent domain.

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[260] "Pine Tree Power." Accessed April 13, 2024. https://pinetreepower.org/?playlist=d134d74&video=9e70c41.
[261] "Pine Tree Power." Accessed April 13, 2024. https://pinetreepower.org/?playlist=d134d74&video=9e70c41.
[262] Cough, Kate. "Pine Tree Power Proposal Decisively Voted Down." The Maine Monitor, November 8, 2023. https://themainemonitor.org/pine-tree-power-proposal-decisively-voted-down/.
[263] Michigan Department of Environment, Great Lakes, and Energy. 2019. "Baseline Assessment and Policy and Program Evaluation." https://www.michigan.gov/-/media/Project/Websites/egle/Documents/Programs/MMD/Energy/roadmap/agrural--report.pdf?rev=42552bf4d7824af2a0bdf59e5030ae66.

Eminent domain is a power that the federal and state governments inherently possess, meaning that the state of Michigan already has the ability to exercise eminent domain (codified in Michigan state law).[264] Eminent domain allows federal and state governments to take, or condemn, private property. There are stipulations: the Constitution only allows a government to take private property if it is for a *public use* and the government provides *just compensation.*[265] The Supreme Court of the United States defines "public use" to mean a public advantage or benefit.[266] The Michigan Constitution states that "'Public use' does not include the taking of private property for transfer to a private entity for the purpose of economic development or enhancement of tax revenues."[267] Michigan courts have found public use in takings for the purposes of extending a pipeline (because the pipeline "served Michigan's public welfare"), constructing a bridge (since purpose of constructing a bridge is "inherently public"), and building a road (because the proposed project was a "public road, and thus a public use").[268;269;270] Thus, because the state is taking IOU property to enhance Michigan's welfare and the utility will be publicly owned, this use of eminent domain power satisfies the state and federal public use parameters.

Determining Just Compensation for Utility Assets

The Supreme Court of the United States explained that "just compensation" in the context of eminent domain equals the property's fair market value, which is defined as the amount that a reasonable and willing buyer would pay a reasonable and willing seller for the property.[271] Just compensation is based on the owner's opportunity cost, i.e., the highest and best use of property. This forces the government to internalize costs while avoiding the creation of perverse incentives for owners (e.g., owner building something more profitable on his land before it is taken to increase his compensation). Thus, the inquiry into the amount that Michigan would need to pay IOUs like DTE and Consumers starts with determining what a reasonable buyer would pay for it.

The inquiry into just compensation does not end there. A condemned business may also be eligible for the going concern value of their business. This value "assumes that a company will remain in business indefinitely and continue to be profitable", and is also known as total value.[272] While just compensation only compensates the owner for the value of the

[264] MCL § 213.1
[265] U.S. Const. amend. V.
[266] Kelo v. City of New London, 545 U.S. 469.
[267] MI Const. Art. X § 2.
[268] Lakehead Pipe Line Co. v. Dehn, 340 Mich. 25
[269] Detroit International Bridge Co. v. American Seed Co., 249 Mich. 289
[270] City of Novi v. Robert Adell Children's Funded Trust, 473 Mich. 242
[271] United States v. Miller, 317 U.S. 369
[272] "Going-Concern Value Defined, How It Works, Example." Investopedia. Accessed February 18, 2024. https://www.investopedia.com/terms/g/going_concern_value.asp.

property taken (in this case, the value of the distribution assets), courts in Michigan that award going concern also compensate the owner for goodwill, including factors such as lost future profits, customer loyalty, and managerial or workforce expertise.[273,274]

Most jurisdictions apply the general rule that, unless the government is taking a property for the same purpose for which the property was used by the private owner, there will not be compensation for its going concern value.[275] In this case, Michigan would be taking the IOUs' property for the same reason as they used it (power distribution), so DTE and other IOUs could qualify for compensation for going concern value.

Michigan judicially has the most encompassing definition of when going concern can be paid as part of just compensation.[276] In *State Highway Comm'n v. L & L Concession Co*, the Michigan Court of Appeals found that if an owner of private property has "a special advantage due to the monopolistic position that it held", it may qualify for going concern value.[277] The court granted going concern value for a food concession stand at a racetrack that was condemned because the racetrack was a "monopoly" and provided the food stand with a "captive audience" but denied going concern value for a clothing store in a retail unit that was condemned because the clothing store does not enjoy a monopoly and its customers are not a captive audience.[278] The sane court further clarified factors necessary to receive going concern value when condemned in *Michigan State Highway Com v. Gaffield.*[279] There, it found that a condemned business can only receive going concern value when it either has an exclusive license, suffers total destruction of the business, or has no possibility of relocation, and the going concern value award does not duplicate other compensatory awards.[280]

Consider that in Maine Pine Tree Power's (PTP) proposal to acquire Maine's IOUs, PTP estimated acquisition costs to be $5.4 billion and the utilities claimed their assets were worth $13.5 billion[281]. This discrepancy can be in large part attributed to going concern value. In fact, in its opposition to PTP's campaign, the utilities' lawyers noted that PTP's proposal did not include going concern value for its business, claiming that "the people of Maine would

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[273] Ackerman, Alan. n.d. "Just Compensation for Condemnation of Going Concern Value." *American Society of Appraisers* XXXI (1). https://ackerman-ackerman.com/wp-content/uploads/2019/02/Just_Compensation_for_condemnation_of_going_concern.pdf.

[274] Ellis v. City of Grand Rapids, 257 F. Supp. 564 (W.D. Mich. 1966)

[275] Ackerman, Alan. "Just Compensation for Condemnation of Going Concern Value." *American Society of Appraisers* XXXI (1). https://ackerman-ackerman.com/wp-content/uploads/2019/02/Just_Compensation_for_condemnation_of_going_concern.pdf.

[276] Ackerman, Alan. "Just Compensation for Condemnation of Going Concern Value." *American Society of Appraisers* XXXI (1). https://ackerman-ackerman.com/wp-content/uploads/2019/02/Just_Compensation_for_condemnation_of_going_concern.pdf.

[277] State Highway Comm'n v. L & L Concession Co., 31 Mich. App. 222 (Mich. Ct. App. 1971)

[278] State Highway Comm'n v. L & L Concession Co

[279] Mich State Hwy Com v Gaffield, 108 Mich App 88; 310 NW2d 281 (1981)

[280] Mich State Hwy Com v Gaffield

[281] "Pine Tree Power." Accessed April 13, 2024. https://pinetreepower.org/?playlist=d134d74&video=9e70c41.

have to foot the bill for paying the difference between the amount of compensation contemplated [by PTP] and the utilities' value as a going enterprise".[282]

In the case here in Michigan, there are some legal uncertainties. Because this proposal recommends only taking the IOUs' distribution assets, and not their generation assets, the state of Michigan can argue that the IOUs will not suffer total destruction of business and are thus not entitled to going concern. DTE, Michigan's largest IOU, also generates a significant amount of its revenue from activities besides electricity generation and distribution. For example, in 2023, just 55% of DTE's net income was generated through electricity sales, and the rest was from other business units that would not be impacted by this acquisition (see the Economics section for further details).[283]

However, Michigan case precedent suggests that going concern is warranted in the "relatively uncommon" case that a "a governmental entity will condemn land and then continue to use that land for the same purpose to which it was being put by private individuals".[284] The IOUs may argue that their businesses have "pronounced customer loyalty" (due to their "exclusive license(s)")[285;286]. DTE and other IOUs in Michigan have a monopoly on electricity provision, and essentially have "captive audiences", meeting the going concern value test articulated in *L & L Concession*. IOUs may also argue that they should be additionally compensated for their workforce's "managerial expertise", especially since the State intends on employing the IOUs' workers to stay in their prior roles.[287] Smaller IOUs in Michigan may argue that their business is destroyed by the taking of their distribution assets and are entitled to going concern because of the total destruction of their business.

In sum, the question of whether IOUs are entitled to going concern, and if so, how much, will most likely be determined by litigation. The state should be prepared to pay a going concern value (i.e, a goodwill fee on top of the value of their infrastructure) to acquire IOUs' distribution assets because the IOUs may argue that they have monopoly franchise agreements, a loyal customer base, and significant workforce experience.

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[282] "Central Maine Power Company Testimony in Opposition to LD 1708," accessed February 18, 2024, https://legislature.maine.gov/testimony/resources/EUT20220316Tuggey132919116712479528.pdf.

[283] DTE Energy, "Form 10-K: Annual Report for the Fiscal Year Ended December 31, 2023," Securities and Exchange Commission, accessed March 26, 2024, https://d18rn0p25nwr6d.cloudfront.net/CIK-0000936340/28477a4e-8214-40c5-a20a-a5f8c4fbe3d8.pdf.

[284] Ellis v. City of Grand Rapids, 257 F. Supp. 564 (W.D. Mich. 1966)

[285] Ellis v. City of Grand Rapids, 257 F. Supp. 564 (W.D. Mich. 1966)

[286] Mich State Hwy Com v Gaffield, 108 Mich App 88; 310 NW2d 281 (1981)

[287] Ellis v. City of Grand Rapids, 257 F. Supp. 564 (W.D. Mich. 1966)

2.4 Feasibility and Governance

Technical feasibility

While the Maine vote for a statewide public utility ultimately failed, Michigan can learn from the significant challenges that the campaign faced. It is important to understand how the new publicly-owned utility would be formed and document the expected difficulties in that process. Pine Tree Power (PTP) was going to replace Maine utilities, Central Maine Power (CMP) and Versant, which both own the transmission and distribution of electricity.[288] PTP would have acquired both utilities but not the generation infrastructure.

Michigan would be different. DTE and Consumers own generation and distribution but not transmission.[289,290] We recommend that the state acquire only distribution resources, leaving generation assets with the IOUs. With the stated purpose of this assessment being to create *cleaner* power in Michigan, acquiring the IOU's existing generation assets would not achieve that goal. DTE's generation assets are 22% renewable energy, and Consumers' generation assets are just 10% renewable energy.[291;292] Please reference Appendix 1 for a breakdown of DTE and Consumers' generation. Further, acquiring generation would be expensive if the state plans to invest additionally in cleaner energy sources - DTE's generation assets are 51% of total assets, and Consumers' are 34% of total assets.[293, 294] Acquiring just distribution means that the state can use the savings to invest in cleaner sources of generation and purchase existing power from the IOUs in the interim.[295]

Transitioning to a publicly-owned state utility will not come without challenges. A smooth transition is essential to build trust in the new utility and live up to the promises of the takeover. In the PTP case, they planned to create a smooth transition by continuing to pay

[288] "Pine Tree Power Company Vision Document," Pine Tree Power Company, accessed March 2024, https://pinetreepower.org/wp-content/uploads/2023/10/pinetreepowervision.pdf.
[289] "About DTE," DTE Energy, accessed March 8, 2024, https://www.dteenergy.com/us/en/business/about-dte/about-dte/about-dte.html#:~:text=DTE%20Electric%20generates%2C%20transmits%20and,to%20generate%20its%20electrical%20output.
[290] "Electric Generation," Consumers Energy, accessed March 8, 2024, https://www.consumersenergy.com/company/electric-generation.
[291] DTE Energy, "Form 10-K: Annual Report for the Fiscal Year Ended December 31, 2023," Securities and Exchange Commission, accessed March 26, 2024, https://d18rn0p25nwr6d.cloudfront.net/CIK-0000936340/28477a4e-8214-40c5-a20a-a5f8c4fbe3d8.pdf.
[292] CMS Energy Corporation, "Form 10-K Annual Report," accessed February 18, 2024, https://d18rn0p25nwr6d.cloudfront.net/CIK-0000028385/fa2454b8-dc84-43ab-94bc-cf637ce2a45e.pdf.
[293] DTE Energy, "Form 10-K: Annual Report for the Fiscal Year Ended December 31, 2023"
[294] CMS Energy Corporation, "Form 10-K Annual Report"
[295] Interview with Dr. Richard Silkman by Sarah Cohen and Robert O'Gara, Date of Interview (March 11, 2024).

local property taxes as well as keeping CMP and Versant's current employees.[296;297] In Michigan, the ballot measure asking voters to accept or reject the idea of SPO power could stipulate that the state government will continue to pay all local property taxes and retain the IOUs' current employees. Michigan state law bans most public employees from striking, so the ballot measure could also clearly specify that the government will contract with a private contractor, who will employ the IOU employees, to provide all the state's power transmission needs.[298] Thus, all employees will still be private and retain their right to strike. Around 2.5% of Michigan's workforce works in the energy industry, and the government must ensure that these workers feel confident both in the SPO power plan and their role within the state utility.[299] Providing reassurance to IOU employees that they will retain their "private employee" status and their right to strike will help ensure their approval of the SPO power scheme.

A key benefit of the SPO model as compared to the IOU model is that a government-owned entity does not need to generate profits for shareholders. In Maine, CMP and Versant are obligated to share profits with shareholders via dividends.[300] As a non-profit backed by the state, PTP would not have had this profit-sharing obligation, meaning that it could reinvest profits back in the business for grid hardening or clean energy development, or it could choose to reduce ratepayer costs. PTP also argued that their ability to make technical upgrades to the grid would have been much easier and more affordable than it is for CMP and Versant.[301] PTP's entity structure means that it would be eligible for discounted capital and loans that are unavailable to IOUs, making grid improvements cheaper for PTP. [302] These measures would have enabled PTP to have created significant savings and more reliable power for Mainers.[303]

These savings would be present in Michigan, too. Without shareholders to appease, the state can invest any profits in grid hardening and realize savings that are unavailable to the IOUs when acquiring capital and loans. DTE and Consumers have neglected to maintain their distribution lines for decades, resulting in today's grid with low reliability and frequent

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[296] "Community-Owned Energy: How Nebraska Became the Only State to Bring Everyone Power From a Public Grid - YES! Magazine Solutions Journalism," YES! Magazine, accessed February 18, 2024, https://www.yesmagazine.org/economy/2015/01/30/nebraskas-community-owned-energy.
[297] "Pine Tree Power Company Vision Document," Pine Tree Power Company, accessed March 2024, https://pinetreepower.org/wp-content/uploads/2023/10/pinetreepowervision.pdf.
[298] MCL § 423.201
[299] Michigan Department of Labor and Economic Opportunity, "Industry Cluster Workforce Analysis", accessed March 26, 2024, https://www.michigan.gov/leo/bureaus-agencies/wd/industry-business/-/media/31b8b0d2e7d34a58b1875d3a18ba956d.ashx.
[300] Michigan Department of Labor and Economic Opportunity.
[301] Michigan Department of Labor and Economic Opportunity.
[302] Michigan Department of Labor and Economic Opportunity.
[303] Michigan Department of Labor and Economic Opportunity.

outages.[304] This means that the state should be prepared to inherit a legacy, low-performing electric grid, and plan accordingly to maximize and prioritize reliability investments.

Cost, Revenue and Financing Feasibility

The Business Case for an SPO

For the creation of a Michigan SPO to make sense, there must be clear improvements for rate paying customers to justify the acquisition. The key criteria analysis below analyzes improvements to climate, reliability, energy justice, and affordability in detail, but we discuss the key benefits that the SPO structure provides here. Today, the IOUs's revenues exceed their costs, resulting in a profit that is given back to shareholders in the form of dividends. In 2023, DTE Electric's profits were $772 million and Consumers Energy's profits were $867 million.[305;306] Together, the IOUs in Michigan return over $1.6 billion to shareholders each year.

Before moving forward, it is worth noting how an SPO structure would likely impact this $1.6 billion profit estimate. First, $1.6 billion is 2023 profits *after* taxes. Since the SPO may be exempt from certain state and federal taxes, the available profits could increase by an additional $300 million combined.[307;308] Another caveat is that the IOU's finances today include revenues and profits today from distribution *and* generation (estimated to be roughly a 50/50 split[309]), whereas the SPO's revenues and profits will only be from distribution. As a result, we expect the SPO's total profits to be lower than $1.6 billion. Given these caveats on taxes and sources of revenue, it is not possible to exactly estimate what the SPO's profits will be. For illustrative purposes, we continue to use $1.6 billion in profits throughout this chapter.

Under an SPO, these $1.6 billion in profits can be used to improve electricity for customers. Since the SPO does not have shareholders, it would be incentivized to use this money for the benefit of customers. For example, it can return the profits to customers in the form of revenue cuts, invest in grid hardening to improve reliability, and fund new sources of generation to create greener power. Keeping the additional profits could make a significant impact. Consumers' Energy paid $1.586 billion for "maintenance and other operating

[304] "How decades of neglect left Detroit's grid vulnerable to powerful storms," Energy News, September 16, 2021, accessed March 26, 2024, https://energynews.us/2021/09/16/how-decades-of-neglect-left-detroits-grid-vulnerable-to-powerful-storms/.
[305] DTE Energy, "Form 10-K: Annual Report for the Fiscal Year Ended December 31, 2023"
[306] CMS Energy Corporation, "Form 10-K Annual Report"
[307] DTE Energy, "Form 10-K: Annual Report for the Fiscal Year Ended December 31, 2023"
[308] CMS Energy Corporation, "Form 10-K Annual Report"
[309] "Michigan Electricity Rates," ElectricityRates.com, November 25, 2022, available at: https://electricityrates.com/michigan/ (accessed April 11, 2024).

expenses," which includes investment in their distribution grid.[310] If it were to add their $867 million profits, that would be a 35% increase in the distribution grid. Customers could see a tangible increase in reliability with such a sizable increase in investment.

The SPO's structure has the potential to create new incentives for the IOUs, too. Today, the IOUs invest about 61% in distribution and only 39% in generation.[311] If the IOUs do not own distribution, they can put a greater percentage of investment dollars into generation. Further, the SPO can incentivize this investment into clean energy through negotiation and conversations with the IOUs, threatening to fund or buy other sources of renewable energy if the IOUs do not improve.

Through its financial structure, the SPO model has huge potential to create more affordable, reliable, and cleaner power in the state of Michigan. This would be achieved by reinvesting the existing profits into the business and giving the money back to shareholders through rate cuts. The SPO can also find ways to encourage the IOUs to invest in greener generation sources.

Estimating the Acquisition Cost of IOUs

The state will also need to plan for and estimate the cost to acquire the IOU's distribution assets. To develop a valuation, we need to identify the acquisition targets. There are many electricity providers in the state, and eight IOUs that could be acquired.[312] However, not all eight are materially significant to estimating the acquisition cost. DTE and Consumers Energy Company (parent company CMS) are both IOUs and publicly held. The other six utilities are much smaller based on their service region and number of customers. For example, Alpena Power has 16,650 active members.[313] By comparison, DTE electric serves 2.3 million consumers and Consumers has 1.8 million consumers.[314,315] Please reference Appendix 2 for a full list of the primary electric providers in Michigan and the number of consumers they serve. This data serves as a proxy for the size of the company, even if it is not publicly owned. For the remainder of this analysis, we will focus on estimating the acquisition cost for

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[310] CMS Energy Corporation, "Form 10-K Annual Report," accessed February 18, 2024, https://d18rn0p25nwr6d.cloudfront.net/CIK-0000028385/fa2454b8-dc84-43ab-94bc-cf637ce2a45e.pdf.
[311] Laura Sherman, email interview by Sarah Cohen, April 11, 2024.
[312] U.S. Environmental Protection Agency, "State Profiles: Michigan," ENERGY STAR, accessed February 18, 2024, https://www.energystar.gov/ia/partners/downloads/mou/state_resources/State_Profiles_Michigan_508.pdf.
[313] Alpena Power Company, "Press Release: December 15, 2023," accessed February 18, 2024, https://www.alpenapower.com/press-release-december-15-2023/#:~:text=Alpena%20Power%20is%20a%20locally,Montmorency%20and%20Presque%20Isle%20counties.
[314] DTE Energy, "About DTE," accessed February 18, 2024, https://www.dteenergy.com/us/en/business/about-dte/about-dte/about-dte.html#:~:text=DTE%20Gas%20is%20engaged%20in,1.3%20million%20customers%20in%20Michigan.
[315] Consumers Energy, "What We Do," accessed February 18, 2024, https://www.consumersenergy.com/company/what-we-do#:~:text=We%20work%20for%20you.,more%20than%206%20million%20Michiganders.

DTE and Consumers Energy because the acquisition costs of the other six IOUs in Michigan will be tiny in comparison.

There are a few commonly accepted methods to develop a valuation estimate that the state can use for initial planning purposes. A company's market cap is commonly accepted as the current value of a company. However, DTE and Consumers' (CMS) market cap includes their natural gas assets, electric generation assets, and other investments. Since the state would only be acquiring distribution assets, it makes more sense to use the company's net book value, which, by definition, is the difference between a company's assets and the accumulated depreciation on those assets. Net book value can be used narrowly to consider only some of the company's assets—here, distribution assets. The consultants that were hired in Maine also used net book value to estimate an acquisition price.[316] The net book value of DTE's distribution assets is $10.5B[317], and CMS' is $8.2B[318]. See Appendix 3 for calculations and assumptions. Together, the net book value of distribution assets is $18.7B, which is the baseline estimated cost of acquisition.

While there likely will not be significant debate about the net book value of the distribution assets, there will likely be disagreement on the multiplier used to determine the final purchase price. One of the major debates throughout the PTP Maine campaign was how much the acquisition of the two IOUs would cost the state. Each side hired consultants to develop an estimated valuation, but those valuations differed significantly – with estimates ranging from $5 billion to $13 billion.[319] While there was not a huge amount of disagreement in what the two IOUs were worth (their net book value), the estimates varied largely because of discrepancies in the multiplier used for the acquisition cost. The multiplier makes up the going concern value and quantitatively describes how much the IOUs should be compensated for their assets on top of their value. As seen in the Maine case study, the multiplier used in valuations ranged from 1.4x to 2x of the base price.[320] Further, in municipal examples around the country, acquisition multipliers ranged from 2.1x (Hermiston, OR) to 5.5x (Winter Park, FL). See Appendix 4 for details on these cases. It is worth noting that the consultants' report conducted for PTP included significant analysis about acquisition multiples and why some are more likely than others. Since the Maine vote did not pass and the IOUs are not being sold,

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[316] Maine Legislature, "Evaluation of the Ownership of Maine's Power Delivery System", accessed March 26, 2024, https://legislature.maine.gov/doc/4350.

[317] DTE Energy, "Form 10-K: Annual Report for the Fiscal Year Ended December 31, 2023," Securities and Exchange Commission, accessed March 26, 2024, https://d18rn0p25nwr6d.cloudfront.net/CIK-0000936340/28477a4e-8214-40c5-a20a-a5f8c4fbe3d8.pdf.

[318] CMS Energy Corporation, "Form 10-K Annual Report," accessed February 18, 2024, https://d18rn0p25nwr6d.cloudfront.net/CIK-0000028385/fa2454b8-dc84-43ab-94bc-cf637ce2a45e.pdf.

[319] Willis Ryder Arnold, "Here's Everything We Know About the Referendum to Replace CMP and Versant with Pine Tree Power," Maine Public, October 5, 2023, https://www.mainepublic.org/politics/2023-10-05/heres-everything-we-know-about-the-referendum-to-replace-cmp-and-versant-with-pine-tree-power.

[320] Pine Tree Power. "Review and Assessment of LEI Model." Accessed February 2024. https://pinetreepower.org/wp-content/uploads/2023/05/review-and-assessment-of-lei-model-2020-1.pdf.

the final purchase price was never decided.[321] However, it is important for Michigan to be aware of the expected price range of acquisition costs and be prepared to explain them to voters.

When the state is ready to move forward, we recommend hiring valuation experts to deliver a full report on the financial costs and savings of this initiative. Figure 1 below shows the range of valuation estimates from the net book value approach with different multipliers. When looking at the two companies together with various multipliers on their valuations, the acquisition costs could range from $18.7B (no multiplier) to $56B (3x multiplier). Likely, the actual valuation will fall somewhere in the middle, but it is important to understand that valuations can be subjective and easily manipulated.

Range of Valuations for IOU Distribution Assets							
	1 (Base)	1.25	1.5	1.75	2	2.5	3
DTE	$ 10,468	$ 13,085	$ 15,702	$ 18,319	$ 20,936	$ 26,170	$ 31,404
Consumers	$ 8,195	$ 10,244	$ 12,292	$ 14,341	$ 16,390	$ 20,487	$ 24,585
Total	**$ 18,663**	**$ 23,329**	**$ 27,994**	**$ 32,660**	**$ 37,326**	**$ 46,657**	**$ 55,989**

Figure 1. Range of Valuations for DTE and CMS ($ million)

There will also be ways for the state to negotiate down the acquisition price. Since some sections of the current grid are more reliable than others, the state can use documented service levels as a negotiation tool to potentially lower the acquisition cost.[322] The 2024 MPSC audit of the Michigan IOUs will be a largely unbiased documentation of grid condition.[323] We recommend referencing this report once it's released to negotiate based on service levels. This approach could help the state save money by using any savings on the purchase price to build new, reliable distribution assets in the areas that need it the most.

Financing the New Entity

The Maine case study offers a plan to reliably finance this multi-billion dollar acquisition. This approach can be replicated in the state of Michigan. The PTP proposal was clear that it did not rely on any funding from taxpayers; instead, the utility infrastructure would have been paid with utility revenue bonds.[324] These revenue bonds are only available to public entities and would cover the upfront cost of capital for the acquisition.[325] The utility

[321] Marguerite Reardon, "Maine Voters Rejected Propsal to Take Over the State's Two Largest Investor-Owned Utilities," CNET, accessed February 18, 2024, https://www.cnet.com/home/energy-and-utilities/maine-voters-rejected-propsal-to-take-over-the-states-two-largest-investor-owned-utilities/.
[322] American Public Power Association, "Municipalization: Forming a Public Power Utility" (2018), https://www.publicpower.org/system/files/documents/municipalization-forming_a_public_power_utility.pdf.
[323] Katherine L. Peretick, " Interview during LAW 741 Class" (March 26, 2024).
[324] "Pine Tree Power Company Vision Document," Pine Tree Power Company, accessed March 2024, https://pinetreepower.org/wp-content/uploads/2023/10/pinetreepowervision.pdf.
[325] Investopedia, s.v. "Utility Revenue Bond," accessed March 29, 2024, https://www.investopedia.com/terms/u/utility-revenue-bond.asp.

revenue bonds provide the state with an upfront loan that would be paid back over time using ratepayer revenue. Because the public entity's revenue is so secure (all customers would be on the SPO and still using the same amount of power), the interest rates on the bonds are extremely low.[326] In addition to covering the acquisition costs, PTP also planned to use these revenue bonds to cover the investments in improved infrastructure.[327]

The new SPO's revenue would initially be unchanged from the IOUs electric utility revenues today (DTE: $5.8B; Consumers: $4.7B). The state could later choose to reduce rates for customers, which would lower the SPO's revenue, but that decision will follow at a later stage dependent on the utility bond rates and grid investment decisions. It is also worth noting what will happen to the IOUs revenues. As previously explained, the IOUs' gas revenues will be untouched. This proposal also recommends that the state continue to purchase generation from the IOUs rather than acquire the generation assets themselves. This means that the IOUs will retain some revenue for the sale of generation to the state, and their electric revenues will not become $0. Overall, the revenues for the new SPO will be very secure, making the state eligible for utility revenue bonds to finance the acquisition.

Governance and Management

When considering a statewide transition from investor-owned utilities (IOUs) to a publicly-owned electricity provider model, it is critical that the governance policies and management structures of such an entity allow it to act in the best interest of the public. A publicly-owned power entity should ensure that all citizens across the state have a means of influencing decision-making processes, whether it be through the means of elected representatives or required public engagement efforts, to meet widespread needs such as reliability and affordability of electricity services.

This section will draw upon insights from the proposed PTP management framework in Maine and Nebraska's long-standing history of public power to inform governance and management recommendations to facilitate the adoption of statewide public power in Michigan. Ultimately, we propose that the most successful SPO framework for Michigan would be guided by governance policies that poise the entity to follow through on established goals centering climate action, reliability, energy justice, and affordability. To accomplish this, we recommend the following actions: A) creation of a Governance Board comprised of locally-elected representatives and a diverse group of energy experts, whose primary responsibilities center on regulating all aspects of the SPO, such as equitable ratemaking, setting climate progressive priorities; B) relieving the MPSC of their electric distribution-related policymaking and regulatory duties currently directed at IOUs; and C) establishing an

[326] Lucy Hochschartner, " Zoom Interview during LAW 741 Class" (January 30, 2024).
[327] "Pine Tree Power Company Vision Document," Pine Tree Power Company, accessed March 2024, https://pinetreepower.org/wp-content/uploads/2023/10/pinetreepowervision.pdf.

Office of Consumer Advocacy (OCA) to advocate for the interests and needs of SPO customers.

The Pine Tree Power Model

Pine Tree Power Governing Board

As visualized in **Appendix 5**, Maine's proposed publicly-owned utility would have been overseen by a Governing Board, which would have provided oversight on high-level operations and ensured that established governance policies were acted upon. The Governing Board would have included seven elected, voting-eligible members, each representing five geographically-proximate State Senate districts.[328] The elected members would then have collectively appointed four energy advisors to join the board as non-voting members with expertise on topics such as: utility management and finance; worker and industrial consumer concerns; electricity generation, delivery, and cybersecurity; climate action planning; and economic and environmental justice.[329] Elected board members would have served staggered six-year terms, and expert advisory members would have served staggered four-year terms.[330] The PTP Board would have still ultimately followed regulations and decisions made by the Governor-appointed Maine Public Utilities Commission, which would have enforced utility service standards, set electricity rates, and approved infrastructure upgrades and major projects.[331,332] Additionally, Maine's Office of the Public Advocate would have remained responsible for advocating for the interests and needs of consumers in electric utility affairs after the statewide acquisition of transmission and distribution infrastructure from the IOUs.[333,334]

Pine Tree Power Management Framework

As decided by the PTP Board, a team of qualified company staff, ideally individuals with experience in consumer-owned utility management, would have been hired to more directly oversee day-to-day utility operations.[335] Roles would have included a PTP Director,

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[328] Wayne Jortner et al., "A Vision for the Pine Tree Power Company" (Our Power, n.d.), https://pinetreepower.org/wp-content/uploads/2023/10/pinetreepowervision.pdf.
[329] Jortner et al., "A Vision for the Pine Tree Power Company."
[330] An Act To Create the Pine Tree Power Company, a Nonprofit Utility, To Deliver Lower Rates, Reliability and Local Control for Maine Energy Independence, H.P. 1269, 130th Maine Legislature (2021.)
[331] How the Commission Works | MPUC, https://www.maine.gov/mpuc/about/how-commission-works.
[332] Wayne Jortner et al., "A Vision for the Pine Tree Power Company" (Our Power, n.d.), https://pinetreepower.org/wp-content/uploads/2023/10/pinetreepowervision.pdf.
[333] Jortner et al., "A Vision for the Pine Tree Power Company."
[334] "About Us | Maine Office of Public Advocate," accessed February 10, 2024, https://www.maine.gov/meopa/about; "How the Commission Works | MPUC," accessed February 10, 2024, https://www.maine.gov/mpuc/about/how-commission-works.
[335] Wayne Jortner et al., "A Vision for the Pine Tree Power Company" (Our Power, n.d.), https://pinetreepower.org/wp-content/uploads/2023/10/pinetreepowervision.pdf.

CFO, legal counsel, and a team to support legal, regulatory, and operations management needs.[336] These employees would have played a critical role in the planning and transition process when moving away from the IOU model to ensure the public power structure was adopted smoothly and in a reliable, non-disruptive manner for customers.[337]

Additionally, the PTP Board would have hired an external, private sector operations firm to handle day-to-day grid, transmission and distribution, customer service, and billing services.[338] The selected firm would have been hired on a contract basis for five-to-ten-year terms.[339] This would have allowed the Board to hire a new operating firm by the upcoming renewal year if reliability and customer service standards were not met (in other words, the notion of possible non-renewal of contracts would have served as an accountability measure for the selected firm to adequately meet consumer expectations to remain competitive for future contracts).[340] The majority of non-executive workers from the acquired utilities would have been offered employment (and bonuses to support the job transition) and would have retained a collective bargaining agreement determined by their union, including the ability to strike as private sector employees.[341]

The Nebraska Model

Nebraska is a unique case study in the context of public power, as it is the only US state where all electricity customers buy from locally-controlled, non-profit public power entities. This has been the case since 1946, when all IOUs were acquired by consumer-owned entities.[342] Given that the landscape of IOUs looks much different today in Michigan than it did in Nebraska in the 1940's, such a transition to public power would look very different today.

Governance Structures for Nebraska's Public Power Entities

In Nebraska, all electricity is purchased from one of three public power options- municipal electric systems, rural electric cooperatives, or public power districts. Municipal systems are primarily operated by municipal governments, rural electric coops are organized as private nonprofit membership corporations, and public power districts are public corporations that are political subdivisions of the state government.[343] The municipal and

[336] Jortner et al., "A Vision for the Pine Tree Power Company."
[337] Jortner et al., "A Vision for the Pine Tree Power Company."
[338] Jortner et al., "A Vision for the Pine Tree Power Company."
[339] Jortner et al., "A Vision for the Pine Tree Power Company."
[340] Jortner et al., "A Vision for the Pine Tree Power Company"
[341] Lucy Hochschartner, " Zoom Interview during LAW 741 Class" (January 30, 2024).
[342] "History : Public Power : Nebraska Power Association," accessed February 10, 2024, https://www.nepower.org/public-power/history.html.
[343] "Nebraska's Electric Utility Industry | Final Report | Nebraska Legislature | L.R. 455 Phase II Study" (Ridley & Associates, December 28, 1999), https://neo.ne.gov/info/pubs/reports/LR455Final/chapt7.htm.

public power district models aim to represent the interests of citizens within the districts they serve, and are run by locally-elected boards of directors, city council members, and appointed utility board members.[344] Major decisions by these entities include rate setting and budgeting.[345] The Nebraska Public Power District (NPPD), the largest public power district and electric utility in the state, is run by a board of directors with 11 members that are popularly elected from all or part of the 84 of Nebraska's 93 counties within its service territory.[346] Decisions by board members are conducted using majority votes, and members serve six-year terms.[347] Currently, board members are not elected on the basis of political affiliation.[348] However, as of late January 2024, the Nebraska legislature passed a first-round approval for a bill that would make elections for the two largest public power districts, Nebraska Public Power District and Omaha Public Power District, partisan. This move is partially driven by citizens' desires to elect candidates based on their support of renewable or fossil energy sources. This recent sentiment may indicate that attempts to retain nonpartisan public power systems are waning in the face of increased renewable generation options, revealing a potential weakness in the current public power governance structure in Nebraska moving forward.[18]

Though the majority of decision-making for electric power utilities in Nebraska is at the local level, a state agency called the Nebraska Power Review Board (NPRB) governs certain aspects of the industry for municipal and public power utilities, and is governed by five Governor-appointed board members that are confirmed by the state legislature, each of whom can serve up to two consecutive four-year terms.[349] Other requirements include the stipulation that only up to three board members can belong to the same political party as the Governor, and the board must include an engineer, attorney, an accountant, and two laypersons.[350]The board also appoints an executive director.[351] The diversity of expertise and attempt to stabilize any political leanings on the board appear to be strong efforts to ensure state regulation of Nebraska utilities is as nonpartisan and well-rounded as possible. However, there is no requirement that board members must represent citizens based on

[344] "Nebraska's Electric Utility Industry | Final Report | Nebraska Legislature | L.R. 455 Phase II Study"
[345] "Nebraska's Electric Utility Industry | Final Report | Nebraska Legislature | L.R. 455 Phase II Study"
[346] "Board of Directors," Nebraska Public Power District, accessed February 8, 2024, https://www.nppd.com/about-us/board-of-directors.
[347] "Board of Directors,"
[348] Chris Dunker, "Nebraska Legislature Advances Measure to Make NPPD, OPPD Elections Partisan," JournalStar.com, January 26, 2024, https://journalstar.com/news/state-regional/government-politics/bill-nebraska-nppd-oppd-elections-partisan/article_7709a46e-bc6a-11ee-a333-d7be99961bb5.html.
[349] "Who We Are," Nebraska Power Review Board, accessed February 8, 2024, https://powerreview.nebraska.gov/.
[350] "Who We Are," Nebraska Power Review Board
[351] "Who We Are," Nebraska Power Review Board

geography.[352] The primary responsibilities of the NPRB include deciding service territory boundaries, approval for constructing new generation or major transmission infrastructure, setting procedures for public meetings and transparency to adequately engage citizens in local decision-making processes, and hearing disputes between utilities and customers. (While not required, rural electric cooperatives tend to follow similar procedures.)

Implications of Nebraksa's Public Power System on Climate Action and Affordability

Despite being a state that historically leans conservative, in 2021, citizens of Nebraska voted to pass a goal for the Nebraska Public Power District to achieve net-zero carbon emissions by 2050, aligning with similar decarbonization commitments set by the Omaha Public Power District and Lincoln Electric System in 2019 and 2020, respectively.[353] These three entities represent the largest electric utilities in the state, and together serve over 90% of the state population.[354] One major catalyst behind the passing of such goals was the election of local representatives on the Boards of these public power entities that campaigned on clean energy policies, as well as improving customer service and restructuring electricity rates.[355] This outcome demonstrates that a majority of citizens from across Nebraska believe that the transition to clean energy sources, and reaping the financial, workforce, and environmental benefits associated with this shift, is a priority when it comes to electing who should sit on the decision-making boards of their public power districts.[356,357]

Additionally, since public power districts in Nebraska rely on locally-elected Boards that hold public meetings to gather constituent input on issues related to rate setting and service standards, these entities perform well on these measures compared to utilities in other states.[358] For instance, a study conducted using publicly-available data from 2020 found that Nebraska ranked in the top 10 states for energy affordability and reliability.[359] One

[352] "Who We Are," Nebraska Power Review Board

[353] Harpel, Holly. "More Than Half Of Nebraskans Guaranteed To Receive Clean Electricity By 2050 Thanks To Advocacy Around State's Public Utilities." *Climate-XChange* (blog), April 29, 2021. https://climate-xchange.org/2021/04/29/more-than-half-of-nebraskans-guaranteed-to-receive-clean-electricity-by-2050-thanks-to-advocacy-around-states-public-utilities/.

[354] Harpel, Holly. "More Than Half Of Nebraskans Guaranteed To Receive Clean Electricity By 2050 Thanks To Advocacy Around State's Public Utilities."

[355] Harpel, Holly. "More Than Half Of Nebraskans Guaranteed To Receive Clean Electricity By 2050 Thanks To Advocacy Around State's Public Utilities."

[356] "Nebraska Presidential Election Voting History - 270toWin," 270toWin.com, accessed March 30, 2024, https://www.270towin.com/states/Nebraska.

[357] "Nebraska Public Power District Votes to Move Utility to Net-Zero Carbon Emissions," League of Conservation Voters, accessed March 30, 2024, https://www.lcv.org/blog/nebraska-public-power-district-votes-to-move-utility-to-net-zero-carbon-emissions/.

[358] "Benefits : Public Power : Nebraska Power Association." Accessed March 30, 2024. https://www.nepower.org/public-power/benefits.html.

[359] Robert Zullo, "Affordable, Reliable and Sustainable: Report Compares Utility Performance | Nebraska Examiner," *Nebraska Examiner* (blog), January 19, 2023, https://nebraskaexaminer.com/2023/01/19/affordable-reliable-and-sustainable-report-compares-utility-performance/.

potential contributor to such high performance is that because many public power districts in the state are localized, the office staff, customer service team, and utility crews for these organizations are residents themselves, improving their ability (and likely, their desire) to quickly respond to challenges.[360] Being local also enhances the ability of public power districts to partner with regional organizations like schools or businesses on energy efficiency or financial assistance initiatives, spurring economic growth within communities.[361] Ultimately, it is clear through analysis of Nebraska's public power system that prioritizing governance structures that integrate local voices, particularly through locally-elected representatives on the public power district boards, provides citizens across the state with a greater degree of autonomy when it comes to decisions such as setting rates and thereby electricity services that are more reliable, affordable, and aligned with citizen-driven clean energy goals.

Proposed Governance Structure and Policies to Facilitate Statewide Public Power in Michigan

Based on learnings from Pine Tree Power and Nebraska, our team has crafted three key recommendations to address climate change, reliability, energy justice, and affordability challenges that currently exist under the IOU-dominated electricity system in Michigan. A high-level overview of the proposed vision for the SPO is presented in **Appendix 6**, along with detailed descriptions of each recommendation below.

Creation of a Governance Board comprised of locally-elected representatives and a variety of energy experts, whose primary responsibilities center on regulating all aspects of the SPO, including ratemaking

Board size and local representation

Another characteristic of both the PTP and Nebraska models that may be positively viewed by electricity customers in Michigan would be the composition of the Governance Board that includes locally-elected members representing customers served from across the state to best represent the unique voices and needs of residents during decision-making processes. It may make more sense for Michigan to follow the approach of PTP and Nebraska's public power district boards, which are governed by officials that are placed via election processes, as opposed to the NPRB board, where officials are appointed by the Governor similar to Michigan's current Public Service Commission arrangement (both the

[360] "Benefits : Public Power : Nebraska Power Association," accessed March 30, 2024, https://www.nepower.org/public-power/benefits.html.
[361] "Benefits : Public Power : Nebraska Power Association,"

NPRB and MPSC follow rules to balance political leanings of appointees).[362;363] If Michigan's SPO Board were to follow the approach of PTP, it may make sense to slightly adjust the number of elected members appointed to the board to account for the greater number of Senate districts in Michigan (38) compared to Maine (35), or to base local representation on the 110 House districts in Michigan, each representing approximately 77,000 to 91,000 residents.[364;365;366] Additionally, it may also make sense to proportionally increase the number of non-voting advisory experts on the SPO Board in the event that the number of elected officials on the board increases, or consider granting voting rights to all Board members to ensure that advisory experts can directly affect decision-making processes and counterbalance any potential outside political influences that locally-elected Board members may bring into their roles.[367] However, any changes to the overall board size should remain minimal and not exceed 15 total members to avoid challenges related to scheduling, holding efficient meetings, and decision-making processes.[368]

Board diversity and expertise

An important aspect of the SPO Board would be the inclusion of energy experts representing diverse subject matter knowledge related to topics like electric utility management, worker and industrial consumer concerns, climate change and economic and energy justice. Versions of this arrangement in both the PTP and Nebraska models appear to create a well-rounded panel of advisors that would be poised to leverage individuals with extensive knowledge on the landscape of utilities and electricity distribution in Michigan, complementing the processes described in the previous bullet to capture local preferences and needs relayed from citizens in geographically-based State Senate or House districts to inform decision-making processes. In Michigan's case, energy experts would ideally be selected based on their knowledge of the clean energy, economic, and energy justice and equity goals laid out in the MI Healthy Climate plan.

Enhance effective public engagement

When considering an SPO model for Michigan, emphasizing the public engagement-related responsibilities of the Board and creating mechanisms to create checks on the ability

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[362] "Who We Are," Nebraska Power Review Board, accessed February 8, 2024, https://powerreview.nebraska.gov/.

[363] "About the MPSC." Accessed March 30, 2024, https://www.michigan.gov/mpsc/about.

[364] "Find Your Senator - Michigan Senate." Accessed March 30, 2024, https://senate.michigan.gov/FindYourSenator/.

[365] Wayne Jortner et al., "A Vision for the Pine Tree Power Company" (Our Power, n.d.), https://pinetreepower.org/wp-content/uploads/2023/10/pinetreepowervision.pdf.

[366] "Michigan House - Michigan Representatives," accessed April 4, 2024, https://www.house.mi.gov/AllRepresentatives.

[367] Shoshannah Lenski, Zoom Interview during LAW 741 Class, April 2, 2024.

[368] Pangilinan, Taylor. "Too Small, Too Big, Just Right: The Goldilocks Size for a Nonprofit Board." *Cooley GO* (blog), December 22, 2022. https://www.cooleygo.com/too-small-too-big-just-right-the-goldilocks-size-for-a-nonprofit-board/.

of utilities to influence statewide politics more broadly may be useful tools to ensure that issues related to electric power are accurately and promptly communicated to all citizens, who if needed can push for local utility representatives for changes to better align with local preferences.

Ability for the Board to effectively respond to customer feedback and concerns regarding issues such as affordability, reliability, and customer satisfaction with electric utility services

As with PTP, the choice for the Board to hire a private sector grid operating firm on a contract basis would also likely see support amongst many citizens in Michigan. With service reliability and customer satisfaction concerns at top of mind in the state, the ability to hire a new firm periodically to run daily operations could be essential to ensure the selected firm remains responsive to consumer needs. Additionally, the workforce transition and union rights elements of the PTP model would likely be attractive to Michiganders. Michigan is one of the most unionized states in the country, and retaining workers' rights such as the ability to strike by retaining the majority of employees of the new utility model to the private sector (as opposed to the public sector, where labor rights challenges could arise) will likely be critical in any move towards publicly-owned power.[369]

Relieving the MPSC of a majority of their electric distribution-related policymaking and regulatory duties:

One aspect of the PTP and Nebraska public power models that our team recommends not replicating is the continued reliance on the MPSC for electric utility regulatory activities. We recommend instead transferring these responsibilities to the SPO Governance Board. Given the ability to gather insight and advocate for the preferences of citizens across the state through the inclusion of locally-elected officials on the SPO Governance Board, in addition to the vast array of knowledge provided by Board energy experts as it relates to key issues such as ensuring economic and energy justice principles in ratemaking or understanding the climate implications of major energy projects, the Board would be better equipped to handle responsibilities like ratemaking and approving capital projects than the MPSC. Additionally, considering the fact that Michigan has consistently ranked amongst the lowest states for the affordability and reliability of electric utility services under the governance of the MPSC, it is worth exploring alternatives to the status quo.[370]

One challenge that may arise under this recommendation is that it likely would not make sense to absolve the MPSC of the full suite of their electric utility regulation

[369] Robert P. Hunter, "The Prevalence of Unions in Michigan," Mackinac Center, accessed February 11, 2024, https://www.mackinac.org/2301.

[370] Robert Zullo, "Affordable, Reliable and Sustainable: Report Compares Utility Performance | Nebraska Examiner," *Nebraska Examiner* (blog), January 19, 2023, https://nebraskaexaminer.com/2023/01/19/affordable-reliable-and-sustainable-report-compares-utility-performance/.

responsibilities if an SPO structure is enacted. This is because the MPSC does have some jurisdiction relating to the governing of electric cooperatives and municipal electric utilities, such as regulating capacity demonstrations and filing renewable energy and clean energy plans.[371] Therefore, it would be important to clearly denote exactly which electric utility-related duties that the MPSC currently carries out will be transferred to the SPO Board, and which responsibilities will remain under the jurisdiction of the MPSC if the State of Michigan were to pursue the SPO option.

Establishing an Office of Consumer Advocacy (OCA) to advocate for the interests and needs of SPO customers:

One element of the PTP model that could potentially be adopted in an SPO framework for Michigan would be creating a new governing body to take on the responsibilities like those covered by Office of the Public Advocate in Maine or other similar entities across the country.[372] In Michigan, there are similar public advocate offices run through the Michigan Department of Great Lakes, Environment, and Energy (EGLE) that represent citizens for environmental justice and clean drinking water concerns, but there is no public advocate separate from the MPSC to support customers with concerns regarding electric utilities.[373;374] The recommended structure and objectives of the OCA align with those proposed in the MPSC Reform chapter, which are closely modeled after the Pennsylvania Office of Consumer Advocacy. Both the MPSC Reform and SPO chapter share common goals related to improving customer service, legal support, and education, and ensuring that the key governance policies and regulations pertaining to electric utilities in Michigan adequately consider equity, affordability, and reliability.

As suggested by the MPSC Reform team, an effective OCA in Michigan would be headed by a Consumer Advocate in addition to at least six regional representatives across the state, in addition to a support staff of roughly 19 employees.[375] OCA staff would also include attorneys and regulatory analysts who can field inquiries from consumers, investigate matters, and represent consumer's interests before the SPO Governance Board (and potentially, municipal electric utilities and electric cooperatives).[376] The staff would also include Consumer Service Representatives and Consumer Liaisons to offer assistance and consumer education to the SPO customers, with particular emphasis on dedicating time and

[371] Katherine L. Peretick, " Interview during LAW 741 Class" (March 26, 2024).
[372] "PUC Information | Maine Office of Public Advocate," accessed March 9, 2024, https://www.maine.gov/meopa/puc-information.
[373] "Office of the Environmental Justice Public Advocate," accessed March 11, 2024, https://www.michigan.gov/egle/about/organization/environmental-justice.
[374] "Office of the Clean Water Public Advocate," accessed March 11, 2024, https://www.michigan.gov/egle/about/organization/clean-water-public-advocate.
[375] Patrick M. Cicero, "Annual Report Fiscal Year 2021-2022" (Pennsylvania Office of Consumer Advocate, 2023).
[376] Patrick M. Cicero, "Annual Report Fiscal Year 2021-2022"

resources to low-income and other disadvantaged communities.[377] (See the "Energy Justice Criteria" section below for specific recommendations pertaining to the inclusion of underrepresented voices through the Office of Consumer Advocacy.) As with the Office of the Environmental Justice Public Advocate and the Office of the Clean Water Public Advocate, an OCA could be established via executive order action through the executive branch of the Michigan state government.[378] The Governance Board will also include mechanisms to represent all voices with an emphasis on underrepresented and historically marginalized communities. We propose recommendations to address this in the Energy Justice Criteria section below.

Key Aspects of an SPO Governance Charter

In order to ensure that the SPO framework described above can effectively carry out Michigan's long-term vision to meet reliability, energy justice, affordability, and climate goals, our team recommends that the SPO abides by the following key governance policies as adapted from the Pine Tree Power proposal:[379]

1. Requiring the sale of any distribution of all investor-owned utilities in the state of Michigan to the newly-established Michigan SPO entity.
2. All decisions of the Board, for instance hiring key management staff and contracting a grid operations firm, must be made by a majority vote of voting-eligible members (in the case that advisory expert Board members are not granted voting eligibility.)
3. Every year, the SPO must submit a report to the Michigan house and senate committees with jurisdiction over energy and policy issues as well as the Michigan Office of Consumer Advocacy, summarizing A) the activities and performance of the SPO in fulfilling its purpose and obligations stated above throughout the preceding calendar year, and B) a detailed plan for the current year and next five years outlining intended activities and decisions that will support Michigan's climate action plan goals, future job creation, and gross state product.
4. Every four years, the Board shall conduct an assessment of the SPO company governance structure and report outcomes, including recommended changes to the such structures, to the Michigan house and senate committees with jurisdiction over energy and policy issues as well as the Michigan Office of Consumer Advocacy.

[377] Patrick M. Cicero, "Annual Report Fiscal Year 2021-2022"
[378] William C. Fulkerson and Dennis J. Donohue, "The Basics: A Practical Introduction to Administrative Law in Michigan" (Michigan Bar Journal, January 2002).
[379] An Act To Create the Pine Tree Power Company, a Nonprofit Utility, To Deliver Lower Rates, Reliability and Local Control for Maine Energy Independence, H.P. 1269, 130th Maine Legislature (2021.)

5. Providing consumers with access to electric distribution services that include timely and accurate billing, metering, and customer service.
6. Providing consumers with access to electric distribution services that achieve the following climate, reliability, energy justice, and affordability goals:
    a. Climate

The SPO would have climate goals to advance clean energy, including:

- i. Improvements to grid infrastructure and operating technology to ensure resilience and stability as load changes due to clean energy technologies
- ii. Aggressive growth of renewables in line with the MI Healthy Climate Plan
- iii. Electricity storage expansion to complement renewable generation and enhance reliability
- iv. Community engagement and participation in climate programs to achieve statewide goals with inclusivity at the center
- v. Practicing sustainability in operations and management

The climate section further elucidates how these goals can be achieved through guided expertise on the board.

b. Reliability
    - i. The Board shall conduct an annual audit of statewide utility reliability to define priority areas for infrastructure investments.
    - ii. Informed by community input and priorities, the Board shall allocate a determined amount of funding each year towards concerted, equitable grid hardening and modernization activities.

c. Energy Justice
    - i. The Board shall pursue efforts to implement a Percentage of Income Payment Plan (PIPP) as a key mechanism for ensuring affordability, introduce a ban on utility shutoffs, and formally cancel pre-existing debt among ratepayers accrued under DTE and Consumers
    - ii. Through the Office of Consumer Advocacy (OCA), the Board shall implement and prioritize consistent and accessible channels of communication, engagement, and transparency with ratepayers, and introduce opportunities for participatory decision making

d. Affordability

i. Upon acquisition, the Office of Consumer Advocacy will re-evaluate current rates against the new SPO cost structure to determine if any immediate rate cuts are feasible
ii. On a cadence to be determined by the Office of Consumer Advocacy (ex. annually), rates will be reviewed to identify additional ways to create savings for ratepayers

2.5 Assessment Against Key Criteria

Climate

If the state chooses to prioritize climate, SPO has high potential to establish climate forward policies on renewable and distributed electricity generation, smart grid operation, battery and electrical technology. In addition to those highlighted in the enablement by the SPO section, the SPO model has another major advantage in advancing climate action. Incumbent IOUs in Michigan currently require that at most 10% of total energy generated, to be originating from distributed sources. This greatly limits the landscape of distributed energy generation and disincentivizes ratepayers from investing in the resources and planning for long term monetary gain by selling surplus power generated. Additionally net metering credits (offered in exchange for selling power at an individual level) vary by utility, and are considerably lower rates than what is paid by consumers for electricity purchase. Unlike the IOUs the SPO needs to prioritize distributed energy generation and will go well beyond the 10% floor, in order to maximize ratepayer gain.

Recommended climate actions

We recommend that the utility seek to achieve 60 percent carbon-free electricity generation by 2030. This overarching recommendation is an extension to MI Healthy Climate Plan[380] of reaching 60% of renewable electricity by 2030. It also aligns with the second climate goal in the SPO's charter. Retiring coal-plants, the largest source of electricity in Michigan[381], to meet this target will require the State to derive at least 60% of the total energy from renewable sources - roughly equating to 60 TWh a year[382]. There are three key channels for cleaner sources that possess the potential to meet the adequacy scale of an SPO.

1. ***Utility-scale renewable generation***

[380] "MI Healthy Climate Plan," April 2022, https://www.michigan.gov/egle/about/organization/climate-and-energy/mi-healthy-climate-plan.
[381] "U.S. Energy Information Administration - EIA - Independent Statistics And Analysis," December 2023, https://www.eia.gov/state/?sid=MI#tabs-4.
[382] "Michigan Electricity Profile 2022," November 2, 2023, https://www.eia.gov/electricity/state/michigan/.

Utility-scale renewable generation will require an SPO to either acquire existing solar and wind farm projects or accelerate the development of newer projects, while retaining high levels of public participation. In the long term, these projects will need to be complemented with sufficient storage capacity. Additional pathways for renewable generation include enhanced geothermal power plants[383] and nuclear energy[384], which require significant further research and inputs from experts on the governance board and community representatives to determine viability.

2. Aggregation of Distributed Energy Resources

FERC order no. 2222[385], has opened up the horizons for using distributed energy resources, to not just manage and peak demand on the grid, but to also help fetch returns on investment of the resources. Following this order, it is now possible for DERs to participate in the energy markets, through an aggregating entity. The SPO can act as the aggregator itself, relaying the revenue from the DER power sold to MISO to the individual DER owners. It's critical to note, that as a publicly owned entity, negotiating on behalf of Michiganders, an SPO will not prioritize shareholder profit or commission, but will maximize the amount being returned to the DER owners.

Before introducing policy changes to incorporate, install, coordinate DERs and relay the market value sought, it is important to a) consult with the The Distributed Energy Resources Task Force (DERTF) - a forum to discuss and address blockers in aggregating DERs and integrating them to the MISO grid[386] and b) understand the public sentiment around proposed policies; the Office of Consumer Advocacy (OCA) should aim to represent diverse voices. Community Representatives should be invited to participate and be encouraged to help aggregate DERs in their neighborhoods to help streamline installations and onboarding.

3. Renewable Power Purchase Agreements (PPAs)

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[383] "Enhanced Geothermal Systems," Energy.gov, n.d., Accessed on April 14, 2024, https://www.energy.gov/eere/geothermal/enhanced-geothermal-systems.

[384] "Biden-Harris Administration Announces $1.5 Billion Conditional Commitment to Holtec Palisades to Support Recommission of Michigan Nuclear Power Plant," Energy.gov, March 27 2024, https://www.energy.gov/articles/biden-harris-administration-announces-15-billion-conditional-commitment-holtec-palisades.

[385] "FERC Order No. 2222 Explainer: Facilitating Participation in Electricity Markets by Distributed Energy Resources[I]," Federal Energy Regulatory Commission, September 20, 2022, https://www.ferc.gov/ferc-order-no-2222-explainer-facilitating-participation-electricity-markets-distributed-energy. (It is important to note that the proposed implementation date for MISO is in the medium-term future - October 1, 2029, and monetary benefit from selling power may only be available after that. Until then, DERs may need to meet self-sufficiency demands in the state.)

[386] "Distributed Energy Resources Task Force," n.d., Accessed on April 14, 2024, https://www.misoenergy.org/engage/committees/DERTF/.

Renewable PPAs are typically long-term agreements with a renewable energy project which is being built and hence, are often available at below market rates[387] [388]. Financial PPAs do not explicitly enable the buying of power and instead act as an insurance mechanism to protect the finances of a utility against the volatility of the market[389]. Since an SPO has a considerably larger scale as compared to any individual IOU, it opens up newer avenues for negotiating short term (3-6 years) renewable PPAs or financial PPAs over the wholesale power market for additional value. While the physical renewable PPAs will require the state to deal with MISO, financial PPAs will enable the SPO authority to participate in wholesale markets beyond the MISO[390]. Notably, Michigan currently generates about 17% more electricity than it consumes (reflected through retail sales)[391]. About 70% of this energy is generated by IOUs[392] and the surplus is sold back to the grid to append to shareholder profits. Over time, through a combination of 1 and 2 above, as clean and distributed energy sufficiency in Michigan increases, excess power can also be sold back to the grid (MISO), for additional revenue streams which can further reduce dependencies on renewable PPAs and pave the way for lower rates. This outcome is highly likely only with the focused climate goals of an SPO, strong emphasis by the board experts on cleaner power sources and the scale that the SPO operates at.

To catalyze the outcomes of these powerful generation channels and streamline them with distribution, below are recommendations for bolder, faster and more effective electricity-related climate action across the state. These are not set in a priority order, and must be thoroughly discussed with the established governance board to finalize priority and plan of execution.

- *Upgrading distribution assets for storm hardening*

It is highly likely that the assets acquired from the IOUs are archaic, unreliable and substantially impaired at many locations. To mitigate the effect and duration of changing weather conditions, it is important to upgrade these obsolete assets. The MPSC's ongoing audit can inform a phased approach to plan these upgrades after the acquisition[393]. This grid upgradation project will not just improve overall reliability, and meet reliability-related goals,

[387] "Physical PPA | US EPA," US EPA, October 18, 2023, https://www.epa.gov/green-power-markets/physical-ppa.
[388] Infocast, "What's the Difference Between a Traditional and Renewable PPA? - Infocast," October 7, 2018, https://infocastinc.com/market-insights/wind/whats-the-difference-between-a-traditional-and-renewable-ppa/.
[389] US EPA. "Financial PPA | US EPA," November 1, 2023. https://www.epa.gov/green-power-markets/financial-ppa.
[390] US EPA. "Financial PPA | US EPA"
[391] "Michigan Electricity Profile 2022."
[392] "Michigan Electricity Profile 2022."
[393] Katherine L. Peretick, " Interview during LAW 741 Class" (March 26, 2024).

as demonstrated in Florida[394], but will also incorporate future-facing advancements discussed next. This ties directly into the first climate goal in the SPO's charter.

- *Elevating digital technology to make the grid and grid edge more observable*

As part of the upgradation initiative it is imperative to integrate advanced metering infrastructure, telemetry and supporting information processing systems for better observability of the grid-edge (the consumer end-points of the grid)[395]. This facilitates better data-driven decision making, program planning, anticipatory action and repairs, management and measurement of success of distributed energy, storage and energy efficiency programs, recently demonstrated on parts of the western interconnection[396]. This will directly help meet the first climate goal in the charter.

- *Preparing the grid for EV adoption*

As of 2021, the electric power sector (35.7%) and the transportation sector (32.1%) are the largest contributors of CO2 emissions in Michigan[397]. Grid modernizations such as improving digital grid management, creating a future-facing distribution system design and introducing flexible connections between EV chargers and the grid will efficiently utilize the distribution infrastructure to increase the accuracy of matching demand with supply and ensuring that net power flow through the system still retains stability of the grid, thereby not just future-proofing the grid but also decarbonizing mobility simultaneously[398]. As highlighted by the Michigan Office of Future Mobility and Electrification, devising programs to encourage off-peak charging will mitigate the impacts on the grid, keep costs low and contribute to the first climate goal of the SPO - modernizing the grid[399].

- *Introducing special demand response programs for commercial customers*

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[394] Qualitrol Company, "Grid Hardening Vs Grid Resilience | Qualitrol Corp," Qualitrol Corp | Monitoring the World's Power Grid, January 27, 2022, https://www.qualitrolcorp.com/resource-library/blog/grid-hardening-vs-grid-resilience/.

[395] "What Is Grid Orchestration?," accessed April 14, 2024, https://www.camus.energy/gridorchestration#DSO-Circle.

[396] Sandia National Labs. "Advanced Grid Modeling at Sandia," November 3, 2021. Accessed April 14, 2024. https://www.youtube.com/watch?v=Rv_RAJ77aLg.

[397] "State Carbon Dioxide Emissions Data - U.S. Energy Information Administration (EIA)," July 12 2023, https://www.eia.gov/environment/emissions/state/.

[398] "Distribution System Evolution," *US Department of Energy, Office of Electricity*, November 2023, https://www.energy.gov/sites/default/files/2024-01/2023-11-01%20Distributed%20System%20Evolution%20nov%202023%20r1_optimized2.pdf.

[399] Michigan Office of Future Mobility and Electrification (OFME) et al., "MI Future Mobility Plan," November 2022, https://www.michiganbusiness.org/4aecec/globalassets/documents/mobility/state-strategy-for-the-future-of-mobility-and-electrification-detailed-version.pdf.

The commercial sector consumes nearly as much electricity as the residential sector in Michigan.[400] Utilizing grid intelligence, it is possible to identify the best possible way to shift a large portion of commercial electricity to off-peak hours for demand peak shaving, further preventing stress on the grid[401]. This relates directly to the first climate goal laid out in the SPO's charter.

- *Introducing innovative distributed energy resource programs*

The disappearance of the IOU's self-imposed restraint on distributed generation and grid modernization efforts lay the pathway for scaling up the introduction of distributed energy resources. A portion of the IOU profit can be dedicated for initial investment in equipment leasing programs, such as residential storage, heat pumps, EV chargers or smart thermostats. Partnering with OEMs will further facilitate cost reduction. Equipment leasing programs serve manifold benefits - it reduces financial burden on the community to buy the equipment, assists in aggregation and communication with the grid through widespread standardization, introduces high convenience for renters and the security deposit lumped sum can serve as an additional low/no interest debt stream. These avenues are only possible for SPO because of the scale of implementation. Aggregation of DERs (2 above) highlights how this is profitable to ratepayers in the long term, when implemented through an SPO, contributing to the progress on the third climate goal in the SPOs charter.

- *Advocating long term planning for community microgrids*

An SPO must champion the set up of community microgrids, especially in storm prone areas that suffer from a high frequency of outages. Multiple studies have shown that microgrids act as substantially resilient independent units when the grid undergoes demand stress or a portion of the grid is disconnected due to adverse weather events.[402] An example of a successfully operating microgrid is the Montgomery County microgrid in Maryland, which began operation in September 2018[403]. Impressively, this microgrid utilizes this clean energy to power the county's fleet of public buses doubling down on greenhouse gas reduction.[404]

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[400] "Michigan Profile," August 17, 2023, https://www.eia.gov/state/print.php?sid=MI#95.
[401] Graham Turk, "VPP Insiders #14 rate Design with Graham Turk," Flexible Load Management for Commercial and Industrial Customers, January 22, 2024, accessed April 14, 2024, https://www.youtube.com/clip/Ugkxd24AvNuPNtLDR2zAk1leKXgLIYrqje9k.
[402] Samuel Booth et al., "Microgrids for Energy Resilience: A Guide to Conceptual Design and Lessons From Defense Projects" (National Renewable Energy Laboratory, January 2020), https://www.nrel.gov/docs/fy19osti/72586.pdf.
[403] "An Innovative Approach to Resilience in Public Facilities Montgomery County, Maryland, USA," Schneider Electric, March 2019, https://www.montgomerycountymd.gov/DGS-OES/Resources/Files/AnInnovativeApproachtoResilienceinPublicFacilities.pdf.
[404] "Montgomery County Completes Nation's Largest Bus Microgrid and Charging Infrastructure Project in Silver Spring," October 21, 2022, https://www2.montgomerycountymd.gov/mcgportalapps/Press_Detail.aspx?Item_ID=42340.

The SPO model shifts priority from shareholder profits to actively securing grants and funds for implementing microgrids and demonstrating successful improvement in resilience and reliability. This recommendation helps meet requirements for the second climate goal in the SPO charter.

- *Strategizing residential and commercial electrification*

More than 75% of Michigan households use natural gas as the primary fuel for home-heating.[405] The MI Healthy Climate Plan makes it clear that in addition to decarbonizing the grid, it's also imperative to reduce greenhouse gas emissions by decarbonizing homes and businesses.[406] Home and business electrification is one of the most efficient ways to do this. The SPO can consider partnerships with non-profit organizations like Rewiring America[407] and Michigan Saves[408] to implement rebates, incentives and low-cost financing options for the community.

It is important to note, however, that current IOUs will still be operational in Michigan as gas utilities, and the SPO is expected to encounter resistance in aggressive electrification across the state, because it directly affects the sale of natural gas. To address this complexity, it is important to strategize the electrification effort and coordinate it with competitively lower electricity rates than natural gas, focusing on measuring results at the grassroots level implementation. These results will act as catalysts for creating awareness through the Office of Consumer Advocacy to instigate a natural and organic phase-out of fossil fuels, instead of forced mandates, thereby contributing to the second climate goal of the charter.

- *Developing grid-scale storage*

To complement the generation through renewables as a sustained source over the years, it is critically important to increase the storage capacity and stay on track to meet the MI Healthy Climate goal of reaching a statewide storage capacity of 2500 MWh by 2030.[409] Providing stability to the grid during demand spikes, storage assets set the stage for alternative clean energy generation options such as Virtual Power Plants. Virtual Power Plants are an aggregation of small or medium sized Distributed Energy Resources (DERs) that are managed over the cloud.[410] They demonstrate the power to combine generation and storage assets to feed energy into the grid to match demand, thus enabling peak shaving and

[405] "Natural Gas," accessed April 14, 2024, https://www.michigan.gov/mpsc/about/natural-gas.
[406] "MI Healthy Climate Plan."
[407] "About Us," Rewiring America, accessed April 14, 2024, https://www.rewiringamerica.org/about.
[408] Michigan Saves, "Michigan Saves | Clean Energy Financing | Nonprofit Green Bank," April 8, 2024, https://michigansaves.org/.
[409] "MI Healthy Climate Plan."
[410] U.S. Department of Energy, "Virtual Power Plants - Pathways to Commercial Liftoff," Pathways to Commercial Liftoff, January 3, 2024, https://liftoff.energy.gov/vpp/.

supplying clean reliable energy, at net negative cost to the society over a 10-year period.[411] This will also help fulfill the third climate goal in the charter.

- *Learning from and iterating on rate design and pilot programs*

For an SPO, the operational scale can be a double edged sword. While wrinkles on unit level acquisitions (poles and wires) smoothen out, and the outcomes of climate actions become clearer at this scale, it also introduces complexities in implementation of programs and innovating at this scale. To address this challenge, it is important for the SPO to encourage and nurture innovative program design and rate design. Innovative programs such as bring-your-own-device programs, flexible demand response management, equipment leasing, incentivizing industrial electricity storage should be implemented as pilot programs to learn from and iterate on.[412] The findings of these pilot programs can then be used to determine a permanent rate tariff. The recommended duration of pilot programs is between 6-9 months to assess customer adoption and support.[413] Upon relieving the MPSC of its regulatory and policy making duties, the SPO model will significantly reduce time to implementation of these pilot programs, while keeping customer satisfaction and voices at the center of decision-making. Innovative pilot programs will play a part in advancing the fourth goal in the charter.

- *Collecting public sentiment and focused feedback every quarter*

Understanding changing needs, demands and challenges of the ratepayers is necessary to iterate on programs and ensure continued operational success.[414] The Office of Consumer Advocacy (OCA) is the backbone of the SPO to facilitate engagement with the community. It must be mandated that the OCA analyzes general sentiment by collecting focused feedback on programs, approaches and the vision of the SPO every quarter. This information must be discussed during board meetings to course correct as necessary. Being a publicly elected body, the SPO governance has the strongest motive to seek and incorporate feedback from the community in its operations, planning and prioritization, addressing the fourth goal in the charter.

- *Setting energy efficiency benchmarks*

With its focus on the consumers, as opposed to selling power for shareholder profit, the SPO has a high impetus on implementing programs that incentivize energy savings, and as a result cost savings for both consumers and itself, as a publicly-owned utility provider. When

[411] Brattle, "Real Reliability - Brattle," September 22, 2023, https://www.brattle.com/real-reliability/.
[412] Interview with Graham M. Turk by Prarthana, Date of Interview (February 16, 2024)
[413] Interview with Graham M. Turk
[414] Interview with Graham M. Turk

combined with the leasing recommendation in "v. Introducing innovative distributed energy resource programs " above, it is possible to provide energy efficient and low-cost equipment that helps customers save on electricity bills without substantial financial investments. These energy savings, when evaluated at a state level, can significantly offset power requirements and help make progress on the fifth climate goal of the charter.

- *Leading by example*

In addition to modernizing and decarbonizing the grid, creating a fertile testbed for innovation and being a proponent of mitigating climate change, the SPO should lead by example, ensuring that all offices are powered by renewable energy, meet energy efficiency standards, Distributed Energy Resources owned by the SPO offices contribute to the grid, automobile fleets constitute at least 80% Battery Electric Vehicles (BEVs) and sufficient charging infrastructure and provisions are made available across the physical premises and offices. These efforts will accentuate the SPOs climate efforts, improve public trust in the established entity and account for meeting the fifth goal of the climate charter.

Key considerations

- The recommendations are directly linked to cleaner electricity, grid reliability and reduction in greenhouse gas emissions. However, because of Michigan's heavy reliance on fossil fuels over the years to meet resource adequacy, grid modernization and the purchase of newer, cleaner generation assets are likely to induce strain on the delicate balance of affordability and climate action for a state-wide publicly owned power utility.

- While the SPO acquires electricity distribution assets, the investor owned utilities still own generation assets. As highlighted in H above, this might create a conflict of interest, and poses a direct threat to the natural gas business when the SPO advocates for electrification of homes. The resulting friction may propagate to customers who receive their utility supply from both entities, creating an unpredictable market situation, and poses a threat to future modeling of data.

- Many of the recommendations are not uniquely tailored for the SPO model, and can be implemented by existing IOUs, SEUs or municipal utilities. However, the SPO has strong incentives to pursue many of them due to the availability of funds, accountability towards goals included in the charter, inherent need to demonstrate results to the public, the scale, and the push from the governance board experts.

- As discussed in J above, the scale of operation of SPO can both be a strength and a weakness. Implementation complexities get significantly amplified, and community interactions become less direct, and more tiered. To address some of these concerns, it is recommended that the board meets often with the private agency hired for operations and billing. Insights and information available must be transparently shared between operating entities and also made publicly available to allow consumers to "see" what is happening and share feedback promptly as opposed to suffering in silence.

Assessment summary against climate criteria

Assuming that the recommendations above are prioritized and implemented appropriately, sufficient funds from shareholder profits are diverted to climate goals and climate action is perceived with a sense of urgency through the goals in the charter, the assessment of key criteria is outlined below:

Is the SPO model expected to:

- Set Michigan on a path to meet or exceed MI Healthy Climate Plan goals? This includes meeting targets for GHG reductions for 2030 and 2050.
    - **Fairly high possibility** (Goals in the SPO charter are set to ensure a strong alignment with the MI Healthy Climate Plan goals)
- Reduce per ton costs of GHG reductions?
    - **Low to medium possibility** (IOUs will still supply natural gas, adding a layer of turbulence to the energy landscape)
- Demonstrably increase/accelerate clean energy generation over baseline predictions?
    - **Fairly high possibility** (Depends on the governance board's outlook on how shareholder profits utilization is allocated to the 4 pillars of climate, equity, affordability and reliability)
- Incentivize investments and innovative approaches to reducing GHGs?
    - **Very high possibility** (Accountability to the public sets the premise for proactive exploration of funds, innovation and feedback mechanisms)
- Substantially reduce overall electricity usage?
    - **Low to fair possibility** (Electrification efforts will result in a spike in overall power demand, but energy efficiency programs may result in some curtailment)

Reliability

For decades, Michigan has experienced severe issues related to grid reliability under the IOU structure, with the most prominent concerns surrounding frequent and prolonged power outages, outdated infrastructure, and inequitable investments in grid hardening and modernization. Importantly, energy infrastructure failures are not experienced equally across the state, with frontline and historically disinvested communities persistently receiving fewer resources towards maintenance and modernization as well as slower responses from the utility during outages. Please refer to the Introduction of this report for a comprehensive examination of the current reliability landscape across Michigan.

While the IOU business model disincentivizes investments in grid hardening – which would involve upgrading 4.8 kV systems and additional activities to protect against outages - there are opportunities for a statewide publicly-owned utility to make concerted and equitable investments in the DTE and Consumers infrastructure once they have been acquired. Importantly, there are many steps to advancing this goal, and equitable grid hardening is not an inherent guarantee with the adoption of an SPO. As such, the SPO should integrate clear and equitable grid hardening goals within the Governance Charter to ensure these priorities will be pursued.

Significantly, the transition to an SPO means that the IOUs' profits will be available for investment in grid hardening. As discussed in the Cost, Revenue, and Financing Feasibility section, up to $1.6 billion each year currently goes to IOU shareholders. This procedural shift introduces considerable opportunities for the SPO to invest in the areas of the utility structure that demand attention, including the reliability of its infrastructure and services.

Additional financing opportunities that are uniquely available to public entities, as opposed to privately-owned businesses, introduce opportunities for the SPO to meaningfully invest in reliability. With consideration for the Pine Tree Power proposal in Maine, one of the campaign's most important visions was towards grid hardening opportunities. The proposal asserted that a public utility can access low-interest bonds and federal disaster aid that IOUs are not eligible for,[415] and that these mechanisms allow a public utility to invest more substantially in grid hardening.

Efforts to invest in equitable grid hardening is a necessary component of the SPO Governance Charter to guarantee that these reliability goals are concretely and systematically pursued by the Governance Board. As a public entity, an SPO also has mechanisms built in place that encourage greater participatory decision making than what is inherently present with IOUs. These channels are discussed in greater detail in the Procedural Justice section below. With features such as public elections, public access laws, public hearings, and

[415] Mistler. 2023. "Here's everything we know about the referendum to replace CMP and Versant with Pine Tree Power." Maine Public. https://www.mainepublic.org/politics/2023-10-05/heres-everything-we-know-about-the-referendum-to-replace-cmp-and-versant-with-pine-tree-power

community engagement efforts, it is possible for an SPO utility to experience greater pressure and incentive from constituents to prioritize investments in equitable grid hardening processes.

While the profit savings unlocked through the transition from a private to publicly-owned utility can be directed towards significant grid hardening activities, it is important to consider the anticipated presence of public and political pressure to channel these investments towards the equally important priorities of renewable energy transitions and ratepayer affordability. Balancing these priorities over time, and ensuring investment allocation decisions are made in a participatory manner, introduces some complexity when evaluating the potential of an SPO to improve reliability.

One common concern related to grid reliability advancements under an SPO surrounds the transition period following the acquisition of IOUs. As discussed in the Governance and Legal sections of this chapter, the transition from an IOU-dominated utility to an SPO poses substantial logistical and administrative hurdles in addition to anticipatedly lengthy litigation proceedings. The concern arises around whether grid hardening efforts would be prolonged or neglected amidst this process. Because of Michigan's "quick-take" statute, which essentially allows the State to obtain title to the IOU assets *before* litigation has concluded, the SPO utility would mitigate this concern by being able to immediately begin grid hardening efforts.

Additionally, with equitable grid hardening priorities embedded with the SPO Governance Charter alongside the unique financing opportunities described above, the benefits of the SPO's reliability investments over a *long-term* timeline have the potential to far exceed the track record of current IOUs.

Energy Justice

Defining an Energy Justice Framework

A driving motivation for considering an alternative utility structure in Michigan is the pursuit of advancing energy justice, with the goal of reducing energy burdens and uplifting energy democracy among ratepayers. In assessing the potential of a statewide publicly-owned (SPO) power to promote energy justice across Michigan, consideration for the four pillars of energy justice – recognition, procedural, distributive, and restorative - are examined. These pillars are rooted in the principles of energy justice delineated by the Initiative for Energy Justice and the University of Michigan Energy Equity Project.[416;417]

[416] Cooper. 2019. "Executive Summary." Initiative for Energy Justice (blog). December 23, 2019. https://iejusa.org/executive-summary/.
[417] "Energy Equity Project Report." 2022. University of Michigan School for Environment and Sustainability. https://energyequityproject.com/wp-content/uploads/2022/08/220174_EEP_Report_8302022.pdf

Importantly, many of the following opportunities for a statewide publicly-owned power to advance energy justice are mechanisms that are not necessarily inherent to the structure of an SPO itself, and would need to be intentionally built into the governance, management, and financing of this new model to ensure ratepayers' priorities are centered.

Procedural Justice

Key tenets of procedural justice include transparency and accountability on behalf of the utility, as well as participatory practices granting ratepayers greater access to energy policy processes and decisions. The ways in which the recommended governance structure of a statewide publicly-owned utility structurally differs from the IOU model introduces numerous opportunities to enhance procedural justice.

Under the current IOU model, there are few existing mechanisms that allow constituents to meaningfully participate in decision making processes and hold the utility accountable to ratepayer priorities. With DTE and Consumers Energy holding monopolies over energy generation and distribution lines across Michigan, ratepayers do not have many avenues to communicate their needs, protest, and have their complaints meaningfully heard (for example, as a traditional form of protest, ratepayers in Michigan cannot feasibly refuse to pay their bills or switch to alternative utility sources as a result of the monopoly these companies hold).[418] A statewide publicly-owned power, on the other hand, can – and should - build in mechanisms within its governance structure that introduce concrete pathways for participatory decision making.

Like many states, Michigan has laws that encourage governmental transparency and participatory opportunities related to public policy. In accordance with the Open Meetings Act, all public entities must "provide public notice of, access to, and an option for participation in meetings of a public body where discussion of, and decisions in matters affecting public policy are accomplished".[419] Under the Freedom of Information Act, citizens are equipped to request information and stay in the know about governmental processes and decisions.[420] These are channels for community engagement and transparency that privately-owned companies are not accountable to. Through these structural mechanisms, a statewide publicly-owned utility can establish transparent avenues of communication and engagement with ratepayers to advance procedural justice.

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[418] "DTE and Consumers Energy Are Broken and Dangerous. Is It Time for Publicly Owned Utilities? | Detroit | Detroit Metro Times." n.d. Accessed February 18, 2024. https://www.metrotimes.com/news/dte-and-consumers-energy-are-broken-and-dangerous-is-it-time-for-publicly-owned-utilities-23102753.

[419] "The Open Meetings Act". July 8, 2022. Library of Michigan. https://www.michigan.gov/libraryofmichigan/-/media/Project/Websites/libraryofmichigan/For-Libraries/Administration/Library-Law/Open-Meetings-Act/Open-Meetings-Act-Info-Sheet.pdf

[420] "The Freedom of Information Act". n.d. United States Department of Justice. https://www.foia.gov/

Another mechanism through which procedural justice can be upheld through a statewide publicly-owned power is through voting opportunities. As detailed in the governance section of this chapter, the Nebraska utility and Maine proposal adopted publicly-owned utilities that are governed by a board of elected officials that aim to represent the interests of ratepayers. In comparison to the executives of a privately-owned utility – who are generally elected by shareholders - a publicly-owned structure provides all constituents with an opportunity to have a say in who is, *and isn't*, elected to this board. With voting power, constituents can also more effectively rally and organize for or against the utility's performance with greater potential for impacting decisions and elections.

While voting is one important mechanism for democratic participation, it is important to note the ways in which voting processes are inaccessible for some and also do not guarantee the election of officials who will meaningfully advance the priorities of their constituents. There is also the concern that with a sweeping *statewide* publicly-owned utility, the sheer size of the constituent body may mean that the perspectives and needs of some communities continue to be marginalized regardless of voting and organizing opportunities.

Another important caveat is that these mechanisms do not ensure *meaningful and equitable* community engagement, and do not guarantee that constituents priorities – particularly on behalf of those most impacted by energy burdens and reliability issues - will truly inform energy policy. These are efforts that would need to be thoughtfully and intentionally pursued by the utility and its governing body. The democratic processes inherent to a public utility also introduce opportunities for constituents to hold the utility accountable to the meaningful integration of their priorities and needs.

Guided by a procedural justice lens, it is recommended that the utility board mandates accessible, consistent, and openly communicated avenues for public engagement, and prioritizes the meaningful integration of these findings. Through participatory practices both inherent and built into the statewide publicly-owned power structure, there are strong opportunities to concretely advance procedural justice across energy policy. As described above, these mechanisms include public elections for the utility board, transparency through the Open Meetings and Freedoms of Information Acts, and mandatory, accessible community engagement opportunities.

Distributive Justice

Distributive justice is concerned with the equitable allocation of benefits and burdens of the utility. Under the current IOU structure in Michigan, frontline communities have

disproportionately endured energy burdens, power outages, and shutoffs.[421,422,423] A statewide publicly-owned power introduces opportunities to improve distributive justice, and we recommend these mechanisms are systematically built into the SPO to ensure meaningful, concerted implementation.

Without applying an energy justice lens, Michigan already experiences some of the most burdensome rates, grid reliability concerns, and utility shutoffs in the country. In considering *who* bears the majority of the cost and reliability burdens of the current utility model, a distributive justice framework highlights essential features of an SPO structure to meaningfully benefit historically disinvested ratepayers.

While DTE and Consumers Energy offer a host of resources and assistance programs to support ratepayers who are struggling to keep the lights on, they have proven insufficient in addressing the persistent affordability crisis.[424,425] Government-funded programs such as the Michigan Energy Assistance Program (MEAP) urge ratepayers to be proactive and seek financial support to prevent shutoffs and debt. The Michigan Public Service Commission (MPSC) has approved funding to support government-sponsored low-income utility assistance programs to not exceed $50 million annually:[426] This funding is insufficient as, in 2020, ratepayers of DTE took on a cumulative $200 million in overdue payments.[427] These programs can also be heavily bureaucratic and challenging to navigate for ratepayers in a time crunch to pay their bills.[428] This data underscores the distributive justice principle that energy affordability depends on *affordable rates* as opposed to improved energy assistance programs.

To meaningfully reduce energy burdens for frontline ratepayers, a SPO can implement a Percentage of Income Payment Plan (PIPP) to construct rates based on household income as

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[421] "2023 Electric Utility Residential Customer Satisfaction Study | J.D. Power." n.d. Accessed February 15, 2024. https://www.jdpower.com/business/press-releases/2023-electric-utility-residential-customer-satisfaction-study.

[422] "DTE, Consumers Face Scrutiny in Michigan amid Power Outages | Crain's Detroit Business." n.d. Accessed February 18, 2024. https://www.crainsdetroit.com/crains-forum-energy-policy/dte-consumers-face-scrutiny-amid-power-outages.

[423] "Michigan Power Outage Rates Double the National Average - Axios Detroit." n.d. Accessed February 15, 2024. https://www.axios.com/local/detroit/2023/09/05/michigan-power-outage-rates-double-the-national-average

[424] "General Assistance". n.d. DTE Energy. https://www.dteenergy.com/us/en/business/billing-and-payments/energy-assistance/general-assistance.html

[425] "Payment Plans & Assistance". n.d. Consumers Energy. https://www.consumersenergy.com/residential/programs-and-services/payment-assistance

[426] "Michigan Energy Assistance Program: Frequently Asked Questions." n.d. State of Michigan. https://www.michigan.gov/-/media/Project/Websites/mpsc/consumer/meap/MEAP_FAQs.pdf?rev=2ba17357b585490195c365457037102c

[427] "Michigan Public Service Commission: U-20757 Reporting Form". June 11, 2020. Michigan Public Service Commission. https://mi-psc.force.com/sfc/servlet.shepherd/version/download/068t000000CHOHnAAP

[428] "OPINION: Energy Assistance Programs Don't Keep the Lights on. Energy Affordability Will. – Planet Detroit." n.d. Accessed February 15, 2024. https://planetdetroit.org/2020/06/opinion-energy-assistance-programs-dont-keep-the-lights-on-energy-affordability-will/

opposed to a fixed kilowatt hour rate. As discussed in the previous chapter, this rate case system has been successfully implemented in many locations, including Chicago,[429] Ohio, and Colorado.[430] The MPSC continues to consider a PIPP in Michigan, without substantial progress.[431] Currently, there are legal barriers to establishing preferential rates in Michigan since Michigan law stipulates that "the rates of an electric utility shall be just and reasonable and a consumer shall not be charged more or less than other consumers are charged for like contemporaneous service rendered under similar circumstances and conditions" [432] Potential avenues for overcoming these barriers include amending the statute to state that preferential rates can be used in the utility context, as well as making the case that implementing PIPP does constitute advancing "just and reasonable" rates. Michigan could follow in the footsteps of Ohio, which had a similar law to Michigan's, but the Ohio Supreme Court ultimately held that it was "fair and reasonable" under Ohio law for its Public Service Commission to authorize differential rates based on household income. The newly created Office of Consumer Advocacy that this chapter recommends could argue that "fair and reasonable" is synonymous with "just and reasonable", and there is good persuasive authority that preferential rates are valid under state law.

In addition to advancing affordable rates, there are concrete opportunities for equitable grid hardening efforts under a statewide publicly-owned utility. While IOUs are disincentivized from investing in grid hardening, there is the possibility for a statewide publicly-owned utility to make concerted, equitable investments in the DTE and Consumers infrastructure once it has been acquired as the State is not beholden to shareholders. There are many steps to reaching this goal, and this is not an inherent guarantee with the adoption of an SPO. With consideration for the Pine Tree Power proposal in Maine, although the initiative for a statewide publicly-owned power was not successful, one of the campaign's most important visions was towards grid hardening opportunities.[433] The proposal asserted that a public utility would have access to low-interest bonds and federal disaster aid that IOUs are not eligible for, and these channels – alongside an assumed incentive and intention to

[429] "Percentage of Income Payment Plan (PIPP) | North Shore Gas." n.d. Accessed February 18, 2024. https://www.northshoregasdelivery.com/payment-bill/percentage-income-payment-plan.
[430] "Overview of Percentage of Income Payment Plans (PIPP)". January, 2014. Low Income Home Energy Assistance Program (LIHEAP). https://liheapch.acf.hhs.gov/docs/PIPPupdate.pdf
[431] "MPSC marks progress on collaborative efforts to better address energy affordability and assistance". February 10, 2022. Michigan Public Service Commission. https://www.michigan.gov/mpsc/commission/news-releases/2022/02/10/mpsc-marks-progress-on-collaborative-efforts-to-better-address-energy-affordability-and-assistance
[432] "Michigan Legislature - Section 460.557." n.d. Accessed March 26, 2024. https://www.legislature.mi.gov/(S(xcaoiu03gr34jrzpmuhj0ol4))/mileg.aspx?page=getobject&objectName=mcl-460-557.
[433] Mistler. 2023. "Here's everything we know about the referendum to replace CMP and Versant with Pine Tree Power". Maine Public. https://www.mainepublic.org/politics/2023-10-05/heres-everything-we-know-about-the-referendum-to-replace-cmp-and-versant-with-pine-tree-power

improve distributive justice for ratepayers - could allow a public utility to invest more substantially in grid hardening. Further research would be necessary to understand the unique opportunities for grid hardening efforts by a publicly-owned utility in Michigan, specifically.

In addition to implementing PIPP and equitable grid hardening to structurally advance distributive justice, shutoff reform is another component that is recommended for a SPO to pursue in service of this energy justice pillar. Accompanying the transition to a statewide publicly-owned power, the state of Michigan would be presented with an opportunity to introduce legislation to ban shutoffs within the utility sector. There are numerous models a SPO can look to for building the case for shutoff reform, one being the current bill proposal for banning water shutoffs in Michigan.[434] By prohibiting the utility to turn off service to residences, frontline ratepayers who are already enduring financial energy burdens would not face the additional hardship of losing power: this is a critical step towards distributive justice.

By implementing PIPP, utilizing financial and democratic strategies unique to a SPO that make equitable grid hardening feasible, and pursuing shutoff reform, a SPO can concretely advance distributive justice. Importantly, the profit savings generated through the transition from a private to publicly-owned utility unlocks considerable funding to meaningfully invest in these activities.

Recognition Justice

Recognition justice prioritizes acknowledgement and respect for all people. Within the context of utilities, recognition justice is rooted in an understanding of who is vulnerable to energy burdens, unreliabilities, and shutoffs, and how these processes of disadvantage operate. A transition to a statewide publicly-owned utility is not inherently grounded in a framework of recognition and respect for frontline communities, however there are concrete mechanisms that are recommended to be built into the structure of a SPO to acknowledge and center the priorities of those most impacted.

With the adoption of a statewide publicly-owned power could come major transitions in the management and operations of the utility. Accompanying this transition, the state could conduct a comprehensive, state-wide assessment of grid reliability and energy burden, and should employ tools to update this data consistently. Gaining robust insight into where power outages are most common, where utility infrastructure is most outdated, where maintenance is most frequent and infrequent, where complaints related to outages are highest could offer important guidance for the state to pursue grid hardening through a

[434] "Right to Water: Could 2023 Be the Year Michigan Ends Shutoffs?" 2023. Michigan Public. February 8, 2023. https://www.michiganpublic.org/environment-climate-change/2023-02-08/right-to-water-could-2023-be-the-year-michigan-ends-shutoffs.

recognition justice framework. With regards to energy burden, similar questions can be answered through a large-scale assessment of which communities are most burdened by energy bills and current shutoff practices.-

An additional opportunity for advancing recognition and procedural justice statewide is through the recommended creation of an Office of Consumer Advocacy. In partnership with a statewide publicly-owned utility, an Office of Consumer Advocacy that is dedicated to addressing ratepayers' needs with regards to their utility matters – i.e. complaints, legal support - ensures a streamlined channel of communication and support between the utility and ratepayers and serves as a direct accountability mechanism between ratepayers and their utility. An Office of Consumer Advocacy is a strong mechanism for building recognition and procedural justice into the structure of a SPO. Additional details on the recommended structure of this office can be found in the governance section of this chapter.

Measures to comprehensively and consistently measure and map ratepayers' experiences and needs with regards to grid reliability and energy burden are recommended for a SPO to take concerted steps towards advancing recognition justice on a statewide level. Similarly, to ensure the experiences and needs of ratepayers are meaningfully heard and routed to decision makers, an Office of Consumer Advocacy is another unique structural mechanism to promote recognition justice across the state.

Restorative Justice

Restorative justice is concerned with recognizing and actively alleviating past harms brought about by the utility. Not dissimilar to the ideas expressed in the examination of other pillars of energy justice, principles of restorative justice *can* be executed through a statewide publicly-owned utility, but are not necessarily innate. Through the practices of recognition justice, which entail understanding which communities inequitably face utility burdens, a restorative justice approach can be applied to systematically restore the conditions for these communities.

In thinking about "utility redlining" and the mechanisms through which grid reliability and restorative justice intersect, a statewide publicly-owned utility would need to take concerted steps to guarantee that the historically and persistently disinvested communities that are disproportionately burdened by outages are first in line to receive grid hardening updates.

According the principles of energy justice outlined in the Energy Equity Report,[435] additional essential components of restorative justice involve reparations, accountability, and restoring power to the people. To advance these measures through a statewide publicly-owned power, the utility can release statements acknowledging and admitting to the damage

[435] "Energy Equity Project Report." 2022. University of Michigan School for Environment and Sustainability. https://energyequityproject.com/wp-content/uploads/2022/08/220174_EEP_Report_8302022.pdf

and wrongdoing brought to frontline ratepayers under the existing IOU structure and outline clear plans for making things better. As described above, these measures would be to guarantee pursuit of shutoff reform, implement the PIPP rate system, cancel ratepayer debt, and create lasting opportunities for meaningful community participation and transparency. The mechanisms for implementing these restorative channels would need to be proactively built into the governance, management, and financing structure of the SPO, and are described in more detail in previous sections. In addition to these recommended strategies, a SPO can emphasize the new structures in place that allow for greater accountability mechanisms such as the Office of Consumer Advocacy.

As a statewide utility, if the SPO adopts concrete mechanisms that embed restorative justice into its very structure, this utility structure has strong potential to advance energy justice among the most people across Michigan.

Affordability

It is not immediately obvious how electricity bills will change for ratepayers under an SPO model. Public Power advocates argue that public power customers pay, on average, 13% less than customers of privately owned utilities.[436] The IOUs make a profit today that is returned to shareholders in the form of dividends. The profit is the difference between the IOUs' revenues and costs. DTE and Consumers return the entirety of profits to shareholders. Without shareholders, the SPO would not need to make a profit. So the question arises: what should the SPO do with the surplus when revenues exceed expenses? We offer two plausible answers; it is likely a combination of both would be used.

Most simply, the SPO could use any surplus to reinvest in the business. Since DTE and Consumers have spent years neglecting the distribution grid, significant investment will be needed to trim back trees and update power lines.[437] Further, the state will want to invest in cleaner sources of generation. While these actions would almost certainly improve reliability and energy efficiency, they would not impact rates in the short term. In fact, the state may need to increase rates in the short term to fully fund these projects. Once completed, the state would turn to maintenance and could then reduce rates below current costs. With this approach, costs may increase or remain the same in the short term but would likely decrease after multiple years.

Second, the SPO could decide to eliminate all surplus. This would mean reducing rates to ensure that the SPO ends each fiscal year with a profit of $0. We can look at DTE and

[436] American Public Power Association, "Bills and Rates," accessed March 26, 2024, https://www.publicpower.org/topic/bills-and-rates#:~:text=Not%2Dfor%2Dprofit%20public%20power,customers%20of%20privately%20owned%20utilities.
[437] "How decades of neglect left Detroit's grid vulnerable to powerful storms," Energy News, September 16, 2021, accessed March 26, 2024, https://energynews.us/2021/09/16/how-decades-of-neglect-left-detroits-grid-vulnerable-to-powerful-storms/.

Consumers' current profits to estimate annual customer savings. In 2023, DTE Electric's profits were $772M.[438] The SPO could cut rates to reduce revenues by that amount. Spread over DTE's 2.3M customers,[439] that could result in a savings of about $335 each year per customer. Consumers Energy profits were $867M in 2023.[440] Spread over their 1.8M customers[441], that could be a savings of $482 each year per customer. Since the SPO would be combining the assets and savings across Michigan, it makes more sense to look at the savings on aggregate. Together, the two IOUs make $1.64B in profit and have 4.1M customers. Therefore, the average savings per Michigander could be up to $400/year.

It is important to note that while a useful estimate, this approach oversimplifies many complex components of financial analysis. As discussed in the Cost, revenue and financing feasibility section, the SPO's surplus will not exactly equal the IOUs $1.6 billion in profits today. Differences in taxes and the fact that the SPO would only own distribution would impact the amount of surplus that is available. Michigan may want to continue paying local property taxes in the short term. The PTP model planned to do this "[to ensure] that no city or town in Maine loses important revenue for their schools or libraries in the process of the transfer."[442] These examples are meant to illustrate that further analysis will be needed to determine exactly how much surplus will be available to the SPO.

While there is not a clear-cut answer on how the affordability of power will be different under an SPO model, a publicly owned utility will have the ability and greater incentive than IOUs to make rates more affordable. If the state opts for significant investment in grid hardening or clean generation, rates could increase during the investment period. These investments would likely lead to lower bills in the long term and are pertinent to creating cleaner, more reliable power in Michigan.

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[438] DTE Energy, "Form 10-K: Annual Report for the Fiscal Year Ended December 31, 2023," Securities and Exchange Commission, accessed March 26, 2024, https://d18rn0p25nwr6d.cloudfront.net/CIK-0000936340/28477a4e-8214-40c5-a20a-a5f8c4fbe3d8.pdf.

[439] DTE Energy, "About DTE," accessed February 18, 2024, https://www.dteenergy.com/us/en/business/about-dte/about-dte/about-dte.html#:~:text=DTE%20Gas%20is%20engaged%20in,1.3%20million%20customers%20in%20Michigan.

[440] CMS Energy Corporation, "Form 10-K Annual Report," accessed February 18, 2024, https://d18rn0p25nwr6d.cloudfront.net/CIK-0000028385/fa2454b8-dc84-43ab-94bc-cf637ce2a45e.pdf.

[441] Consumers Energy, "What We Do," accessed February 18, 2024, https://www.consumersenergy.com/company/what-we-do#:~:text=We%20work%20for%20you.,more%20than%206%20million%20Michiganders.

[442] Wayne Jortner et al., "A Vision for the Pine Tree Power Company" (Our Power, n.d.), https://pinetreepower.org/wp-content/uploads/2023/10/pinetreepowervision.pdf.

2.6 Basic Steps to Adoption

This section describes how the State of Michigan can transition from IOU to state-owned energy distribution. This includes an analysis of the approximate speed to transition and a description of key legal challenges.

Initiation of Transfer to SPO Power through a Legal Lens

To initiate transfer of distribution infrastructure from the IOUs to the state government, first a governmental entity that will finance, acquire, and own the distribution infrastructure needs to be created. The Michigan legislature, the governor, or voters themselves, via a voter-initiated ballot, can create this entity. The Michigan legislature has the power to create new entities and agencies as noted in the Michigan Constitution.[443] The governor of Michigan, through her Executive Order power, has the authority to "reorganize agencies within the executive branch of state government" and "reassign functions among executive branch agencies".[444] Since the governance section of this chapter recommends transferring some powers from the MPSC to a newly created agency, the Governor can authorize this transfer of power through an Executive Order. Lastly, Michiganders themselves can create this entity through a voter-initiated ballot.

In Michigan, voters can create an initiative and collect signatures to place it on the ballot. For voter-initiated state statutes, a certain number of signatures are required to place the measure on the ballot (equaling or exceeding 8% of the votes cast for governor in the preceding election).[445] Once the minimum required number of signatures is collected, the measure will be placed on the ballot during the next election.[446] Note that Michigan does not require a supermajority of votes for ballot measures to become effective law.[447] Following Pine Tree Power's example, the ballot question can ask voters:

"*Do you want to create a governmental entity, governed by an elected board and appointed energy experts, to acquire and operate existing for-profit electricity distribution facilities in Michigan?"*

Regardless of how this new entity is created (via legislature, executive order, or citizen initiative), the entity must be given certain powers to be legally able to acquire IOU

[443] MI Const. Art. IV § 1.
[444] "Executive Orders." Accessed April 14, 2024. https://www.michigan.gov/formergovernors/recent/granholm/executive-orders.
[445] Ballotpedia. "Laws Governing the Initiative Process in Michigan." Accessed April 14, 2024. https://ballotpedia.org/Laws_governing_the_initiative_process_in_Michigan.
[446] Ballotpedia. "Laws Governing the Initiative Process in Michigan." Accessed April 14, 2024. https://ballotpedia.org/Laws_governing_the_initiative_process_in_Michigan.
[447] Ballotpedia. "Laws Governing the Initiative Process in Michigan." Accessed April 14, 2024. https://ballotpedia.org/Laws_governing_the_initiative_process_in_Michigan.

infrastructure. These powers can be bestowed upon the new entity either legislatively or via citizen initiative. First, since this chapter recommends that the state finance the IOU acquisition via utility revenue bonds, the entity must have the power to issue revenue bonds. Second, the entity must be given the power to use revenue generated from the bonds to finance eminent domain proceedings. Third, the entity must be given the authority to proceed under other Michigan laws governing eminent domain procedures and processes.

The Michigan Legislature has created entities with these powers in the past. For example, the legislatively created Mackinac Bridge Authority was given the power to construct bridges as it deemed necessary, financing the "cost of such construction...from the proceeds of bonds issued hereunder".[448] The law also stipulates that the Bridge Authority is "empowered to condemn any property or interest therein which it may deem necessary for such purpose" by proceeding under the provisions of Michigan's eminent domain laws.[449] In this case, it is important that the legislation empowering the new entity that will take IOU distribution infrastructure authorize it to proceed under Michigan's Uniform Condemnation Procedures Act (UCPA).

Michigan's UCPA is a "quick-take" statute that allows the condemning agency to obtain title to the property before just compensation is ultimately determined.[450] This circumvents the timeline of traditional litigation in which the condemning body (here, the newly created governmental entity) does not acquire title to the property until all litigation is complete, which can be a very lengthy process. However, under the UCPA, the agency needs to submit a good faith written offer and appraisal describing how it calculated just compensation to the property owner at the outset of the lawsuit.[451] If the agency and property owner cannot agree on just compensation, the agency can file a complaint for acquisition in the circuit court in the county where the IOU is incorporated.[452]

Importantly, "the title to the property described in the petition shall vest in the agency as of the date on which the complaint was filed", meaning that once the agency files a complaint to acquire the IOUs' property, it shall become the owner of the property and the IOUs will have a vested right to just compensation.[453] When the complaint is filed, " the agency shall deposit the amount estimated to be just compensation with a bank, trust company..."[454] The critical takeaway here is that the agency must pay upfront the value it determines to be just compensation for the taking because the agency becomes the owner of the property once it files the complaint. The IOUs will have 90 days after receiving the good

[448] MCL §254.314
[449] MCL §254.314
[450] MCL § 213.55
[451] MCL § 213.55
[452] MCL § 213.55
[453] MCL § 213.57
[454] MCL § 213.55

faith offer, or 180 days after receiving the complaint, whichever is later, to file a written claim describing why they believe they deserve additional compensation.[455] If the agency and IOUs still cannot come to an agreement, they will go to trial.

The IOUs do have a statutorily protected right to contest the necessity of the taking, but the UCPA provides that "With respect to an acquisition by a public agency, the determination of public necessity by that agency is binding on the court in the absence of a showing of fraud, error of law, or abuse of discretion."[456] This means that the court will use a highly deferential standard when reviewing the new entity's reasons for acquiring IOU distribution infrastructure, and the entity can cite the unreliability and unaffordability of current IOU performance to justify their acquisition.

The IOUs' have a Constitutionally protected right to procedural due process, which means that the government must follow certain procedures when depriving citizens of their property.[457] Thus, the IOUs can demand a trial by jury to resolve the just compensation issue.[458] The issue of just compensation is one of fact, and therefore is ultimately a jury issue. Because both sides of the issue hire their own property and fixture appraisers to support their respective calculations of just compensation, this type of trial tends to be a "battle of the experts".[459]

Because entities under the UCPA have the ability to initiate a quick-take, meaning that "Vesting of title in the agency shall not be delayed or denied because of…[a]n allegation that the agency should have offered a higher amount for the property", this route for initiating SPO power is recommended.[460] This will allow the entity to effectively own the IOUs' distribution equipment much sooner than traditional acquisition models, and the state can then implement its own governance procedures to ensure a smooth transition.

Following the model and structure of the law creating the Mackinac Bridge Authority, the legislature or voter-initiated ballot can pass a law to empower the new entity to acquire IOU distribution property using the following verbiage[461]. This proposed law authorizes the new entity to issue revenue bonds, use the proceeds from the revenue bonds to finance eminent domain takings, and avail itself to eminent domain procedures under the UCPA.

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[455] MCL § 213.55

[456] MCL § 213.56

[457] U.S. Const. amend. XIV

[458] MCL § 213.56

[459] Bos & Glazier Law Firm. "Taking of Property by Eminent Domain." Accessed April 14, 2024. https://www.bosglazier.com/domain.shtml.

[460] MCL § 213.57

[461] MCL §254.314

State Publicly-Owned Power Distribution Authority; Bond Proceeds; Property Condemnation

"The authority is hereby authorized and empowered to acquire the distribution infrastructure of the state's investor-owned utilities and to operate, maintain, improve and repair such distribution infrastructure. The cost of such acquisition of the distribution infrastructure shall be paid from the proceeds of utility revenue bonds issued hereunder and from any other funds legally available for the payment of such cost: Provided, That nothing herein contained shall be so construed as to permit the authority to incur obligations which would constitute an indebtedness of the state within the meaning of any constitutional prohibition or limitation.

In connection with the acquisition of distribution infrastructure, the authority is hereby empowered to purchase or otherwise acquire all property and rights necessary thereto, including but structures, rights-of-way, franchises, easements and other interests in lands, including lands under water, and the riparian rights of any person, natural or corporate, political entity or political subdivision, and including the right to cut off light, air and access to real property, upon such terms and at such prices as may be fair and reasonable. Whenever it shall become necessary, any such property may be condemned and the authority is hereby empowered in its discretion to condemn any property or interest therein which it may deem necessary for such purpose.

In the condemnation of property or interest therein, the authority may proceed under any act applicable thereto, or it may invoke and proceed under the provisions of Act No. 87 of the Public Acts of 1980, otherwise known as the Uniform Condemnation Procedures Act, as now or hereafter amended, and in so doing shall have all the rights, powers and privileges granted to an "agency" as defined in that act. The authority may enter on any lands, waters and premises for the purpose of making surveys, soundings and examinations."

The proposed structure of this enacting law would allow the governmental entity taking IOU distribution infrastructure to avoid several pitfalls. The Michigan Constitution stipulates that, "The state may borrow money for specific purposes in amounts as may be provided by acts of the legislature adopted by a vote of two-thirds of the members elected to and serving in each house, and approved by a majority of the electors voting thereon at any general election. The question submitted to the electors shall state the amount to be borrowed, the specific purpose to which the funds shall be devoted, and the method of repayment".[462] Thus, if the state had to borrow money to finance the considerable cost of the IOU distribution equipment acquisition, it would first need to gain the approval of two-thirds of the legislature and over half of the Michigan voters. The Michigan Constitution further

[462] MI Const. Art. IX § 15.

notes that, "No evidence of state indebtedness shall be issued except for debts authorized pursuant to this constitution."[463] This means that, if the state wants to borrow money for the purposes of financing the IOU acquisition, it must receive approval from two-thirds of the legislature and over half of voters and it cannot devise a legislative workaround.

However, the language of the proposed law *supra* states that the authority can finance its acquisition via revenue bonds and that it is not permitted "to incur obligations which would constitute an indebtedness of the state within the meaning of any constitutional prohibition or limitation." This allows the newly created entity to bypass the Constitutional requirements described above when acquiring the IOUs' distribution infrastructure. Michigan courts have repeatedly held that "revenue bonds issued by a state agency for a public improvement d[o] not constitute an indebtedness of the State within the meaning of the constitutional provision."[464]

In *Nichols v State Admin*, a disgruntled plaintiff complained that the Mackinac Bridge Authority could not issue revenue bonds to finance the construction of a bridge between the southern and northern peninsulas in Michigan because "the State could not, without a vote by the people, contract a debt."[465] The Court ruled that the legislature "clearly provided that the bonds were revenue bonds to be paid solely from the revenues of the Bridge Authority and that the revenue bonds did not constitute an indebtedness of the State."[466] Later cases have affirmed, finding that "a true revenue bond. . . creates no 'indebtedness' within the meaning of constitutional debt limitations" and that revenue bonds are only payable from revenues derived from the operation in question and not from the state itself.[467]

This means that the proposed law will allow the new governmental entity to issue utility revenue bonds to finance its IOU acquisition. The revenue bonds will not be considered state debt, and thus are not subject to Constitutional parameters. Further, the issuance of revenue bonds does not require voter approval, as compared to general obligation bonds which must be approved by voters because they are backed by "the full faith and credit of the state and are generally repaid from unrestricted revenue sources."[468] But note that if the proposed law, *supra*, is passed via voter-ballot initiative, then the majority of voters will inherently approve of the revenue bond issuance since a majority vote is required to turn the citizen initiative into law.

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[463] MI Const. Art. IX § 12.
[464] Nichols v State Admin Bd, 338 Mich 617; 62 NW2d 103 (1954)
[465] Nichols v State Admin Bd
[466] Nichols v State Admin Bd
[467] Alan v Co of Wayne, 388 Mich 210; 200 NW2d 628 (1972)
[468] "What Does the State Do When It Needs to Borrow?" Accessed April 14, 2024. https://www.michigan.gov/budget/budget-offices/ofm/faq-pages/state-finances/what-does-the-state-do-when-it-needs-to-borrow.

Litigation Cost Considerations Associated with Eminent Domain Strategies

Litigation costs for this acquisition process are likely to be significant. For example, the city of Boulder spent over $27.8 million in legal fees over its decade long battle to acquire IOU infrastructure in the city, ultimately giving up its fight to transition to publicly owned power.[469] Litigation fees become compounded when considering that the government will be responsible for a portion of the IOUs' legal fees. In the agency quick take approach, Michigan law expressly allows the owner of the property to recoup "reasonable" expert witness fees and, if the just compensation award determined by the jury is higher than the good faith offer the condemning agency made, the owner can recoup attorneys fees as well (though this figure is capped).[470]

The PTP campaign in Maine attempted to vote out its IOUs and set up a ratepayer-owned public utility through similar mechanisms to the agency approach. This measure failed at ballot, and this was due in large part to the IOUs' use of ratepayer money to fund campaigns attacking PTP.[471] Maine's IOUs outspent PTP by almost 40 times during election campaigning, raising largely unfounded fears that PTP's electricity grid would be unreliable and raise ratepayers' costs.[472]

Such political barriers would also be significant in Michigan because it is currently legal for IOUs to use ratepayer funds to fund political activity. In July 2023, Representative Kathy Castor of Florida introduced legislation, called the Ethics in Energy Act, that would compel the Federal Energy Regulatory Commission (FERC) to prohibit utilities from using ratepayer money to fund political agendas.[473] The bill has been introduced in the House of Representatives in Congress and referred to the appropriate subcommittee, but there has not been any further activity to date.[474] Until (and unless) this bill passes into law, it is expected that IOUs will use their vast ratepayer money reserves to fund vigorous opposition to any attempts to transition to publicly owned payer.

To conclude, creating an entity with the power to issue revenue bonds to finance its acquisition of IOUs in Michigan is the best acquisition option since the entity can acquire title

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[469] Best, Allen. "As Costs Rack up in Boulder's Push to Split with Xcel, Voters to Have the Final Say." Energy News Network, October 27, 2020. http://energynews.us/2020/10/27/as-costs-rack-up-in-boulders-push-to-split-with-xcel-voters-to-have-the-final-say/.

[470] MCL § 213.66

[471] "Millions Pour into Maine Campaign on Question 3." Accessed April 14, 2024. https://spectrumlocalnews.com/me/maine/news/2023/10/06/maine-question3-cmp-versent-pine-tree-power-.

[472] "Millions Pour into Maine Campaign on Question 3." Accessed April 14, 2024. https://spectrumlocalnews.com/me/maine/news/2023/10/06/maine-question3-cmp-versent-pine-tree-power-.

[473] U.S. Representative Kathy Castor. "Rep. Castor Introduces Bill to Ban Power Companies from Manipulating Elections, Misleading Voters," August 2, 2023. https://castor.house.gov/news/documentsingle.aspx?DocumentID=404261.

[474] Rep. Castor, Kathy [D-FL-14. "H.R.5075 - 118th Congress (2023-2024): Ethics in Energy Act of 2023." Legislation, August 4, 2023. 2023-07-28. https://www.congress.gov/bill/118th-congress/house-bill/5075.

to the property at the onset of litigation and avoid state indebtedness. However, in this quick take approach, the state will be responsible for the IOUs' expert witness fees and possibly a portion of their attorney fees if the jury ultimately decides that the just compensation should be higher than the state's initial good faith offer. IOUs will almost certainly use their ratepayer money reserves to fund an opposition campaign to IOU takeover and to lobby the legislature against the SPO option. The ensuing just compensation trial will likely be quite lengthy as both sides will describe why they believe their appraisals are more accurate than the others.

Challenges and Considerations when Adapting the Pine Tree Power Transition Plan to Michigan

There are some key differences between the states of Michigan and Maine, particularly in terms of scale, that may contribute to the (in)feasibility of implementing an SPO similar to PTP's structure in Michigan. Firstly, only two IOUs are in operation in Maine that PTP would have needed to acquire in order to achieve a fully consumer-owned power structure throughout the state. Even though there are two IOUs that dominate the electricity provider landscape in Michigan (DTE and Consumers Energy), there are eight consumer owned utilities across the state that would need to be absorbed by an SPO in order to truly dissolve investor-owned electric power in the state.

Furthermore, Michigan's population is roughly seven times larger than Maine's.[475;476] Therefore, even when only considering the two major electricity-providing IOUs in Michigan, millions more residents are served by DTE and Consumers Energy than CMP and Versant serve in Maine (DTE and Consumers Energy alone reach 4.1 million customers collectively across Michigan, whereas Maine's IOUs serve only about 765,000 customers).[477;478] While some aspects of the acquisition process may be simplified due to economies of scale and a larger customer base, it is possible that scaling the administrative and legal processes (not to mention cost and duration of feasibility and economic viability studies, and campaigning costs to compete with entities that boast immense shareholder dollars) from Maine to Michigan

[475] "U.S. Census Bureau QuickFacts: Maine," accessed February 10, 2024, https://www.census.gov/quickfacts/fact/table/ME/PST045222.
[476] "Michigan Population 2024 (Demographics, Maps, Graphs)," accessed February 8, 2024, https://worldpopulationreview.com/states/michigan-population.
[477] "DTE, Consumers Energy to Michigan Lawmakers: We Need to Do Better | Bridge Michigan," accessed February 10, 2024, https://www.bridgemi.com/michigan-government/dte-consumers-energy-michigan-lawmakers-we-need-do-better.
[478] Lampariello, Dan, and Marissa Bodnar. n.d. "Maine's Power Struggle: Everything You Need to Know about Question 3." FOX23. Accessed April 16, 2024. https://fox23maine.com/news/i-team/maine-power-struggle-everything-you-need-to-know-about-question-3-consumer-owned-utility-pine-tree-central-versant-company-taxpayers-state-public-distribution-cmp-transmission-electricity.

may be logistically burdensome and contribute to uncertainty regarding the duration and extent of resources needed to undergo the acquisitions process.

2.7 Conclusion and Discussion

Overall, the SPO model has the potential to create significantly more just and reliable power in Michigan. With deliberate prioritization and time, it will also make Michigan's grid greener and rates more affordable for customers. This can be achieved because the SPO will have access to loans and capital with lower interest rates and by reinvesting the IOUs profits into the business to achieve cleaner, more affordable, more reliable, and just energy. The SPO in Michigan will acquire just the distribution assets, leaving generation with the IOUs. The most successful SPO framework for Michigan would maximize the entity's ability to distribute reliable and affordable electricity to all customers while contributing to statewide climate action and energy justice goals. To accomplish this, we recommend that (1) a new governmental entity is created that will take the IOUs' distribution infrastructure; (2) the SPO create a governance board, sitting within the new government entity, comprised of locally-elected representatives and a diverse group of energy experts to regulate all aspects of the SPO, including equitable ratemaking, setting climate progressive priorities. ; (3) the state relieves the MPSC of their electric distribution-related policymaking and regulatory duties currently directed at IOUs; and (4) the state establishes an Office of Consumer Advocacy to advocate for the interests and needs of SPO customers.

Criteria Assessment

Below is a summary of the assessment against various criteria, a note on how to interpret it, and supporting narratives about how these conclusions were reached by highlighting strengths, weaknesses, caveats and considerations.

Weak	Fair	Strong	Highly Variable

Criteria	**Overall Rating**
Climate	Fair
Reliability	Strong
Energy Justice	Strong
Affordability	Fair

Table 1. Key Criteria Matrix assessing the strength of the SPO alternative.

Interpretation guide for the criteria

"Strong" implies a very high possibility of achieving outcomes expected for the assessment criteria without the dependence on external factors such as energy market conditions, consumer adoption, etc. It does not exhibit volatility based on internal factors such as decision-making by the governance board or allocation of priorities and available funds.

"Fair" implies a medium possibility of achieving outcomes expected for the assessment criteria without the dependence on external factors such as energy market conditions, consumer adoption, etc. However, it does exhibit volatility based on internal factors such as decision-making by the governance board or allocation of priorities and available funds, and the outcomes are likely to incline towards other assessment criteria based on these decisions and priorities.

"Weak" implies a low possibility of achieving outcomes expected for the assessment criteria without the dependence on external factors such as energy market conditions, consumer adoption, etc. It exhibits volatility due to a determinate internal factor and is not foreseeably easy to overcome due to legal or governance constraints.

"Highly Variable" implies that a possibility of achieving outcomes expected for the assessment criteria cannot be determined through the scope of this document. Outcomes are highly likely to vary on a case-by-case basis or on external factors such as energy market conditions, consumer adoption, etc. It may exhibit volatility based on internal factors such as decision-making by the governance board or allocation of priorities and available funds.

Key Strengths of the SPO Model

There are a few unique and notable strengths of the SPO model. From a legal perspective, there is the symbolic weight of the entire state of Michigan pushing for cleaner and more democratic energy distribution. Instead of transitioning to public power in a piecemeal fashion, the state-based approach would allow for a sweeping transition in one unit. There is likely to be only one trial, as the Michigan court system will almost certainly consolidate cases brought by the eight individual IOUs. Moreover, the "quick-take" law allows the state to implement its governance structure prior to the completion of litigation; this ensures a smoother transition from IOU- to state-owned distribution infrastructure because the IOUs will not be responsible for maintaining distribution infrastructure while also being embroiled in litigation proceedings to determine just compensation for the distribution assets. This statute also makes it possible for the SPO to immediately begin acting on efforts to invest in reliability, affordability, energy justice, and climate goals.

There are also key financial benefits to the SPO model. The additional surplus between the revenues and costs (IOUs' profits) can be reinvested to concretely improve grid reliability, affordability, climate, and energy justice statewide. This unlocked funding can support efforts

to improve grid infrastructure and reliability, implement affordability programs (i.e. a Percentage of Income Payment Plan, and establish programs and procedures for community-centered, participatory decision making (e.g. the Office of the Consumer Public Advocate). These recommendations are framed as necessary components of a SPO Governance Charter, which would ensure that energy justice and climate goals are actionable and prioritized. Democratic processes unique to a publicly-owned entity also help to hold the utility accountable to these activities.

Further, an SPO would be able to more cheaply acquire capital and loans needed for grid hardening or other improvements to increase reliability for customers. During the transition period, a Michigan SPO would still pay local property taxes, meaning that this revenue source would not disappear for the communities that rely on it in the event of a transition. The acquisition would be funded by utility revenue bonds, meaning that the state would not need to make significant budget adjustments to form an SPO. The state can also use documented service levels to potentially negotiate a lower acquisition price. This would free up more money to invest early in grid reliability improvements.

In terms of the employment and governance model, the creation of an SPO in Michigan would allow for the vast majority of non-executive IOU employees to be retained by the new system. This approach follows the model proposed for Pine Tree Power. This is a considerable upside given that around 2.5% of Michigan's workforce is employed by the energy sector.[479] Additionally, since this model proposes that the SPO Governance Board hires a private sector firm to run daily utility operations, any workers employed through this firm would retain previous union and collective bargaining agreements, including the right to strike. This is particularly important because Michigan law prohibits public employees from striking.[480]

Furthermore, the hiring of a private sector grid operations firm by the Governance Board on a periodic, contractual basis creates an incentive for the hired firm to provide customers with higher levels of reliability and service. This would likely lead to greater customer satisfaction compared to a scenario in which no competition exists for the grid operating firm role. Due to the relatively short contract lifespan and notion that the firm's performance will be under constant assessment, if the Board feels the need to seek out a different grid operating firm at the end of a contract cycle in order to better meet customer needs, an avenue exists to make such adjustments.

An SPO model would also be better set up to represent the needs and perspectives of local citizens than the current IOU-dominated system in Michigan due to opportunities to use

[479] Linskey, Evan. n.d. "Michigan Energy Industry Cluster Workforce Analysis." https://www.michigan.gov/leo/bureaus-agencies/wd/industry-business/-/media/31b8b0d2e7d34a58b1875d3a18ba956d.ashx.
[480] MCL 423.202

local elections to influence who is both sitting on the SPO Governance Board. In turn, the experts appointed to the Board by locally-elected Board members will likely represent the needs of local citizens to some degree, as well as bring essential knowledge to the decision-making table on topics such as worker and consumer concerns, climate action planning, economic development, and environmental justice. The introduction of such dedicated subject matter experts also opens up the opportunity for Michigan to conduct a (periodic) statewide assessment of relevant issues, such as energy burden, to ensure that policy decisions reflect these disparities and resources are allocated to communities most in need. (However, it is important to note that due to the size of the constituent body and limited number of elected representatives, the voices of some communities may remain unheard or overpowered by others despite opportunities to vote.) Furthermore, as a public entity, an SPO would increase requirements for transparency and robust participatory processes to take place and subsequently influence policy decisions by the Board.

Introduction of the SPO model presents an opportunity to decouple generation and transmission assets owned by the IOUs, and hence creates a new direction for strategically pursuing cleaner, renewable generation assets or renewable power purchase agreements. Additionally, SPO has the strongest incentive to aggressively expand, streamline and eventually monetize distributed energy generation. For these reasons, and the introduction of climate-positive goals in the charter, climate is rated as fair.

To conclude, the recommended SPO structure introduces significant mechanisms to transform the landscape of utilities across the state of Michigan. Through processes and opportunities both inherent to a publicly-owned entity as well as built into the SPO Governance Charter, the SPO structure can meaningfully meet energy justice and reliability goals by equitably investing in the utility's infrastructure and services. These opportunities warrant the overall rating of "strong" for both energy justice and reliability metrics.

Key Weaknesses of the SPO Model

A potential weakness with the recommendations posed in this chapter is that potential challenges may arise when it comes to reassigning regulatory responsibilities between the MPSC and SPO Governance Board. The establishment of an SPO in Michigan would require that the current duties relating to regulation of electric utilities and distribution currently held by the MPSC to be reworked to allow for several of these responsibilities, including ratemaking, approving infrastructure upgrades and major capital projects, and enforcing utility service standards, to be absorbed by the SPO Governance Board. This restructuring could be challenging from an administrative perspective, given that the MPSC has established procedures for conducting these efforts and some responsibilities would likely need to remain with the MPSC, such as overseeing capacity demonstrations and the filing of

renewable energy and clean energy plans for electric cooperatives and municipal electric utilities.

The creation of an SPO structure may also be politically unpopular and/or very difficult. If an SPO structure was passed legislatively or via voter-initiated ballot, the next legal hurdle would be ensuing trial to determine just compensation for the taking of the eight IOUs' distribution infrastructure. Since no state has successfully created a publicly owned power utility in this way, there are no case studies to pave the way for a fair acquisition price. Therefore, the state needs to engage valuation experts to be prepared for a lengthy legal battle to negotiate a fair acquisition price.

Considerations before, during and after implementation

Scalability

The implementation of the SPO model represents a large-scale approach that will span all areas of the state currently served by IOUs in Michigan. This scale presents inherent impediments in implementation, planning and management of day-to-day operations. Integration of grid technologies owned and operated by the IOUs and unifying them under the information system owned by the new IOU is likely to be the biggest scalability obstacle that the SPO will face. Additionally, building public trust in a large population that has been underserved by the IOUs will be substantially challenging.

Speed to transition

The following key steps to adoption of an SPO structure are adapted from the plan laid out by Pine Tree Power and modified to fit the Michigan context:[481;482]

1. The proposal to move forward with an SPO model can be introduced via citizen initiative and the voter-initiated ballot can stipulate the creation of a new entity to take IOU distribution infrastructure and empower the entity appropriately (see proposed law *supra*). Alternatively, the legislature could pass a law creating and empowering the new governmental entity that will acquire IOU infrastructure. If passed, either by a majority vote through a citizen initiative or if the proposal passes both houses in the state legislature, the effective date of the legislation would take place on January 1 of the year following the election. (For example, if the ballot

[481] "An Overview of the Public Power Initiative" (Maine Office of the Public Advocate, n.d.), https://www.maine.gov/meopa/sites/maine.gov.meopa/files/inline-files/Pine%20Tree%20Power%20Fact%20Sheet.pdf.
[482] Wayne Jortner et al., "A Vision for the Pine Tree Power Company" (Our Power, n.d.), https://pinetreepower.org/wp-content/uploads/2023/10/pinetreepowervision.pdf.

initiative takes place in November of 2024, the effective date would be January 1, 2026.)

2. After the SPO structure is approved and a new government entity is created to acquire IOU distribution infrastructure, a statewide election will take place to select the voting-eligible Governance Board members of the new SPO entity.
3. After the initial locally-elected Board members are selected, they will collectively select the non-voting eligible advisory expert members to fill the remaining Board seats and hire SPO management staff (e.g., SPO Director, CFO, legal counsel).
4. The new governmental entity will issue revenue bonds to finance its acquisition of IOU distribution infrastructure. Once the entity raises enough money to deposit a good-faith just compensation offer to the IOUs in escrow, it will move to the next step.
5. The Board will circulate a Request for Proposal (RFP) to identify a grid operations management company and select a contractor.
6. Next, the entity will begin the process of acquiring the distribution assets of all investor-owned electric utilities across the state using the quick-take procedures described in detail above. Note that the key advantage to this quick-take approach is that *the governmental entity will acquire title to the IOUs' property once they deposit a good-faith just compensation offer into escrow.* Thus, it is of utmost importance that the entity have a governance system in place prior to the good faith deposit so that the transition to government ownership is smooth.
7. The Board will implement its governance structure and ensure a smooth transition since the private contractor that will employ all former IOU employees is already selected and in operation (in step 5).
8. Litigation continues until a just compensation award is determined by the jury. During this process, the government owns power distribution infrastructure and is in charge of governance and ensuring smooth, reliable service. Since there are no statewide public power takeover case studies to learn from, it is difficult to predict the duration of the litigation.

Risk to successful establishment and operation

The SPO model will inherit legacy distribution infrastructure from the IOUs, which is widely known for its underperformance and low reliability. Such grid infrastructure poses an operational risk without sufficient upgrades, hardening and modernization, all cost-intensive steps. Integrating and upgrading the infrastructure will be followed by unifying and training the workforce that previously operated under different IOUs. This is a massive undertaking that is also time intensive, introducing another significant operational risk.

Another important consideration is for the persistently low levels of both customer trust and satisfaction in DTE and Consumers Energy. With this current landscape in mind, if

the SPO were unable to meet the outlined energy justice, reliability, affordability, and climate priorities, the anticipated backlash from ratepayers would be detrimental to the relationship between the state government and their constituents.

Areas for Future Research

We recommend further research to improve the revenue forecast. This will help ensure that the state has forecasted revenues in costs as accurately as possible. First, we recommend diving deeper into expected revenues for the SPO. Currently, the IOUs' revenues include sources from generation and distribution. The SPO will decouple these revenues, and it will be vital to ensure that the business model is feasible as a result. While this analysis estimated that revenues are currently 50% from generation and 50% from distribution, further analysis should be done to analyze the costs, ensuring that they are also a 50/50 split. If they are not, then the SPO runs the risk of not being able to cover its costs.

The financial model can also be improved by incorporating discount rates to forecast out the SPO's revenue under various rate situations. This can then be used to create a sensitivity analysis to compare various rate structures against the need to invest in climate goals and improve grid reliability, especially in the short term. Further, we recommend additional work to analyze the most likely multiplier. This will help the state better estimate the acquisition price and going concern value during negotiations. Finally, the planning team should investigate how the IOUs investments and debt/equity structure will differ under the SPO model, and if that will impact any of the planned investments to improve greener power or the distribution grid.

From a climate perspective, further research needs to be performed to strategize and plan for renewable generation and grid modernization at a state-wide scale. Some areas to address through the research may be: Seeking funding options will be available for public sector entities to invest in cleaner generation of electricity; improving community engagement structure to include underrepresented voices; balancing available funds to optimize the outcomes with respect to near-term affordability, reliability, cleaner generation and equitable distribution.

In terms of governance, it may be worth further evaluating the feasibility of establishing an Office of Consumer Advocacy as a state government agency. The MPSC Reform chapter examines this proposition in more detail. However, since the SPO model would not include any regulatory role for the MPSC unlike the framework envisioned by the MPSC Reform team, it would be important to consider the ways in which an OCA may operate differently alongside or without the MPSC regulating public power affairs. Additionally, the number of representatives elected to the PTP Governance Board likely does not directly align with the number of representatives that would be elected to an SPO Governance Board due to differences in population sizes and the number of congressional districts across the state.

Further work would need to be done to identify an appropriate number of elected representatives and appointed experts to bring onto the Governance Board in order to best represent the voices and interests of citizens across Michigan.

Further research would also be valuable to develop a plan for maximizing the profit savings generated by the SPO transition. As discussed throughout this chapter, numerous aspects of the current IOU infrastructure and services can and should be improved by the SPO, including reliability, ratepayer affordability, and other energy justice and climate goals. To ensure the newly available funding is directed most efficiently towards each of these objectives, comprehensive analyses of the cost, relative urgency, timeline, feasibility, and any other competing priorities will be essential.

Chapter Three:

Empowering Michigan: Assessing the Feasibility and Impact of Widespread Municipalization in the State's Energy Landscape

Elizabeth Healy, Emily Shupp Parker, Nicole Mueller, Robert O'Gara, Zoe Salamey

3.1 Introduction

Across the United States, calls for "energy democracy" and "public power" are leading to discussions about alternatives to the investor owned utility (IOU) model.[483] Largely driven by climate change risks to the grid and the expansion of renewable energy that can transform the world energy system, some now see this change as an opportunity to transform society by redistributing jobs, wealth, health, and power in a more equitable way[484]. Calls for a faster, cleaner energy transition that centers equity and increases reliability are also occurring in

[483] Jennie C. Stephens, "Energy Democracy: Redistributing Power to the People Through Renewable Transformation," Environment: Science and Policy for Sustainable Development, Feb. 13, 2019, https://www.tandfonline.com/doi/full/10.1080/00139157.2019.1564212

[484] Juliana Broad, "Power to the People: Winning Control of Electric Utilities," The Next System. Jan 10 2020, https://thenextsystem.org/learn/stories/power-people-winning-public-control-electric-utilities

Michigan. Activists and researchers across the U.S. have identified that many energy and environmental justice issues are exacerbated by the IOU model–which means that a private, for-profit utility company typically has monopolistic control over a region to provide energy and electricity to consumers. In 2017, 168 investor-owned utilities served 72 percent of U.S. electricity customers, while publicly owned utilities served around 15 percent of customers.[485] States and communities are turning to alternative solutions, like municipal electric utilities, to ensure cleaner, more reliable, more affordable, and more equitable energy.

Michigan's electric grid ranks as one of worst in the country with frequent outages, and ranks 39 out of 51 for affordability.[486] Michigan's residential sector is the leading energy-consumer and is the second largest consumer of electricity; however, Michigan residents pay more than commercial or industrial sectors at 19.06 c/kwh, which is higher than the U.S. average residential cost of 16.21 c/kwh. [487] Currently, three percent of Michigan's total population experience energy burden, meaning they spend six percent or more of their income on energy costs.[488] Michigan's low-income households, many of whom are Black, Indigenous, and people of color, have much higher energy burden rates.[489] In Michigan customers are frustrated with the increased rates, lack of investment in infrastructure, especially green infrastructure, and poor reliability.[490] Municipal electric utilities can be an alternative to improve Michigan's electricity and consumer welfare.

Municipally owned electric utilities are defined as electric distribution utilities that are owned and operated by or on behalf of a city or township. Municipal power is grounded in the idea that electricity rates should be cost-based and affordable, service should be reliable, and that dollars spent on electricity should stay in the community and be invested there.[491] While municipal utilities are not a monolith, there is federal data that suggests that municipal utilities are generally more reliable and charge their customers lower rates[492]. Current municipalization efforts such as Ann Arbor, Michigan also stress that public power incentivizes

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[485] Delia Patterson, "Public Power: A rich history, a bright future," American Public Power Association, 15 Feb 2018, https://www.publicpower.org/blog/public-power-rich-history-bright-future

[486] Citizens Utility Board (CUB) of Illinois, Electric Utility Performance: A State-by-State Data Review Second Edition, https://www.citizensutilityboard.org/wp-content/uploads/2022/09/Electric-Utility-Performance-Report-Second-Edition-final.pdf.

[487] "Michigan State Energy Profile," U.S. Energy Information Administration, accessed February 17, 2024, https://www.eia.gov/state/print.php?sid=mi.

[488] "Low-Income Energy Affordability Data Tool," U.S. Department of Energy, accessed February 17, 2024, https://www.energy.gov/scep/slsc/lead-tool.

[489] "Low-Income Energy Affordability Data Tool"

[490] Brett Kast, "DTE customers express frustration at 2 town halls on power outages," *WXYZ Detroit*, March 13th, 2023.

[491] American Public Power Association, *Public Power,* accessed March 23rd, 2024. https://www.publicpower.org/public-power

[492] Tom Perkins, "Publicly owned utilities 'not a panacea' but can produce customer benefits," *Energy News Network*, December 16, 2019, https://energynews.us/2019/12/16/publicly-owned-utilities-not-a-panacea-but-can-produce-customer-benefits/.

the utility to prioritize community needs, and allows for more investment into the electric grid from no longer paying shareholder "profits."

History of Municipalization

To understand the potential of municipal electric utilities in Michigan, and the possible challenges in their establishment, it is imperative to grasp the intricacies involved in establishing municipally owned electric utilities and evaluate the prospects for success alongside the challenges they may present. The first municipal public power utility was established in 1880, when mechanics in Wabash Indiana established their own electric lighting system for the community. Over the next 20 years, public power utilities spread rapidly. By the early 1920s, more than 3,000 municipal utility systems were in operation in the United States[493].

There were numerous factors that led to the establishment of so many municipal utilities. Some small communities were not viewed as attractive customer bases compared with the profit potential in larger cities for private utility companies. In these cases, the municipalities established systems of power generation and distribution themselves.[494] As private, investor-owned electric utilities began to grow, IOUs began to build larger power plants which increased efficiency and reduced production costs, allowing them to serve significantly more customers. Increased electric demand required more, and larger, plants which reduced costs further, as well as increasing the utility rate base. As these utilities began spreading, they began to see municipally-owned utilities as more of a competitive threat, while the early municipal utilities began to struggle to compete[495]. By 1930, the number of public power utilities fell by 40%[496].

Many of Michigan's 40 municipal utilities were founded in the latter part of the 19th century. These municipal utilities were established because the cities were not able to incentivize an investor-owned utility to provide power to their more rural communities. Accordingly, a significant number of these municipal utilities, including Charlevoix, Lansing, Wyandotte, and Grand Haven, built both generation and distribution infrastructure to serve their communities.

In 1905, municipal power in Michigan experienced a setback with the passage of the Foote Act. Intended to incentivize the rapid expansion of electric infrastructure across the state, the act had the effect of making existing franchise agreements with existing utilities

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[493] "Celebrating America's public power history," *American Public Power Association*, July 1, 2021, https://www.publicpower.org/periodical/article/celebrating-public-power-america-series-part-1-celebrating-americas-public-power-history.

[494] "Celebrating America's public power history"

[495] Alman Mitra, Dorothy Stoler, and Tin-Chun Lin, "Deregulation of the Electric Utility Industry," *Public and Finance Management*, September 2005, https://journals.sagepub.com/doi/10.1177/152397210500500306.

[496] Mitra, Stoler, and Lin, "Deregulation of the Electric Utility Industry"

permanent.[497] Despite being abrogated by the 1908 Michigan Constitution,[498] the Michigan Supreme Court has subsequently held that the Foote Act provided utilities with a contractual right protected under both the Michigan and United States Constitutions.[499] This meant a city which had a franchise agreement with an electric utility in 1905 could not switch to another utility provider. The reverberating effects of the Foote Act in Michigan case law have left open only two paths for municipalization in most Michigan communities today: 1) buying out the entirety of the existing utility's infrastructure within municipal limits, or 2) building a separate, complete municipal system.[500]

Since the passage of the Foote Act, only one additional municipal utility has been established in the state: Traverse City Light & Power (TCLP). TCLP was established in 1912, when the municipality purchased Queen City Light & Power, the Keystone Dam, and the property around Brown Bridge Dam.[501] Other efforts to municipalize through the purchase or acquisition of IOU infrastructure have been undermined by incumbent IOU noncooperation and IOU-mounted legal challenges. For example, in the 1940s Sault Ste. Marie attempted to purchase the Edison Sault Electric Company (ESEC), an IOU with a Foote Act franchise. The city initially sought to purchase only the generation and distribution assets within city limits. However, ESEC would only agree to the sale of the common stock for the entire company, including assets beyond municipal boundaries. The city attorney refused to approve of the contract for sale and the associated revenue bonds, claiming that both actions fell outside of the authority granted to the city. The attorney's interpretation of city authority was upheld by the Michigan Supreme Court.[502] The sale of ESEC assets to the city was never completed.

During the same period, the city of Cheboygan also sought to municipalize. In response to the city's municipalization efforts, the incumbent IOU sought an injunction to

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[497] In part, the Foote Act (264 PA 1905) provided: "Any person, firm, or corporation authorized by the laws of this state to conduct the business of producing and supplying electricity for purposes of lighting, heating and power, and which shall be engaged or which shall hereafter desire to engage in the business of the transmission of such electricity, shall have the right to construct and maintain lines of poles and wires for use in the transmission and distribution of electricity on, along or across any public streets, alleys and highways and over, under or across any of the waters of this state, and to construct and maintain in any such public streets, alleys or highways all such erections and appliances as shall be necessary to transform, convert and apply such electricity to the purposes of lighting, heating and power, and to distribute and deliver the same to the persons, firms and public or private corporations using the same."

[498] Mich. Const. 1908, art 8, §28.

[499] Lansing v. Mich. Power Co., 183 Mich. 400 (Mich. 1914).

[500] "Ann Arbor's Sustainable Energy Utility," City of Ann Arbor, accessed April 1, 2024, https://www.a2gov.org/departments/sustainability/Sustainability-Me/Documents/A2_Sustainable_Energy_Report_2021_v7.pdf.

[501] "Member: Traverse City, Michigan Public Power Agency," *Traverse City, Michigan Public Power Agency*, accessed April 15, 2024, https://www.mpower.org/member/traverse-city/#:~:text=For%20over%20a%20century%2C%20Traverse,property%20around%20Brown%20Bridge%20Dam.

[502] Sault Ste. Marie City Comm. v. Sault Ste. Marie City Atty., 313 Mich. 644 (Mich. 1946).

prevent the city from taking any steps towards acquiring, operating, or maintaining its own electric utility system. Despite the fact that the Michigan Supreme Court ultimately found that the city had the requisite authority under its charter to municipalize, Cheboygan's municipalization efforts stalled.[503]

More recently, the city of Alma explored municipalization in the 1990s. Alma's efforts, driven primarily by a coalition of business interests in pursuit of cost savings,[504] faced IOU-imposed threats of stranded investment costs totaling in the millions.[505] After three years, a court found that the city would have to pay "little or nothing" to the incumbent IOU for stranded investments; however, following the protracted legal battle, one of the leading business interests had already ceased its operations in the city.[506] In the absence of sustained business interest in municipalization, the city declined to push its efforts forward.

This struggle between publicly owned power and private utilities has persisted today. For advocates of privately owned utilities, they often oppose government intervention in operating an electric power system, and cite increased efficiency in a centralized power system.[507] Advocates of public power today seek local control, lower rates, the advancement of sustainable, clean energy, and greater social justice to address the many frustrations with the current electric grid. Municipal electric utilities have a long track record of being able to provide more reliable electricity and lower-cost power to residents, and activists are looking to municipalization efforts as an alternative to address the need for clean energy that is equitable, affordable, and reliable[508].

Scope of Analysis

As part of a larger report exploring and evaluating four energy pathways for the State of Michigan, a set of common criteria was developed to evaluate the four pathways' ability to achieve climate change goals, reliability of electricity goals, affordability of electricity, and equity goals. In this chapter, we examine whether widespread municipalization of electricity utilities would achieve larger goals around sustainability, affordability, reliability, and equity, and also explore what support is needed for municipalities to be able to pursue municipalization to bring about these desired goals.

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[503] Michigan Public Service Co. v. Cheboygan, 324 Mich. 309 (Mich. 1949).
[504] Rick Kely and Stephen Lorton, "The Muni Vote," *Electric Perspectives* 20, no. 5 (1995).
[505] Stacy Henson, "Alma Officials Once Again Examine Possibility of Municipal Utility," *Mlive*, July 14, 2008, https://www.mlive.com/saginawnews/business/2008/07/alma_officials_once_again_exam.html.
[506] Henson, "Alma Officials Once Again Examine Possibility of Municipal Utility"
[507] Kenneth W. Costello, "Even studying public power makes little sense," *Utility Dive*, May 12, 2022, https://www.utilitydive.com/news/even-studying-public-power-makes-little-sense/623289/.
[508] "Public Power," *Michigan Public Power Agency*, accessed April 15 2024, https://www.mpower.org/public-power/.

Our analysis looks at current programs and services municipalization efforts can lean into to transition to clean energy as well as the role of the legislature and Michigan Public Service Commission (MPSC) to make reforms around community solar, net metering, and preferential rate making to assist in the transition to clean, equitable energy. This analysis also looks at the role of non-profit organizations such as the Michigan Public Power Association (MPPA) to support municipalities in their municipalization efforts. This chapter also looks at how current municipalization efforts by Ann Arbor for Public Power could lead the way for other municipalization efforts in Michigan. Finally, we discuss ways to address the legal and financial challenges to municipalization that could support efforts in the future.

For this analysis, our team conducted literature reviews, examined case studies, met with and interviewed energy experts, and conducted several of our own analyses for this chapter including a financial analysis. Appendix C lists the expert interviewees. Our analysis finds that individual municipalization of electric utilities is likely possible; however, widespread municipalization comes with significant barriers and equity concerns. In terms of municipalization of electric utilities to meet the four evaluation criteria, we assess that it is possible for municipalization of electric utilities to bring about changes in climate goals, reliability, affordability, and equity; however, meeting these criteria simultaneously poses significant challenges as the pathways to achieving these criteria can conflict with each other. Municipalization efforts will likely come down to decision makers' assessment of alternative options and determining what they value most in their energy policy goals. We hope the analysis in this chapter informs readers of the many opportunities as well as barriers to the municipalization of electric utilities in the state of Michigan.

Legal, Policy, and Structural Landscape

Legal Authority to Establish Municipal Utilities

In Michigan, newly formed municipal utilities may either: 1) acquire utility infrastructure from the incumbent IOU (through purchase or condemnation) to replace the incumbent utility, or 2) develop new infrastructure to compete with the incumbent utility for customers within the municipality's corporate limits.[509] This chapter will focus on acquisition of IOU infrastructure and full replacement of the incumbent utility; the chapter on sustainable energy utilities will focus on competition with the incumbent utility.

Under the Michigan Constitution, municipalities have the express ability to form an electrical utility within their corporate limits.[510] Municipalities may also sell and deliver a limited amount of power outside their corporate limits, and may operate transmission lines

[509] Barbash-Riley et al.

[510] Mich. Const. Art. 7, §24. "Subject to this constitution, any city or village may acquire, own or operate, within or without its corporate limits, public service facilities for supplying… power… to the municipality and the inhabitants thereof."

outside the municipality.[511] In addition, under the Michigan Home Rule City Act, municipalities are authorized to generate electricity[512] and to purchase or condemn electric franchises.[513] Municipalities possess these powers even where IOUs already hold a franchise agreement that permits them to operate in the municipality.[514] Unlike IOUs, municipal utilities are self-regulated and do not fall under the jurisdiction of the MPSC.[515]

Municipalities may pursue municipalization when expressly authorized by their charters.[516] Accordingly, municipalities must explicitly claim the powers required to form a municipal utility within their charters. Such charter provisions must cover the following elements:[517]

HRA Provision:	Relevant Charter Provision Must:
117.4b	● Authorize the installation and connection of conduits for the service of municipally owned and operated electric lighting plants ● Authorize the borrowing of money and issuing of bonds for the costs of installation and connection
117.4c	● Authorize the sale and issue of mortgage bonds beyond the general limit of bonded indebtedness provided by law for the purpose of acquiring a public utility and for the establishment of a sinking fund
117.4e	● Authorize the condemnation, acquisition, ownership, operation, improvement, enlargement, extension, repair, and maintenance of

[511] Mich. Const. Art. 7, §24. "Any city or village may sell and deliver heat, power or light without its corporate limits in any amount not exceeding 25 percent of that furnished by it within the corporate limits, except as greater amounts may be permitted by law[.]"
[512] MCL 117.4f(c).
[513] MCL 117.4f(a). This authority is granted only to cities with more than 25,000 inhabitants.
[514] Michigan Administrative Code Rule 460.3411 prohibits existing utility customers from transferring between utilities, stipulates that the first electric utility serving a customer is entitled to "serve the entire electric load on the premises", and restricts duplicative service extensions. However, the Michigan Supreme Court in *Coldwater v. Consumers Energy Co.* (2017) held that this rule does not apply to municipal utilities that have not consented to the jurisdiction of the Michigan Public Service Commission. Accordingly, municipal utilities are not prohibited from competing with existing IOUs. For further analysis, see Lydia Barbash-Riley et al., "Legal Road Map for Forming a Public Electric Power Utility in Ann Arbor, Michigan" (Ann Arbor for Public Power, July 9, 2021).
[515] MCL §460.6.
[516] Notably, §117.4 of the Michigan Home Rule Act (HRA), which provides for a municipality's ability to establish an electric utility, is not self-executing.
[517] A useful analysis of Ann Arbor's charter can be found in: Barbash-Riley et al. "Legal Road Map for Forming A Public Electric Power Utility in Ann Arbor, Michigan" (July 9, 2021).

	public utilities within or without its corporate limits, as well as the sale of electricity beyond the City's corporate limits
117.4f	• Authorize the purchase of condemnation of franchises and of property used in the operation of electric light • Authorize the city to contract to purchase, operate, and maintain any existing public utility for supplying light and power to the city and the city's inhabitants

Table 1. Charter provision elements for municipal utilities.

In addition to the required charter provisions, new municipal utilities should consider including language in their charter explicitly authorizing the funding and operation of a clean energy program. Under PA 408 of 2014, municipal utilities in Michigan are permitted to establish clean energy programs.[518] Municipal clean energy programs are limited to serving small residential customers but may pursue a broad range of supports including renewable energy systems improvements (biomass, solar and thermal energy, wind energy, geothermal energy, and methane captured from a landfill) as well as energy efficiency initiatives (installation of insulation, purchase of energy-efficient appliances, etc.).[519]

Pathways for Municipalization

Overview of Municipal Utility Formation

It has been over a century since a new municipal utility was established in Michigan.[520] Over this time, the state's legal landscape has shifted significantly. Within the contemporary legal context, pathways to municipalization have been identified, but remain largely untested.[521] This section provides an overview of anticipated municipalization pathways in

[518] MCL 460.961 et seq.

[519] "Overview of the Michigan Municipal Utility Residential Clean Energy Program Act (PA 408 of 2014)," Michigan Saves, accessed April 15, 2024, https://www.michigan.gov/-/media/Project/Websites/egle/Documents/Programs/MMD/Energy/resources/res-clean-energy-prgm-act.pdf?rev=1bb607735424429bae5e1f95b434e06b.

[520] Traverse City was the last municipality in Michigan to create a utility in 1912. For more information, see "Who We Are - Traverse City Light & Power," accessed February 18, 2024, https://www.tclp.org/who-we-are/.

[521] In 1939, the Cheboygan city council considered a resolution to amend its charter to provide for a municipal electric utility and to issue bonds to cover associated costs. Despite the resolution never being adopted, the Michigan Public Service Company immediately sought to end these municipalization efforts and sued to enjoin the city from proceeding, claiming an exclusive right to the city's public ways under its franchise. The Michigan Supreme Court rejected the company's argument. Nevertheless, the city's municipalization efforts did not progress. More recently, the city of Ann Arbor has conducted feasibility studies to explore opportunities for municipalization. For more information on the Ann Arbor municipalization efforts, see 5 Lakes Energy et al., "City of Ann Arbor 100% Renewable Energy Options Analysis," October 2023,

Michigan. Outside of Michigan, most recent municipalization efforts have sought to acquire existing infrastructure rather than build a new system.[522] Given the prevalence of acquisition, this analysis focuses on pathways to municipalization that involve the purchase or condemnation of IOU assets. However, it is important to note that many new municipal utilities have also had to construct new infrastructure to facilitate their separation from the incumbent utility.[523]

According to the Michigan constitution, the formation of a new municipal utility in Michigan requires approval by at least three-fifths of municipal voters.[524] After utility formation is approved by referendum, a municipality must acquire the assets required to distribute electricity. This process is likely to be most challenging in municipalities where investor-owned utilities (IOUs) operate under a state franchise.[525] One such city, Ann Arbor, has begun to define the high-level steps required for municipalization. The city and associated community groups have indicated these high-level steps include:

1. Conducting a feasibility study.
2. Holding a vote to approve the formation of a municipal utility.
    a. Amending the municipal charter as required.
3. Enacting an ordinance providing for the new utility.
4. Acquiring IOU assets/infrastructure.
    a. Determining a purchase price via litigation or arbitration.
    b. Instituting and completing condemnation proceedings.
5. Holding a vote to approve of the contract to purchase IOU utility assets.
6. Authorizing funding mechanisms to pay for utility assets.
7. Developing complementary assets/infrastructure.
8. Establishing and overseeing municipal utility operations, including fixing rates.
9. Maintaining and improving municipal utility assets/infrastructure.[526]

https://www.a2gov.org/departments/sustainability/Documents/Ann%20Arbor%20Renewable%20Energy%20report%20final.pdf.

[522] Synapse Energy Economics, Inc.

[523] Synapse Energy Economics, Inc.

[524] Mich. Const. Art. 7, §25.

[525] State franchise agreements refer to vested rights granted by the state of Michigan to utilities under the Foote Act of 1905. State franchise agreements are distinct from municipal franchise agreements, which are generally term limited. See the section on franchise agreements for additional information.

[526] City of Ann Arbor, "Ann Arbor's Sustainable Energy Utility," 2021, http://www.a2gov.org/a2zero; 5 Lakes Energy et al., "City of Ann Arbor 100% Renewable Energy Options Analysis," October 2023, https://www.a2gov.org/departments/sustainability/Documents/Ann%20Arbor%20Renewable%20Energy%20report%20final.pdf; Ann Arbor for Public Power, "Public Power FAQs," Ann Arbor for Public Power, February 18, 2024, https://annarborpublicpower.org/faq/.

Michigan-Specific Legal Barriers

Michigan is one of only six states that grant municipalities the ability to form municipal utilities within the state constitution.[527] Nevertheless, Michigan law places restrictions upon municipal ability to acquire and operate municipal electric utilities. For instance, although the Michigan Home Rule Act grants municipalities the ability to either purchase or condemn electric utilities, municipalities are prohibited from exercising their power of eminent domain to acquire generation or transmission assets without first obtaining written approval from the private owner, the incumbent utility.[528] Because incumbent utilities are unlikely to submit to condemnation proceedings, this restriction effectively limits municipal condemnation authority to electrical distribution infrastructure. This means that new municipal utilities will likely need to purchase electricity on the wholesale market to distribute to their customers. In the near-term, this may necessitate an ongoing contractual relationship with the incumbent IOU to purchase electricity. However, this particular limitation may also present a pertinent opportunity for municipal utilities to develop new generation resources that will contribute to the state's electrification and modernization goals. For instance, new municipal utilities could employ an SEU-like model to develop renewable generation infrastructure and resilient microgrids. [529]

Under Michigan law, municipal utilities are largely restricted to operating within a single municipality.[530] The provision of services outside of municipal boundaries is limited by both the Michigan Constitution and Michigan statute.[531] For instance, new municipal utilities may only provide electric service to areas that were contiguous to the municipality in June of 1974.[532] In these contiguous areas, the municipal utility is restricted to providing no more than twenty-five percent of the levels of heat, power, or light that are provided within corporate limits.[533] In addition, without an incumbent utility's written consent, municipal utilities are prohibited from providing service outside of their corporate limits to customers of another utility.[534] In effect, even widespread municipalization across the state may not benefit Michigan residents who reside in unincorporated areas or municipalities that are too small to manage their own electric utility. This is not to say that small municipal utilities do exist across Michigan: the Village of L'Anse operates a municipal utility for its population of

[527] Alexandra Klass and Rebecca Wilton, "Local Power," *Vanderbilt Law Review* 75, no. 1 (2022): 93–159.
[528] MCL §460.816.
[529] See the Chapter Four on sustainable energy utilities for further information.
[530] Mich. Const. Art. 7, §24.
[531] Mich. Const. Art. 7, §24.; MCL 124.3.
[532] MCL 124.3(1)(a).
[533] Mich. Const. Art. 7, §24.
[534] M.C.L. §124.3(2).

1,874.[535] However, Michigan has at least 132 municipalities with less than 500 residents - such small municipalities could struggle to support municipal utility services.[536]

Beyond the constitutional and statutory limitations imposed on where municipal utilities may provide services, other Michigan-specific legal barriers to municipalization tend to relate to one of three topics: 1) franchise agreements, 2) eminent domain, and 3) tax and expenditure limitations. Each of these topics has a constitutional component that is in tension with municipal authority to establish an electric utility. Many of these barriers have been introduced after 1912, the most recent municipalization effort in Michigan. The evolution of these legal barriers is detailed in Appendix A. It remains to be seen how courts will balance these competing constitutional interests throughout municipalization efforts today.

Franchise Agreement Rights and Obligations

There are two distinct types of utility franchise agreements in operation in Michigan today: Foote Act franchises, created under the Foote Act of 1905,[537] and general municipal franchise agreements established after the adoption of the 1908 Constitution. Foote Act franchises are distinct from general municipal franchise agreements in that they convey an assignable property right without a contractual term limit. This means that, for all practical purposes, Foote Act franchise agreements are "permanent."[538] Municipalities with Foote Act franchises are unable to terminate the franchise in the absence of a material breach by the IOU; in the event of a material breach, municipalities may only have the ability to sue for damages.

Foot Act franchise agreements have broadly limited municipal ability to regulate IOU expansion (within and beyond corporate boundaries),[539] impeded municipal ability to impose fees on IOUs,[540] and undermined the advancement of municipal goals within franchise agreements. In contrast, general municipal franchise agreements do not similarly limit municipal regulation of IOUs or municipal utility development. For instance, in *Upper Peninsula Power Co. v. Vill. Of L'Anse*, 332 Mich. App. 581 (2020), a village declined to renew a limited 30-year franchise agreement. Instead, the village elected to provide municipal electric services to the customers in dispute by constructing a duplicate distribution line. A Michigan appeals court upheld the village's nonrenewal of franchise; the court distinguished the IOU's

[535] U.S. Census Bureau, "L'Anse village, Michigan," https://data.census.gov/profile?q=L%27Anse%20village,%20Michigan%20Race%20and%20Ethnicity, accessed March 31, 2024.
[536] City-Data.com, "Michigan Very Small Towns and Villages (fewer than 1000 residents)," https://www.city-data.com/city/Michigan3.html, accessed March 31, 2024.
[537] 1905 Mich. Pub. Acts 264.
[538] City of Ann Arbor, "Ann Arbor's Sustainable Energy Utility" (2021).
[539] Traverse City v. Consumers Power Co., 340 Mich. 85 (Mich. 1954).
[540] Mich. Op. Att'y Gen. 112 (1957).

continued use of public rights of way to distribute electricity to surrounding areas from a right to conduct business within the village. Upon the termination of the franchise, the IOU no longer had a legitimate claim to provide service for the customers in question.[541]

Many municipalities served by IOUs in the lower peninsula operate under Foote Act franchises. Notable exceptions include all municipalities in Wayne County, including the city of Detroit, which were expressly excluded from the Foote Act. Other exceptions include cities like Kalamazoo, which owned a municipal utility between 1905 and 1908 that was subsequently sold to an IOU. Some municipalities served by UPPCO in the upper peninsula operate under Foote Act franchises; however, Foote Act franchises are not as common in the northern and more remote areas of the state.

Throughout municipalization efforts, it is reasonable to anticipate that the strength of IOU contractual rights under Foote Act franchise agreements could prolong litigation. However, it is important to recall that Foote Act franchises are not a bar to municipalization efforts. Although Michigan municipalities cannot terminate Foote Act franchise agreements to procure a new electric provider, municipalities are permitted to create their own utility to either acquire or directly compete with IOUs - even those holding Foote Act franchise agreements.[542]

Legal Requirements for Acquiring Utility Assets

Despite the identification of a high-level pathway to municipalization, a detailed understanding of the requisite legal processes remains unknown. In a 2023 report, consultants for the city of Ann Arbor anticipated that municipalization would entail a "complex legal process" and concluded that municipalization was unlikely to be achieved by the city's 2030 goal for climate improvements.[543] This analysis contrasts with the more optimistic assessment provided by Ann Arbor for Public Power, a community organization that estimates a timeframe for municipalization would be closer to two years.[544] Recent municipalization efforts across the country have varied broadly and, consequently, provide limited clarity around anticipated timeframes for municipalization in Michigan. For instance, although Winter Park, Florida was able to successfully municipalize in two years, Boulder,

[541] In fact, the court rejected UPPCO's procedural due process claim because it found the utility had no valid property interest: "no such property interest could exist after the expiration of said franchise." (Upper Peninsula Power Co. v. Vill. of L'Anse, 334 Mich. App. 581, 597 (Mich. Ct. App. 2020)).
[542] City of Holland v. Consumers Energy, 308 Mich. App. 675 (Mich. 2015).
[543] 5 Lakes Energy et al., "City of Ann Arbor 100% Renewable Energy Options Analysis," accessed April 15, 2024, https://www.a2gov.org/departments/sustainability/Documents/Ann%20Arbor%20Renewable%20Energy%20report%20final.pdf.
[544] Ann Arbor for Public Power, "Public Power FAQs," accessed April 15, 2024, https://annarborpublicpower.org/faq/.

Colorado ceased its unsuccessful pursuit of municipalization after ten years.[545] Some of these differences may be attributable to distinctions between Florida and Colorado Law, as well as varied approaches to municipalization undertaken in each city. For instance, requirements for utility asset valuation are generally laid out in Florida law.[546] Although the city of Winter Park and the IOU began negotiations with vastly different estimates, the parties were able to reach a rapid agreement through arbitration proceedings.[547] In comparison, Colorado law requires municipalities to discontinue an IOU franchise agreement and to hold a special election before they can form a municipal utility or initiate condemnation proceedings to acquire utility assets.[548] Where a franchise exists, Colorado municipalities must wait at least ten years to condemn utility assets.[549]

Michigan law contains no limitations on the formation of municipal utilities comparable to those found under Colorado law. However, the requirements for utility asset valuation in Michigan is not as clear as those stipulated under Florida law. Ultimately, the timeframe required for municipalization in Michigan will hinge on the legal mechanism through which a municipality seeks to acquire utility assets: negotiated purchase or condemnation. Because IOUs are unlikely to agree to sell their assets to a municipality, a negotiated purchase is unlikely. Instead, Michigan municipalities will likely have to condemn utility assets.

Michigan municipalities have the power of eminent domain, which allows them to condemn private property.[550] Traditionally, condemnation requires that 1) parties determine the value of the condemned property, and 2) the condemning agencies pay owners the value of the property before taking possession of the title. Accordingly, traditional condemnation could require a long and litigious process before a municipality could take possession of IOU assets. However, because traditional condemnation permits agencies to terminate condemnation efforts, it also mitigates against the risk that municipalities could be forced to pay high utility asset prices.

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[545] Synapse Energy Economics, Inc. "An Analysis of Municipalization and Related Utility Practices." (Sept. 30, 2017). https://doee.dc.gov/sites/default/files/dc/sites/ddoe/publication/attachments/An%20Analysis%20of%20Municipalization%20and%20Related%20Utility%20Practices.pdf

[546] Synapse Energy Economics, Inc. "An Analysis of Municipalization and Related Utility Practices." Under Florida law, municipalities must pay the going concern for utility assets.

[547] Randy King, "City of Winter Park: Our Municipalization Story." (2011). https://ilsr.org/wp-content/uploads/2023/05/Winter-Park-muni-story-silo.tips_city-of-winter-park-our-municipalization-story.pdf. Winter Park estimated that the purchase price for the electric infrastructure assets would be $15.8 million, with between $0 and $12 million in costs for the going concern and between $0 and $21.8 million for stranded asset costs. The IOU estimated the total value of the assets to be $106 million plus stranded asset costs. Ultimately, the parties agreed on a final price of $42.3 million.

[548] Synapse Energy, "An Analysis of Municipalization and Related Utility Practices."

[549] Synapse Energy.

[550] MCL §213.23.

Alternatively, if Michigan municipalities were to utilize quick take condemnation (quick take), it may expedite municipalization relative to traditional condemnation proceedings. Quick take condemnation allows municipalities to obtain title to property without the delays of typical civil litigation procedures.[551] Michigan municipalities have the ability to engage in quick take condemnation under the Uniform Condemnation Procedures Act (UPCA).[552] To utilize quick take condemnation, UPCA requires that municipalities demonstrate public necessity of the taking and permit property owners to challenge the public necessity of the taking.[553] Specifically, to initiate a quick take proceeding, a city must first provide the property owner with a good-faith offer for just compensation.[554] If the owner does not accept the municipality's good-faith offer, then the municipality may initiate eminent domain proceedings in a Michigan circuit court. These proceedings, however, are expedited. If the court upholds the necessity of the taking, the title of the property would be transferred to the municipality in less than one year.[555] Remaining disputes between the municipality and the property owner regarding just compensation would be litigated after title transfer.[556] Therefore, while quick take would likely accelerate municipalization efforts, it would also require that municipalities pay the utility asset price determined via litigation.

During quick take hearings, the court upholds the municipality's Statement of Necessity as binding unless the property owner can prove "fraud, error of law, or abuse of discretion."[557] In the context of municipalization, the acquisition of IOU assets for the creation of a municipal utility would likely be considered a public necessity under UPCA, and this characterization would allow municipalities to pursue quick take condemnation. IOUs will undoubtedly challenge quick-take condemnation but are unlikely to prevail. Once a court renders a decision regarding a property owner's challenge to public necessity, the property owner will be unable to appeal the decision and the quick take will be permitted to proceed.[558] Therefore, municipalities in Michigan should not face significant delays in obtaining title to IOU assets via quick take condemnation.

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[551] Consumers Energy Co. v. Storm, 509 Mich.195 (Mich. 2022)
[552] MCL 213.51 *et seq*.
[553] MCL 213.51 *et seq*.
[554] "Act 87, Public Acts of 1980 As Amended - An Overview of Condemnation Procedures." (n.d.) https://www.michigan.gov/-/media/Project/Websites/aero/Land/Act_87-overview.pdf?rev=76e5b69817554c2daf7917cf9d0619c8#:~:text=At%20trial%2C%20the%20condemning%20authority,interest%20or%20the%20condemning%20authority..
[555] "Act 87, Public Acts of 1980 As Amended - An Overview of Condemnation Procedures." During eminent domain proceedings, the municipality must place the full amount stipulated in the good-faith offer into escrow and serve the property owner with an Order for Hearing on Complaint. After service, the property owner has 21 days to challenge the necessity of the taking by filing a motion with the court requesting judicial review. After a property owner files a motion challenging the necessity of the quick take with the court, a hearing must be held within 30 days and a court must reach an initial decision within 60 days of the hearing.
[556] Consumers Energy Co. v. Storm, 509 Mich.195 (Mich. 2022).
[557] "Act 87, Public Acts of 1980 As Amended - An Overview of Condemnation Procedures" (n.d.).
[558] "Act 87, Public Acts of 1980 As Amended - An Overview of Condemnation Procedures."

Both UPCA and the Michigan Constitution require condemners of private property, including municipalities, to pay just compensation to property owners.[559] Disputes over what, specifically, constitutes just compensation are likely to be the greatest point of contention throughout any condemnation proceedings stemming from municipalization efforts. At the very least, just compensation would include the net book value for the acquired IOU assets. But just compensation could also entail additional costs, specifically going concern value and stranded asset costs. For a comprehensive discussion of the going concern value of utility assets, see Chapter 2 on statewide public power.

Unlike just compensation at the state level, just compensation at the municipal level may incorporate stranded asset costs or the lost wholesale generation costs that accrue to the incumbent IOU when a portion of its service territory is municipalized.[560] These costs are generally recovered by the IOU through its rates, but would not necessarily be reflected in the IOU's net book value - particularly where municipalization focuses on the acquisition of distribution assets.[561] Under the Federal Energy Regulatory Commission (FERC) Order 888, stranded cost recovery is permitted for wholesale electric contracts that were in place prior to July 11, 1994.[562] For covered contracts, stranded cost recovery is permitted where the IOU can prove "a reasonable expectation that the contract would be renewed or that service would be continued."[563] Given this "reasonable expectation" period, municipalities with perpetual Foote Act franchises appear to be particularly likely to face disputes regarding stranded costs.

In a dispute regarding stranded costs, parties are first expected to attempt to determine stranded cost obligation via negotiation or arbitration. If the parties fail to reach an agreement through these methods, then the IOU can file with the Federal Energy Regulatory Commission (FERC) to attempt to recover stranded costs.[564] FERC has clarified that the longer the reasonable expectation period claimed by an IOU, the higher the burden of proof

[559] Mich. Cont. Art. 10, §2.
[560] Suedeen G. Kelly, "Municipalization of Electricity: The Allure of Lower Rates for Bright Lights in Big Cities," Natural Resources Journal 37 (1997).
[561] William W Hogan, "Stranded Assets and Transition Costs," June 8, 2021, https://hepg.hks.harvard.edu/files/hepg/files/hogan_stran_assets_hepg_060821.pdf?m=1626103054
[562] "FERC Reaffirms and Clarifies Groundbreaking Rules on Open Access Transmission, Recovery of Stranded Investment and Operation of Open Access Same Time Information Systems" (March 26, 2008). https://corporate.findlaw.com/litigation-disputes/ferc-reaffirms-and-clarifies-groundbreaking-rules-on-open-access.html. More information about the formula FERC employs to calculate stranded asset costs can be found in Appendix C.
[563] "FERC reaffirms…"
[564] "FERC reaffirms…"

required to demonstrate reasonable expectation.[565] However, FERC left the precise parameters of the reasonable expectation period deliberately unresolved.[566]

Unsurprisingly, FERC's application of the stranded cost formula has varied significantly across cases: in the *City of Las Cruces, New Mexico* (Docket No. SC97-2-000), FERC decided that the reasonable expectation period should begin at "the point of notice," or when the IOU knew or should have known that the city wished to cease generation service.[567] FERC determined that the reasonable expectation period was properly set at 20 years and established the SCO at $52.9 million - about half of the amount sought by the IOU.[568] In contrast, in the *City of Alma, Michigan* (Docket No. SC97-4-000) FERC determined that the reasonable expectation period began when Consumers, the IOU, should have realized its services may cease in Alma.[569] FERC then set the reasonable expectation period for 10 years, beginning soon after Consumers filed a rate case with the MPSC that anticipated Alma's possible municipalization.[570]

The *City of Alma* illuminates the limitations of Foote Act franchises within stranded cost recovery. In the *City of Alma*, FERC explicitly rejected Consumers' claim that its perpetual franchise entailed a reasonable expectation it would serve Alma "indefinitely into the future, or for at least 30 years."[571] Instead, FERC recognized that Consumer's 10-year planning horizon for generation resources limited its obligation to serve Alma.[572] The different outcomes for Las Cruces and Alma may also be partly explained by the fact that Consumers, unlike the IOU in Las Cruces, was easily able to resell its generation resources. FERC lawyers recognized in their briefing that "Consumers Energy is capacity deficient and hungry for more resources… other customers will need to use all the capacity released by Alma's departure"[573] As Michigan continues its shift towards greater electrification, the demand for generation resources is likely to remain high. Accordingly, as other Michigan cities analyze their potential stranded costs obligations, *City of Alma* is likely to remain an instructive example of the limits to IOU recovery - even under Foote Act franchises. Moreover, stranded costs obligations may

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[565] Gregory N Basheda, "Setting Stranded Costs for Retail-Turned Wholesale Customers: Why FERC Needs to Change Its Approach," *Utilities Policy* 8, no. 2 (June 1999): 121–37, 123 https://doi.org/10.1016/S0957-1787(99)00015-6.

[566] "FERC Reaffirms…" "In Order 888, the Commission declined to establish an outside limit for [the reasonable expectation period], stating that full recovery of stranded cost requires that the reasonable expectation period not be limited to an arbitrary number." Order 888 itself suggests multiple reasonable expectation measures ranging from the utility's planning horizon to the estimated time to market stranded assets

[567] "FERC reaffirms…"

[568] Basheda, "Setting Stranded Costs for Retail-Turned Wholesale Customers: Why FERC Needs to Change Its Approach," 128.

[569] Basheda.

[570] Basheda. At the time, FERC staff viewed the use of a 10-year planning horizon as "generous to Consumers[.]"

[571] Basheda, 126.

[572] Basheda,129.

[573] Bruce W Radford, "Stranded Costs for a 'Hungry' Utility?," *Public Utilities Reports, Inc.* 137, no. 18 (October 1, 1999).

be further limited following the passage of MCLS §460.6t in 2017 (as amended in 2023), which requires IOUs to conduct integrated resource planning that "provides a 5-year, 10-year, and 15-year projection of the utility's load obligations and a plan to meet these obligations."

Similarly, case law also seems to support the notion that Foote Act Franchises will not significantly increase IOU asset price evaluations. While courts in other states have required IOU compensation for the "taking" of customers by a municipal utility where the IOUs hold an exclusive franchise,[574] Michigan courts have recognized that Foote Act franchises are nonexclusive.[575] Case law from other states indicates that the nonexclusive status of Foote Act franchises is likely to limit IOU recovery within condemnation proceedings. For instance, under non-exclusive agreements, other courts have found that the nonexclusive status of the franchise "adversely affected their value" because the "city could at any time have competed with them[.]"[576] Accordingly, there is good reason to believe that the even "perpetual" Foote Act franchise agreements are subject to legal limitations.

Impact of Tax and Expenditure Limitations

Under Michigan Law, municipalities have the ability to finance electric utilities using any lawful means, including the issuance of bonds.[577] However, Michigan's tax and expenditure limitations, most notably the Headlee Amendment (1978), place procedural requirements and other limits on the mechanisms municipalities use to raise revenues required to purchase, operate, and maintain an electrical utility. The Headlee Amendment requires a vote of the people to levy any new tax.[578] While user or service fees are permitted without a vote under Michigan law, Michigan Supreme Court precedent has increased the ambiguity surrounding the tax and service fee distinction – particularly in the context of regulatory compliance.[579] Overall, this ambiguity is unlikely to affect the day-to-day operations of a municipal utility. However, it is likely to shape the implementation of policies related to equitable and just energy, including preferential rates.

Preferential rates seek to reduce the price of a service for a particular group. For instance, income-based utility rates are generally considered preferential rates. Throughout the state, there has been concern that Michigan's tax and expenditure limitations could

[574] Upper Peninsula Power Co. v. Vill. of L'Anse, 334 Mich. App. 581 (Mich. Ct. App. 2020), citing Delmarva Power & Light Co. v. City of Seaford,, 575 A2d 1089 (Del. 1990).
[575] Michigan Public Service Company v. City of Cheboygan, 324 Mich. 309 (Mich. 1949)
[576] In re City of New York, 22 N.Y.2d 613 (1968). The court also noted that the utilization of the nonexclusive franchise agreements at issue "could only have been to permit the claimants to operate in competition with the city."
[577] M.C.L. §460.812.
[578] Joshua Sapotichne et al., "Beyond State Takeovers: Reconsidering the Role of State Government in Local Financial Distress, with Important Lessons for Michigan and Its Embattled Cities," *MSU Extension White Paper*, 2015, http://msue.anr.msu.edu/uploads/resources/pdfs/beyond_state_takeovers.pdf.
[579] Bolt v. City of Lansing, 459 Mich. 152 (Mich. 1998).

impede a municipal utility's ability to enact such preferential rates. Generally, this concern centers on a perceived need to raise utility costs for some groups in order to lower costs for other groups. It is thought that such a disproportionate increase could trigger the Headlee Amendment and, under Michigan Supreme Court precedent,[580] would then be considered an illegal tax rather than a valid user fee. However, there are circumstances in which preferential rates could be enacted without raising rates for any utility customers.[581] For example, if income-based rates were enacted by simply lowering rates for a small subset of utility customers, Headlee would not be triggered.[582] In this scenario, the costs to support a lowered rate rate for a small subset of utility customers could be recovered from the system itself (for example, through cost-savings associated with reduced debt collection and service shut-off expenditures) rather than through increasing rates for high-income utility customers.[583] In the absence of a rate increase, the resulting income-based preferential rate would not be subject to Headlee scrutiny.

Additionally, new municipal utilities could seek to incorporate preferential rates from their inception. That is to say, a municipality could include provisions authorizing preferential rates in the ordinance(s) establishing a new utility. Because an ordinance would require approval from three-fifths of municipal voters to be enacted, a municipality could bypass Headlee scrutiny altogether. This strategy may be particularly effective for municipal electric utility ratemaking which, unlike municipal water utilities, is not limited to the "actual cost of providing the service."[584]

Preferential rates must be reasonable. However, Michigan courts have determined that the reasonableness of utility rates is fact and context-specific.[585] Moreover, Michigan courts recognize municipal utility rates are presumptively reasonable.[586] Although preferential rate structures could be subject to equal protection claims, preferential rates would likely survive a court's application of rational basis scrutiny. A municipality would prevail on an Equal Protection challenge by demonstrating that the preferential rates are "rationally related to a legitimate government interest."[587] Because courts are generally

[580] Under *Bolt*, in order to be considered a user fee, rather than a tax, a fee must 1) serve a regulatory purpose (rather than a revenue-raising purpose), 2) be proportionate to the necessary costs to use the service, and must be 3) voluntary.
[581] Nick Leonard and Oday Salim, "Legal Pathways to Income-Based Drinking Water Rates in Michigan," C.S. Mott Foundation White Paper, 2020.
[582] Leonard and Salim, "Legal Pathways to Income-Based Drinking Water Rates in Michigan."
[583] Leonard and Salim.
[584] MCL §123.141(3). But note that in Trahey v. City of Inkster, the court found that §123.141(3) "does not alter the general standard of reasonableness applied by courts when reviewing utility rates." 311 Mich. App. 582, 597.
[585] Novi v. Detroit, 433 MIch. 414, 429 (1989).
[586] Novi v. Detroit, 433 MIch. 414, 429 (1989).
[587] Washington v. Glucksberg, 521 U.S. 702, 728 (1997).

deferential to ratemaking authorities, this rational relation requirement will be an easy bar to clear.[588]

3.2 Feasibility and Governance

Technical Feasibility

While not a complete impediment to widespread municipalization, we have identified several technical barriers that should be addressed in order to ensure that municipalization is feasible from a technical standpoint. These potential barriers include limits on existing distribution systems to handle distributed energy resource assets, the potential construction of new substations to ensure reliable distribution, and a shortage of free land needed to construct new infrastructure. Additionally, operating a utility requires specific technical expertise, and the personnel requirement should also be considered.

If a municipal utility forms by acquiring the existing distribution infrastructure from the incumbent IOU, any technical limitations of the current distribution infrastructure will be inherent in the municipal utility's technology. For example, the current grid infrastructure was built for large, dispatchable, centralized thermal plants.[589] It was not designed to handle many small-capacity, distributed energy resource assets, such as rooftop or community solar. If distributed solar were a large part of a municipal utility's strategy to provide affordable and clean electricity, the utility may have to invest in specialized electrical equipment or advanced system voltage monitoring capabilities to handle the rapid changes in photovoltaic energy production given second-to-second changes in cloud conditions.[590] This is an additional cost for upgrading the infrastructure, even after the municipality purchases the IOU's distribution system. For Michigan municipalities, this is especially concerning because the current grid infrastructure in Michigan is poor: energy infrastructure received a D rating from the Michigan section of the American Society of Civil Engineers[591] and was ranked 43rd by US News by state power grid reliability.[592] Therefore, it will be important for municipalities to keep in mind the technical upgrades the distribution infrastructure may need after purchase to reach any climate or reliability goals. An NREL study, for example, examined the potential distribution upgrade costs for grid modernization that would be needed to incorporate a high

[588] Shaw v. City of Dearborn, 329 Mich. App. 640 (2019).
[589] NERC, "Distributed Energy Resources: Connection Modeling and Reliability Considerations" (2017), https://www.nerc.com/comm/Other/essntlrlbltysrvcstskfrcDL/Distributed_Energy_Resources_Report.pdf.
[590] NREL, *On the Path to SunShot: Emerging Issues and Challenges in Integrating Solar with the Distribution System* Technical Report (2016), https://www.nrel.gov/docs/fy16osti/65331.pdf.
[591] Michigan Section of the American Society of Civil Engineers, *2023 Report Card for Michigan's Infrastructure* (2023), https://infrastructurereportcard.org/wp-content/uploads/2016/10/Report-2023-MI-IRC-Final-WEB.pdf.
[592] U.S. News & World Report. "Power Grid Reliability," accessed March 31, 2024. https://www.usnews.com/news/best-states/rankings/infrastructure/energy/power-grid-reliability

penetration of distributed solar systems. Of their case studies of two areas in California and one in the Northeast, the cost depends on the spatial layout but could be as high as $\$0.07/W_{DC}$ in the high inverter cost scenario.[593]

Another technical challenge to widespread municipalization is the potential difficulty for a municipality to acquire or build sufficient distribution substations. This challenge was uncovered after speaking with Dr. Richard Silkman, who authored a review of London Economic International's economic analysis of statewide public power in Maine ahead of the referendum on Pine Tree Power in the state.[594] Distribution substations are an essential piece of grid infrastructure because they link the higher voltage electricity on transmission lines to the lower voltage electricity on distribution lines that residential customers ultimately use. As outlined in Figure 1 below, multiple customers can draw electricity from the distribution, or step-down, substation. Because DTE and Consumers provide electricity for multiple municipalities, it is likely that some of their substations serve multiple municipalities, which further complicates the municipalization process.

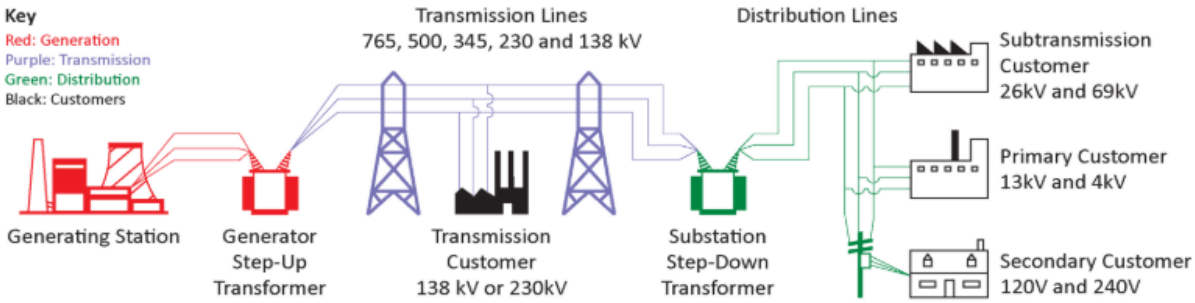

Figure 1. An outline of the electricity system highlights the importance of the distribution substation.[595]

A municipality may need to construct new substations as a result of removing itself from its IOU's distribution system. For example, if a section of a municipality is being serviced by a substation located outside of that municipality under the current grid system, then a new substation will need to be constructed within municipal limits to service that section of the municipality. However, these substations must be built near existing transmission infrastructure in order to connect to the grid. While it is unclear how challenging constructing new substations would be for all municipalities in Michigan, the case of Ann Arbor, Michigan shows the challenge is not small. In its "100% Renewable Energy Options Analysis," the City of Ann Arbor estimates that it would need to build 10 new substations if it establishes a

[593] NREL, *The Cost of Distribution System Upgrades to Accommodate Increasing Penetrations of Distributed Photovoltaic Systems on Real Feeders in the United States* (2018), https://www.nrel.gov/docs/fy18osti/70710.pdf

[594] Richard Silkman, interviewed by author, March 11, 2024.

[595] NERC, *Understanding the Grid: March 2023* (2023), https://www.nerc.com/news/Documents/March%202023%20Understanding%20the%20Grid.pdf.

municipal utility, as well as new transmission lines to connect those substations to the ITC transmission system.[596] Overall, these new substations would add $149 million in additional capital costs to any efforts to establish a municipal utility.[597]

Furthermore, any new substations would require available land that is located near transmission lines. While this is less of a challenge in rural municipalities, in more urban municipalities this may pose a challenge in terms of equity. In a densely populated area, there may not be enough publicly available land near existing transmission lines to build a new substation. In this scenario, it raises the question of if eminent domain would be used by municipal governments to acquire the necessary land for new substations. And if so, would any use of eminent domain exacerbate existing inequities in such communities? Since the location of substations and transmission lines is included in critical infrastructure, it is not publicly available and as such we cannot definitively determine the exact significance of this challenge. But it is worth keeping in mind to ensure that municipalization is an improvement for Michigan communities.

The day-to-day operation of an electric utility requires advanced technical knowledge to ensure sufficient electricity is acquired to meet real-time demand. Unlike a utility like water, electricity cannot be stored in large amounts for future use; generally, electricity supply must meet electricity demand at each instant. Therefore, it is important to take into account how a municipal utility plans to ensure reliable operation of the utility. The municipal utility of Winter Park, Florida addressed this challenge by contracting with a utility services provider ENCO, who handled the operation of the utility. Winter Park then began to take over some of the operations and management as ENCO became more expensive.[598] Although this method might not be ideal for every municipality, it demonstrates one pathway to achieving the necessary technical knowledge for utility operations which is an essential factor for municipal utilities to consider.

Cost and Financing Feasibility

Case Studies

In the past 30 years, instances of municipalization are few and far between. A 2017 study by Synapse Economics on the topic of municipalization identified only 18 new municipal utilities since 1990.[599] And even then, nine of these 18 involved either "a military installation,

[596] City of Ann Arbor, *100% Renewable Energy Options Analysis* (2023), https://www.a2gov.org/departments/sustainability/Documents/Ann%20Arbor%20Renewable%20Energy%20report%20final.pdf, 29.
[597] City of Ann Arbor, 29.
[598] Synapse Energy Economics, Inc., *An Analysis of Municipalization and Related Utility Practices* (2017).
[599] Thomas Vitolo et al., *An Analysis of Municipalization and Related Utility Practices* (Cambridge, MA: Synapse Energy Economics, 2017),

a quasi-governmental agency, or had fewer than 1,000 customers." And only two of these remaining nine municipal utilities were of communities with more than 10,000 customers and occurred within the past two decades.[600] As such, recent case studies are limited.

To get a sense of the potential cost of municipalization, we examined the cost of the three instances of municipalization that the Synapse Economics report identified. These are Winter Park, Florida; Jefferson County, Washington; and Long Island, New York.[601]

The table below summarizes each instance of municipalization and the cost associated with it.

Municipality	***Year of Municipalization***	***Cost of Municipalization***	***Population at Time of Municipalization***	***Per Capita Cost of Municipalization***	***Per Capita Cost Adjusted for Inflation***
Long Island, NY	1998	$6.7 Billion	2,671,544	$2,507.91	$4,786.40
Winter Park, FL	2003	$42.3 Million	25,315	$1,670.98	$2,836.32
Jefferson County, WA	2008	$110 Million	29,088	$3,781.60	$5,525.44

Table 2. Costs associated with instances of municipalization.

The years of municipalization and cost of municipalization figures were retrieved from the Synapse Economics report. While population figures were also provided in the Synapse report, upon closer examination these figures turned out to be from 2017 and not from the time of municipalization. As such, we used US Census Bureau data to generate population estimates for each municipality at the time of municipalization. As a result, we estimated the per capita cost of municipalization as the cost of municipalization/population at the time of municipalization for each municipality. And then we used the Bureau of Labor Statistics' Inflation Calculator to adjust these per capita figures for inflation to put them in terms of 2024 dollars.[602]

The cost of municipalization varies widely on a per capita basis. While the adjusted cost per capita to municipalize Winter Park, Florida was just $2,836, the cost to municipalize Jefferson County, Washington was nearly double that, at $5,525 in 2024 dollars. This disparity in estimates reflects the challenge of accurately estimating the real cost of municipalization. What makes this more confusing is that, in terms of how much over the net book value of assets that each municipality paid to buy out their share of the utility, Winter Park actually

https://doee.dc.gov/sites/default/files/dc/sites/ddoe/publication/attachments/An%20Analysis%20of%20Municipalization%20and%20Related%20Utility%20Practices.pdf, 8.

[600] Vitolo et al., 9.

[601] Vitolo et al., 9.

[602] Bureau of Labor Statistics, "CPI Inflation Calculator," last accessed February 19, 2024, https://www.bls.gov/data/inflation_calculator.htm.

paid a value 5.5x greater than the net book value of its share of its utility whereas Jefferson County, Washington paid a value 2.3x greater than the net book value of its share of the utility.[603] A possible explanation for this phenomenon is that Jefferson County is much more rural than Winter Park, with a land area of 1,804 square miles to Winter Park's 9 square miles. A larger land area may mean more utility infrastructure, which leads to a higher net book value of assets. As a result, rural communities may have to buy out more infrastructure with a smaller tax base than more urban communities. Further research is required to properly assess the validity of this hypothesis.

From these case studies, we can extrapolate that the per capita cost of municipalization may be between $2,000 and $6,000 depending on the municipality. Also, there may be a higher relative cost of municipalization for rural communities over urban ones, irrespective of acquisition cost multiple.

Economic Cost Modeling Approaches

To learn more about methods to model the economic cost of acquiring a municipality's share of an electric utility, we interviewed a Merger and Acquisition (M&A) Associate at one of the leading renewable energy developers in the United States. This M&A Associate's responsibilities include evaluating utilities for potential acquisition, and this associate identified two possible ways to value a utility for acquisition.

One way is to value the utility in terms of its market performance. Specifically, we can value the utility by taking its earnings per share (EPS) figure and multiplying it by the P/E multiple standard for the utility industry. We then multiply that figure by the number of total shares and the utility and the specific municipality's share of the utility. In this case, we generate the following *share-based valuation* formula to value the acquisition cost of the utility:

$$Acquisition\ Cost\ =\ Utility\ EPS\ *\ Utility\ P/E\ Multiple\ Standard\ *\ Number\ of\ Utility\ Shares\ *\ Municipality\ Share\ of\ the\ Utility$$

A second way to value the utility, and one that is discussed more in the literature is to value the utility in terms of net book value of its assets, or rate base. In this case, the acquisition cost of the utility is the net book value of its assets times a negotiated acquisition multiple and the specific municipality's share of the utility. As a result, the acquisition cost of the utility can be modeled using the following *asset-based valuation* formula:

[603] Concentric Energy Advisors, *Whitepaper: Analysis of Government-Controlled Power in Maine* (2021), https://maineaffordableenergy.org/wp-content/uploads/2021/12/Whitepaper-Analysis-of-Government-Controlled-Power-in-Maine.pdf, 12.

$$Acquisition\ Cost\ =\ Net\ Book\ Value\ of\ Assets\ *\ Acquisition\ Multiple\ *\ Municipality\ Share\ of\ the\ Utility$$

It should be noted, that while there is agreement in the literature as to this formula being the way to value a utility, there is disagreement about the specific numbers used and estimates generated. For example, in the case of Pine Tree Power in Maine, London Economics International, Dr. Richard Silkman, and Concentric Energy Advisors used a similar approach but generated different estimates for the cost of public power in Maine.[604,605,606] These different estimates are often the result of different assumptions made in each model that impact the final output of the model.

In both valuation methods, we need to adjust the acquisition cost so that it only reflects the municipality's share of the utility, as the municipality would only be buying out its own share of the utility in an instance of municipalization. However, there is a gap in the literature on how exactly to do that. We assume that a municipality's share of a utility's assets will be roughly equal to its relative share of electricity usage out of all municipalities in the utility. In other words, if Dearborn, Michigan hypothetically composes 5% of DTE's electricity consumption, then we assume that 5% of DTE's assets will be based in Dearborn.

Estimates of the Cost of Municipalization for Michigan

To estimate the cost of municipalization for Michigan communities specifically, we followed the above *asset-based valuation* formula to value the utility. We chose this approach as this is the approach favored by the literature for acquiring a utility at the municipal level. Municipalization in the context of Michigan would specifically mean a municipality acquiring the distribution assets of the investor-owned utility within municipal limits. This favors using the *asset-based valuation* formula, which assumes the acquisition cost is based on the value of the acquired assets. Doing the *share-based valuation* formula is less applicable as the stock price reflects other factors, from market expectation to the performance of the utility's unregulated activities, that are not material to municipalization.

We have estimates for the total value of DTE and Consumers Energy's electricity assets using the *asset-based valuation* formula, as seen in the Public Power section.

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[604] London Economics International and Peter Brown, "Evaluation of the Ownership of Maine's Power Delivery System," (Boston, MA: 2020), https://legislature.maine.gov/doc/4350.

[605] Richard Silkman, "Review, Assessment and Restatement of the Financial Model Used by London Economics International, LLC in its Report to the Maine Legislature on the Creation of a Consumer-Owned Public Utility" (2020), https://pinetreepower.org/wp-content/uploads/2023/05/review-and-assessment-of-lei-model-2020-1.pdf.

[606] Concentric Energy Advisors, *Whitepaper: Analysis of Government-Controlled Power in Maine* (2021), https://maineaffordableenergy.org/wp-content/uploads/2021/12/Whitepaper-Analysis-of-Government-Controlled-Power-in-Maine.pdf.

Specifically, we estimate that the Net Book Value of DTE's Distribution Assets is $10.468 billion and that the Net Book Value of Consumer's Distribution Assets is $8.195 billion.

To estimate each municipality's share of a utility's assets, we used electricity consumption estimate data from the National Renewable Energy Laboratory to identify the annual energy consumption of each county in Michigan in 2024.[607] We then paired that with data from the MPSC about each county's primary electric utility.[608] After knowing the electricity consumption of each county in Michigan and each county's primary electric utility, we could estimate the aggregate level of electricity consumption. The table below shows the 10 counties with the highest electricity consumption levels in Michigan and how much that electricity consumption compares relative to their primary electric utility.

County Name	Primary Electric Utility	Total Electricity Consumption (MMBtu)	Share of Primary Electric Utility Electricity Consumption (%)
Wayne	DTE Energy	64,900,020.07	37.68
Oakland	DTE Energy	45,276,649.33	26.28
Macomb	DTE Energy	26,735,692.52	15.52
Kent	Consumers Energy	26,185,288.16	15.86
Genesee	Consumers Energy	11,521,696.88	6.98
Ottawa	Consumers Energy	11,288,977.29	6.84
Washtenaw	DTE Energy	10,453,585.77	6.07
Ingham	Consumers Energy	8,926,922.66	5.41
Kalamazoo	Consumers Energy	8,733,054.44	5.29
Midland	Consumers Energy	7,969,970.76	4.83

Table 3. 10 counties with the highest electricity consumption levels in Michigan and how that electricity consumption compares to their primary electric utility.

[607] National Renewable Energy Laboratory, "Net Electricity and Natural Gas Consumption," *State and Local Planning for Energy*, accessed March 30, 2024, https://maps.nrel.gov/slope.
[608] Michigan Public Service Commission, "Michigan Service Areas of Electric and Gas Utilities," accessed March 30, 2024, https://utilitysearch.apps.lara.state.mi.us/search.

As a result, we can make a rough estimate of the net book value of a municipality's distribution assets necessary to acquire for municipalization. We will continue to use data at the county level for this example and highlight the top 10 counties for electricity consumption that use DTE or Consumers Energy as their primary electric utility.

County Name	Primary Electric Utility	Share of Primary Electric Utility Electricity Consumption	Value of Utility's Distribution Assets	**Net Book Value of County's Share of the Utility's Distribution Assets**
Wayne	DTE Energy	37.68	$10.468B	**$3.94B**
Oakland	DTE Energy	26.28	$10.468B	**$2.75B**
Macomb	DTE Energy	15.52	$10.468B	**$1.62B**
Kent	Consumers Energy	15.86	$8.195B	**$1.30B**
Genesee	Consumers Energy	6.98	$8.195B	**$0.57B**
Ottawa	Consumers Energy	6.84	$8.195B	**$0.56B**
Washtenaw	DTE Energy	6.07	$10.468B	**$0.64B**
Ingham	Consumers Energy	5.41	$8.195B	**$0.44B**
Kalamazoo	Consumers Energy	5.29	$8.195B	**$0.43B**
Midland	Consumers Energy	4.83	$8.195B	**$0.40B**

Table 4. The top 10 counties for electricity consumption that use DTE or Consumers Energy as their primary electric utility.

When assessing the results of the *asset-based valuation* approach, however, we should consider a range of acquisition multiples. Per the research of the London Economics International report for Pine Tree Power, we assess that an IOU's assets will only be acquired at a price higher than net book value.[609] The size of this acquisition multiple, however, can

[609] London Economics International and Peter Brown, "Evaluation of the Ownership of Maine's Power Delivery System," (Boston, MA: 2020), https://legislature.maine.gov/doc/4350, 55.

substantially inflate the value of the cost to acquire a utility's distribution assets. Since the ultimate acquisition multiple will be the result of negotiations between a municipality and an IOU, we consider a range of possible acquisition multiples for each municipality. We continue to use the same range of possible acquisition multiples as seen in the Public Power section to show the potential range of acquisition costs for the largest 10 counties in Michigan in terms of electricity consumption. The full range can be found in Appendix C. Below, however, is what the cost of municipalization would be for the top 10 counties for electricity consumption who use DTE or Consumers Energy as their primary electric utility if we use an acquisition multiple of 1.5x, the same one used by London Economics International for their analysis of Pine Tree Power.[610]

County Name	Primary Electric Utility	Net Book Value of County's Share of the Utility's Distribution Assets	**Acquisition Cost with a 1.5x Acquisition Multiple**
Wayne	DTE Energy	$3.94B	**$5.92B**
Oakland	DTE Energy	$2.75B	**$4.13B**
Macomb	DTE Energy	$1.62B	**$2.44B**
Kent	Consumers Energy	$1.30B	**$1.95B**
Genesee	Consumers Energy	$0.57B	**$0.86B**
Ottawa	Consumers Energy	$0.56B	**$0.84B**
Washtenaw	DTE Energy	$0.64B	**$0.95B**
Ingham	Consumers Energy	$0.44B	**$0.66B**
Kalamazoo	Consumers Energy	$0.43B	**$0.65B**
Midland	Consumers Energy	$0.40B	**$0.59B**

Table 5. Top 10 counties for electricity consumption who use DTE or Consumers Energy as their primary electric utility using an acquisition multiple of 1.5x.

We also include a table of the largest 10 cities in Michigan for electricity consumption who use DTE or Consumers Energy as their primary electric utility and the full range of their potential acquisition cost in Appendix D. This table will be of more use for those looking at municipalization at the city or township level rather than at the county level.

[610] London Economics International and Peter Brown, 51.

While we cannot predict what the ultimate acquisition multiple will be, we can use recent instances of municipalization's acquisition multiples for reference. Concentric Energy Advisors found that Winter Park, Florida paid an acquisition multiple of 5.5x when they municipalized and that Jefferson County, Washington paid an acquisition multiple of 2.3x when they municipalized. These examples show that the ultimate acquisition multiple decided after litigation could be a steep one. As a result, municipalities that intend to establish a municipal electric utility should be prepared to pay a premium in excess of the net book value of the distribution assets they would acquire.

While further estimates could be made on factors like projected revenues and operating costs of municipal utilities, the variation between the municipalities of Michigan makes it hard to generate estimates with confidence. In the scenario where widespread municipalization was to occur, we would expect different municipalities to use different approaches to clean energy adoption, grid hardening, rate structure, and other factors such that no single modeling approach would suffice. Instead of having one model that would explain the financials of all municipal utilities, we would expect each municipal utility to require its own model to account for its unique characteristics and priorities. As such, we will not make any estimates on municipalities' projected revenues and operating costs if they choose to municipalize.

Analysis from the American Public Power Association found that, as of 2023, Michigan's municipal utilities had on average lower electric bills and lower electric rates than the state's IOUs.[611] Furthermore, per data from the MPSC, DTE and Consumers Energy have the highest monthly residential electricity bills out of any IOU in the lower peninsula of Michigan as of March 2024.[612] As a result, we assess with moderate confidence that municipal utilities would be able to charge customers lower electricity bills than DTE and Consumers Energy, but cannot quantify these savings across all municipalities.

Governance and Management Possibilities

Overview and Definition

The governance and management of municipal utilities have significant consequences for the improvement of reliability, climate justice, and affordability for a community. That is because the priorities of the given government and its constituents shape the operation of the utility and what it is able to accomplish. According to the American Public Power

[611] American Public Power Association, *2023 Public Power Statistical Report*, accessed March 30, 2024, https://www.publicpower.org/system/files/documents/2023-Public-Power-Statistical-Report.pdf.
[612] Michigan Public Service Commission, "Comparison on Monthly Residential Bill for MPSC-Regulated Michigan Electric Utilities," March 1, 2024, https://www.michigan.gov/mpsc/-/media/Project/Websites/mpsc/consumer/electric/rates2.pdf?rev=733f020f79e4435bbaadcb6dbb80fcee&hash=648E9B35B67A7A17F4F35F2BB55E7080.

Association, 20.5% of the generating capacity of public power utilities comes from renewable energy sources. Contrary to popular belief, this is marginally less than the national generating capacity, that includes IOUs, where 23.7% comes from renewable sources[613]. While municipal utilities are more responsive to the needs of its customers, its electors, there needs to be a significant willingness to pursue cleaner energy, affordability, and reliability for those outcomes to improve and, today, public power still has a long way to go. In this section, we will assess different potential governance and management structures of municipal electric utilities that can optimize and ensure the pursuit of cleaner, more affordable, and more reliable energy.

In this context, governance refers to the system of processes, policies, and structures put in place to oversee and guide the operations of the municipal electric utility[614]. In the United States, this most often takes the form of a city council. It involves decision-making, setting objectives, and ensuring accountability to stakeholders. On the other hand, management refers to the day-to-day administration and operational activities of the utility. While governance and management are distinct functions, they are closely interrelated and are dependent on one another for the successful operation of a municipal electric utility.

Specifically, governance sets the strategic direction and provides oversight to ensure that the utility operates in the public interest and complies with legal and regulatory requirements. It establishes the framework within which management operates and holds management accountable for achieving the utility's goals. Once those decisions are made, management is responsible for implementing the policies and strategies established by the governing body, making day-to-day decisions, and managing the utility's resources efficiently. It provides the operational expertise needed to carry out the utility's mission and objectives.

Overall, effective coordination between governance and management is essential for the efficient and sustainable operation of municipal electric utilities, ensuring that they provide reliable and affordable electricity services to their communities while meeting their obligations to stakeholders. This section reviews the scope of governance and management and recommends best practices for the successful operation of a municipal utility.

Scope of Governance and Management

In running a municipal electric utility, the most common form of governance is typically a city council or city board structure. High-level governance typically involves:

[613] American Public Power Association, *2022 Public Power Statistical Report*, accessed March 25, 2024, https://www.publicpower.org/system/files/documents/2022%20Public%20Power%20Statistical%20Report.pdf.
[614] "Institute for Governance and Sustainable Development, *Management or Governance?*, accessed March 25, 2024, https://www.good-governance.org.uk/publications/insights/management-or-governance.

- Establishing the legal framework: This includes defining the legal structure of the municipal utility, such as its charter, bylaws, and any relevant regulations or statutes governing its operation.
- Setting strategic direction: Governance involves defining the mission, vision, and long-term goals of the utility, as well as establishing policies and guidelines to achieve those objectives.
- Oversight and accountability: Governance structures often include boards of directors, councils, or other governing bodies responsible for overseeing the utility's management, ensuring compliance with regulations, and representing the interests of stakeholders.

The management of the municipal electric utility can be structured differently based on city council priorities and preferences. Generally, management responsibilities include:

- Operational planning: This involves planning and organizing the activities necessary to generate, transmit, distribute, and sell electricity to customers, as well as managing related functions such as maintenance, customer service, and billing.
- Financial management: Management is responsible for budgeting, financial reporting, and ensuring the fiscal health of the utility, including managing revenue, expenses, and investments.
- Human resources management: This includes recruiting, training, and supervising staff, as well as managing labor relations and ensuring compliance with employment laws and regulations.

Governance Best Practices

A municipal utility is, by virtue of its organizational structure, primarily driven by the characteristics and priorities of any given community and its city council. The council, elected members of the city, are beholden to their electors and to stakeholders within their community. As such, their priorities shape the character of the municipal utility and its strategic priorities and direction.

Once a municipality has decided to create a municipal electric utility, that city must legally enshrine a governance structure within a city to create a municipal electric utility by beginning the process of amending that City's charter. According to the Home Rule City Act of 1909, passed by the Michigan legislature, a City may amend its charter with the same process that it takes to pass ordinances to formally create and lay out the structure and priorities of its municipal utility.[615] City charters have the capability to assure an adequate legal and

[615] Act 279 of 1909, Michigan Legislature, accessed March 26, 2024, https://www.legislature.mi.gov/documents/mcl/pdf/mcl-Act-279-of-1909.pdf

organizational basis for efficient, reliable, and financially sound performance by municipally-owned utilities.

Within city charters in Michigan, most have sections dedicated to their municipal utilities that contain the following sections. Here, we use sample structures from the Lansing Michigan Charter and Code of Ordinances[616] and the Traverse City Charter[617] to recommend a charter structure that will support the management and proper formation of a municipal electric utility while also furthering climate, reliability, equity, and affordability for Michigan communities.

Charter Section One: Establishment of a Board or Commission

The establishment of a board or commission is critical to establishing the management structure of the municipal utility. This may include a description of the form chosen, which will be discussed later in this paper, as well as guidelines for citizen involvement and operation. In the case of the City of Lansing, they include a provision for the involvement of citizens in government through (3) types of subsidiary boards including: an administrative board, a review board, and an advisory board. They also include provisions for the appointment of board members, ineligibility for boards, and their organization. In this case, no person holding city office is eligible to be a voting member on any board, ensuring robust citizen participation in the management of their utility. It also spells out the function of each board and details on the limitations of their powers. These boards and commissions are typically created pertaining to specific utilities within the municipality. Therefore, in many cases, a board or commission for water or other utilities may already be established. In this case, an additional board or commission structure may be created independently or combined with one of the existing power structures.

Charter Section Two: General Responsibilities

The general responsibility section of the code of ordinances or the charter spells out the general responsibilities of the established board or commission and enshrines their responsibility to the Mayor and City Council for the provision of services. It includes the aforementioned sections defining: management structures, powers, the withdrawal of funds, rates, collection and hearing procedure, and the sale or exchange of facilities.

Charter Section Three: Management Structures

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[616] "Code of Ordinances - City of Lansing, Michigan," Municode Library, accessed March 28, 2024, https://library.municode.com/mi/lansing/codes/code_of_ordinances?nodeId=CHLAMI_ART5BOCO

[617] "Code of Ordinances - City of Traverse City, Michigan," Municode Library, accessed March 28, 2024, https://library.municode.com/mi/traverse_city/codes/code_of_ordinances?nodeId=CHTRMI_CHXIIMUOWUT_S119ADMA

The management structures section contains defined information about the given management structure of an electrical utility. It should include the process by which leaders are elected or appointed as well as the specific appointments available. In the case of Lansing, the Board of Water and Power appoints a Director, an Internal Auditor, and a Secretary for the management of the utility.

Charter Section Four: Powers

The powers section details the responsibilities and abilities of any given board or commission. This section contains an opportunity to enshrine key high-level powers necessary for the pursuit of clean and reliable energy for a municipal electric utility, as it involves the Board's ability to make capital improvements to the City's power system.

In most establishing documents, these powers include the ability to make contracts, settle litigation, and use infrastructure and public places in the municipality to operate, acquire, and sell property. It also includes requirements for the board to submit their capital improvement plans and budgets to the Mayor annually, as a best practice. This section may also include powers to manage internal employees, provide for the pensioning of any employee or their surviving spouses and dependents, and be responsible for the fair compensation, benefits, bonding, conditions of employment, and labor management activities for all employees. In these sections, extra care should be given to the fair treatment of employees and to the mindful operation of the utility within the boundaries of the municipality.

The powers section also includes important values-based assurances that legally bind the municipal utility to certain types of practices. In the case of Lansing, this involves language that ensures that "in the best interest of the City, the board and other agencies of the City are encouraged to cooperate on projects deemed to be beneficial and to utilize each other's services" as well as provisions for the Board adopting policies and procedures to "ensure fairness" in procurement.[618] Upon the review of numerous charters enshrining the creation of a municipal utility, these provisions tend to remain broad, while any specifications to the mission of a utility are made through city ordinances.

Charter Section Five: Withdrawal of Funds

The withdrawal of funds section includes provisions relating to the flow of funds and revenues for the utility and includes rules for payments and warrants.

Charter Section Six: Rates

[618] "Code of Ordinances - City of Lansing, Michigan."

The rate section allows the utility to fix "just and reasonable rates" and other charges as it may deem advisable for services furnished by the board of commission. It also should include, as a best practice, the organizing of a public hearing prior to any changes in the rate structure as well as official rate change requests, prepared by the board or commission and filed with the City Clerk. This would include public notification and public opinion-sharing processes, as well as space for revisions.

It is also an affordability and justice best practice to include provisions ensuring the ability to support equity in ratemaking and pricing. There are many examples of city charters that enshrine equitable ratemaking in their organizing documents. Such language would:

- Authorize the establishment of preferential rates that support the municipality's equity and energy justice goals, including but not limited to income-based rates.
- Authorize the creation, operation, and expansion of programs that support the municipality's equity and energy justice goals.
- Authorize funding to advance energy justice, including to support equitable ratemaking.

Charter Section Seven: Collection and Hearing Procedure

This section discusses procedures for the collection of unpaid charges for public utility services. Often, this includes a process to shut off service following a certain amount of delinquency and the process of bringing suit against those who have not paid. It also includes a procedure for the resolution of disputes between the municipal board and commission and its customers to dispute rates or charges.

In order to ensure equity and fairness of process and to protect at-risk residents, municipal city charters or codes of ordinances should seek to include a moratorium on energy shutoffs. This would protect the City's most vulnerable residents from unsafe conditions resulting from a lack of power. According to the University of Michigan Energy Equity Project, halting shutoffs from nonpayment does not significantly decrease the risk of nonpayment.[619] This would be a positive step towards energy democratization and could supplement a program to reduce the energy bills, and therefore energy burden, of low-income residents by investing into home energy retrofits and other energy efficiency measures.

Charter Section Eight: Sale or Exchange of Facilities

This section contains limits on the board to sell, exchange, lease, or dispose of property or assets required to operate the municipal utility. This ensures that electors have a say in major changes to the utility that serves them.

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[619] Justin Schott, "Why Do We Still Have Energy Shutoffs? Another World is Possible," *Energy Equity Project*, November 14, 2022, accessed March 24, 2024, https://energyequityproject.com/2022/11/14/why-do-we-still-have-energy-shutoffs-another-world-is-possible/.

Other Forms of Governance

Most municipal electric utilities make their largest sustainability and reliability commitments not through their city charters, but through ordinances that are additionally passed by city council and through capital improvement plans, submitted to council by the utility that include these improvements. This ensures that the utility's operations are dynamic and responsive to the needs of the electorate and city council.

Upon the creation of a municipal electric utility, municipalities should also pass ordinances that align with the MI Healthy Climate Plan and pass ordinances that set robust reliability and clean energy standards. For example, the Traverse City City Council passed a Clean Energy Resolution, committing the City to meet 100% of municipal operational electricity demands with clean renewable energy sources by 2020 (although this did include natural gas resources).[620] This ordinance led to significant investments in renewable energy both for the municipality itself, but also for the larger utility. Today, solar and wind energy makes up 40 percent of the Traverse City Light and Power portfolio and these investments are still expanding.[621] For municipalities that are looking to pursue clean energy goals through their utility, we suggest that clean energy resolutions passed in Michigan move forward focusing on the MI Healthy Climate Plan's standard, looking to generate 60 percent of the state's electricity from renewable resources, not including natural gas, by 2030.[622]

It would also be recommended to codify policy that focuses on capital improvement goals and reliability standards that can serve as guidelines to improve the State's aging electricity grid and reliability for its citizens. In 2019, the City of Los Angeles passed such a resolution, requiring upgrades to transmission and distribution lines and energy efficiency standards.[623] Such ordinances are the most effective way to ensure that climate and reliability goals mirror statewide goals and that they can be dynamic as the clean energy transition progresses.

Common Forms of Management

There are two primary management structures common to municipal electric utilities. These structures, as mentioned previously, would be coded within the city charter. The first is

[620] "Future Sustainability," City of Traverse City, accessed March 28, 2024, https://www.traversecitymi.gov/government/city-departments/city-managers-office/future-sustainability.html.
[621] Traverse City Light & Power, "Renewable Energy," https://www.tclp.org/renewable-energy/.
[622] "MI Healthy Climate Plan," Michigan Department of Environment, Great Lakes, and Energy (EGLE), accessed March 28, 2024, https://www.michigan.gov/egle/about/organization/climate-and-energy/mi-healthy-climate-plan.
[623] Los Angeles Department of Water and Power (LADWP), "Power Rate Ordinance," accessed March 29, 2024, https://rates.ladwp.com/UserFiles/Rates%20Documents/2016/Board_Letter_Appendix_1b_Power_Rate_Ordinance.pdf.

under a utility commission. In a utility commission form of governance, a municipality creates a non-partisan utility commission to be responsible for management and control of utility operations while remaining under the general control and supervision of the governing body. This commission has the ability to independently contract for its operations and to retain its own legal council, separate from that of the City. These commissioners are typically citizens with a background in utility management, appointed by City Council to manage the day-to day- operations of the utility. It is meant to function as a semi-autonomous public body with authority to, among other things, to appoint and establish the compensation of a manager, enlist the services of municipal engineers, contract for utility services in its own name, retain its own attorneys, and supervise construction of its own facilities, rather than through a board of public works. Utility commissions are designed to be non-partisan in nature, so they tend to be run more like a business because they have independent operating authority in many legal capacities. Moreover, the best run commissions benefit from expertise and continuity, which are at a premium in a business that by its very nature is complex and ever-changing. However, it goes without saying that a commission cannot be fully separate from the politics of the municipality – the governing body always retains the right to eliminate the commission it has created.[624] Utility commissions are often credited for being more stable than other forms of governance because they operate with a higher level of independence from the municipality. This is positive for establishing business and operational continuity, which is beneficial for establishing reliability within a utility. However, as the commission is less accountable to the will of the greater community, it may move slower in making progressive changes to ensure reliability and climate improvements.

Alternatively, a city may choose to organize their utility as a board of public works, which is composed of commissioners appointed by city council. The board has certain powers and duties delegated by statute, and is directly under the direction of the city council. While there remains some insulation from the city council and partisan politics, ultimately the board of public works lacks a utility commission's quasi-independent stature and is subject to greater city council control. For example, a board of public works typically does not have the authority to contract separately from the city or retain its own legal counsel. Boards of public works are often deemed to be more responsive to the will of the electorate. This can have a number of benefits, for example, if there is increased political pressure to decarbonize. The Board of Public Works, sitting closer to the city council, may be more easily influenced by the needs of the voters than in other governance structures. In addition, these boards are better suited towards cities whose council's have the capacity to assist in management and contracting itself.

[624] League of Wisconsin Municipalities, "Public Utilities 356: Municipal Utilities Governance Options and Responsibilities," accessed March 29, 2024, https://www.lwm-info.org/DocumentCenter/View/3824/Public-Utilities-356-Municipal-Utilities-Governance-Options-and-Responsibilities.

Ultimately, the choice on which management structure suits best depends on the cities' financial and physical capacity, preference for insulating or connecting the utility to the politics of the municipality, and the ability to exercise long-term planning and stability. There is little data or difference in the way that these management structures impact the short and long-term operations of the utility. In the operation of the utility, it is the priorities of city council and the constituents that truly shape the character of the utility itself.

Utility Commission vs. Board of Public Works

	Utility Commission	Board of Public Works
Organizational Characteristics	Semi-autonomous Contains primary authority in its day-to-day operations. Has the ability to contract independently and retain its own legal council Less accountable to community	Directly under direction of City Council Defers to City Council for major business and legal decisions More accountable to needs of voters
Suitability	Better suited to smaller communities and city councils who have less capacity to assist in management City councils who prefer to involve themselves through ordinances to direct operations.	Better suited to larger communities and city councils who have ample capacity to assist in management City councils who prefer to be involved in continual management of the utility

Table 6. Management structures for a Utility Commission and Board of Public Works.

Management Best Practices for Climate Action, Reliability, Energy Justice, & Affordability

There are numerous management best-practices that center improvements in reliability, affordability, climate action, and climate justice. On their own, municipal electric utilities do not necessarily prioritize these categories without the will of their community to do so. As such, there are best practices that could ensure the prioritization of these indicators in their day to day operations and long term planning. If implemented, these actions would vary widely by community and capacity, but could all be significant in ensuring clean, reliable, and fair electricity service to customers.

Climate

Michigan's electricity sector accounts for about 25 percent of total GHG emissions in the state. Given this significant portion, municipal utilities have a significant opportunity to positively impact emissions reductions. Given the significant energy legislation passed in Michigan in the fall of 2023, there are also significant increases planned in the required renewable portfolio standard - from 15 percent in 2021 to 80 percent for 2035 and 100 percent in 2040.[625] Given these requirements, any municipal utility should create a strategic plan to accomplish these significant climate goals, or they risk lagging behind the State's energy goals. To do so, the utility must prioritize the following categories of action:

- Renewable Energy Integration: Investing in renewable energy sources such as solar, wind, or hydroelectric power to reduce carbon emissions and dependency on fossil fuels.
- Energy Efficiency Programs: Implementing energy efficiency initiatives such as demand-side management, energy audits, and customer education campaigns to reduce overall energy consumption.
- Grid Modernization: Upgrading the grid infrastructure to accommodate distributed energy resources and improve resilience against climate related challenges such as storms and heatwaves.
- Green Procurement: Prioritizing the procurement of environmentally-friendly equipment and materials, such as low-emission vehicles and sustainable construction materials.
- Collaboration with Stakeholders: Working with local government, community groups, and environmental organizations to develop and implement sustainable energy policies and initiatives.

Reliability

Given Michigan has one of the least reliable power systems in the nation,[626] it is imperative that a burgeoning municipal electric utility develop a robust plan to improve the reliability of their grids. According to assessments and recommendations by the American Public Power Association[627] and the Department of Energy,[628] the following categories of

[625] "Michigan Governor Signs Bill Implementing 100% Clean Energy Standard," Biomass Magazine, accessed March 30, 2024, https://biomassmagazine.com/articles/michigan-governor-signs-bill-implementing-100-clean-energy-standard.

[626] "Affordable, Reliable and Sustainable: Report Compares Utility Performance," Michigan Advance, accessed March 30, 2024, https://michiganadvance.com/2023/01/30/affordable-reliable-and-sustainable-report-compares-utility-performance/.

[627] "Reliability Recognition Tracking," American Public Power Association, accessed March 30, 2024, https://www.publicpower.org/about/members/reliability-recognition-tracking.

[628] American Public Power Association, *Restoration Best Practices Guidebook 2018*, accessed March 30, 2024, https://www.publicpower.org/system/files/documents/Restoration_Best_Practices_Guidebook_2018.pdf.

activities should be meaningfully prioritized in the management of any electric utility that seeks greater reliability for its citizens:

- Regular Maintenance: Implementing a proactive maintenance schedule for infrastructure, including transformers, power lines, and substations, to prevent unexpected failures and minimize downtime in the case of an outage.
- Investing in Technology: Utilizing advanced technologies such as predictive analytics, remote monitoring, and grid hardening to identify and solve for issues before they escalate into major challenges and risks.
- Emergency Preparedness: Developing comprehensive contingency plans for natural disasters, extreme weather events, and other emergencies to ensure quick response and minimal disruption to service.
- Asset Management: Implementing an asset management system to track the condition and performance of critical equipment and prioritize replacements or upgrades as needed.
- Training and Development: Providing ongoing training for staff to ensure they have the skills and knowledge to maintain and operate equipment effectively and respond in the case of an outage or emergency.

As a best practice, municipal utilities should also seek out the substantial resources available to Michigan's municipal electric utilities to learn from one another and to participate in best practice conversations through the Michigan Public Power Agency[629] and the American Public Power Association Operational Excellence program.[630]

Energy Justice

Since municipal electric utilities, established and run by an elected city council, are uniquely accountable to the electorate in a way that IOUs are not, they have significant opportunities to engage their customers to center justice in planning. This is especially relevant as many municipal utilities will be required to harden and modernize their grids to accommodate new generation capacity, while improving on the service that the prior IOUs provided to customers.[631] As projects move forward, environmental justice concerns should be top of mind as utilities consider cost to customers, federal funding criteria, and historical disinvestment in low income communities and communities of color. In assessments like

[629] "Projects," Michigan Public Power Agency, accessed April 2, 2024, https://www.mpower.org/projects/.

[630] "Projects," Michigan Public Power Agency.

[631] American Public Power Association, "Environmental Justice: A Critical Consideration in the Energy Transition," accessed April 2, 2024, https://www.publicpower.org/blog/environmental-justice-critical-consideration-energy-transition.

those from Skeo[632] and the Environmental Law and Policy Center,[633] and prioritizing community stewardship and environmental justice best practices, the following categories should be included in planning and community engagement:

- Environmental Racism: Examining how marginalized communities (particularly those of color, indigenous peoples, and low-income populations) bear a disproportionate burden of environmental hazards and climate impacts due to the location of polluting industries, waste disposal sites, and vulnerability to extreme weather events.
- Climate Adaptation and Resilience: Addressing the differential vulnerabilities and capacities of communities to adapt to and recover from climate change impacts; ensuring that adaptation strategies are inclusive and prioritize the needs of marginalized groups; and including access to resources, infrastructure, and decision-making processes.
- Energy Transition and Access: Promoting equitable access to clean and renewable energy sources, such as solar and wind power, and ensuring that the transition away from fossil fuels benefits all communities, including those historically marginalized or underserved by traditional energy systems.
- Economic Justice: Examining the economic dimensions of climate change and social inequality, including the distribution of costs and benefits associated with mitigation and adaptation efforts, and advocating for policies that promote equitable economic opportunities, job creation, and wealth redistribution in transitioning to a low-carbon economy.

Affordability

In the United States, low-income households spend three times more of their income on energy bills as compared to non-low-income households.[634] This difference in spending has historical roots in systemic policies such as redlining, discriminatory lending practices, and disinvestment. There are steps that municipal utilities can take to lower the energy burden of

[632] Skeo Solutions, "American Water Works Association (AWWA) Projects," accessed April 2, 2024, https://projects.skeo.com/awwa/.
[633] Environmental Law & Policy Center, "Consumer's Rate Case Spotlights Grid Equity and Environmental Justice," accessed April 2, 2024, https://elpc.org/news/consumers-rate-case-spotlights-grid-equity-and-environmental-justice/.
[634] Kayleigh Rubin, Molly Freed, & Ashna Aggarwal."1 in 7 Families Live in Energy Poverty. States Can Ease That Burden." *RMI.* Accessed April 9, 2024. https://rmi.org/1-in-7-families-live-in-energy-poverty-states-can-ease-that-burden/#:~:text=Approximately%20one%20in%20every%20seven,to%20lessen%20energy%20burdens%20nationwide.

their low income households to have a meaningful impact. According to the American Council for an Energy Efficient Economy[635] and other organizations these actions may include:

- Transparent Pricing: Providing clear and transparent pricing structures to customers, including itemized bills and explanations of charges, to build trust and ensure understanding.
- Tariff Options: Offering a variety of tariff options tailored to different customer needs and usage patterns, such as time-of-use pricing or flat-rate plans.[636]
- Energy Efficiency Rebates: Implementing rebate programs for customers who invest in energy-efficient appliances, lighting, or building upgrades to help offset upfront costs and encourage conservation.[637]
- Financial Assistance Programs: Establishing assistance programs for low-income customers to help alleviate the burden of energy costs and ensure access to essential services.
- Customer Engagement: Engaging with customers through surveys, focus groups, and community meetings to understand their needs and preferences while incorporating feedback into service improvements and rate decisions.[638]

Such management decisions can have significant impact on the wellbeing of residents, the ability of the municipality to meet its electricity needs while improving reliability, and its capacity to accomplish ambitious climate goals. The ability and willingness of a municipality to implement these practices will depend heavily on their city council and their constituency. That being said, those municipalities who do prioritize these indicators will be able to ensure that their municipal electric utility prioritizes and succeeds in meeting these goals.

[635] American Council for an Energy-Efficient Economy, "Supporting Low-Income Energy Efficiency: A Guide for Utility Regulators," accessed April 2, 2024, https://www.aceee.org/toolkit/2021/04/supporting-low-income-energy-efficiency-guide-utility-regulators.
[636] Resources for the Future, "Electricity Affordability 101," accessed April 2, 2024, https://www.rff.org/publications/explainers/electricity-affordability-101/.
[637] Alliance to Save Energy, "Residential Energy Efficiency: Saving Energy, Saving Money," accessed April 2, 2024, https://www.ase.org/sites/ase.org/files/residential_ee_study_final.pdf.
[638] American Water Works Association (AWWA), "Thinking Outside the Bill: A Water Utility's Guide to Promoting its Value and Getting Customers to Yes," accessed April 2, 2024, https://www.awwa.org/Portals/0/AWWA/ETS/Resources/Technical%20Reports/Thinking-outside-the-bill-2022-3rd-edition.pdf?utm_medium=print&utm_source=hand_out&utm_campaign=driver_topics&utm_content=pubs&utm_term=driver_flyers.

3.3 Assessment Against Key Criteria

Climate

Municipalization of electric utilities in Michigan has the potential to advance the state towards the targets of the MI Healthy Climate Plan, though ultimately the degree to which it does will be determined by each municipality. It will depend on community goals, local energy resources, and energy purchasing power. Because municipal utilities are exempt from significant MPSC regulation, governance of a municipal utility will be at the local level. Therefore, the relative importance in a municipality of securing clean energy for its electricity generation will likely vary across Michigan. Returning the decision of how to procure energy to the community level is undoubtedly an important step for energy democracy; however, this may mean that certain municipalities may not use municipalization as a pathway to acquire cleaner electricity generation, depending on local preferences.

If a community does have the desire to decarbonize their sources of electricity, as well as access to renewable resources, municipalization can facilitate this. Seattle City Light, a municipal electric utility in Seattle, Washington, exemplifies this. It became the first electric utility of any type to become carbon neutral in 2005.[639] Like the entire state of Washington, Seattle City Light benefits from having access to extensive hydroelectric power resources.[640] This is reflected in the municipal utility's generation mix; in 2020, it procured 86% of its electricity from hydroelectric, 5% from wind, 5% from nuclear, 1% from biogas, and 3% from short-term purchases on the wholesale electricity market. In comparison, Puget Sound Energy, the investor owned utility serving the same region in Washington, met its electricity demand in 2020 from only 24% hydroelectric, 27% natural gas, 23% coal, 14% from short-term purchases, 9% wind, and the remaining from nuclear, solar, and biomass and petroleum.[641] The city of Seattle adopted a climate action plan in 2013; climate is clearly a priority for the city.[642] In this case, local control of electricity generation sources allowed for an increased decarbonization rate as compared to the regional investor owned utility.

It is possible that municipal utilities in Michigan can procure cleaner electricity than the current generation mix of DTE or Consumers. The lack of sufficient, locally sited

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[639] American Public Power Association, *March/April 2019 Public Power Magazine* (2019), https://www.publicpower.org/system/files/documents/March-April-2019-Public-Power-Magazine-Value-of-Public-Power.pdf.

[640] U.S. Energy Information Administration. "Washington State Energy Profile." 2023. https://www.eia.gov/state/print.php?sid=WA

[641] M. Nowlin, "Electricity fuel mix: Seattle City Light and Puget Sound Energy, 2020," *Seattle Times*, 2023, https://www.seattletimes.com/pacific-nw-magazine/seattle-utilities-consider-massive-efforts-that-could-help-green-our-grid/#:~:text=That's%20a%20slight%20oversimplification%20%E2%80%94%20Seattle,Fresh%20as%20lightning.

[642] City of Seattle, *Climate Action Plan* (2013), https://www.seattle.gov/documents/Departments/Environment/ClimateChange/2013_CAP_20130612.pdf.

renewable energy projects for most municipalities in Michigan, however, means that a municipal utility would need to either invest in building renewable energy infrastructure or create power purchase agreements with renewable energy generation companies. The campaigns for municipalization of both Ann Arbor and Highland Park, Michigan mention more clean energy as a benefit of a municipal utility, both illustrating the existing will for municipalization in Michigan to create cleaner electricity.[643,644] Don Lee from Ann Arbor for Public Power notes that although a municipal utility will not automatically have more renewable energy upon formation, it will be able to create incremental change as rapidly as the city desires. In the meantime, Ann Arbor would still have access to the Midcontinent Independent System Operator (MISO) grid to ensure electricity demand is met.[645] However, any investment to acquire or build renewable energy may have tradeoffs in the amount of revenue available for other needs, such as infrastructure reliability improvements or low-income assistance programs. It also will require time to build renewable infrastructure or secure power purchase agreements, delaying climate benefits.

Additionally, the municipal utilities that do not have local access to renewable energy generation but still desire to decarbonize their electricity grid mix through the purchase of their electricity can benefit from joint action agencies. A joint action agency can form from a coalition of member municipalities and generate and/or buy electricity for all the municipalities.[646] By representing multiple municipal utilities, joint action agencies can exercise additional purchase power and economies of scale when determining how to generate the necessary electricity. Michigan has joint action agencies already, including Michigan Public Power Agency, Michigan Municipal Electric Association, and Michigan South Central Power Agency. Examination of their publicly accessible websites do not show any particular emphasis on acquiring clean energy for their constituent municipalities, but that does not mean that a joint action agency could not be used to do so. For example, if a joint action agency for municipal utilities in Michigan could serve as a quasi-community choice aggregation program, it seems likely that member municipal utilities could decarbonize faster than DTE or Consumers.

Municipal utilities, as non-profit entities, also have much stronger incentives to encourage energy efficiency and reduce overall energy usage. IOUs make a rate of return on their capital investment and therefore have a strong incentive to continue to build additional

[643] Ann Arbor for Public Power, "The Case for Public Power," accessed March 29, 2024, https://annarborpublicpower.org/the-case-for-consumer-ownership/.
[644] Soulardarity, "About Us," accessed March 29, 2024, https://www.soulardarity.com/about.
[645] Don Lee, personal communication, February 22nd, 2024.
[646] American Public Power Association, "Public Power for Your Community" (2016), https://www.publicpower.org/system/files/documents/municipalization-public_power_for_your_community.pdf.

power plants.[647] The building of new plants can more easily be justified with an increasing demand in the IOU's customer base; in effect, energy efficiency and conservation programs are in direct opposition to the IOU's profit making motive. In contrast, a municipal utility does not make a profit and any kilowatt saved through energy efficiency or a reduction in demand is simply a kilowatt that the municipal utility does not have to acquire. Similarly, municipal utilities have a stronger incentive to support community solar or other small scale, distributed energy generation since a lower capital cost is a benefit, as opposed to a drawback, for a municipal utility. These different incentives are a major benefit of a municipal utility over an investor owned utility in terms of climate impacts.

When considering the climate impacts of municipalization in Michigan, it is important to note that municipally-owned renewable energy projects may receive a different reception than wind and solar projects by third party developers. In Michigan as in many other states, many large renewable energy projects are sited in rural areas where there is sufficient available land. This can further the rural-urban divide, as rural communities host the energy infrastructure used to meet the demand of urban load centers.[648] It may be possible that municipalities less receptive to wind and solar from utility-scale developers may view wind and solar more favorably if it was to be owned by and to provide for their community. Therefore, it is not possible to predict with certainty the overall impact of municipalization in Michigan on climate. It is clear, however, that local control over electricity generation sources can improve climate impacts if there is community will to do so, and as such municipalization can reduce barriers to implementing greenhouse gas emissions reduction measures. Whether this potential is used to improve climate impacts will ultimately depend on the municipality, and there is not overwhelming evidence that municipal utilities, on average in Michigan, do perform better on climate.

Reliability

Nationwide, municipal utilities are more reliable than any other type of electric utility, as seen in Figure 2 below. Year after year on average, customers of publicly owned utilities have the least amount of time without power. A key factor is that municipal utilities, due to their local nature, typically have a smaller service area than investor owned utilities. For example in Michigan, the municipal utility Traverse City Light and Power serves about 13,000 customers,[649] while the investor owned utility Alpena Power Company serves 16,550 customers.[650] The service area of the Alpena Power Company is 250 square miles,[651] while the

[647] J.A. Beecher, *Economic Regulation of Utility Infrastructure* (2013), https://www.lincolninst.edu/sites/default/files/pubfiles/economic-regulation-of-utility-infrastructure_0.pdf.
[648] K. J. Cramer, *The Politics of Resentment*, chap. 5 (The University of Chicago Press, 2016).
[649] Traverse City Light and Power, "Who We Are," accessed April 8th, 2024] https://www.tclp.org/who-we-are/.
[650] Alpena Power Company, "Quick Facts," accessed April 8th, 2024, https://www.alpenapower.com/quick-facts/
[651] Alpena Power Company, "Quick Facts.".

service area of Traverse City is roughly 25 square miles.[652] As seen in the table below, Traverse City Light and Power had better reliability (lower SAIDI index) than Alpena Power Company in 2022. Additionally, if we normalize the SAIDI index on a per customer basis, Traverse City Light and Power still demonstrated better reliability. Accounting for both the number of customers and physical service area, however, shows that on a per customer, per square mile basis, Alpena Power Company had better reliability than Traverse City. Of course, a comparison between a single municipal utility and IOU does not prove anything more than an example, but it does show that it may not be the local control and corresponding accountability that inherently improves reliability, as some argue,[653] but rather the smaller service area.

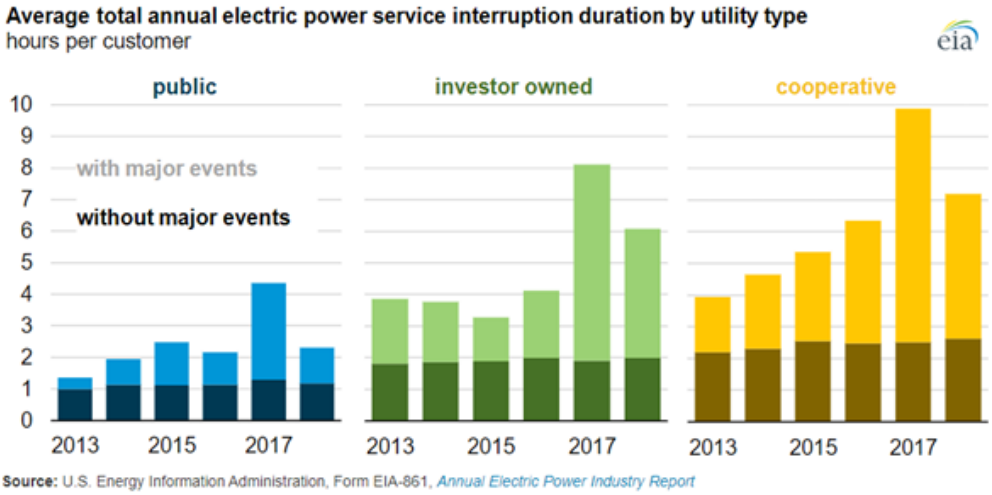

Figure 2: On a per customer basis, publicly owned utilities have the least amount of time without power.[654]

	With Major Events

[652] Traverse City Light and Power, "Service Area," accessed April 8th, 2024, https://www.tclp.org/Uploads/AboutTCLP/TCLP%20TERRITORY%206.9.2017.pdf

[653] American Public Power Association, *Public Power for Your Community* (2016), https://www.publicpower.org/system/files/documents/municipalization-public_power_for_your_community.pdf.

[654] U.S. Energy Information Administration, "U.S. customers experienced an average of nearly six hours of power interruptions in 2018" (2020), https://www.eia.gov/todayinenergy/detail.php?id=43915#:~:text=Publicly%2Downed%20utility%20customers%20experienced,half%20hours%20of%20interrupted%20service.

Utility Name	Ownership	Number of Customers	Service Area (square mile)	SAIDI (minutes per year)	SAIDI per customer	SAIDI per customer per square mile
Traverse City Light and Power	Municipal	13000	25	53.469	0.00411	0.000165
Alpena Power Co	Investor Owned	16550	250	159.9	0.00966	0.0000386

Table 7. A comparison of reliability for a municipal utility and an investor owned utility in Michigan for 2022. SAIDI index includes major event days.[655]

This finding still supports the reliability of municipal utilities. If a defining characteristic of a municipal electric utility is its smaller service area, the improved reliability from its fewer poles and wires is a benefit from municipalization. Additionally, since municipal utility workers are generally located in or near the community they serve, there is a reduction in travel time when responding to outages.[656] Moreover, the accountability of municipal utilities to customers and not to shareholders means that reliability can be improved through local control over utility decisions. The community of Winter Park in Florida is a good example of this. After a vote where almost 70% voted in favor due to the high rate of outages the community faced with the incumbent IOU, the municipal utility formed in 2005. Part of the formation included the municipality committing to using its revenue to improve reliability, such as by moving power lines underground.[657] Comparing the earliest and most recent available EIA Form 861 data on reliability for Winter Park shows that the SAIDI index without major event days decreased from 66.0 in 2013 to 1.13 in 2019, a 98% reduction in minutes per year.[658] It is not negligible that this low SAIDI is fourteen years after the formation of the municipal utility; improved reliability can be possible given that there is sufficient community will and time for infrastructure improvements.

Additionally, as discussed in the climate assessment section, municipal utilities have more incentive to increase distributed energy resource deployment. Not only can distributed energy help with climate goals, it also can improve reliability and resiliency of the grid by allowing a municipality to form its own microgrid and thereby be protected from a system-wide outage. Moreover, energy efficiency programs can reduce the amount of electricity

[655] U.S. Energy Information Administration, "Annual Electric Power Industry Report, Form EIA-861 detailed data files, 2022," accessed March 9th, 2024, https://www.eia.gov/electricity/data/eia861/.
[656] American Public Power Association, *Public Power (2016).*
[657] U. Schryver, "Going local: municipalization empowers communities," *American Public Power Association*, 2014, https://www.publicpower.org/blog/going-local-municipalization-empowers-communities.
[658] U.S. Energy Information Administration, "Annual Electric Power Industry Report, Form EIA-861 detailed data files," accessed April 8th, 2024, https://www.eia.gov/electricity/data/eia861/.

needed at peak times, which in turn lowers the risk of brownouts and blackouts.[659] However, in the same way as for climate impacts, the magnitude of improvement in reliability through municipalization will likely vary from municipality to municipality. If a community prioritizes reliability improvements like Winter Park, reliability can be significantly improved. Regardless of local priorities, the smaller service area and substantial nationwide evidence suggests that it is very likely that municipalization will improve reliability for its customers.

Energy Justice

When thinking about ways to achieve equity in Michigan's electric utilities, energy justice provides a useful conceptual framework through which to assess equity in energy policy. Energy justice identifies four pillars in energy policy: recognition, procedural, distributive, and restorative.[660]

Within this framework of energy justice, energy policy experts Benjamin Sovacool and Michael Dworkin lay out eight considerations when making energy policy, which includes affordability and sustainability goals.[661] The inclusion of affordability and sustainability as part of energy justice's framework highlights the interconnectedness of energy policy and equity. While it is important to acknowledge this interconnectedness, for the sake of this chapter, our analysis separates climate goals and affordability from equity into separate criteria to evaluate. However, affordability for low-income households is considered as part of the equity analysis related to distributive justice.

Municipalization of Michigan's Electric Utilities to Achieve Equity Goals

There is limited research and data on whether municipally-owned utilities achieve greater equity in their energy provision and governance. In terms of municipally-owned electric utilities' ability to recognize unequal distribution of energy benefits and ills in their community, some municipal electric utilities in Michigan offer senior rates or senior discounts on their electric bills, such as Bay City, Grand Haven, Harbour Springs, and Traverse City.[662] By

[659] ACEEE, "Distributed Energy Resources," accessed April 8th, 2024, https://www.aceee.org/topic/distributed-energy-resources.

[660] Energy Equity Project, *Energy Equity Framework: Combining data and qualitative approaches to ensure equity in the energy transition* (University of Michigan – School for Environment and Sustainability), 2022; Kirsten Jenkins et al., "Energy justice: A conceptual review," *Energy Research & Social Science*, Elsevier Ltd, (2016), doi:10.1016/j.erss.2015.10.004.

[661] Benjamin K. Sovacool and Michael H. Dworkin, "Energy Justice: Conceptual insights and practical application," *Applied Energy*, Elsevier Ltd, 2015, doi:10.1016/j.apenergy.2015.01.002.

[662] Residential Rates, Traverse City Light and Power, accessed April 14, 2024, https://www.tclp.org/residential-rates/; Bay City Electric Light & Power, "2022 - 2024 Electric Service Rate Schedules," Bay City Electric Light and Power, p. 3, accessed April 14, 2024, https://www.baycitymi.org/DocumentCenter/View/6126/2022-2024-BCELP-Electric-Service-Rate-Schedule-v2 ; City of Harbor Springs, "Utility Rates," accessed April 14, 2024, https://www.cityofharborsprings.com/wp-content/uploads/2024/02/Utility-Rate-Adjustment-Effective-on-All-

offering a different rate or discount, these municipal utilities are recognizing that senior citizens often have necessary energy needs for their wellbeing and that the cost of electricity can be a barrier to meeting those needs. However, it is unclear how these municipal electric utilities are offering senior rates, as these rates may be considered preferential.

Currently in Michigan, utilities have limited ability to offer preferential rates to customers to address low-income customers' energy burden, such as the percentage of income payment plans (PIPPs) that some other states offer customers.[663] Instead, the legislature passed a bill in 2013 that requires that all utilities in Michigan either opt into a low-income surcharge that is tacked onto customers' bills to fund the state's utility assistance program or utilities cannot shut off a customer's power during the heating season, November 1st through April 1st.[664] This is another way municipal utilities can recognize equity in their energy service, and some municipal utilities go farther and provide their own assistance programs, such as Lansing and Marquette.[665] Other municipal electric utilities list community organizations and United Way's hotline number 211 on their website.

Though some municipal utilities in Michigan are intentional about recognizing energy needs in their communities, many Michigan municipal electric utilities do not go beyond what is required by the state in terms of supporting low-income customers. Many also do not ban shut-offs except for the heating season. Traverse City is one municipal electric utility that does offer additional shutoff protections for some vulnerable residents.[666] In terms of best practices for current municipalization efforts in Michigan, it is important that municipal electric utilities be intentional about how to recognize the needs of their communities and find ways to address members' needs.[667] Additionally, MPSC is piloting a PIPPS program with Consumers Energy that could potentially expand PIPPS for more customers in Michigan, including for municipal electric utilities.[668]

Bills-Due-After-Dec31-2023.pdf; GHBLP, "GHBLP Plugged In July 2023," accessed April 14, 2024, https://ghblp.org/wp-content/uploads/2023/06/GHBLP-Plugged-In-July-2023v2web.pdf.

[663] Matt Helms, "MPSC marks progress on collaborative efforts to better address energy affordability and assistance," Michigan Public Service Commission, February 10th, 2022, https://www.michigan.gov/mpsc/commission/news-releases/2022/02/10/mpsc-marks-progress-on-collaborative-efforts-to-better-address-energy-affordability-and-assistance#:~:text=Qualifying%20participants%20will%20be%20placed,the%20term%20of%20the%20pilot.

[664] Public Act 95, Enrolled Senate Bill No. 284 (2013), https://www.legislature.mi.gov/documents/2013-2014/publicact/pdf/2013-PA-0095.pdf.

[665] Lansing Board of Water & Light, "Pennies for Power," accessed April 14th, 2024, https://www.lbwl.com/community/pennies-power; Marquette Board of Light and Power, "Payment Assistance," accessed April 14, 2024, https://mblp.org/billing/#assistance2b01-2b70.

[666] Traverse City Light and Power, "Residential Assistance," accessed March 25, 2024, https://www.tclp.org/residential-assistance/.

[667] Energy Equity Project.

[668] Michigan Public Service Commission, *Energy Affordability and Accessibility Collaborative U-20757 Interim Progress Report* (December 13, 2021), https://mi-psc.my.site.com/sfc/servlet.shepherd/version/download/0688y000001VqhIAAS

A strength of the municipally owned electric utilities is their locally-owned governance structure. A recent Environment, Great Lakes, and Energy (EGLE) community solar and weatherization pilot program in low-income communities in Michigan showed how a cooperative and municipally-owned electric utility in Michigan were able to achieve considerable civic engagement in the implementation of the pilot program compared to the pilot program in a community with an IOU.[669] Looking at the municipal electric utilities a part of MPPA, several promoted their scheduled board meetings and energy reports right on the initial interface of their website. Others such as Traverse City made transparent their findings from customer surveys, and Zeeland is active in supporting the community through a community grants program.[670] However, many municipal electric utilities in Michigan do not advertise their energy policy process clearly on their websites. This finding aligns with other research exploring barriers that prevent municipally-owned utilities from achieving procedural justice.[671]

Municipal electric utilities' ability to achieve distributive justice varies by the municipal utility. Overall, municipal electric utilities have lower rates compared to IOUs, and while it is difficult to verify, it is assumed that many municipal electric utilities hire locally. Municipalities with higher percentages of low income customers also face challenges trying to reign in costs and struggle to ban shut-offs because there is not enough population to spread out the costs of the infrastructure.[672] Another key area in distributive justice is access to clean energy and modernizing the electric grid, especially for frontline communities. Clean energy policies vary considerably in Michigan municipal electric utilities, leading to unequal access to clean energy for Michiganders. Modernizing the grid remains a challenge for many municipal utilities, as our analysis of the MPPA members showed three municipal utilities with a modernization plan.

When Jefferson County in the state of Washington created a municipal electric utility, they were fortunate to be able to switch to a majority clean energy generation source.[673]

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[669] Anna Adammson, ""Partnering to Reduce Energy Burden: A Michigan Community Solar and Weatherization Pilot," Clean Energy States Alliance, June 14th, 2023, https://www.cesa.org/resource-library/resource/partnering-to-reduce-energy-burden-michigan/

[670] Traverse City Light and Power, "Customer Surveys," accessed March 25, 2024, https://www.tclp.org/customer-surveys/.; Zeeland Board of Public Works, "Community Impact," accessed March 25, 2024, https://zeelandbpw.com/community-impact/.

[671] George C. Homsy, "Powering Sustainability: Municipal Utilities and Local Government Policymaking," *Environment and Planning C, Government & Policy*, SAGE Publications, 2016, doi:10.1177/0263774X15596530.; George C. Homsy and Mildred E. Warner, "Does Public Ownership of Utilities Matter for Local Government Water Policies?," *Utilities Policy*, Elsevier Ltd, 2020, doi:10.1016/j.jup.2020.101057.

[672] ACLU Michigan, "Detroit Water," accessed March 23, 2024, https://www.aclumich.org/en/detroit-water ; George C. Homsy and Mildred E. Warner, "Does Public Ownership of Utilities Matter for Local Government Water Policies?" *Utilities Policy*, Elsevier Ltd, 2020, 7 doi:10.1016/j.jup.2020.101057.

[673] Jefferson County Public Utility District, "Mission, Vision & History of the PUD," accessed March 23, 2024, https://www.jeffpud.org/mission-vision/.

Michigan municipal electric utilities likely won't have that same opportunity to transition to a clean energy generation source right away. Don Lee, Executive Director of Ann Arbor for Public Power suggests municipal electric utilities lean into current clean energy tax credit programs to help modernize and green their grids.[674] The City of Ann Arbor is also exploring creating a Sustainable Electric Utility (SEU) which creates clean energy through microgrids that could be paired with Ann Arbor's municipalization effort.[675] This pairing would allow the newly formed municipal electric utility to pursue clean energy infrastructure while allowing Ann Arbor residents to receive energy from one local utility.

Restorative justice is often an overlooked pillar in the energy justice framework. This is likely due to the difficulty of achieving such an aspect of energy justice. The Energy Equity Project is a useful tool to think about how municipalization efforts can bring about restorative justice.[676] For one thing, municipal electric utilities place power back into the hands of the people who are often powerless in their current energy situation. Municipalization of electric utilities is a unique opportunity to reimagine how energy is serviced and provided for, and placing power back into the hands of marginalized and frontline communities. A possible way to restore power to these groups is through a legal case against IOUs for the harms borne by frontline communities. The reparations frontline communities receive could empower them to take back their power and municipalize. Overall, municipal electric utilities are able to achieve equity in all four areas of energy justice, which is why energy justice activists and environmental groups in Michigan are interested in municipalization.

Affordability

Municipalization of Michigan's Electric Utilities to Achieve Affordability

Municipal electric utilities are known for providing lower rates compared to IOUs, and the same holds true for Michigan municipal electric utilities. According to the American Public Power Association, Michigan residents who are customers of a municipal electric utility pay 25% less on their electric bills compared to customers of an IOU.[677]

[674] Don Lee, personal communication, February 22nd, 2024
[675] "Ann Arbor's Sustainable Energy Utility," Ann Arbor Government Sustainability Department, accessed April 14, 2024, https://www.a2gov.org/departments/sustainability/Sustainability-Me/Pages/Ann-Arbor's-Sustainable-Energy-Utility-(SEU).aspx.
[676] Energy Equity Project, "Energy Equity Framework: Combining data and qualitative approaches to ensure equity in the energy transition," University of Michigan – School for Environment and Sustainability (SEAS), 2022, https://energyequityproject.com/wp-content/uploads/2022/08/220174_EEP_Report_8302022.pdf
[677] American Public Power Association, "Paying Less with Public Power" (March 12, 2021).

Electric Provider	Approximate Rate for 500 kWh per month
Bay City	13.95¢
Coldwater Board of Public Utilities	18.06¢
Crystal Falls	
On Peak Hours	16.62¢
Off Peak Hours	15.12¢
DTE Electric	17.88¢
Escanaba	13.31¢
Grand Haven Board of Light and Power	14.44¢
Holland Board of Public Works	12.05¢
Lansing Board of Water and Light	16.22¢
Marquette Board of Light and Power	16.00¢
Traverse City Light & Power	17.49¢

Table 8. Comparison of DTE Electric Rates with Rates of Select Munis.[678]

The data is available to make the case that municipal electric utilities are more affordable compared to energy services by an IOU. However, the question remains whether a current municipalization effort (such as the City of Ann Arbor) would offer lower rates.

The process of municipalization is expensive: the municipality in question would need to buy out the assets of the IOU, build new infrastructure as needed, and make necessary investments into the grid and investing in clean energy infrastructure.[679] While establishing a new municipal electric utility may lead to improved outcomes for the other criteria, competing goals within the criteria may make rates unaffordable. Municipal electric utilities can finance this costly municipalization process and investment through municipal bonds which usually have lower interest rates; however, as demonstrated earlier in this chapter, the process of buying out assets from the IOU is costly, and access to municipal bonds may not be enough to lower rates. Since ratepayers would pay for the newly established utility and purchased assets through their rates over time, it is unclear whether the municipalization process and need for heavy investment would make rates unaffordable to customers.

[678] Lydia Barbash-Riley, Christopher M. Bzdok, and Ross A. Hammersley, "Legal Road Map For Forming A Public Electric Power Utility in Ann Arbor, Michigan, Appendix 2" Olson, Bzdok, & Howard, PC for Ann Arbor for Public Power, July 9, 2021.

[679] Barbash-Riley et al. “Legal Road Map for Forming A Public Electric Power Utility in Ann Arbor, Michigan” (July 9, 2021).

The last municipal electric utility to form was in 1912; thus, it is hard to determine the impact a current municipalization effort such as the City of Ann Arbor would have on rates for customers.[680] While there are examples of recent public power efforts in other states, each case is unique and difficult to compare to efforts in Michigan. For example, Jefferson County in Washington municipalized their electric utility in 2010 after 2 years of negotiations with the IOU.[681] They were able to get low interest rates on the federal bonds they borrowed and were also able to switch to a hydroelectric energy generator that allowed them to use 80% clean energy.[682] Jefferson County acknowledges on their website what fortunate timing it was to be able to establish a new public power utility while simultaneously switching to clean energy generation. Municipalization efforts in Michigan likely will not be able to make such a quick, clean transition to municipalization, meaning that most of the clean energy investment will have to come from the public utility itself. The costs of the municipalization process, need to invest in clean energy, and the need to provide reliable power threaten the municipal electric utilities ability to provide affordable rates.

Another threat to affordability is reliability issues with the current electric grid. With more severe weather threats from the impacts of climate change, utilities across the U.S. are struggling with how to ensure reliability. California's PG&E is known for its role in many deadly wildfires; however, costs to bury the electric lines, which would ensure more reliability and reduce the risk of wildfires, is estimated to cost $5.9 billion dollars.[683] The responsibility for the investment lies with the customers, who would experience an 18% rate increase on top of rates that have already doubled since 2006.[684] The cost of burying lines to increase reliability should be a concern for current municipalization efforts, as it again highlights the challenge of buying out poor infrastructure while also trying to invest in it. However, the increased rates from burying lines may be unavoidable if IOUs like Consumers and DTE determine from their pilot programs that burying lines is effective at increasing reliability, which will raise rates for customers.[685]

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[680] Traverse City Light & Power, "Who We Are - Traverse City Light & Power," accessed February 18, 2024, https://www.tclp.org/who-we-are/.

[681] Jefferson County Public Utility District, "History of Jefferson County PUD No. 1," accessed [insert date accessed], https://www.jeffpud.org/mission-vision/.

[682] Jefferson County Public Utility District.

[683] CBS News Bay Area, "PG&E plan to bury power lines and prevent wildfires faces pushback due to high rates," October 16, 2023, https://www.cbsnews.com/sanfrancisco/news/pge-bury-power-lines-wildfire-prevention-plan-pushback-high-rates-cpuc/.

[684] CBS News Bay Area..

[685] Dave Kinchen and Nour Rahal, "DTE pilot program buries power lines to increase resilience," November 20, 2023, https://www.fox2detroit.com/news/dte-pilot-program-buries-power-lines-to-increase-resilience; Arpan Lobo, "Consumers Energy gets OK to bury power lines in 6 Michigan counties: What it means," March 4, 2024, https://www.freep.com/story/news/local/michigan/2024/03/04/consumers-energy-bury-power-michigan-counties/72839871007/.

While it is difficult to predict whether competing goals of municipalization would increase or decrease rates, Don Lee of Ann Arbor for Public Power suggests that the savings from not buying energy from an IOU could be reinvested into the municipal utility and may help lower rates for customers. There are three areas of savings he identifies: 1) no longer paying the IOUs rate of equity (ROE) 2) access to municipal bonds with lower interest rates 3) and no longer paying the 4% sales tax on electricity, as the state does not allow municipalities to charge sales tax.[686] These savings may help to lower rates, but it is unclear and rates may still be higher in the short run. When thinking about municipal electric utilities' ability to provide more affordable rates, Lee argues that a longer vision is needed, as rates in the future will likely be lower.[687] In time, the utility may even bring in revenue for the municipality such as Lansing Board of Water and Light to the City of Lansing.[688] Overall, it is difficult to assess the short term impact of municipalization of electric utilities on affordable rates.

Other important considerations to affordability is equity for the state and other IOU customers. If widespread municipalization were to occur, the state would lose revenue it currently receives from a 4% sales tax on electricity, as city and local units are exempt from charging a sales tax.[689] Depending on the extent of municipalization efforts across the state, this loss of revenue could impact the state's funding priorities. Also, if a municipality were to municipalize their electric utilities, this may increase rates for other IOU customers, and likely would increase rates if widespread municipalization occurred.[690] The legacy costs to generate and distribute the power take up a certain percentage of a customer's rate calculation; and using Ann Arbor as an example, if 120,000 residential customers along with commercial and industrial customers were to leave the IOU, this may increase rates for other DTE customers. Lee is unsure of the impact if Ann Arbor forms a public power utility. He explains that one way to mitigate future investment costs from being calculated into rates is for a new public power utility to tell the IOU to not include their infrastructure investments in the new IRP. While this does not solve the potential burden of legacy costs to fall onto other IOU customers, this would prevent IOUs from justifying rate hikes related to that customer base who created a public power utility.[691]

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[686] Michigan Department of Treasury, "Taxes, Sales and Use Tax Information," accessed April 1, 2024, https://www.michigan.gov/taxes/business-taxes/sales-use-tax/information#:~:text=Sales%20of%20electricity%2C%20natural%20or,units%20to%20impose%20sales%20tax .

[687] Don Lee, personal communication, March 24th, 2024.

[688] City of Lansing, Michigan, *Comprehensive Annual Financial Report, Year Ended June 30, 2020*, Department of Finance, [Online]. Available: https://content.civicplus.com/api/assets/18a1d444-85df-4811-8e87-87d3075275e9?cache=1800; Board of Water and Light – City of Lansing, Michigan, *Financial Report with Additional Information, As of and for the Years Ended June 30, 2020 and 2019*, [Online]. Available: https://www.lbwl.com/sites/default/files/documents/lbwl-enterprise-fy20-fs-final.pdf.

[689] Michigan Department of Treasury, Taxes, Sales and Use Tax Information.

[690] Davis and Hausman, Who Will Pay.

[691] Don Lee, personal communication, February 22nd, 2024.

3.4 Conclusion and Discussion

The fight for energy democracy and clean power represents a significant opportunity to address not only the pressing challenges of climate change and the transition to renewable energy but also to tackle issues of equity, affordability, and reliability in the energy sector.

Michigan's electric grid faces considerable challenges, including frequent outages, high costs, and disproportionate burdens on low-income households, especially those from marginalized communities. Municipal electric utilities, with their focus on community-driven decision-making, cost-based rates, and local reinvestment, present a compelling alternative to the status quo. Their grounding in local government ensures a level of accountability to citizens, regardless of organizational structure. They are also better equipped to receive citizen feedback, as they are not beholden to a board of shareholders.

Efforts such as the municipalization initiatives in Ann Arbor, Michigan, underscore the potential benefits of public power in advancing climate goals, enhancing reliability, improving affordability, and promoting climate justice. In our analysis, communities that are motivated to improve energy outcomes for their communities could largely be able to do so through individual municipalization. While this could create change for specific communities throughout the state, widespread municipalization could create major inefficiencies in the system if multiple municipal utilities operate their own service within small geographic areas. Here, we have assessed the major impacts of individual municipalization as well as potential statewide impacts against our key criteria of climate, reliability, equity, and affordability.

Criteria Overview

Criteria	Individual Municipality	Statewide Impacts of Widespread Municipalization
Climate	Fair	Highly Variable

Reliability	Strong	Strong
Equity	Strong	Weak
Affordability	Fair	Fair

Table 9. Key Criteria Matrix assessing the strength of the Municipalization alternative.

Interpretation guide for the criteria

"Strong" implies a very high possibility of achieving outcomes expected for the assessment criteria without the dependence on external factors such as energy market conditions, consumer adoption, etc. It does not exhibit volatility based on internal factors such as decision-making by the governance board or allocation of priorities and available funds.

"Fair" implies a medium possibility of achieving outcomes expected for the assessment criteria without the dependence on external factors such as energy market conditions, consumer adoption, etc. However, it does exhibit volatility based on internal factors such as decision-making by the governance board or allocation of priorities and available funds, and the outcomes are likely to incline towards other assessment criteria based on these decisions and priorities.

"Weak" implies a low possibility of achieving outcomes expected for the assessment criteria without the dependence on external factors such as energy market conditions, consumer adoption, etc. It exhibits volatility due to a determinate internal factor and is not foreseeably easy to overcome due to legal or governance constraints.

"Highly Variable" implies that a possibility of achieving outcomes expected for the assessment criteria cannot be determined through the scope of this document. Outcomes are highly likely to vary on a case-by-case basis or on external factors such as energy market conditions, consumer adoption, etc. It may exhibit volatility based on internal factors such as decision-making by the governance board or allocation of priorities and available funds.

Matrix Analysis

The matrix presented above provides a comprehensive assessment of municipalization in Michigan, focusing on criteria such as climate impact, reliability, equity, and affordability. Given that municipalization influences not only the particular municipality undertaking the transition but also surrounding areas, our analysis considers its effects at both the local and statewide levels. We define widespread municipalization as the adoption of this approach by a significant number of cities across the state.

Climate is rated as fair for the individual municipality because nationwide evidence suggests that municipal utilities can decarbonize faster than IOUs if there is local will to do so and access to renewable resources. In Michigan, however, as discussed in the Climate section, there has not been conclusive evidence that municipal utilities perform better on climate. If a municipality in Michigan forms a municipal electric utility and is highly motivated by climate goals, they can improve climate impacts by acquiring renewable energy through power purchase agreements or by investing in local renewable generation. In both cases, this does not occur simply by virtue of municipalizing and will likely take time to either procure or build renewable energy generation. Climate goals can also be in tension with other goals, such as affordability, and therefore will ultimately depend on local preferences. Examining the impacts of widespread municipalization on the state, climate outcomes are highly variable depending on the actions of the individual municipal utilities. If they prioritize climate and build new renewable generation, the outcome on climate would be very strong. On the other hand, they could neglect climate impacts and end up increasing fossil fuel consumption.

Reliability is a strength of municipalization, and as such is evaluated to be strong for both the individual municipality and the state. As illustrated in the Reliability section, data has shown that municipal utilities perform better than IOUs on reliability, nationwide and year after year. This is likely due to the smaller service area of a municipal utility as opposed to an IOU, as well as the increased accountability of a municipal utility to its customers. Therefore, it is likely that reliability would improve through municipalization for the individual municipality. If widespread municipalization occurred, a greater proportion of Michigan residents would have better reliability, and it is also strongly likely that statewide reliability would improve as well.

Municipal electric utilities that want to center equity are able to do so by prioritizing the community's needs through transparent, accessible energy policymaking. Hence, we rated equity as strong. Public power also allows for local hiring and the ability to meet the needs of residents with different energy needs such as senior citizens and low-income households. While an individual municipal electric utility can reap the benefits of equity, widespread municipalization runs into significant equity concerns for the state and surrounding communities. Widespread municipalization will likely lead to a utility death spiral for remaining IOU customers.[692] This means the remaining IOU customers that don't municipalize are left to pay for the legacy infrastructure costs of the IOU, making rates unaffordable to the IOU customers. There are also concerns about this widening inequities for frontline and disadvantaged communities, as some municipalities may not be able to municipalize due to financial and legal barriers, but would be left with higher rates as more resourced municipalities form new public power utilities. Also, the state would lose a current

[692] Lucas Davis and Catie Hausman, "Who Will Pay for Legacy Utility Costs?" *NBER Working Paper Series*. Cambridge: National Bureau of Economic Research, Inc, 2021. doi:10.3386/w28955.

revenue source from the 4% sales tax on electricity, which could impact the state's overall budget and various funding priorities. We rated equity for widespread municipalization as weak for these reasons.

Affordability ranks as fair for both individual and widespread municipalization. Rates may increase in the short run as a municipal utility begins to pay for the costs of buying out the infrastructure and making needed investments. However, over the long run, rates likely will decrease as savings from access to municipal bonds with lower interest rates and not paying for shareholder profits and the electricity sales tax allows the utility to save money and lower rates for customers.

As evidenced by the evaluation of the criteria above, a key aspect of municipalization is that it supports local control over a community's electric utility. The governance structure can ensure that the utility is held accountable to the voting public and therefore that local priorities are heard. The Governance Best Practices section details specifics on enabling this accountability. The municipal utility structure also removes the shareholders to which IOUs are beholden. By not needing to furnish earnings for shareholders, a municipal utility can take what would have been the shareholder profit and use it to invest in community priorities, whether that be renewable energy projects, reliability measures, or low-income affordability measures. A municipal utility also has access to tax-free debt, which can reduce the cost for capital investments.

However, it should not be understated how the process of municipalization can be time-consuming and costly. Determining the value of the assets that the municipal utility needs to acquire has historically been a lengthy legal process, and there is no expectation that this would be different in Michigan. As described in the Cost and Financing Feasibility section above, the final acquisition cost strongly depends on the multiplier value. This value would be determined during the legal process, and so a municipality may have difficulty estimating the total cost to the city to form a municipal utility. Moreover, unless the municipal utility builds the distribution system, it will be acquiring the existing IOU distribution infrastructure. As outlined in the Technical Feasibility section, this infrastructure in Michigan is outdated and poor-performing. Therefore, additional time and funds may be required to upgrade the distribution system after purchasing.

The potential benefits of widespread municipalization are considerable, yet they come with significant risks. Due to the localized nature of municipal utilities, the outcomes of municipalization vary greatly depending on the city. This variability poses challenges to replicability and scalability, making widespread municipalization complex. While some municipalities may be well-equipped and motivated to provide renewable, reliable, equitable, and affordable electricity, such outcomes are not guaranteed across the board. Additionally, widespread municipalization presents risks to the broader system. As discussed in the Affordability section, the departure of customers from IOU service to municipal utilities may

lead to increased rates for remaining customers. IOUs may also struggle to sustain their operations, leaving communities without adequate service. Furthermore, the proliferation of municipal utilities could introduce inefficiencies into the electricity system, with duplication of infrastructure and potential loss of efficiency gains achieved by large IOUs. Stakeholders considering widespread municipalization must carefully weigh these benefits and drawbacks before proceeding.

Moving Forward with Municipalization

Advancing municipalization in Michigan demands a strategic approach that carefully weighs the potential benefits and risks outlined in our assessment. While municipal electric utilities offer a promising avenue for addressing climate change, enhancing reliability, promoting equity, and improving affordability, it is imperative to acknowledge the challenges associated with widespread municipalization. As demonstrated, the outcomes of municipalization vary depending on local factors, rendering replicability and scalability complex endeavors. Municipalities must conscientiously consider their unique circumstances, priorities, and capacities before embarking on the path of municipalization. Moreover, efforts to expand public power should be underpinned by a commitment to community interests, transparency, and accountability. By harnessing municipalization as a tool for enhancing energy democracy and fostering a more resilient, equitable, and sustainable energy future, Michigan can set a precedent for effective governance and responsible energy management. However, stakeholders must remain vigilant in addressing the legal, financial, and technical complexities associated with municipalization to ensure its success and maximize its benefits for all residents.

Organizations interested in fostering municipalization in Michigan should be prepared to address a myriad of additional key considerations. Foremost among these is the potential challenges posed by legal and political barriers to municipalization. Statutory amendments, constitutional revisions, and policy initiatives can help surmount legal and regulatory hurdles, empowering municipalities to enact equitable rate structures and facilitate the expansion of renewable energy portfolios. Statutory changes could include amending MCLS §460.816 to grant municipalities the authority to use eminent domain to acquire existing electrical facilities without private owner consent, alongside enacting limitations on and disclosure requirements for investor-owned utility (IOU) spending on public relations campaigns. Additionally, requiring IOUs to acknowledge municipalization efforts in Integrated Resource Plans (IRPs) and Michigan Public Service Commission (MPSC) rate cases, with penalties for non-compliance, could enhance transparency. Constitutional amendments, such as revising Art. 7, §24 to remove the 25 percent cap on municipal utility operation beyond borders, would further support municipalization efforts. Policies aimed at ensuring equitable and just energy delivery include authorizing municipal utilities to enact preferential rate structures,

focusing on equity-driven rate designs, and addressing service to shrinking populations through cooperative expansion. Moreover, supporting the transition to renewable energy involves eliminating the cap on distributed solar, authorizing community solar projects, and leveraging state and federal energy efficiency programs and tax credits to bolster municipal utility clean energy initiatives. Legal and financial assistance for municipalization could be facilitated through the establishment of a state-level administrative agency or allocation of resources to capable non-profit organizations. Similarly, supporting the clean energy portfolios of cooperative utilities involves granting standing with the MPSC, exploring options for state-backed debt, and identifying policy changes for effective oversight of cooperatives opting into MPSC regulation to receive state support. These policy recommendations aim to create an enabling environment for municipalization and advance Michigan's transition to a more resilient, equitable, and sustainable energy future.

Beyond legislative changes, coalition building, education, and support from organizations like the Michigan Public Power Association, Michigan South Central Utility Resource Solutions, and WPPI Energy can advance municipalization efforts. By leveraging expertise, resources, and collaborative networks, stakeholders can collectively shape a more resilient, equitable, and sustainable energy future for Michigan.

There are also additional technical and logistical considerations to be addressed when encouraging municipalities to establish their own electric utilities. Exploring potential solutions, such as shared usage of substations between two municipal utilities or collaboration between a municipal utility and existing investor-owned utilities like DTE, could mitigate infrastructure challenges associated with municipalization. Additionally, assessing the feasibility of building additional transmission to substations for municipal utilities is crucial for ensuring reliability and efficiency. Establishing a pathway for Michigan to form a climate-focused joint action agency could enhance coordination efforts toward renewable energy adoption and climate mitigation at the regional level. Such an agency would facilitate collaboration among municipalities, coordinate resource allocation, and develop cohesive strategies to address climate challenges effectively. Furthermore, understanding the personnel requirements for widespread municipalization is essential. Assessing whether Michigan has sufficient technical expertise in areas such as energy policy, utility management, engineering, and finance is crucial for the successful implementation and operation of municipal electric utilities. Investing in training programs, workforce development initiatives, and knowledge-sharing platforms can help build the necessary capacity to support the expansion of public power in Michigan.

In addition to the creation of municipal electric utilities, there are also additional actions that could be supported to further improve outcomes for all Michigan residents. Under current Michigan law, municipal utilities are largely restricted to operating within their own corporate boundaries. Accordingly, municipalization alone cannot ensure renewable,

equitable, and clean energy for every resident in Michigan. In conjunction with municipalization, it may be advisable to pursue complementary avenues for the development and expansion of cooperative utilities. Cooperatives are member-owned, rather than investor-owned, incorporate aspects of democratic governance, and can operate beyond municipal boundaries. Although cooperative utilities do not share a municipal utility's ability to compete directly with IOUs, cooperatives in Michigan have successfully purchased significant assets from IOUs. For example, Cloverland Electric purchased Edison Sault - a Foote Act franchise - from the Wisconsin Energy Corporation in 2009, enabling the cooperative to serve all of Sault Ste. Marie.[693] Compared with the Upper Peninsula's largest IOU, UPPCO, Cloverland Electric offers its members substantially lower rates.[694]

Cooperatives seeking to expand through the purchase of IOU assets could benefit from clarification regarding their standing and rights before the Michigan Public Service Commission.[695] A statutory change or formal opinion by the Michigan Attorney General could establish a clear right for newly formed cooperatives to intervene in rate cases, a shift which would place IOUs on notice and allow cooperatives to advocate for arrangements that will facilitate cooperative operation.[696] In addition, the State of Michigan could consider backing the financial obligations of newly formed cooperatives; in exchange, cooperatives could consent to MPSC regulation in order to ensure protection of state financial assets.[697]

In the case that municipalization, due to financial, legal, and political challenges, is unattainable for some Michigan communities, there is still value in pursuing better outcomes for residents. While many high-profile municipalization efforts across the country have not succeeded, municipalities have still won important concessions from IOUs. Some municipalities have successfully leveraged the threat of municipalization to compel the incumbent IOU to lower rates or delay rate increases.[698] Other municipalities have won concessions within renegotiated franchise agreements. For example, cities like Boulder and Minneapolis have leveraged their municipalization efforts to advance and accelerate clean

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[693] "Wisconsin Energy to sell U.P. subsidiary" (November 2, 2009) *Biztimes*. https://biztimes.com/mergers-and-acquisitions-52/. Edison Sault, absent its ownership share in American Transmission Company, was sold to Cloverland Electric for $61.5 million, approximately $2 million above net book value. At the time, Edison Electric was comprised of 59 employees and 22,000 customers. Under the terms of the agreement, Cloverland agreed to extend a wholesale power agreement with Wisconsin energy for another 12 years.

[694] Jim Malewitz, "Q&A: Demystifying sky-high electricity rates in Michigan's Upper Peninsula," Michigan Bridge Magazine, August 22, 2019.https://www.bridgemi.com/michigan-environment-watch/qa-demystifying-sky-high-electricity-rates-michigans-upper-peninsula.

[695] Benninghoff, "Understanding the Upper Peninsula Power Company Dilemma" (March 15, 2019), accessed [insert access date], https://storage.googleapis.com/documents.

[696] Benninghoff.

[697] Benninghoff.

[698] Suedeen G. Kelly, "Municipalization of Electricity: The Allure of Lower Rates for Bright Lights in Big Cities," Natural Resources Journal 37 (1997).

energy goals in the absence of municipalization.[699] However, under Foote Act franchise agreements, Michigan municipalities may not achieve similar outcomes. Foote Act franchise agreements place Michigan municipalities in a weakened bargaining position. For instance, since 1995 most United States cities have adopted shortened twenty-year franchise agreements.[700] This national shift is not reflected in Michigan's franchise agreements.[701] Of one-hundred and forty-six Michigan franchise agreements analyzed in 2019, only eighteen included a contract term of less than thirty years.[702] Fewer still charged an ongoing franchise fee or included a provision referencing underground infrastructure or vegetation management. No municipalities included a provision referencing clean energy. Although private companies like Ford have successfully leveraged past threats of municipalization to obtain lower industrial electric rates, it remains to be seen whether the threat of municipalization will sufficiently incentivize IOU confessions that will provide substantial benefit to the public. [703]

Key Takeaways

Municipal electric utilities offer a promising pathway toward achieving these multifaceted goals. Michigan's electric grid faces significant challenges, including frequent outages, high costs, and disproportionate burdens on low-income households, particularly those from marginalized communities. Municipal electric utilities, with their emphasis on community-driven decision-making, cost-based rates, and local reinvestment, present a compelling alternative to the status quo. Grounded in local government, they ensure a level of accountability to citizens and are better equipped to receive and act upon citizen feedback, unencumbered by shareholder interests.

As demonstrated by our analyses, municipal electric service yields a diverse array of outcomes, contingent upon the city, its organizational structure, and the priorities of its citizens and representatives. Research indicates that municipal utilities generally provide more reliable service and lower rates compared to their investor-owned counterparts. Furthermore, the transition to public power enables communities to prioritize their needs, invest in green infrastructure, and alleviate financial burdens on residents. However, these

[699] Klass & Wilton, "Local Power."
[700] Jeff Cook, "Webinar Presentation on Municipal Franchise Agreements" (National League of Cities), accessed February 18, 2024, Webinar Presentation on Municipal Franchise Agreements.
[701] Jeff Cook and Bryn Grunwald, "Municipal Franchise Agreements and Energy Objectives" (National Renewable Energy Laboratory - Data (NREL-DATA), Golden, CO (United States); National Renewable Energy Laboratory, 2019), https://doi.org/10.7799/1577346.
[702] Cook and Grunwald.
[703] Rick Kely and Stephen Lorton, "The Muni Vote," *Electric Perspectives* 20, no. 5 (1995).

outcomes are subject to the priorities of each municipality, which can sometimes compete in their short and long-term impacts.

While individual municipalization efforts can create meaningful change within specific communities, widespread municipalization could introduce inefficiencies into the system if multiple municipal utilities operate within small geographic areas. Moving forward, it is imperative to explore strategies for expanding public power in Michigan, leveraging municipalization as a tool for enhancing energy democracy and building a more resilient, equitable, and sustainable energy future for all residents. Addressing legal, financial, and technical complexities associated with municipalization is essential, as is fostering collaboration among municipalities, utilities, and stakeholders. By prioritizing community interests, transparency, and accountability, Michigan can pioneer a model of effective governance and responsible energy management that serves as a blueprint for other regions grappling with similar challenges.

Chapter Four:

An Investigation into Sustainable Energy Utilities

Claire Arneson, Leon Boykins, Yasmine Choucair, Eneida Hysi, Margerie Snider

Citizens, activists, and legislators in the state of Michigan have proposed necessary and ambitious goals for addressing the climate crisis. In part, this includes a goal of generating 60% of the state's electricity needs from renewable sources.[704] However, Michigan currently consumes more than three times the amount of energy it generates.[705] Current pathways for Michigan to achieve this renewable energy goal require either the purchasing of electricity from renewable sources that already exist outside the state or increasing the in-state renewable generation capacity. From a purely technological standpoint, these options may seem comparable. However, addressing solutions that only target a net change in greenhouse gas (GHG) generation ignores the intersectional nature of sustainability. In Michigan, energy poverty, pollution in marginalized communities, and unreliable access to electricity are some examples of how the current electric utility perpetuates systems of inequity. Solutions for achieving statewide sustainability goals that separate the transition to renewable energy from

[704] Michigan Environmental Council, "An Overview of Michigan's Landmark Climate Legislation," accessed January 29, 2024, https://assets.nationbuilder.com/environmentalcouncil/pages/726/attachments/original/1700683741/Michigans_landmark_climate_legislation-spreads_final.pdf?1700683741.

[705] "Michigan State Profile and Energy Estimates," accessed February 16, 2024, https://www.eia.gov/state/?sid=MI#tabs-4.

the communities where non-renewable energy is generated and used fail to address the intersection of issues presented by the climate crisis. In order for Michigan to have autonomy over its energy future in alignment with statewide goals, a change to the structure of energy generation and distribution is required. In this chapter, we will investigate the sustainable energy utility as one potential electrical utility solution to the climate and equity crisis facing Michigan communities.

4.1 Introduction

Goals and Outcomes

A sustainable energy utility (SEU) is an alternative model of a public electrical utility, as opposed to a municipally-, cooperatively-, or investor-owned utility, that has the explicit mission of decreasing the CO_2 budget of rate-paying consumers by reducing electricity consumption and increasing electricity generation from sustainable sources.[706] An SEU is based on the principle of providing sustainable energy and sustainability solutions through a public utility service that may be privately, publicly, or community owned. The goal of the utility is to provide these services through:

- Goal 1: sustainable generation of electricity and its distribution to ratepayers;
- Goal 2: increasing the sustainability of electricity consumption through energy efficiency, weatherization, and energy use management.

The SEU is designed to exist as an opt-in utility that prioritizes sustainability over other utility objectives, such as investor profits, relative to traditional utilities, the most common of which are municipally-owned utilities (MOUs) or investor-owned utilities (IOUs). The examples of SEUs operating today exist alongside pre-existing traditional utilities, which we will call “parallel SEUs.” The purpose of a parallel SEU competing with the traditional utility is to prioritize sustainable energy generation and energy efficiency practices in a competing utility. The SEU is structured to achieve specific outcomes:

- Outcome 1: improve sustainability within a community;
- Outcome 2: expand and maintain long-term sustainability advances through self-funding.

These goals and outcomes do not inherently define an ownership structure, but the self-funded future imagined for long-term SEU success precludes investor ownership, since a self-funded utility requires the reinvestment of profits into the utility itself. Reinvesting in the community is most easily achieved through a not-for-profit SEU model, as opposed to the

[706] Harris B McDowell and John Byrne, “A Sustainable Energy Future for Delaware,” 2007.

traditional investor-owned utility (IOU) structure that prioritizes profits for shareholders. Instead, an SEU acts as a "commons," in which decisions are based on maximizing community benefits, primarily focused on sustainability.[707]

In the short term, the SEU is an opt-in competitor to the traditional utility that lowers barriers for all individuals accessing sustainable energy solutions. The longterm operation of the SEU is designed to be self-funded, where the generation of "free" energy from renewable sources, such as wind and solar, and energy savings through efficiency measures cover the operational costs of the SEU. The self-sustaining nature of the SEU will, as such, dictate the future success of the SEU, which could remain as a parallel to the traditional utility or could eventually replace the traditional utility entirely. In this work, we will elaborate on practical methods for realizing an SEU in Michigan, and suggest best practices for maintaining SEU goals into the long term future.

Scope of analysis

In line with the SEU goals and structure defined above, there are many pathways for SEU ownership, including community, non-profit, or governmental ownership. Additionally, there are many scales at which the SEU can be deployed. The scope of governance, financing, and management in this chapter will be limited to an SEU model that is:

- Municipally-owned and operating only within the municipality as an opt-in alternative to the traditional utility
- Primarily focused on deploying sustainable generation via SEU-owned distributed solar (DS) and energy efficiency upgrades

In this report, we will provide legal and technical motivation for choosing this model over other possible options. We will also discuss ways in which an SEU initially based on the model above could potentially expand. The technical, managerial, and governing recommendations given for instituting a parallel SEU generally do not restrict the SEU to remaining as a parallel SEU in perpetuity and could also apply to an SEU that seeks to eventually replace a traditional utility by expanding beyond residential solar generation. One important exception is that a parallel SEU is not required to be load serving, since additional energy needs may be satisfied through the traditional utility.

The limit of municipal-scale refers only to the management structure and jurisdiction of the SEU, but does not preempt collaboration between municipally-owned SEUs, such as through bulk purchasing or securing grants. Municipal ownership of the SEU allows for the

[707] Byrne, J., Martinez, C., & Ruggero, C. (2009). Relocating Energy in the Social Commons: Ideas for a Sustainable Energy Utility. Bulletin of Science, Technology & Society, 29(2), 81-94. https://doi.org/10.1177/0270467609332315

possibility of ratepayer participation in energy democracy, though such community involvement must be actively enabled through energy justice-focused management structures.[708]

It should be noted that while the focus of this chapter will be on municipally-owned SEUs, the SEU is distinct from a traditional MOU in that its driving goal is to provide sustainable energy; in Michigan, the municipal ownership structure serves only to provide the most accessible way to achieve this through an electrical utility structure. The SEU is also distinct from other sustainable energy programs, such as Property Assessed Clean Energy programs, in that it is a utility structured around rate paying customers rather than program recipients who receive services for free or at a discount.

Legal and technical considerations aside, the SEU model benefits from a local focus, as one of its strengths is the flexibility in meeting each municipality's unique needs. It is important to note that sustainability is intersectional, and that the social identities of ratepayers (e.g. race, class, education level) affect the impact sustainability measures have on these communities. The SEU is designed to be modular, such that under ideal management, SEU initiatives can target communities that can benefit the most from sustainability investment. The utility structure of the SEU at a municipal or community level maintains flexibility in addressing community-specific needs while still offering support to individuals within a community who could not afford to invest in sustainability without institutional support.

The analytical methods used for this chapter include extensive research into published data and reports, and interviews with current SEU experts, including employees of the Washington D.C. SEU, authors of the Ann Arbor SEU Phase I study, and the founder of the SEU model, Dr. John Byrne. Appendix C lists the expert interviewees. In this work, we are proposing a path forward for an SEU that expands beyond what currently operating examples are doing, so we have supplemented available research information with interviews with experts in economics, policy, and law to guide our claims. Where appropriate, we have extrapolated from publicly available legal, financial, and technical data to provide an analysis on how such data could be used in the implementation of the SEU and identify data gaps to be filled by additional research. We have identified criteria relating to climate, reliability, energy justice, and affordability, and used these to guide our analysis of proposed governance and managerial structures.

[708] Byrne, John, and Cecilia Martinez. Delaware's Sustainable Energy Utility. Delaware Lawyer, Summer 2009, https://freefutures.org/wp-content/uploads/2014/02/2009_Delaware-Lawyer_Byrne_Martinez_DE-SEU_summer3_no-ads.pdf.

Legal Landscape

This section will explore a tangible legal path towards creating an SEU in the state of Michigan. As quality research has informed the implementation of an SEU in Ann Arbor, much of this section will argue the best ways to scale a variation of the Ann Arbor model throughout the entire state.[709] Our proposed model for an SEU utilizes municipal ownership and focuses on SEU-owned distributed solar (DS). We will outline first the legal framework guiding ownership structure, and then do the same for restrictions on solar generation.

Legal constraints for SEU ownership

In Michigan, only authorized municipal and public utilities and public cooperatives can distribute energy to residents. The current energy landscape in the state is heavily controlled by long-standing IOUs.[710] This largely stems from the 1914 Michigan Supreme Court decision *City of Lansing v. Michigan Power Co.*[711] In that case, affirming the 1905 Foote Act, the court ruled that "…contracts between the state and corporations, arising out of grant of right of user of the streets, and acceptance by user for public utility purposes, must run their course and are not subject to revocation at the will of Legislature."[712]

The Foote Act prevents a state-owned utility, whether sustainable or not, from competing with existing franchise utilities, but allows for a municipally-owned utility to compete with the franchise utility without buying out the franchise entirely. This means that energy franchises who were given operating rights prior to the passage of the Foote Act retain those rights permanently. Due to this broad grant of authority, the spread of IOUs throughout the state has gone largely unchecked.[713] IOUs currently serve over 90% of Michigan residents.[714] As a result, the Foote Act leaves two main options to restructure how energy is distributed through an SEU in areas where electricity is provided by an IOU in Michigan.

First, an organization can become the sole provider of electricity by taking over the IOU franchise. This route is largely discussed in the Municipal Utilities chapter. This method could require paying for all infrastructure and potential future revenue of the IOU. A main purpose of our SEU model is to decrease ratepayer spending which is made harder by having to finance an IOU takeover. Even using quick take procedures, which allow a municipal utility

[709] City of Ann Arbor,"Ann Arbor's Sustainable Energy Utility: FAQs," n.d.
[710] "Electric Utility Service Area Map," accessed April 12, 2024, https://www.michigan.gov/mpsc/consumer/electricity/electric-utility-service-area-map.
[711] "City of Lansing v Michigan Power Co.Pdf," n.d.
[712] "City of Lansing v Michigan Power Co.Pdf."
[713] "Traverse City v Consumers Power Co.Pdf," 1954
[714] Michigan Public Service Commission, "Electric Data Book 2019," 2019, accessed February 18, 2024, https://www.michigan.gov/-/media/Project/Websites/mpsc/consumer/electric/electricdata_19.pdf?rev=71b8ed35059e43f29c60cd31ead5bed1.

to obtain private assets and litigate the cost later, the impending threat of lengthy litigation has directed our group to consider a parallel SEU model that avoids these unpredictable battles. This decision is driven by recent IOU takeover attempts which have resulted in lengthy and expensive litigation. For example, Boulder citizens recently abandoned their efforts to negotiate a takeover price with incumbent IOU Xcel energy after a decade of expensive litigation. Through 2020, the city of Boulder spent roughly $29 million and estimated that it would need to spend between $5-20 million more to finalize the purchase price of Xcel.[715] In Maine, Pine Tree Power's effort to take over the existing utility stalled after the incumbent provider spent over $37 million opposing the initiative.[716]

In addition to being cost prohibitive for our proposed SEU, since initial rates collected from newly the municipally-owned utility would need to pay off the cost of grid buy-out instead of DS investments, this path also faces significant legal hurdles as the use of eminent domain by municipal utilities has prescribed limits within the energy sector. Without a cooperating IOU, in order to provide all residents in a municipality with power, an SEU taking over an existing energy supplier would need to either build generation and transmission infrastructure from scratch or purchase the assets of the existing provider. Under current state law, municipal utilities can only use eminent domain to obtain non generation and transmission infrastructure.[717] In order to acquire existing generation or transmission technology, an SEU would need either IOU approval or negotiate "just compensation" for the property.[718] This method is inherently risky as there is no market rate for an energy utility in Michigan.

There is an alternative method for establishing a municipality-owned utility grid, in which a locality creates a municipal utility without using IOU infrastructure and competes with the IOU as Foote Act grants are non-exclusive. In terms of energy generation, our proposed SEU model focuses only on DS, though long-term expansion of the SEU could build on our model to include a parallel grid, similar to the plan outlined in the Ann Arbor SEU Phase I study.[719] Either way, neither the SEU's use of DS nor the implementation of energy efficiency will be subject to eminent domain constraints as this method is currently legal under Michigan law. In addition, it is potentially cheaper for consumers, and able to support nearly immediate investment in sustainable generation technology.

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[715] Energy News Network, "As Costs Rack up in Boulder's Push to Split with Xcel, Voters to Have the Final Say" accessed April 12, 2024, https://energynews.us/2020/10/27/as-costs-rack-up-in-boulders-push-to-split-with-xcel-voters-to-have-the-final-say/.

[716] Energy News Network.

[717] "MCL - Section 460.816 - Michigan Legislature," accessed April 12, 2024, https://www.legislature.mi.gov/Laws/MCL?objectName=MCL-460-816.

[718] "MCL - Section 213.55 - Michigan Legislature," accessed April 14, 2024, https://www.legislature.mi.gov/Laws/MCL?objectName=MCL-213-55.

[719] "City of Ann Arbor 100% Renewable Energy Options Analysis," https://www.a2gov.org/departments/sustainability/Documents/Executive%20Summary_9.26.23.pdf, 2023.

Legal constraints for generation technology

Current Michigan law allows users to self-supply their own energy. As of now, however, private residents cannot supply energy to neighbors; only an electrical utility can supply energy across property lines. Notably, under current Michigan law, any microgrids, community solar generation, or distribution not managed by a utility are illegal. Incumbent IOUs, like DTE, have demonstrated a slow transition to renewable energy through privately owned community solar. The common reasoning cited for this strict regulation is preventing grid overloads which would create reliability problems for the existing provider's customers.[720]

For this reason, we have proposed a model for SEU-owned DS that could integrate with future SEU expansion through micro-gridding. Considering initial financial restraints, in order to expand SEU-owned solar's customer base, augmentation with customer- or community-owned solar may be necessary. Again, the flexibility of an SEU allows municipalities to custom tailor their SEU to meet the needs of their local community. In theory, an SEU could grow to become the dominant supplier of energy in a region which may require more power generation than our model can provide.

Before continuing, we will define a microgrid as distribution technology that provides electrical connection between multiple households, but within a defined area. A microgrid could be owned by any utility. A microgrid would provide connection between distributed resources, such as DS or community solar, and homes without these resources. The boundaries of a microgrid should maximize the number of homes that have strong solar potential by supplying power to homes that do not.[721] Community solar defines a generation resource installed in open areas such as landfills or man-made reservoirs, or on community buildings, such as schools or community centers, to help expand solar generation.

The following section will outline the legal constraints for these generation structures and pending legislative initiatives that could enable an SEU looking to take advantage of microgrids or community solar to do so legally.

Customer-Owned Solar

One initial step our SEU model could take to grow its customer base would be to include homes that already make use of privately owned DS. In this model, SEU-owned residential solar infrastructure would be supplemented by privately owned DS. Then, much like the DTE Rider 18 Distributed Generation Program, which allows DTE customers to sell

[720] Allnut, Brian, "Republicans and Democrats Want Community Solar. Why Won't Michigan Legislators Enable It?," Energy News Network, December 7, 2023, http://energynews.us/2023/12/07/republicans-and-democrats-want-community-solar-why-wont-michigan-legislators-enable-it/.

[721] "ANN ARBOR'S SUSTAINABLE ENERGY UTILITY," 2021, https://www.a2gov.org/departments/sustainability/Sustainability-Me/Documents/A2_Sustainable_Energy_Report_2021_v7.pdf. pg 34

privately generated energy back to the DTE grid, SEU customers would be able to sell back surplus energy to the SEU owned microgrid or community battery storage system.[722]

Current law does provide a path for customers to send energy generated by residential solar back to their energy supplier's grid. Now, a minimum of 10% of customers can make use of distributed generation programs. IOUs are free to voluntarily exceed the 10% cap, but to date none have done so however, making the law a ceiling in function. Such action would now also require MPSC approval. Normally, municipal utilities are not under the control of the MPSC. Sec. 173 of Senate Bill No. 271, however, states that any new distributed generation program must "…apply to all electric utilities whose rates are regulated by the commission and alternative electric suppliers in this state."[723] And as mentioned above, only a utility can distribute power to a residential customer. Until this legal hurdle is cleared, residents will only be allowed to use their solar panels to power their own home making this path unable to directly benefit our SEU model. Ideally, through microgrids, the key difference under our SEU model is that surplus energy generated by privately owned renewable energy infrastructure would be sent to the SEU grid or community microgrid, and not the existing provider's grid. Thus, the control of energy distribution remains local as community members and elected officials are put in charge, instead of an internally appointed board of directors seeking to maintain shareholder profits.[724]

Community Solar

In an SEU using community solar, medium scale solar installations would provide clean energy to multiple locations using SEU owned microgrids and battery storage systems. This process would accelerate the renewable energy transition but would potentially add the expense of constructing transmission lines if the existing supplier does not grant access to their infrastructure. In Michigan, as briefly mentioned above, state law prohibits community solar. Even if the law is changed, SEUs would still have to get around the fact that existing providers are not compelled to share their infrastructure. Until these barriers are cleared, community solar locations would provide little economic benefit to residents unless most of their energy comes from them. Such customers would continue to pay their existing provider because of their generation capabilities. This means that the SEU would have less room to pass on its costs to consumers as a main goal is to lower or keep current energy bills the same.

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[722] DTE Energy, "Rooftop Solar and Private Generation | CleanVision Service," accessed April 12, 2024, https://solutions.dteenergy.com/dte/en/Services/CleanVision-Service/Rooftop-Solar-and-Private-Generation/p/ROOFTOP_SOLAR#about.

[723] "SENATE BILL NO. 271," § 102 (2023).

[724] "Back-to-Back Rate Hikes Illustrate DTE Energy's Entrenched Power in Michigan," *Little Sis* (blog), February 8, 2024, https://littlesis.org/news/back-to-back-rate-hikes-illustrate-dte-energys-entrenched-power-in-michigan/.

As a response to community solar, IOUs are once again attempting to push the public towards accepting their own community solar plans.[725] For example, local initiatives are in place in both Dearborn and Detroit where the city partners with DTE in an effort to power all city buildings using renewable sources.[726] These plans again are a step in the right direction but are vulnerable to many of the same criticisms as discussed in the SEU owned solar section above.

In addition, IOUs are spending massive amounts of money lobbying against energy bills that allow community solar.[727] One common IOU pushback is the claim that community solar would destabilize the IOU grid as private business would only be responsive to a small portion of a community.[728] On the other hand, the SEU model again could prevent foreign and institutional investment from influencing local energy decisions as globally situated shareholders drive decisions under the current IOU model.[729] The microgrid model of the SEU would be able to prioritize community solar development and allow all customers, regardless of existing renewable infrastructure, or income level, to participate in the renewable energy transition with less upfront costs, and cheaper financing of necessary infrastructure investments.

Legal Constraints to Financing and Governance

There are multiple mechanisms available for funding the creation of an SEU in the State of Michigan, which will be discussed shortly. We do not consider the use of funding via taxes because the Headlee Amendment would require the tax to be approved by a majority of electors in the municipality. Securing this approval may be possible depending on the will of a particular municipality, but the barriers to required approval may vary across communities. This chapter assumes that the establishment of an SEU through a franchise grant, acquisition, and funding are all legally feasible in Michigan as this method has found success in other states.[730]

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[725] DTE Energy, "DTE CleanVision MIGreenPower," accessed April 12, 2024, https://solutions.dteenergy.com/dte/en/Products/DTE-CleanVision-MIGreenPower/p/MIGPGREEN.

[726] "Dearborn Will Attribute 100% of City Building Electricity to Renewable Sources within Two Years," Michigan Public, January 13, 2024, https://www.michiganpublic.org/environment-climate-change/2024-01-12/dearborn-will-attribute-100-of-city-building-electricity-to-renewable-sources-within-two-years.

[727] Kathiann M. Kowalski, "Utility Lobbying and Policy Inattention Hinder Community Solar, Study Finds," Energy News Network, June 16, 2020, http://energynews.us/2020/06/16/utility-lobbying-and-policy-inattention-hinder-community-solar-study-finds/.

[728] Nina Ignaczak, "Michigan Legislators Introduce Bipartisan Bill Package to Enable Community Solar," Planet Detroit, March 9, 2023, https://planetdetroit.org/2023/03/michigan-legislators-launch-bipartisan-bill-package-to-enable-community-solar/.

[729] "DTE Energy Company (DTE) Stock Major Holders - Yahoo Finance," accessed April 12, 2024, https://finance.yahoo.com/quote/DTE/holders/.

[730] Robin Coventry, "Delaware Sustainable Energy Utility (DESEU) Takes Measure to Reduce State Agency Debt Service With Savings of $4.7 Million in Taxable Bonds," Energize Delaware, June 2, 2020,

Additional Barriers

Another factor that may slow the growth of our SEU model is local IOU lobbying power. So far direct response to efforts aimed at expanding community solar and micro-gridding can be summarized as taking advantage of existing relationships with the Michigan Public Service Commission. As a result, IOU-led plans at transitioning to clean energy have been given the green light.[731] These plans are undoubtedly a step in the right direction but can be scrutinized from many angles. First, using the DTE plan as an example, the funds to upgrade the grid will be paid for by consumers.[732] This puts consumers on the hook for maintaining and upgrading infrastructure that DTE has allowed to decay.[733] And this method corresponds to long-standing practice as DTE has increased rates every single year since 2018 while failing to provide an increase in reliability and cost-effective service options. As mentioned above, the funding needed to make these necessary upgrades is undoubtedly cheaper using the SEU model. And the SEU will be conscious of increasing the burden of high utility rates in low-income communities.[734]

Cooperating with existing energy providers will help SEUs increase in size and enable the state to quickly reach renewable energy goals. A good example is the partnership between the Delaware IOU and SEU which sped up the state's renewable energy transition process.[735] In 2016, the Michigan Public Service Commission created a new distributed generation program which replaced the net metering program and allows residents to be paid for the energy they generate.[736] Public Act 235 required utilities to increase their distributed generation cap as energy providers now need to provide 10% of their energy through distributed generation.[737] It is unclear how IOUs will collaborate with SEUs as there is no legal precedent in the state that would govern an IOU looking to an SEU to fulfill their distributed generation cap. This all suggests that under current state law, the SEU would be solely responsible for growing its customer base as incumbent utilities have no mandate to cooperate. Progress is being made, however, as local energy advocate groups have expressed concern over the barriers that current distributed energy generation caps maintain, and the

https://www.energizedelaware.org/delaware-sustainable-energy-utility-deseu-takes-measure-to-reduce-state-agency-debt-service-with-savings-of-4-7-million-in-taxable-bonds/.

[731] "Michigan Public Service Commission Approves DTE's Landmark Clean Energy Plan," accessed April 12, 2024, https://ir.dteenergy.com/news/press-release-details/2023/Michigan-Public-Service-Commission-approves-DTEs-landmark-clean-energy-plan/default.aspx.

[732] "Michigan Public Service Commission Approves DTE's Landmark Clean Energy Plan."

[733] Brian Allnutt, "Michigan Ranks # 2 for Power Outages," Planet Detroit, January 19, 2024, https://planetdetroit.org/2024/01/michigan-ranks-2-among-states-for-power-outages/.

[734] American Council for an Energy-Efficient Economy, "Energy Burdens in Detroit," September 2020.

[735] "DESEU," Energize Delaware, accessed April 12, 2024, https://www.energizedelaware.org/energize-delaware-good-energy/deseu/.

[736] "MPSC," accessed April 12, 2024, https://www.michigan.gov/mpsc.

[737] "SENATE BILL NO. 271."

role recent Michigan legislation has in preserving them.[738] An overall increase in solar infrastructure demand could help the SEU grow and would offer existing utilities a quick and efficient way to meet federal electric generation demands.

A key to expanding the SEU model is enabling the widespread use of microgrids or community solar. The exclusive right to construct electric transmission lines was retained through recent legislation.[739] This law could be changed, however, by the standard repeal processes in Michigan. Allowing the SEU to connect with IOU transmission lines would save the SEU money by avoiding the need to invest in transmission infrastructure. Through proposed Senate Bills 152 and 153, SEUs would be given the opportunity to connect microgrids and community solar sites to the incumbent energy provider's grid.[740]

Under current law, the recent switch from net metering to an inflow-outflow system increased the financial burden on customers that sell their surplus energy back to the IOU grid.[741] A municipality looking to adopt an SEU should also investigate repealing this law as the goal of the SEU is to reduce monthly billing rates.

Lastly, as mentioned above, IOUs in Michigan have been able to wield considerable political influence by way of campaign contributions and other political spending.[742] Proposed House Bills 5521 and 5520 if enacted would, "…block officials at multiple levels of Michigan's government from taking money from utility companies."[743]

4.2 Case Studies

This section of the chapter serves as a factual reference of existing SEUs in Delaware, Washington, DC, and Ann Arbor, Michigan. The governance models, financial structures, and energy justice practices of each SEU are highlighted in order to later apply key aspects of each to our recommended Michigan model. Our recommended SEU for Michigan is much different than each of these existing models, the key similarity being that any combination of energy efficiency and renewable generation program offerings through a utility can meet the definition of an SEU. Therefore, we provide context to the variability and flexibility of the SEU model by describing highly variable SEU models in the case studies below.

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[738] Vangipuram, P. and Goodman, M., "Environmental Justice Communities Warn Against Weakening State Senate Climate Package," October 10, 2023, Michigan Environmental Justice Coalition.
[739] "MCL - Section 460.593 - Michigan Legislature," accessed April 12, 2024, https://www.legislature.mi.gov/Laws/MCL?objectName=MCL-460-593.
[740] Kyle Davidson, "Michigan Dems Rally around Bills Aimed at Increasing Access to Solar Energy," *Michigan Advance* (blog), August 25, 2023, https://michiganadvance.com/2023/08/25/michigan-dems-rally-around-bills-aimed-at-increasing-access-to-solar-energy/.
[741] Detroit, "Republicans and Democrats Want Community Solar. Why Won't Michigan Legislators Enable It?"
[742] "Back-to-Back Rate Hikes Illustrate DTE Energy's Entrenched Power in Michigan."
[743] McWhirter, Sheri, "New Bills Would Block Campaign Money from Michigan's Power Utilities," mlive, February 28, 2024, https://www.mlive.com/public-interest/2024/02/new-bills-would-block-campaign-money-from-michigans-power-utilities.html.

Delaware

The Delaware SEU, Energize Delaware, referred to in this chapter as the DESEU, was established by the Delaware state legislature in 2007 and operates as a nonprofit 501(c)(3) organization dedicated to promoting sustainable energy practices and efficiency statewide.[744] The primary goal of the DESEU is to reduce energy consumption through offering energy efficiency programs.[745] The DESEU offers almost 20 programs dedicated to energy efficiency and financing, many of which are targeted at low-income customers. The DESEU does not offer renewable energy generation programs at this time. The governance structure, financing mechanisms, and energy justice practices of the DESEU are discussed below.

Governance

The DESEU operates as a nonprofit 501(c)(3) organization dedicated to promoting sustainable energy practices and efficiency statewide.[746] The DESEU functions within a governance framework that combines government oversight with collaboration from the private sector.

The DESEU Oversight Board plays a role in guiding the SEU towards its goals. Board members are actively involved by attending meetings, reviewing materials, and participating in committees. The board focuses on initiatives such as bond matters and ensures that committee work aligns with DESEU's objectives. A structured framework supports board operations by emphasizing expertise in committee assignments and establishing processes for updating governance documents and recruiting board members with backgrounds in energy sectors and higher education.[747]

The DESEU functions as a partnership involving both the private sector, and public sector, encouraging cooperation among government entities, utility providers, non-profit organizations and private businesses. This collaborative approach allows the DESEU to draw upon a range of resources, knowledge, and funding, from stakeholders. By working with utility companies, the DESEU advances energy efficiency initiatives, energy incentives, and large scale projects that promote the adoption of energy practices throughout Delaware.

The governance framework of the DESEU demonstrates a commitment to decision making processes and engaging stakeholders. With its board of directors or advisory council the DESEU ensures representation from sectors such as government bodies, industries, academic institutions and community groups. This diverse composition facilitates consensus

[744] Energy Efficiency Advisory Committee, "Delaware Sustainable Energy Utility," https://documents.dnrec.delaware.gov/energy/information/otherinfo/Documents/EEAC/DE%20SEU%20slides%20EEAC%20-%201-14-15.pdf, 2015.
[745] "About the DCSEU." DC Sustainable Energy Utility, 12 Feb. 2024, https://www.dcseu.com/about.
[746] Energy Efficiency Advisory Committee.
[747] Energize Delaware, "Strategic Plan," https://www.energizedelaware.org/wp-content/uploads/2023/10/FINAL-2015-to-2021Strategic-Plan.pdf, 2015.

building efforts and the creation of programs that cater to the needs and priorities of both residents and businesses in Delaware.[748]

The main accountability mechanism for the DESEU is the DESEU Advisory Board, which includes 11 public, academic and private sector representatives who are responsible for overseeing the establishment and progress of SEU's programs.[749] Subcommittees on the Advisory Board include the Executive Committee, the Governance and Nominating Committee, the Finance and Auditing Committee, and the Energy Programs Committee.There is no requirement for community member representation on the Advisory Board.[750]

Financing, Cost, and Economic Impact

The DESEU does not use taxpayer funds to pay for the SEU.[751] Part of the DESEU's upfront and start-up costs were covered by a series of government bonds, or low-interest loans.[752] To pay off the debt incurred and to provide its services, the DESEU used 1) shared services agreements between recipients, 2) revenue gained through the sale of Renewable Energy Credits (REC) in local or regional markets, and 3) Green Energy Fund monies.[753] The most significant source of revenue for DESEU is its annual RGGI Cap-n-trade allocation.[754] In fiscal year 2023 alone, RGGI allocations provided DESEU with $24 million, or 75% of the total annual budget.[755] RGGI is a regional agreement between eleven Northeast states that caps CO2 emissions from power plants, allows for the trade of CO2 credits between power plants, and awards offset allowances to programs that lower CO2 and other greenhouse gas emissions.[756]

DESEU's annual expenses between June 30th of 2022 and June 30th of 2023, FY 22-23, were $35,251,609[757] for serving Delaware's of over 1 million residents.[758] Of the $35,251,609 in total expenses, 4.5% went to Management and General costs, and the other 95.5% went

[748] "DESEU"
[749] "Oversight Board." *Energize Delaware*, https://www.energizedelaware.org/energize-delaware-good-energy/deseu/oversight-board/. Accessed 28 Mar. 2024.
[750] "Oversight Board"
[751] "DESEU."
[752] Sustainable Energy Utility Task Force, "The Sustainable Energy Utility: A Delaware First," 2008
[753] Sustainable Energy Utility Task Force.
[754] "Budget Report," *DESEU*, 2023, https://www.energizedelaware.org/wp-content/uploads/2023/10/proposed-revised-budget.pdf.
[755] "Budget Report."
[756] "Regional Greenhous Gas Initiative," https://www.rggi.org/sites/default/files/Uploads/Fact%20Sheets/RGGI_101_Factsheet.pdf, 2024.
[757] Whisman Giordano & Associates, "Energize Delaware Governance and Financials Letter", https://www.energizedelaware.org/wp-content/uploads/2023/12/Governance-letter-and-financials.pdf, 2023.
[758] US Census Bureau, "Delaware Quick Facts," https://www.census.gov/quickfacts/fact/table/DE/PST045223

towards Program Service costs in FY 22-23.[759] The DESEU spent $918,363 in salaries and related expenses in FY 22-23.[760]

Consumer economic impact and DESEU's financial sustainability are tied together. Participating Delawarians are expected to experience a 30% improvement in energy efficiency, which translates to $1000 in annual sayings per consumer.[761] Moreover, shared services agreements and REC sale compensation are also ways through which consumers benefit.

From 2014 to 2022, the DESEU saved Delawareans over $10 million on their utility bills, over 804,000 MMBtus, and more than 66,077 metric tons of GHG emissions statewide.[762]

Energy Justice

The DESEU focuses solely on energy efficiency program offerings, many of which are targeted toward low-income customers. Two of these programs, the Assisted Home Performance Program and the Empowerment Program, are foundational programs to the DESEU and warrant further discussion.

The Assisted Home Performance Program is part of the Home Performance Program, the flagship program of the DESEU. This program provides a comprehensive home energy assessment and energy efficiency upgrades offered at significantly reduced costs of $25 per assessment.[763] While statistics are not provided specific to the Assisted Home Performance Program, the entire program has achieved $421,582 in annual energy savings and $7,588,477 in lifetime energy savings.[764]

The Empowerment Program, originally funded by a merger between Delmarva Power and Exelon, is currently being redesigned due to a new source of funding. The first version of the program provided energy-efficiency grants for underserved communities and allocated $4 Million in energy-efficiency grants for underserved communities, achieving $47,241 in annual energy savings.[765] The second phase of the program, powered by the Energy Equity Fund, received $2.5 Million from the American Rescue Plan Act (ARPA), $2 Million from Energize Delaware, and $500,000 from corporate and foundation fundraising to "bring clean, cost-

[759] Whisman Giordano & Associates.
[760] Whisman Giordano & Associates.
[761] Sustainable Energy Utility Task Force.
[762] Energize Delaware. "Energize Delaware 2022 Annual Report."
[763] "Assisted Home Performance with ENERGY STAR®." *Energize Delaware*, https://www.energizedelaware.org/residential/home-performance-with-energy-star/ahpes/. Accessed 26 Mar. 2024.
[764] Energize Delaware.
[765] Energize Delaware.

saving energy to underserved communities, train a diverse workforce, and link energy-efficiency to healthy homes and small businesses."[766]

As for job creation, one of the core strategic initiatives of the DESEU is economic activity including funding green job training.[767] DESEU offers 25 green job training programs, but the number of jobs created is not advertised.[768]

Washington, DC

The SEU in Washington, DC, named DCSEU, was established in 2011 to help DC residents and businesses use less energy and save money. The authority for DCSEU was provided by the Clean and Affordable Energy Act passed by the Washington, DC City Council in 2008. DCSEU is under a performance-based contract with the DC Department of Energy & Environment (DOEE).[769] DCSEU offers two primary programs, both targeted at low-income customers: Solar for All and Affordable Home Electrification. The Solar for All program focuses on renewable energy generation, and the Affordable Home Electrification program focuses on energy efficiency. The governance structure, financing mechanisms, and energy justice practices of DCSEU are discussed below.

Governance

In Washington DC, the DCSEU plays a role in driving development and fostering innovation in energy practices. DCSEU operates within a governance structure characterized by collaboration, among government agencies, utility providers, and community stakeholders. The governance of DCSEU is overseen by the DC DOEE. DOEE provides guidance and oversight to ensure that DCSEUs projects align with the sustainability objectives and regulations of the District. DCSEU collaborates with utility companies to execute energy efficiency programs, renewable energy incentives and demand side management efforts. These partnerships allow DCSEU to secure funding, technical support and engage with customers effectively enhancing the impact of their sustainability initiatives in Washington DC.[770]

Apart from collaborating with government and utility partners DCSEU involves community stakeholders through its governance framework. By including representatives from organizations, community groups and business associations in their decision making processes DCSEU ensures that its projects cater to the needs and interests of residents in the District.

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[766] Energize Delaware.
[767] Energize Delaware.
[768] "Workforce Development." *Energize Delaware*, https://www.energizedelaware.org/wf-development/. Accessed 28 Mar. 2024.
[769] "About the DCSEU."
[770] https://doee.dc.gov/service/dc-sustainable-energy-utility-dcseu

DCSEU has three main community accountability mechanisms: annual performance oversight hearings held by the DC Council, appointed community representation on the Advisory Board, and two public hotlines managed by DCSEU and DC Department of Energy and Environment.[771]

Financing, Cost, and Economic Impact

DCSEU's funding comes from the Sustainable Energy Trust Fund (SETF) and the Renewable Energy Development Fund (REDF).[772] SETF is financed by a surcharge to all District of Columbia gas and electric ratepayers.[773] REDF is financed by payment from competitive energy suppliers.[774]

For the fiscal year ending in September of 2022, the DCSEU reported spending $31.56 million.[775] DCSEU has a 20% cap on administrative costs, which amounted to $4 million in F22.[776]

Since 2011, DCSEU has saved DC residents and businesses $1.3 billion.[777] Other DCSEU programs specifically designed to target low- and middle-income DC residents, such as Solar for All and Affordable Home Electrification, provide renewables, energy savings and financial benefit to those that need them the most, tackling AA SEU's potential cost-shifting problem from the get-go.[778] Solar for All, which is available to income-qualified DC residents, has the potential to lower annual electricity bills by $500, or by half.[779]

Energy Justice

The DCSEU focuses on distributive justice, the equitable allocation of benefits and burdens, through providing services and benefits of renewable energy generation and energy efficiency measures to historically disadvantaged and low-income groups in the City. More specifically, DCSEU manages two main programs: Solar for All and Affordable Home Electrification.

The Solar for All program finances and builds solar panels on qualifying low-income homes in DC and aims to bring the benefits of solar energy to 10,000 low-to-moderate

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[771] Thomas Bartholomew (Associate Director Policy and Compliance DC Department of Energy & Environment) in discussion with the author, March 2024.
[772] "About the DCSEU."
[773] "About the DCSEU."
[774] "About the DCSEU."
[775] Corman, Bicky. "DC Sustainable Energy Utility Adviosry Board Fiscal Year 2022 Report", https://doee.dc.gov/sites/default/files/dc/sites/doee/publication/attachments/FINAL_SEUAB%202022%20Annual%20Report.pdf, 2023.
[776] Corman.
[777] "About the DCSEU."
[778] "Solar for All." DC Sustainable Energy Utility, 12 Feb. 2024, https://www.dcseu.com/solar-for-all.
[779] "Solar for All."

income families in DC.[780] The program has partnered with organizations across the city to install solar on single family homes and develop community solar projects to benefit renters and residents in multi-family buildings.[781] The Solar for All program has reduced energy burden of the lowest income households from 13.5% to 8.8%[782] and won the U.S. Department of Energy's National Community Solar Partnership (NCSP) 2023 Grand Prize Sunny Award for Equitable Community Solar.[783] Another important aspect and benefit of the Solar for All program is Solar Works DC, a low-income solar installation and job training program. Solar Works emphasizes local hiring and requires only a high school diploma or a GED and provides special attention to those with criminal records.[784] In 2023, 94 green jobs for DC residents were created by the DCSEU.[785]

The Affordable Home Electrification Program helps low-income homeowners switch from natural gas to electrification. More specifically, the program targets electrification of home heating, cooling, and water heating systems and energy efficiency upgrade options by providing thermostats, heat pumps, heat pump water heaters, and induction stoves. These upgrades are provided at no expense to the homeowner and aim to lower energy usage and bills and decrease energy burden for low-income residents.[786]

Ann Arbor, Michigan

The Ann Arbor SEU, referred to in this chapter as the AASEU, is in the planning phase and most recently commissioned a feasibility study from a private consulting firm. A vote on forming the SEU is expected to be put on the November 2024 ballot. The AASEU was proposed in order for the City to meet its renewable energy goals, carbon neutrality by 2030.[787] The AASEU plans to focus on renewable energy generation through distributed solar panels which would eventually be connected through microgrids. Energy efficiency programs are a secondary aspect of the SEU. The governance structure, financing mechanisms, and energy justice practices of the AASEU are discussed below.

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[780] "Solar for All."
[781] "About the DCSEU."
[782] Trabish, Herman K. "Bringing Equity to Electricity Service through Home, Power Sector and Regulatory Innovation." Utility Dive, 27 Oct. 2022, https://www.utilitydive.com/news/bringing-equity-to-electricity-service-through-home-power-sector-and-regul/630253/.
[783] *District of Columbia Solar for All Program Profile* . Environmental Protection Agency.
[784] Trabish.
[785] DC Sustainable Energy Utility Annual Report 2023. DC Sustainable Energy Utility, 2023.
[786] "Affordable Home Electrification." DC Sustainable Energy Utility, 12 Feb. 2024, https://www.dcseu.com/affordable-home-electrification.
[787] Stanton , Ryan. "Ann Arbor Voters May Decide on New City Electric Utility in November Election." *Mlive*, 22 Feb. 2024, https://www.mlive.com/news/ann-arbor/2024/02/ann-arbor-voters-may-decide-on-new-city-electric-utility-in-november-election.html.

Governance

The AASEU exists only as a potential future option for Ann Arbor. As such, no governance structure currently exists. However, the city maintains existing programs and partnerships to promote sustainability. These initiatives typically involve municipal departments, private partnerships, and engagement with the local community, so it is likely that a future SEU might work with or absorb these responsibilities.

Ann Arbor's city administration plays a role in advancing energy projects by utilizing departments focused on energy management, environmental protection and sustainability practices. These municipal bodies design programs centered on improving energy efficiency, increasing energy usage and enhancing climate resilience as part of their commitment to conservation.

Private partnerships also play a role in driving sustainable energy initiatives in Ann Arbor. The city works hand in hand with utility companies, non profit organizations and businesses to finance and carry out projects that promote energy efficiency, support energy technologies and boost the community's ability to withstand the effects of climate change.[788]

Community involvement serves as a foundation for sustainable energy governance in Ann Arbor with residents, businesses and organizations actively engaged in decision making processes and implementing programs. By hosting discussions, workshops and outreach initiatives Ann Arbor has created a sustainability focused environment that empowers stakeholders to play a role in the city's transition towards energy sources.

Expected community accountability mechanisms are limited, and only accountability through City Council meetings and City Council official elections are projected at this time.[789]

Financing, Cost, and Economic Impact

The AA SEU does not exist yet, but its plan is to fund start-up costs and operational costs through 100% debt financing. Some of the earlier parts of the AASEU plan identified the types of funding and the theoretical structure of the SEU's financing. Besides debt, such as municipal bonds (revenue or general obligation), green bonds, federal tax incentives, city funds, or state, federal and philanthropic grants were also considered.[790] Start-up and initial solar installation costs will be covered by any of the mentioned funding sources, but eventually consumer rate paying is expected to make the model self-sustaining through a consumer-paid rate per kWh used.

[788] "What is a Sustainable Energy Utility", https://www.a2gov.org/departments/sustainability/Sustainability-Me/Pages/Ann-Arbor's-Sustainable-Energy-Utility-(SEU).aspx
[789] "What is a Sustainable Energy Utility"
[790] "Ann Arbor's Sustainable Energy Utility."

The AASEU predicts that their energy would cost less than that of the current IOU.[791] The decrease in energy costs from improved energy efficiency and the use of cheaper solar-produced electricity would make SEU service more affordable than DTE's. Cost predictions created by SunStore, one of AASEU's partners, predicts that the AASEU would charge consumers a residential PV rate of 12.5 cents per kWh, based on the SEU's first-year costs. SunStore estimates an annual 2.5% escalation for AASEU's rate. Participating residents would pay two bills, one to the IOU and one to the SEU, depending on the energy they used from each service.[792] The energy not consumed through DTE, would come from the AASEU at a lower rate, making the overall electricity cost to Ann Arbor consumers lower. AA residents wouldn't entirely rely on the SEU, and would use a combination of both services for maximized reliability.

A central feature of the AA SEU is its on-bill financing, which allows the city to pay upfront costs and residents to pay back the investments through their utility bills.[793] This repayment mechanism would tie the payment to the meter instead of the consumer, allowing for deeper retrofits with lower repayment periods.[794] On-bill financing would also tie the investments to residents' properties instead of homeowners, who could pass on the costs and benefits of the solar installations to the next owner.[795] Such a service is not currently provided by Ann Arbor's incumbent IOU, DTE.[796]

According to SunStore's calculations, the AASEU's costs from 2024 to 2050 are predicted to be $54 million, and the rate used to recover costs from consumers starts at 12.5 cents per kWh and annually escalates to 21.1 cents per kWh. For a 10 MW portfolio, the city plans to borrow $24.9 million to finance start-up costs and cover operational costs in the first few years of the SEU's launch.[797] Issued bonds are to be paid off in annual increments across 20 years.

Energy Justice

While the Ann Arbor SEU is still in its planning stage, many energy equity and justice best practices are being considered. Moreover, equity is a key theme in the Ann Arbor SEU chapter. For example, one of three core energy criteria for the SEU is to "be grounded in equity and justice." This criterion speaks to the prioritization of procedural and distributive

[791] Ann Arbor's Sustainable Energy Utility Fact Sheet.
[792] "Ann Arbor's Sustainable Energy Utility: FAQs".
[793] "Ann Arbor's Sustainable Energy Utility."
[794] "Ann Arbor's Sustainable Energy Utility."
[795] "Ann Arbor's Sustainable Energy Utility."
[796] "Ann Arbor's Sustainable Energy Utility."
[797] "City of Ann Arbor 100% Renewable Energy Options Analysis."

justice and the centering of "low-income and underserved populations in both the decision-making and benefits of solutions."[798]

Goals to embed equity and justice consideration in the Ann Arbor SEU include affordability for low-income residents, equitable outcomes, resolution of historical injustices, and fair labor practices. Ann Arbor proposes to accomplish the goals by "minimizing energy costs rather than increasing them, enhancing the quality of life for frontline communities, and partnering with frontline communities."[799]

While programs addressing energy equity and justice concerns are still in their idea phase, Ann Arbor's SEU vision includes "broad and deep access to renewable energy, the creation of programs for low-income and underserved residents, and the expansion of weatherization services."[800] While these programs are not yet established, budget bill plans, which would charge the same billing all year despite increased seasonal usage, and grants are the possible routes for providing low-income assistance programs.[801] One key aspect of energy justice specific to the Ann Arbor SEU is the question of how remaining DTE customers outside of Ann Arbor will be impacted by a lesser reliance on DTE energy by Ann Arbor customers; moreover, many speculate these remaining customers will experience higher rates. Additionally, there is limited information regarding a distributional justice element in the siting of microgrid arrays. Missy Stults, Ann Arbor Office of Sustainability and Innovations, explained that microgrids will be sited primarily based on demand.[802]

4.3 Feasibility and Governance

The SEUs operating in Delaware and Washington DC, and the model proposed for Ann Arbor provide three examples of how an SEU can be implemented in practice. In this section, we will analyze the technical feasibility of an SEU in Michigan, address costs and financing required to start an SEU, and propose a governance and management structure that addresses our key criteria, while following technical and financial constraints.

Technical Feasibility

In this section, we will discuss scales at which an SEU can operate and the technology required at each scale. We will also define the scope of SEU investment in sustainable technologies, and identify mature technologies that are currently available for energy

[798] "What is a Sustainable Energy Utility?".
[799] Ann Arbor's Sustainable Energy Utility Fact Sheet.
[800] Ciampoli, Paul. "Report Details How Sustainable Energy Utility Would Benefit Ann Arbor, Mich." American Public Power Association, American Public Power Association, 29 Oct. 2021, https://www.publicpower.org/periodical/article/report-details-how-sustainable-energy-utility-would-benefit-ann-arbor-mich.
[801] Val Brader (Energy and Utility lawyer) in discussion with the author, March 2024.
[802] Missy Stults (Sustainability and Innovations Director) in discussion with author, March 2024

generation, electrification, and efficiency. We will briefly discuss emerging technologies and the role of the SEU in guiding these technologies to practical applications.

SEU Technical Scales

The SEU model is flexible in that it can exist at any or multiple scales; generally, these scales can be divided into three groups: individual, local, and regional. The smallest scale is that of an individual household or building. At the individual scale, sustainability can be improved through the implementation of i) distributed sustainable generation, ii) distributed storage, iii) household energy efficiency solutions. These solutions can be implemented without the oversight of an SEU, though the assistance of an SEU can make this process easier and more affordable. Generation and storage resources that are implemented by the SEU will require a behind-the-meter interconnection or comparable technology, given that the SEU must exist parallel to the traditional IOU.

The next scale, in increasing size, is the local scale, where "local" can be defined by formal (tract, city, or county), or informal (neighborhood) lines. At the individual level, distributed generation and storage can still exist. In order to integrate these distributed generation resources to serve localities rather than individuals, an upgrade to the interconnection and inverter may be needed to integrate distributed resources with a local micro grid and grid management technologies. At any scale larger than the local scale, infrastructure to support long range transmission is required. This scale, the regional scale, is not currently a feasible option for an SEU in Michigan, given the limits to municipal utility jurisdiction. A summary of the technologies to be used at each scale is included in Table 1.

	Individual (household/building)	**Local (tract/city/county)**	**Regional (multi-county/state)**
Generation/ Storage	○ Distributed generation (solar, geothermal, wind) ○ Distributed storage (electrochemical - e.g. Lithium-ion or lead acid batteries)	○ Community generation (hydro, geothermal, wind, solar) ○ Community storage (electrochemical, pumped)	○ Utility scale generation (hydro, solar, geothermal, wind) ○ Utility scale storage (electrochemical, pumped) ○ Sustainable fuel
Efficiency/ Electrification	○ Energy efficient windows ○ Improved insulation ○ Smart technology to reduce vampire usage ○ Heat pump dryers	○ Community EV charging stations	○ Upgrade to high-voltage transmission lines

	○ Heat pump/on-demand water heaters ○ Heat pump HVAC ○ Induction cooktop ○ EV support		
Grid Infrastructure	○ Behind-the-meter interconnection ○ Generation-scale inverter	○ Local distribution grid ○ Front-of-meter interconnection to new distribution grid ○ Power management system ○ Grid-scale inverter	○ Interconnection to regional transmission

Table 1. Technology requirements by scale.

Available Technologies and Future Technical development

The SEU, by name and definition, is intended to provide sustainable energy through an equitable management structure. There is currently no consensus on which energy generation technologies qualify as "clean," "renewable," or "sustainable." The state of Michigan, for example, includes biomass as a "renewable" energy source.[803] For the purpose of this chapter, we will define sustainable energy as primary or secondary energy generated by a process that is renewable and does not itself generate waste as a byproduct of electricity generation. This definition includes geothermal, hydro, wind, and solar as sustainable primary sources. Sustainable secondary power sources, which are power sources generated by converting energy generated from primary sources, includes hydrogen fuel, electrochemical storage, and pumped/potential energy storage.

The MI Healthy Climate Plan sets the goal that 60% of the state's electricity should be generated from "renewable" sources by 2030. We can assess the ability of the SEU to contribute toward this goal by assessing six quantitative parameters for comparison of generation technologies:

- *Average capital expense (CAPEX):* the initial financial burden of acquiring the technology;
- *Levelized cost of electricity (LCOE):* the cost per unit energy over the technical lifetime of the generation source;

[803] Michigan Environmental Council.

- *Median power density:* the median amount of power that can be generated in a given area;
- *Operational lifetime:* the length of time the technology can operate before costly infrastructure replacement will be necessary to maintain reasonable efficiency levels;
- *Capacity factor:* the fraction of time the generation source is generating power in a given year;
- *Location restrictions*: technological requirements or local regulations that limit the geographical areas in which a specific technology can be used.

The potential affordability, which will be discussed in more detail shortly, is constrained by the CAPEX, LCOE, and the operational lifetime of the technology. The capacity factor gives a quantitative summary of reliability, but amalgamates all causes of power generation interruption, including mandatory maintenance, natural restrictions, and unplanned shutdowns. The ability to meet load requirements will depend on how much power can be generated, which depends on the capacity factor, the power density, and restrictions on where these generation sources can be installed.

For storage technologies, we assess projected CAPEX, fixed operation and maintenance (O&M) costs, power capacity, operational lifetime, discharge time, and round trip efficiency. The fixed O&M costs account for expenses incurred for each year of operation, such as planned maintenance. The power capacity defines the amount of power that can be discharged from the system. The discharge time defines the output duration of discharge for the specified power capacity. The round trip efficiency quantifies energy lost charging and discharging the battery. These quantities are summarized for sustainable generation and storage technologies in Tables 2 and 3, respectively.

	Average CAPEX[804] ($/kW)	LCOE[805] ($/MWh)	Median power density[806] (W/m^2)	Operational Lifetime (yrs)	Capacity factor[807]	Location restriction[808]
Geothermal	6,951	56.9	2.24	25-50[809]	90%	ability to bore 300-3000m [810]
Hydro	3,008	70.7	0.14	100+[811]	54%	body of water
Utility-scale Solar *[with storage]**	1,352 *[2,309]*	30.7 *[75.8]*	6.63	25-30 *[10]*[812]	28%	suitable solar exposure
Rooftop Solar *[with storage]**	2,892	119.4	6.63	25-30 *[10]*	28%	suitable roof infrastructure, geometry, & orientation
Wind *[off-shore]**	1,478 *[4,136]*	17.3 *[80.3]*	1.84	30[813]	41%	>3km from city center *[large body of water]*

Table 2. Quantitative assessment of sustainable generation technologies.

**Bracketed, italicized variations are considered in the bracketed, italicized figures throughout the table*

	Projected CAPEX ($/kWh)	Fixed O&M	Power Capacity	Operational Lifetime (yrs)	Discharge time (h)	Round-trip

[804] NREL, "Annual Technology Baseline," 2023, https://atb.nrel.gov/electricity/2023/index.
[805] NREL.
[806] John Van Zalk and Paul Behrens, "The Spatial Extent of Renewable and Non-Renewable Power Generation: A Review and Meta-Analysis of Power Densities and Their Application in the U.S.," *Energy Policy* 123 (December 2018): 83–91, https://doi.org/10.1016/j.enpol.2018.08.023.
[807] "Levelized Costs of New Generation Resources in the Annual Energy Outlook 2022," 2022.
[808] Anthony Lopez et al., "U.S. Renewable Energy Technical Potentials: A GIS-Based Analysis," *Renewable Energy*, 2012.
[809] U.S. Department of Energy, "Guide to Geothermal Heat Pumps," February 2011.
[810] Michelle Mullane et al., "An Estimate of Shallow, Low-Temperature Geothermal Resources of the United States: Preprint," n.d.
[811] Indiana Office of Energy Development, "Fuel Facts: Hydroelectric Power," 2020, https://www.in.gov/oed/files/fuel-facts-hydroelectric-power.pdf.
[812] "Extending Solar Energy System Lifetime with Power Electronics," Energy.gov, accessed March 18, 2024, https://www.energy.gov/eere/solar/articles/extending-solar-energy-system-lifetime-power-electronics.
[813] DOE Wind Energy Technologies Office, "Wind Energy End-of-Service Guide," accessed March 18, 2024, https://windexchange.energy.gov/end-of-service-guide.pdf.

		($/kWh-yr)				efficiency
Electrochemical Storage (Lithium-ion)[814]	443	44	5 kW	15	4	85%
Pumped Storage Hydro[815]	262	30	100 MW	40	10	80%

Table 3. Quantitative assessment of energy storage technologies.

The tables above summarize a range of commercially mature sustainable generation and storage technology. Other technologies are included here as options for specific communities where existing infrastructure, such as a municipally-owned dam, or serendipitous geographic location, such as on the coast of one of the Great Lakes, elevates the potential of these options.

Energy efficiency and electrification technologies can also contribute to the SEU. The SEU structure provides a method for covering the cost of sustainable technologies with a high upfront expense through a rate set by the energy generated or saved through the technology itself. In Table 4, we have summarized average Energy Star data available for water heaters, clothes dryers, and cooktops; the number of appliances considered, *N*, is indicated in the table.

Other, low-cost efficiency and electrification improvements, such as lighting or small appliances, while important pieces of a sustainable household, fall outside of the scope of the SEU. Technologies, such as HVAC, insulation, roof, wall, or window upgrades, may require significant structure upgrades beyond the installation itself, which could be difficult for the SEU to manage. For example, the cost to install an electric furnace varies significantly, between $1300-8300.[816]

Three technologies that are potential candidates for the SEU to deploy that have relatively simple installation and could provide a demonstrable change in energy consumption are: water heaters, clothes dryers, and cooktops.

[814] Wesley Cole and Akash Karmakar, "Cost Projections for Utility-Scale Battery Storage: 2023 Update," *Renewable Energy*, 2023.
[815] Kendall Mongird et al., "2020 Grid Energy Storage Technology Cost and Performance Assessment," 2020.
[816] Allie Ogletree, "How Much Does An Electric Furnace Cost?," Forbes Home, February 22, 2024, https://www.forbes.com/home-improvement/hvac/electric-furnace-cost/.

	Upfront Cost ($)[817]	Average electricity consumption (kWh/yr)[818]	Average fuel consumption (Btu/yr)*[819]
Water Heaters			
Natural Gas/ Propane (N = 376)	600 - 4500	--	181,000,000
Electric (N = 291)	550 - 2000	1100	--

[817] Lowes Home Improvement market costs

[818] "Water Heater Installation Cost | 2024 Guide," Architectural Digest, accessed April 2, 2024, https://www.architecturaldigest.com/reviews/hvac/water-heater-installation-cost; "ENERGY STAR Certified Water Heaters," 2024, https://www.energystar.gov/productfinder/product/certified-water-heaters/results?page_number=0; "ENERGY STAR Certified Electric Cooking Products," 2024, https://www.energystar.gov/productfinder/product/certified-residential-electric-cooking-products/results; "ENERGY STAR Certified Clothes Dryers," 2024, https://www.energystar.gov/productfinder/product/certified-clothes-dryers/results.

[819] Ibid.

Clothes Dryers			
Gas (N = 185)	500 - 2000	--	2,300,000
Electric (N = 357)	300 - 3000	580	--
Heat Pump (N = 45)	800 - 3000	263	--
Cooktops			
Gas	200 - 800	--	No data
Radiant (N = 16)	100 - 1600	195	--
Induction (N = 5)	200 - 1000	190	--

**note 1 kWh = 3,412 Btu*[820]

Table 4. Electrification and efficiency upgrade data for water heaters, clothes dryers, and cooktops.

The appliances listed in Table 4 are currently available on the market, and could potentially be bought and installed by any individual. The SEU can pay the upfront cost of the appliance so that individual customers can avoid a large upfront cost and instead pay this over time. Since an electrification or efficiency upgrade will decrease the amount of electricity or fuel consumed, and thus the amount paid to the existing utility, the change in utility bill can pay back the cost of the initial investment. The purpose of the SEU is to both manage this repayment and assess, prior to installation, which efficiency or electrification measures would have the most benefit, and what the specific payback period would be. For example, if an SEU customer receives a heat pump clothes dryer to replace an electric clothes dryer, they would conserve more than 317 kWh/year. If the cost of electricity for this customer is $0.17/kWh, the customer would save about $54 per year. The more improvement in efficiency, the higher the savings. This savings would be paid back to the SEU, which paid for the initial dryer costs. The job of the SEU is to determine if such an upgrade can pay for itself over its technical lifetime. If this is not possible, additional funding from the SEU or the customer would be required.

The need for efficiency and electrification will vary significantly from household to household. Additionally, the implementation of efficiency and electrification improvements occurs only at the household scale. Changes to household energy consumption through electrification and efficiency will affect the local grid as a whole but, unlike when considering a local distribution grid, one household's choice to install electrification technology does not require their neighbor to do the same. Thus, while efficiency and electrification technology

[820] "British Thermal Units (Btu) - U.S. Energy Information Administration (EIA)," accessed April 2, 2024, https://www.eia.gov/energyexplained/units-and-calculators/british-thermal-units.php.

has the technical potential for reducing electricity or gas consumption, implementation will be highly community dependent.

For the purposes of this chapter, we chose to identify sustainable energy sources as those that do not generate waste as a byproduct of electricity generation. This definition, in its simplicity, serves to clearly outline the most suitable generation technologies currently available. As energy technology continues to advance, a more robust analysis should be used to assess sustainability. The life cycle environmental impact of energy can be used to quantify the sustainability of various technologies by accounting for the environmental impact of researching, constructing, operating, and decommissioning a specific technology.[821]

Additionally, emergent technologies will likely play a significant role in future energy systems. Institutions such as an SEU could aid in identifying specific needs not addressed by current technologies that could be addressed by future technologies. One framework for guiding research through an equity and justice lens, the justice underpinning science and technology research (JUST-R) framework, emphasizes the importance of involving members of affected communities in both late-stage participatory research, and in motivating advancement from research to development scale.[822] As a community institution, the SEU has the potential to drive research necessary for its further development.

Cost and Financing

This provides a cost estimation for rooftop solar generation and energy efficiency services to ten percent of Michiganders. This percentage target is chosen based on a conservative estimate of the state's solar potential. It is likely that Michigan has a higher solar potential than 10%, but additional data on the housing stock, roof properties, and more would be required to make a realistic estimate. Although solar distribution is a component of SEU's services that can improve electricity reliability, a distribution cost estimation is outside the scope of our analysis. To accompany solar generation cost estimations, this section also provides a discussion on SEU revenues and financing.

Solar Costs

The flexible and amorphous nature of the SEU enables it to adjust to a community's needs by providing starkly different renewable or efficiency services on a case-by-case basis. While individual assessment of each community will be necessary for the practical

[821] Francesco Asdrubali et al., "Life Cycle Assessment of Electricity Production from Renewable Energies: Review and Results Harmonization," *Renewable and Sustainable Energy Reviews* 42 (February 2015): 1113–22, https://doi.org/10.1016/j.rser.2014.10.082; Mahmoud G. Hemeida et al., "Renewable Energy Resources Technologies and Life Cycle Assessment: Review," *Energies* 15, no. 24 (December 12, 2022): 9417, https://doi.org/10.3390/en15249417.

[822] Nikita S. Dutta et al., "JUST-R Metrics for Considering Energy Justice in Early-Stage Energy Research," *Joule* 7, no. 3 (March 2023): 431–37, https://doi.org/10.1016/j.joule.2023.01.007.

implementation of the SEU, large-scale feasibility also requires an assessment of statewide costs. For the purposes of this chapter, cost estimations are calculated for supplying solar panels to 10% of Michigan's households.

In the following section, there is a broader discussion on the individual costs of energy efficiency costs, including the costs of weatherization services, installation of efficient appliances and roof repairs, but it does not outline an overall cost estimate due to the variability in the demand of each community for energy efficiency services.

As of 2023, only 1.3% of Michigan's electricity is solar generated, with the largest concentration of solar belonging to utilities.[823] Because Michigan has an estimated solar potential of around 10% of Michigan households, that is the targeted solar penetration.[824] Ten percent of Michigan's 4.53 million households is 450,300 homes. Because most of the current solar generation is provided by IOUs, the 1.3% is not factored into the 10% calculations.

This cost model draws from the Ann Arbor (AA) SEU's cost projections provided by SunStore Energy. While actual cost models exist in the two other SEUs this chapter studied, DESEU and DCSEU, the AASEU is the most applicable in a Michigan context. According to the AASEU, residential consumers will pay a starting rate of 12.5 cents per kilowatt hour for residential PV, with an annual 2.5% escalation, compared to Michigan's current average residential rate of 17.9 cents per kilowatt hour.[825] The 12.5 cent rate is set to cover the AASEU's expenses during the first year of operation, and annually increases according to the escalation up to 24 cents by 2050. The assumption is that when the AASEU cost model is recreated in each Michigan community that will create an SEU, the rate will remain roughly around what the AASEU and SunStore Energy predicted. Variability in solar capacity—how much energy a solar panel can produce—across different Michigan communities and the accuracy of AASEU's cost and energy generation projections determine the applicability of Ann Arbor's calculations.

To calculate how much it will cost to provide solar panels to 10% of Michigan households, levelized costs of energy (LCOE) is calculated using the AASEU's 25-year cost and generation predictions to get an average cost value for each kilowatt hour produced. The LCOE formula below sums the discounted total cost of kilowatt per hour production divided by the discounted quantity of kilowatt per hour produced. For this calculation, a 3% rate is used.

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[823] "Michigan Solar," SEIA, n.d., https://www.seia.org/state-solar-policy/michigan-solar.

[824] Private conversation with a former DTE executive.

[825] "Electricity Data Browser," accessed April 16, 2024, https://www.eia.gov/electricity/data/browser/#/topic/7?agg=0,1&geo=00004&endsec=vg&linechart=~ELEC.PRICE.MI-RES.M~ELEC.PRICE.MI-COM.M~ELEC.PRICE.MI-IND.M&columnchart=ELEC.PRICE.MI-ALL.M&map=ELEC.PRICE.MI-ALL.M&freq=M&start=200101&end=202301&ctype=linechart&ltype=pin&rtype=s&pin=&rse=0&maptype=0.

$$LCOE = \frac{\Sigma\ NPV\ costs\ over\ lifetime}{\Sigma\ NPV\ of\ electrical\ energy\ produced\ over\ lifetime}$$

The AASEU's total generation costs from 2025 to 2050 are $54 million and the total generation in those 25 years is 276 million kilowatt hours.[826] The calculated LCOE is $0.22, which is then multiplied by the total electricity needed by 450,000 homes to find the total cost. Annually, the average Michigan household consumes around 8,000 kWhs, and 10% of Michigan households consume 3.6 billion kWh.[827] The annual cost of providing 10% of Michigan households with solar panels is calculated by multiplying the 3.6 billion kWh annual consumption and the LCOE, which results in a total of $830 million in total annual costs. This calculation does not account for the increase in consumption annually and is based on 2023 data on annual household electricity consumption.

The annual costs of $830 million would be divided across various 692 Michigan places (cities and villages), which on average would cost each city roughly $1.2 million.[828] This average annual city cost value provides solar generation to roughly 650 households, and does not account for variations in city and village size across Michigan, and is likely skewed by either really small or large localities. The real cost would be dependent on population size and density. As a point of comparison, Detroit, the most populated city in Michigan, has 249,518 households, 10% of which is 24,952 households.[829] This cost estimation also does not account for the proportion of electricity provided to each household by the solar panel, which will be less than 100%.

This chapter's SEU cost projections are likely imprecise, but provide a starting basis for communities to discuss the creation of their own SEU. Each community should assess its own SEU costs, depending on their own needs and capacities.

Summary of SEU Cost Estimations	
Discount Rate	3%
Annual Mean MI Household Energy Consumption	8,000 kWh

[826] Draft cost projections, provided by the Ann Arbor SEU, and created by SunStore Energy.
[827] "CE1.1.ST Summary Annual Household Site Consumption and Expenditures in United States Homes by State—Totals and intensities, 2020" (EIA, June 2023), https://www.eia.gov/consumption/residential/data/2020/state/pdf/ce1.1.st.pdf.
[828] US Census Bureau, "Michigan," Census.gov, accessed April 16, 2024, https://www.census.gov/geographies/reference-files/2010/geo/state-local-geo-guides-2010/michigan.html.
[829] "SEMCOG Community Explorer," SEMCOG.org, accessed April 16, 2024, https://maps.semcog.org/CommunityExplorer/.

Annual Total Solar Cost for 10% of MI Households	$830,315,795
Annual Mean Community Cost (650 households)	$1,199,878

Table 5. Summary of SEU cost estimations.

Energy Efficiency Costs

While both the DC and Delaware SEUs offer energy efficiency services in the form of appliance replacement or weatherization repairs, calculating the cost of energy efficiency services for Michigan is more difficult to project than the cost of solar services. Calculating energy efficiency costs requires knowing the energy needs of each community, which, for the purposes of this chapter, is unavailable information.

However, it is possible to calculate individual costs of energy efficiency services, which would allow communities to estimate their own energy efficiency costs. Notably, unlike solar panels, which requires utility-like capacities, most people can get energy efficiency appliances and repairs from existing retailers and contractors. Communities should consider providing efficiency services to income-qualified residents that might not be able to afford energy efficiency upgrades at the current market cost.

The U.S. Department of Energy's Weatherization program estimates the average repair cost per housing unit to be $4,695, with each $1 in investment returning $2.78 in non-energy and $1.72 in energy benefits.[830] Such weatherization measures include heating and cooling repairs, insulation installation, providing energy efficient light sources, showerheads, and appliances.[831]

Revenues and Financing

Each of the three SEUs this chapter evaluates uses different financing structures. It is worth highlighting each SEU's financing structures, from which to ideally draw best practices. The AASEU cost projections are based on a 100% debt financing, made available through the issuance of two rounds of general obligation bonds of $12.6 million and $12.3 million that are repaid on a 20-year term on a 4.5% interest rate. The AASEU intends to recover operational costs by charging consumers a rate of roughly 12 cents per kWh. DCSEU's funding comes from a surcharge to all DC's gas and electric ratepayers and a payment from competitive energy suppliers.[832]

[830] "Weatherization Works!" (U.S. Department of Energy, February 2018), https://www.energy.gov/sites/prod/files/2018/03/f49/WAP-fact-sheet_final.pdf.
[831] "Weatherization Works!".
[832] "About the DCSEU."

DESEU's upfront and start-up costs were covered by a series of government bonds, or low-interest loans, that did not add to the state's general obligation bonds.[833] To pay off the debt incurred and to provide its services, the DESEU used 1) shared services agreements between recipients, 2) potential revenue made through the sale of Renewable Energy Credits (REC) in local or regional markets, and 3) Green Energy Fund monies.[834]

Through shared services agreements, DESEU makes energy efficiency investments, such as installing Energy Star appliances, and collects 33% of the efficiency investment over three to five years while the recipient reaps the rest of the benefits.[835]

The DESEU also collects 25% of proceeds from the sale of RECs by Delawareans that generate renewable energy in their premises.[836] The 2008 SEU Taskforce Report predicted over $37 million in REC-sourced revenue from 2008 to 2019.[837] Actual budgets in the recent years, reveal that millions of DESEU's budget are funded through Solar REC sales, either through DESEU or its partner, Delmarva.[838]

The most significant source of revenue for DESEU is its annual RGGI Cap-n-trade allocation.[839] In fiscal year 2023 alone, RGGI allocations provided DESEU with $24 million, or 75% of the total annual budget.[840] Because Michigan is not a member of RGGI, this revenue source is unavailable.

Possible SEU operation financing structures and revenue sources for Michigan include: (1) full consumer rate-based repayment, (2) federal, state or nonprofit grants, (3) donations, (4) a combination of these three methods.

Recovering operational costs through consumers allows SEUs to maintain self-sufficiency and sustain operations. However, this method has the least cost savings for consumers and makes the least impact on low-income consumers. Getting federal, states or nonprofit grant funding would remove part if not all of the repayment burden from consumers. However, grant funding is not guaranteed and can be an unreliable source of revenue in the long run. Donations have the same caveats with grant funding, and are even more enviable and hard to acquire. Unfortunately, incredibly profitable funding mechanisms like RGGI, which cover three fourths of DESEU's budget, are unavailable for Michigan. Using a consumer rate seems like the most secure and viable option for operation cost financing, despite its murky impact on energy affordability. All three SEUs mentioned in this chapter have had or plan for debt financing to cover start-up costs and operation costs in the first few

[833] Sustainable Energy Utility Task Force.
[834] Sustainable Energy Utility Task Force.
[835] Sustainable Energy Utility Task Force.
[836] Sustainable Energy Utility Task Force.
[837] Sustainable Energy Utility Task Force.
[838] "Budget Reports," Energize Delaware, accessed February 20, 2024, https://www.energizedelaware.org/energize-delaware-good-energy/deseu/budget-reports/.
[839] "Budget Report."
[840] "Budget Report."

years of their respective SEUs. Government entities, like the AASEU would be upon its launch, are eligible to issue government bonds, although there is usually a limit on how much a locality can borrow.

Governance and Management

When considering the establishment of a municipally owned sustainable energy utility (SEU) in Michigan, in terms of governance, it is beneficial to draw from governance models that reflect local control and community involvement. The governance of Michigan's water utility serves as a useful model in the adoption of an SEU. Michigan's approach to managing its water utilities, through oversight, strict regulatory compliance, and active participation, serves as a quality model for promoting energy sustainability. It is also beneficial to consider the SEU models in both Delaware and Washington, DC, when proposing governance and management options in Michigan. In addition to examining different models of governance, the focus should remain on the goals of governance (i.e., climate, equity, affordability, and reliability). In other words, the purpose of this section is to investigate how an energy utility that seeks to serve the community fairly and effectively may be established by utilizing the governance principles found in Michigan's water utilities and already established SEU models, while also encompassing the broader objectives of governance and management.

Governance

The SEU should have a Fiscal Agent, meaning an entity or person, to assist in the financial management of the SEU. As well as a Contract Administration, meaning a nonprofit corporation that manages the functions and responsibilities of the SEU, as seen in the State of Delaware SEU, DESEU, which the Delaware Energy Office manages.[841]

There should also be a SEU Oversight Board comprising public, academic, and private sector representatives that establishes and revises SEU performance targets and oversees SEU program planning, implementation, and evaluation to ensure compliance with performance targets. The board shall also be appointed in accordance with the principles of inclusivity and diversity to ensure that various members and groups of the SEU community have a voice. The process of selection will include the nomination of board members by stakeholders, such as local governments, community groups and environmental advocates.

To meet performance metrics, the municipal SEU should enlist Implementation Contractors, which are entities contracted by the SEU to implement specific programs and services. Both an Oversight Board and Implementation Contractors can be seen utilized in the DESEU program.[842] Similar to an Oversight Board, the District of Columbia Sustainable Energy

[841] "SENATE BILL NO. 18," § 54 (2007).
[842] "SENATE BILL NO. 18," 2.

Utility (DCSEU) has an Advisory Board which provides advice and recommendations to the Department of Energy and Environment, DOEE, and Council of the District of Columbia regarding the procurement and administration of the Sustainable Energy Utility contracts. They, similar to the DESEU Oversight Board, advise DOEE on the SEU's performance and monitor the SEU's performance under the SEU contracts. They also recommend performance benchmarks for said SEU contracts.[843]

In addition to the above, the proposed SEU should be unaffiliated with any of the State's electric or gas utilities, public or private. Rather than direct state control, the SEU will operate through Contract Administrations under the supervision of local municipalities in collaboration with local stakeholders. These Contract Administrations would manage routine administration with the funds to support the SEU managed by the Fiscal Agent. To protect the SEU's independence and efficiency, the responsibility of oversight will be conducted by the Oversight Board, appointed by the local municipalities, in consultation with local communities and stakeholders. The board will be responsible for ensuring that the SEU is monitored and incentivized to operate as efficiently as possible, while remaining responsive to the needs of local communities.

The local municipalities can select a Contract Administrator and Fiscal Agent through an open, competitive bidding process, which is how they are selected for the Delaware SEU program.[844] These contracts also go through a bidding process in the DCSEU program. One of the main goals of the DCSEU Advisory Board is to ensure confidentiality and to preserve a competitive bidding process.[845] In addition to this, the DCSEU Advisory Board requires that each bid shall detail how the contractor proposes to nearly meet, meet, or exceed each performance benchmark.[846] These performance benchmarks are being set in the bid. This should also be included in the proposed SEU Oversight Board as it ensures that performance metrics are set at the bid time and are relevant to the bid itself.

The municipalities should assume the overall responsibilities for developing, implementing, and monitoring the SEU. Requests for Proposals (RFPs) should be prepared to solicit bid proposals from the administration contractors, the Contract Administration, and the Fiscal Agent. These RFPs should be open to public comment, amended if necessary, and submitted to the Oversight Board for approval before release. Any bidder for an administrator contract or bidder's affiliate should not concurrently hold or be awarded the other

[843] "Bylaws of the Sustainable Energy Utility Advisory Board adopted pursuant to Section 204(b) of the Clean and Affordable Energy Act,"
https://doee.dc.gov/sites/default/files/dc/sites/ddoe/page_content/attachments/BYLAWS%20OF%20THE%20SUSTAINABLE%20ENERGY%20UTILITY_Amended120915.pdf
[844] "Senate Bill No. 18."
[845] "Bylaws of the Sustainable Energy Utility Advisory Board adopted pursuant to Section 204(b) of the Clean and Affordable Energy Act."
[846] "Bylaws of the Sustainable Energy Utility Advisory Board adopted pursuant to Section 204(b) of the Clean and Affordable Energy Act.," 10.

administrator contract to maintain independence between each administrative function. In a similar sense, neither should the bidders be affiliated with any utility, public or private, that operates in Michigan, any agency of the State of Michigan, nor any entity providing power or fuel to Michigan's distribution utilities or residents. This is how the State of Delaware maintains administrative function independence in the Delaware SEU program and should also be incorporated into the proposed SEUs program.[847]

The SEU Oversight Board oversees SEU program planning and performance targets. As such, the local municipalities should report biannually to the Oversight Board on the progress of the SEU and the management of the Contract Administration and Fiscal Agent contracts.[848] This is similar to the DCSEU Advisory Board, where the Board presents a report on the progress of the SEU to the Council, with the first report being due thirty calendar days after the conclusion of the first year of the SEU contract.[849] Thus, these contracts are monitored closely even after bid acceptance in both Delaware and the District of Columbia. SEUs in Michigan should also have biannual contract reports similar to Delaware and reports due 30 days after the first year, similar to the District of Columbia. However, with the utilization of contracts, there is also a transition period between contracts, which needs to be accounted for. The municipal government should ensure sufficient carry-over funding during the transition period between the end of one SEU contract term and the beginning of another so that regular access to sustainable energy services is not disrupted during these transition periods. This is how the State of Delaware also chose to solve the problem of contract transition periods for the DESEU program.[850] Examining the DCSEU program, the District Department of the Environment, DDOE, or Energy Office administers the transition from one SEU contract to another.[851] In both cases, this transition must be accounted for and must be anticipated in the proposed SEU program due to the utilization of bid contracts.

Given how crucial the Oversight Board is to the success of the proposed SEU, guidelines should be established for board member selection. Board Members should serve without compensation, and no board member shall receive any form of financial gain from their service on the board. They should also not be employed by any organization directly or indirectly affiliated with the SEU or its contracts for two years after the end of their service on the Board, as seen in the DESEU program.[852] This ensures that no Board Members are tempted to make decisions that benefit themselves over the SEU program. Each Member on

[847] "SENATE BILL NO. 18."
[848] "SENATE BILL NO. 18," 3.
[849] "Bylaws of the Sustainable Energy Utility Advisory Board adopted pursuant to Section 204(b) of the Clean and Affordable Energy Act."
[850] "SENATE BILL NO. 18."
[851] "Bylaws of the Sustainable Energy Utility Advisory Board adopted pursuant to Section 204(b) of the Clean and Affordable Energy Act."
[852] "SENATE BILL NO. 18."

the oversight Board should serve a 3-year term, not including temporary board members. For example, any board member who is employed by the Michigan government or who serves on the board as the representative of a particular organization, group, business, or other entity, including an elected official, should be removed from the Board upon leaving employment of said employer, as seen in the DCSEU program.[853] These steps are necessary as the Board is responsible for reviewing and approving requests for proposals developed by the municipality for the SEU Contract Administration and Fiscal Agent contracts. These contracts should be selected based on what best moves the SEU towards its targets and not what benefits board members financially. The board may still need funds for consulting fees, travel for conferences and workshops relevant to the board, and other things to meet its obligations. As such, the SEU should set aside a budget annually at the beginning of Michigan's fiscal year so as not to exceed or be below specific numbers. This is also how Delaware chose to limit and direct the Oversight Board for their SEU, and these limitations and guidelines are crucial to the success of an SEU program in Michigan.[854] When examining the DCSEU program, the Advisory Board member is entitled to reimbursement for expenses, including transportation, parking, mileage expenses, and conference admission fees incurred in the performance of official duties of the board. This reimbursement is limited to $2000 per board member per year.[855] While board members are not compensated by either the Delaware or DC SEU programs, there does need to be, while limited, some form of funding or reimbursement for activities performed by board members in service to the board, and this is something the proposed SEU program must anticipate.

To further define the governance of the proposed SEU program, we can examine the current model of locally governed water utilities. There is a board of commissions where each city, village, or township elects a commissioner to represent them on the board. The township board of review evaluates each township to determine its voting strength.[856] The proposed SEU should employ the same strategy to select members for the Oversight Board to ensure equal and fair representation to all townships utilizing SEU energy. In addition, Michigan water authorities have a budget submission hearing each year on February 1st, where their board of commissioners prepares and submits to the governing bodies of each governmental unit a proposed budget covering its anticipated expenses of administration, operation, and maintenance, and any other expense requirements for the next fiscal year.[857] As the proposed SEU Oversight Board is not compensated but still needs funding for necessary expenditures,

[853] "Bylaws of the Sustainable Energy Utility Advisory Board adopted pursuant to Section 204(b) of the Clean and Affordable Energy Act."
[854] "SENATE BILL NO. 18."
[855] "Bylaws of the Sustainable Energy Utility Advisory Board adopted pursuant to Section 204(b) of the Clean and Affordable Energy Act."
[856] "MCL - Act 4," § 121 (1957).
[857] "MCL - Act 4," 3.

this could be a great way to anticipate costs. While Oversight Board members are compensated for expenditures related to SEU board activities and services. Establishing an estimated yearly expense to ensure the proposed SEU meets yearly financial requirements to guarantee sustainability is essential. A yearly budgetary estimation review would be invaluable in maintaining this.

Moreover, the SEU should set up an Environmental Justice Board of frontline communities to provide unique insight into the benefits and burdens of proposed projects for frontline and low-income communities. In addition to advisory and environmental justice boards, an office or working group should be created to ensure access, equity, and inclusion in every program and service delivery. Furthermore, an Equity and Environment Initiative could be established to center the SEU in targeting its programs and services to historically disadvantaged communities. Renters should also be considered for roles on advisory boards and working groups due to their historic lack of power and higher barriers to participation. Lastly, any marketing for the SEU should represent and target frontline communities and communities of color.[858]

Governance Best Practices

In addition to outlining the governance structure of the proposed SEU, there must also be a recommended charter structure that will support the management and proper formation of a Sustainable Energy Utility. The creation of a charter will also help to establish a legal framework that ensures compliance and accountability. The charter should serve as the foundational document that guides the Sustainable Energy Utility's governance, operations, and direction. In the proposed charter discussed below, we looked towards Michigan's Charter Water Authority Act for guidance.[859]

Charter Section One: Establishment of a Board

The establishment of a board of commissioners and an advisory board is crucial to the success of the SEU. As stated in Michigan's Charter Water Authority Act, "the board of commissioners shall keep a written record of every session of the board, which record shall be public."[860] Along with a written record of every session, the board must also conduct regular audits of financial accounts and adhere to ethical standards. In doing so, the board can ensure transparency and accountability. Additionally, each member on the board shall hold office for a specific duration, during which they are responsible for ensuring that the SEU is being guided towards its sustainability goals.

[858] Energy Equity Project, 2022. "Energy Equity Framework: Combining data and qualitative approaches to ensure equity in the energy transition." University of Michigan – School for Environment and Sustainability (SEAS).
[859] "MCL - Act 4."
[860] "MCL - Act 4," 3.

The members of the Oversight Board will be appointed, rather than elected. The appointing authority will reside with local government officials, such as, the mayor, city counsel, or county commissioners. The legal framework governing the operations of the board will be determined by local ordinances and municipal charters.

Charter Section Two: Powers

The Board of Commissioners/Advisory Board of the SEU holds a critical role in guiding, supervising, and endorsing sustainable energy efforts. The board will have the power to sue and be sued in a court of law. Additionally, the board is authorized to impose fees, charges and assessments as needed to finance its activities and endeavors in compliance with laws and regulations. It also has the authority to push for policies and rules that support the shift towards a sustainable energy framework, and to interact with stakeholders to boost public understanding and involvement in sustainable energy efforts. The board also has the power to pursue different grants, loans, and other financing opportunities to achieve its objectives.

The board shall establish an initial schedule of rates and charges by a two-thirds majority of the total authorized votes. The board has the ability to periodically set and modify the rates and charges, subject to the restrictions and requirements outlined in any prior agreements.

Charter Section Three: Budget

On a specified date each year, staff members should prepare and submit a proposed budget to the board covering its estimated expenses of administration, operation, and maintenance. A statement of the funds required to pay off all principal and interest on any authority bonds maturing in the upcoming fiscal year, the expected revenue from rates and charges during the fiscal year, and the proposed tax levy to cover operating, administrative, maintenance, and debt retirement costs should they arise, shall all be included in the budget.[861]

Charter Section Four: Community Power

To guarantee that different viewpoints are acknowledged and heard, the board must include stakeholders, organizations, and members of the community in decision-making processes. Additionally, the board must create solutions that cater to the particular energy requirements and priorities of the community by encouraging cooperation and partnerships. By utilizing inclusive governance principles, the board allows residents to contribute their combined knowledge and experience, giving them the ability to influence the SEU's plans, initiatives, and policies. In addition to enhancing the SEU's efficacy, this dedication to community power gives locals a sense of ownership in co-creating a sustainable future.

[861] "MCL - Act 4."

Charter Section Five: Social Equity

To ensure that marginalized groups are not left behind, the board must place a high priority on providing equal access to sustainable energy utilities. It is essential that the board fosters diversity, and empowers marginalized communities by proactively addressing gaps in energy access, cost, and opportunities. The board must advance equitable participation in decision-making processes and lower socioeconomic barriers through targeted outreach, engagement, and tailored programming.

Management

For the proposed SEU, contract administrators themselves manage the daily functions and responsibilities of the SEU. Along with implementing the administration contracts and overseeing to ensure the meeting of performance and budgetary targets, they are also responsible for program research and design. This comprehensive resource analysis should support initial program planning for the SEU. This resource analysis must assess energy end-user markets like natural gas and electricity, demographic sectors such as low-income, and energy end-use equipment, including appliances and vehicles. This will allow the Contract Administrator to design a comprehensive program suite for specific markets, end-users, and end-use equipment for the SEU to target through its programs.[862]

Moreover, the overall management of the SEU should work within the governance structure outlined previously to achieve improved climate, reliability, and climate justice outcomes for Michigan. In order to do this, we have outlined a clear set of guidelines for developing, establishing, monitoring, and maintaining effective SEU management.

- **Establish clear management roles and responsibilities:** Outline clearly the roles and responsibilities of the different management roles with delineated responsibilities to ensure that the internal decision-making process is practical and ethical.
- **Implement robust operational procedures**: Operational procedures should be consistent with policies and strategies that align with the SEU goal of providing a sustainable energy alternative to the community. This will help the SEU delegate and assign new tasks while enhancing productivity and reducing errors. These operational procedures should be updated as needed and revisited frequently.
- **Provide financial oversight and sustainability:** Review and track funds and balances to determine reasonable spending, accounting for potential variance. By carefully tracking income and expenses, the SEU can ensure that it operates within parameters, allowing it to allocate resources appropriately.

[862] "SENATE BILL NO. 18."

- **Account for human resource management and development**: Align SEU employees' personal and professional growth and development with the SEU goal. The SEU should also improve and maintain a relationship with employees to retain and foster talent. The SEU should also outline a clear vision for employee development, which can be achieved through organizational activities and training.
- **Foster customer engagement and support:** Cultivate relationships between the SEU and the consumers, thus increasing loyalty. This can be done through regular communication with end customers. The SEU must also establish a support pathway for customer questions and in case of emergencies.
- **Drive technological integration and innovation:** The SEU should continue to look to implement and improve on current technological integrations to pursue better efficiency and constantly strive to reduce its carbon footprint.
- **Monitor and prioritize performance and continuous improvement:** The SEU should continually review employees' utilization and performance metrics to identify whether they are handling customer requests correctly or are overburdened and offer improvement opportunities based on these metrics.

Management Best Practices for Climate, Equity, Affordability, and Reliability

Climate

100% of the SEU new build generation will fall under the MI Healthy Climate Plan definition of renewable. As such, the construction could start immediately. This means the management infrastructure must be set up when the SEU is formed. The setup will require a separate group to organize and manage the construction project, including deadlines, resource funding, bills of materials, and staff oversight. Because SEUs rely on individuals to fund their development, there will also need to be a team to ensure that customer funding is allocated appropriately and effectively to the project. This team will require additional evaluation due to the risk of customer funds needing to be used appropriately. Thus, they will need a management oversight staff to evaluate customer fund utilizations.

Equity

Utility culture is a key aspect of procedural justice, including staff hiring, training, and education. Diversity, equity, and inclusion training should be required for all staff, board, and working group members. Support services, worker protections, and human resource policies should all be centered through a racial and social equity lens. Hiring practices should prioritize and set targets for community members and historically disadvantaged groups such as people of color, women, and LGBTQ+ workers and track data to ensure goals are met. Any contractors hired by the SEU should uphold the same equity and justice standards as the SEU. Green job creation and training should also be a main mission of the SEU in order to provide

historically disadvantaged groups economic opportunities for full time employment with high wages and benefits.[863] Green job creation is a goal of both existing SEUs in Delaware and Washington, DC.

Affordability

The energy burden in Michigan is one of the highest in the country, particularly among Detroit communities.[864] As such, any SEU in Michigan should prioritize energy affordability. Options to solve this include Percent of Income Payment Plans (PIPPs) and creating energy bills using the Low-Income Energy Affordability Data Tool.[865] To effectively manage these programs, the SEU must hire staff to track, manage, and implement the programs. For example, with the PIPP program, staff will need to track and manage customer incomes to bill customers based on the percentage of said income properly. Customer incomes can change over the year with promotions, demotions, or even role changes, which will need to be tracked by the SEU. This will require a manager to oversee the team and a staff team to oversee the PIPP program.

Reliability

SEUs operating on a community scale with regard to the grid would make it easier to identify areas needing repair. There must be a repair staff to work on repairs when needed and be on call in case of emergency outages. This staff would need a dedicated management and operational group to oversee their work. SEUs also show increased reliability as they are by nature municipally owned. This means that the SEU is held accountable by the general public, the customers. Also, because SEUs run parallel to traditional utilities, it would be an opt-in service. This means that an SEU must be in good standing with the community if it hopes to be successful. Customer service could go a long way here, and thus, a call in service to answer customer inquiries would be beneficial. This would require staff on hand to answer questions. The same managerial staff who manages the repair team can manage this team. When customers call in, they reach the customer service team, who will direct the call to the repair team if necessary. The management team can oversee both the customer service and the repair teams regarding compensation, human resources, shift scheduling, and anything else on the business administration front.

[863] Lanckton, Tania, and Subin DeVar. Justice in 100 Metrics. Initiative for Energy Justice, Jan. 2021.
[864] Ayala, Roxana, et al. How How Are Household Energy Burdens? American Council for an Energy-Efficient Economy , Sept. 2020.
[865] Lanckton.

Energy Justice

Energy Justice Frameworks

Utility best practices for maximizing energy justice are pulled from two key reports: the *Energy Equity Project Report* produced by the Energy Equity Project at the University of Michigan School of Environment and Sustainability and the *Justice in 100 Metrics Report* produced by the Initiative for Energy Justice. These best practices and relevance to the SEU are discussed below.

Recognition

Recognition justice refers to identification and recognition of those who have been historically disadvantaged by the energy system.[866] From the start, any SEU should set out to gain a full understanding of the environmental justice harms disproportionately experienced by low income communities and communities of color in the municipality in which the SEU serves.[867]Another best practice in setting up an SEU is to ensure the mission and goals of the SEU are in alignment with social and environmental goals of the community in which the SEU serves.[868] These aspects should be front and center from the very beginning of the creation of an SEU and should remain top priorities throughout the life of the utility.

An SEU should strive to obtain a firm grasp of who in its community has historically benefited and been burdened from the energy system. To accomplish this, data tracking performed by the SEU is a major aspect and best practice of recognition justice. More specifically, acquiring and tracking data on demographics to better understand and recognize the community's most vulnerable members is a common tactic. Other tracking metrics could include health outcomes, income, housing stability, renters, climate change vulnerabilities, and pollution. Special consideration should be assigned to those burdened by toxic facilities, such as fossil fuel plants, and superfund sites. An aggregation of these metrics helps create a strong understanding of who in the community needs and deserves the most assistance.[869]

Tracking energy system accessibility data is also important in order to create a just and equitable utility. More specifically, historical energy security data on electricity outages, shutoffs, and arrearages provide context for elements of distributive justice, such as the targets of assistance and affordability programs.[870] Moreover, the SEU should clearly outline and communicate the desired goals and impacts of each program for the targets of the program, such as previously identified low-income and communities of color.[871]

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[866] Energy Equity Project.
[867] Energy Equity Project.
[868] Lanckton.
[869] Energy Equity Project.
[870] Energy Equity Project.
[871] Lanckton.

Lastly, energy affordability is a major aspect of all four pillars of energy justice and starts with recognition justice. More specifically, first understanding the current electricity rate system and how it benefits or burdens low-income customers is necessary to then create programs that assist these customers with paying bills, such as through progressive or lifeline rate structures. Similarly, data on each household's energy burden helps target those with the highest burdens and provides context to setting a maximum energy burden for the SEU's community, another best practice for an equitable and just utility. [872]

Recognition justice is one of the four more difficult pillars of energy justice to achieve. While data collection is a major aspect of recognition justice, written statements on the SEU's website acknowledging historic harms to specific low-income and communities of color in the service area and an indigenous land acknowledgment on the land in which the SEU operates are both best practices in striving towards meeting recognition justice standards.[873]

Procedural

In the context of a utility, procedural justice refers to the just processes and proportional access to decision making power and agency in the future of the energy system.[874] Procedural justice requires that all SEU actions and projects are developed equitably and are accessible to low-income communities.

Community engagement, including relationship building, collaboration, equitable participation, oversight, consultation, education, and training is a major focus of procedural justice. Relationship building and collaboration focuses on community participation in every stage of the decision making process. More specifically, the SEU should ensure participation is possible, valuable, and worthwhile to the participants by acting on and implementing the community feedback into the SEU's processes and future planning. Additionally, the SEU should hold planning and vision workshops as opportunities for community participation. Because an SEU is community owned, there should be ample opportunities for community participation. A goal for the percent of the community engaged in SEU processes and project planning could be set to ensure sufficient community participation. Processes for co-governance are also an important aspect of community engagement and procedural justice. The level of community involvement should be determined per project in the planning stage.[875] Community members should also have a say in how the SEU spends its funds, the process of participatory budgeting.[876] The SEU should also work to create partnerships with

[872] Energy Equity Project.
[873] Lanckton.
[874] Lanckton.
[875] Lanckton.
[876] Energy Equity Project.

key community organizations, such as religious, communities of color, and indigenous organizations.[877]

Equitable participation means allowing those most affected by projects and outcomes to have the most power and loudest voice in the decision making process. Decisions should be made freely, publicly, consistently, and deliberately for the community's awareness and accountability.[878]

Since an SEU serves as a complementary utility to a pre-existing IOU, municipal, or co-op utility and would not be regulated by the MPSC, the SEU should provide funding for public utility (IOU) intervenor opportunities and resources. Intervenor compensation, which refers to the process of paying utility customers for participating in intervenor cases, is one mechanism to enable broader access to participate in proceedings. Best practices for intervenor compensation include providing funding in advance of a case, and providing guidance for new parties requesting access and involvement in public intervenor opportunities.[879] Community participation opportunities in public intervenor cases helps hold the preexisting energy utility accountable.

Distributional

Distributional justice refers to the way in which benefits and harms are distributed in an energy system. In other words, distribution justice captures, "what is distributed and among whom it's distributed."[880] This section discusses the variety of programs an SEU can offer to ensure the community, in particular low-income and communities of color, can experience benefits resulting from affordability, energy efficiency, disaster assistance, renewable energy, and community solar initiatives offered by the SEU. It is best practice "that utility program benefits should be allocated such that frontline communities and households receive a large majority at least 40% of the benefits, or a proportion that matches the percentage of those households in the utility territory, whichever is greater," similar to the goal of the Justice40 initiative.[881] Easy access to these programs is also an important aspect of energy justice and is further discussed in the restorative justice section below. The SEU should set a goal for the amount of funding spent per program to ensure the success of the program offerings.[882]

Energy affordability is perhaps the most important aspect of distributional justice. Because the energy burden in Michigan is one of the highest in the country, particularly among Detroit communities, any SEU in Michigan should place energy affordability as one of

[877] Lanckton.
[878] Lanckton.
[879] Energy Equity Project.
[880] Energy Equity Project.
[881] Energy Equity Project.
[882] Energy Equity Project.

its highest priorities.[883] Several different affordability program options can and should be implemented by an SEU. For example, programs specifically designed to help low-income customers pay their bills are commonplace in the utility industry, such as Percent of Income Payment Plans (PIPPs) and limiting energy bills using the LowIncome Energy Affordability Data Tool.[884] The SEU can also expand or modify existing affordability programs, such as those offered by the IOU. Programs specific to renters should be implemented, as renters often miss out on utility programs due to landlord ownership of the home. For each of the affordability programs offered by the SEU, a goal should be set for the number of participants and benefits tracked.[885] Similarly, a maximum energy burden should be set and provide payment support for energy efficiency improvements in order to eliminate excess energy burden.[886] These practices help measure the success of the program and progress toward distributional justice. Additionally, data tracking helps hold the SEU accountable by its members. When possible, the SEU should strive to ban shutoffs for its customers; however, because the SEU would serve as a complementary utility to the IOU, it may not have the authority to ban shutoffs. Lastly, the SEU should move toward renewable energy and away from fossil fuels to accelerate long-term affordability of energy.[887]

In addition to affordability plans, SEUs should also offer energy efficiency programs. The DESEU, focuses on energy efficiency rather than renewable energy generation, and hosts a suite of energy efficiency programs, such as its flagship program, the Home Performance Program, which provides a comprehensive home energy assessment and energy efficiency upgrades offered at significantly reduced costs.[888] This program offers a separate subprogram specific to low-income customers, called the Assisted Home Performance Program.[889] The program has achieved $421,582 in annual energy savings and $7,588,477 in lifetime energy savings.[890]

The DESEU provides an excellent example of energy efficiency programs. More generally, programs offered by the SEU should provide financing for deep investments. There should also be programs specific to low-income customers to help fund energy efficiency upgrades, energy-reduction, and weatherization assistance. In Delaware, the SEU offers a pre-weatherization program to prepare homes to meet eligibility requirements for the state

[883] Ayala.
[884] Lanckton.
[885] Energy Equity Project.
[886] Lanckton.
[887] Lanckton.
[888] "Home Performance with ENERGY STAR® for Homeowners." *Energize Delaware*, https://www.energizedelaware.org/residential/home-performance-with-energy-star/homeowners/. Accessed 26 Mar. 2024.
[889] "Assisted Home Performance with ENERGY STAR®."
[890] Energize Delaware, "Energize Delaware Sustainable Energy Utility: Business Plan 2023-2028 Strategy."

Weatherization Assistance Program .[891] In Washington, DC, the DCSEU offers the Affordable Home Electrification Program, which finances electrified home heating and cooling systems for low-income residents.[892] Renter-specific energy efficiency programs should also be made available in order to prioritize renters and provide opportunities for economic benefits from energy efficiency.[893] On-bill financing is a best practice and allows "the customer to repay the investment [of clean energy upgrades] through a charge on their monthly utility bill."[894] This system lowers the barriers to financing energy efficiency projects. The SEU should also create ways to allow customers with high credit risk to finance energy efficiency upgrades.[895]

Disaster assistance and climate resilience programs should also be offered by the SEU. Because climate change will continue to exacerbate extreme storm events, the utility should prepare for an increase in climate disasters by targeting investments to help underserved communities prepare for and recover from such disasters. Again, renters should be prioritized and have available the same opportunities as homeowners for disaster response and climate resilience.[896]

Renewable energy development, specifically for low-income communities, should be another major priority of the programs offered by an SEU. Firstly, the SEU should incentivize distributed solar by expanding net metering programs, improving access to solar generation and storage, and advancing microgrids. The proposed Ann Arbor SEU is a great example of an SEU prioritizing and lowering the barriers to solar energy generation through financing and accessibility. Building microgrids is the key aspect of Ann Arbor's Phase 2 and is promoted by the SEU.[897] The SEU should also prioritize modernizing the energy system, installing solar energy arrays, and building microgrids in low-income and frontline communities. Because frontline communities have disproportionately suffered from the burdens of the energy system, these communities should be at the front of the line to receive the benefits of the renewable energy system. The process for siting and installing renewable energy projects should require environmental justice criteria, including public health benefits, and prioritize historically disadvantaged communities to reduce existing disparities. Lastly, programs targeting clean energy financing for low-income customers should be implemented to lower the barriers to renewable energy through offering low minimum credit score requirements and subsidizing or eliminating interest payments.[898]

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[891] Energize Delaware.
[892] "Affordable Home Electrification."
[893] Lanckton.
[894] Owings, Lauren. "MIGreenPower Community Impact Pilot." Empowering Michigan, 9 June 2021, https://empoweringmichigan.com/migreenpower-community-impact-pilot/.
[895] Lanckton.
[896] Lanckton.
[897] "Ann Arbor's Sustainable Energy Utility."
[898] Lanckton.

Community solar projects are also of major interest in the distributional justice space. The SEU should prioritize well-designed community solar projects in order to enable low-income customers access to renewable energy. Community benefits and control should be centered in planning community solar projects.[899]

Energy affordability, efficiency, and renewable generation programs are a few of the options that the SEU should prioritize in its program offerings. Additionally, programs specific to low-income communities are best practices for a utility striving to achieve distributional justice.

Restorative

Restorative justice is also a difficult pillar of energy justice to achieve for many entities but specifically an SEU. Because restorative justice focuses on repairing harm and relationships, a new SEU might not feel obligated to repair the historical burdens perpetuated by outdated utility systems and undemocratic energy decision making.[900] However, there are several best practices an SEU should implement to further the restorative justice pillar of energy justice. In particular, an SEU should focus on placing power in the hands of the people it serves as well as accountability.[901] Restorative justice should underlie all aspects of the SEU from the very birth of the utility.[902]

Power to the people refers to shifting the power of the SEU to the people it serves and centering the community's voice in decision making. An SEU is in a unique situation to accomplish this goal due to the emphasis on community inherent to the SEU model. More specifically, the ideal SEU acts as a "commons," in which decisions are based on maximizing community benefits.[903] The SEU should give voice to its members for active participation and ownership of electricity. If these goals are achieved, the SEU can serve as a model for energy democracy.[904] This differs from more traditional energy systems, such as IOUs and many municipal utilities, in which the community has very little say in regard to their energy governance system. With that said, existing SEUs in Delaware and Washington, DC, act more as traditional municipal utilities than the lofty goals of equity and justice set forth by academic literature on the SEU model. Therefore, to allocate real decision making power to the people who the SEU serves, the SEU should not be organized or governed similarly to a traditional municipal utility.

Community engagement, inclusion, and accountability should begin from the very start of an SEU, during the idea phase, and remain an emphasis throughout operation. All

[899] Lanckton.
[900] Energy Equity Project.
[901] Energy Equity Project.
[902] Energy Equity Project.
[903] Byrne 1.
[904] Byrne 2.

projects an SEU implements should take on this same strategy, providing opportunities for community input from the idea-phase of a new program or project all the way through completion and should continue for as long as the program is active. If the community is dissatisfied with the results of a program, mechanisms for accountability should be in place for the community to effectively communicate the dissatisfaction. For existing SEUs in Delaware and Washington, DC, accountability primarily takes the form of City Council meetings and the elections of City Council members. This is an unsatisfactory level of accountability and a common pitfall. Moreover, because the SEU is often naturally structured as a municipal utility, existing SEUs do not provide community accountability mechanisms any different than the pre-existing municipal utilities, such as water or sewage. These offerings do not meet restorative justice and accountability standards.

In Washington DC, call centers are set up not only for the DCSEU, but also the oversight agency, the DC Department of Energy and Environment. While this system provides better accountability, frequent and consistent in-person opportunities to provide suggestions, critique, and concerns should be offered by the SEU.

A special emphasis on accessibility should be assigned to the historically disadvantaged and underserved members of a community in providing accessible and meaningful opportunities for participation and accountability. Considerations such as paid participation as well as accessibility options like transportation, time and date, childcare, and language accommodations should be centered in the creation and charter of an SEU. An additional aspect of accessibility includes readily available online information.[905] The SEU should manage an online website that is easily accessible to all community members. The website should include a calendar of upcoming community participation opportunities, historical meeting minutes and recordings, current and proposed program offerings, and information on internal SEU processes such as the goals, missions, charter, staff organizational chart and contact information, annual reports, and educational materials.

Accessibility should also be considered in program offerings.[906] Qualification and participation in SEU programs should have low barriers to entry, particularly for program targets like low-income and frontline communities and communities of color. For example, low-income specific programs should require minimal documents in the application process needed to prove qualification in order to avoid disincentivizing participation. Enrollment in programs should be accessible for varying languages and educational levels. The SEU should set goals for response times and limit extended waitlists whenever possible. Contact information for SEU employees should be provided to customers at the time of application.

[905] Energy Equity Project.
[906] Energy Equity Project.

Additionally, applicants and participants should have the opportunity to provide feedback on their experience with the program.[907]

Education efforts are also a best practice in ensuring adequate opportunities for engagement and participation.[908] These efforts include spreading awareness of SEU program offerings, participation opportunities, and annual status and progress reports of the SEU to meet accountability goals. A substantial educational and promotional campaign should also be launched during the planning and early establishment phases of the SEU in order to spread awareness of SEU benefits and offerings. Low-income and frontline communities should be targeted in these efforts to increase awareness and benefits of opting into the SEU. This campaign should consider historical distrust and harms perpetuated by preexisting energy utilities and advertise the community ownership and accessibility aspects of the SEU. All community members should have the access and information necessary to opt into the SEU and receive its renewable energy generation and energy efficiency benefits.

Transparency is a key aspect of accountability. In order to hold an SEU accountable, community members must have access to transparent data and information offered by the SEU. In existing SEU models, this can be found in annual reports on the status, successes, and weaknesses of an SEU. A special emphasis on weaknesses or challenges in these reports is necessary to provide full transparency. Every organization has flaws and challenges, and these issues should be made available and clear to the public. An SEU acts as a form of community trust, because it must "earn the trust of members that sharing costs will improve their collective condition; that borrowing from future benefits will result in equitable and sustainable future development."[909] In order to build this community trust, an SEU must be transparent with its members.

Evaluation techniques can take the form of community impact assessments, equity impact assessments, a Racial Equity Tool, a Results Based Accountability framework, a Racial Equity Action Plan, the Mobility Equity Framework, and/ or cost-benefit analyses.[910] Each of these assessments, tools, and frameworks provide opportunities to evaluate the SEU against previously determined goals and standards to assess the SEU's progress toward reaching the goals and identify opportunities for improvements. For SEUs with major renewable energy generation components, the utility can set performance targets tied to equity.[911] While restorative justice is often a difficult energy justice tenet to achieve, the above best practices provide many ways an SEU can strive to meet restorative justice goals.

[907] Energy Equity Project.
[908] Energy Equity Project.
[909] Byrne. "Relocating"
[910] Lanckton.
[911] Energy Equity Project.

Model for SEU Implementation

Throughout this chapter, we have outlined a starting-point model for an SEU that could be realized given the current legal and technical landscape in Michigan, as well as best practices for financing, governing, and managing this SEU model, through the lens of equity, justice, and sustainability. Even when operating within the prior guidelines, the SEU model provides flexibility and the ability to serve a specific community's needs. In this section we provide an example for how to 1) identify a community that will benefit from service from the SEU, 2) quantify the energy needs and ability to satisfy these needs given financial and technical potential constraints, 3) propose a plan for SEU implementation within the community and 4) provide a guideline on how to realize the proposed plan. We form these conclusions based on analyses of publicly available data and simulation software.

The goal of this section is not to replace assessment of a specific community, performed by a professional engineer or surveyor. One such example is the Los Angeles 100% Renewable energy study.[912] Rather, we provide an accessible outline for assessing the implementation of an SEU in a specific community. These professional assessments, while necessary for moving forward with the actual construction of an SEU, can be costly and time-consuming to commission. The method used in this section could be easily replicated for another Michigan community and could be used to motivate a more rigorous study, or to explain, in concrete terms, what an SEU might look like to residents of a specific community.

Identify a community that could benefit from an SEU

By targeting a community that is underserved by current IOU infrastructure and has a high energy burden, it is likely that residents would be willing to opt in to an SEU. Further, the low average income indicates that this community would be unlikely to install sustainability upgrades without outside support. Considering the quality and burden of current IOU service, along with the likelihood of independent investment in sustainability when choosing an SEU service area maximizes potential SEU benefit. With this in mind, we will identify a community in the City of Detroit that could benefit from SEU implementation.

We will define a community by the boundaries of US Census tracts, which are the smallest unit for which data is often publicly available. Next, we will identify a community that is currently underserved by its IOU. A recent study performed by We the People of Michigan shows that many communities in Detroit, whose IOU is DTE Energy (DTE), are serviced by un-upgraded 4.8kV lines.[913] The presence of un-upgraded IOU resources provides a good target for the SEU, since residents may be more likely to opt in to the SEU, given the poor quality of existing IOU service. Tract scale data is found from the LEAD, SLOPE, RECS, and ACS

[912] LA DWP and NREL, "Los Angeles 100% Renewable Energy Study," 2021, https://maps.nrel.gov/la100.
[913] WTP Michigan, MEJC, and Soulardarity, "DTE Utility Redlining," August 22, 2022.

databases.[914] Within the areas served by 4.8kV lines, we choose Tract 5334, which has the highest energy burden, estimated between 14-21%. This makes a tract such as this one an ideal candidate for the SEU to target, because it is unlikely that households in the tract could afford to install distributed solar or implement energy efficiency upgrades without financial support. The Climate and Economic Justice Screening Tool identifies this tract as a "disadvantaged community," ranking in the 97th percentile for socioeconomic vulnerability. Tract 5334 is home to 1,592 people in 1009 households, living across approximately 855 housing units. Over 90% of residents in Tract 5334 are Black or people of color. The average income is $21,393 and the average annual energy cost is $2998.

Values used:

- Number of households
- Number of housing units
- Average income
- Average annual energy cost

Quantify community electricity needs

First, we must determine the amount of electricity consumed by each household in Tract 5334. For the purposes of this assessment, we will assume annual energy consumption falls between 8,000 to 12,000 kWh/yr.

We identify a range because from our search of publicly available data, we were unable to determine the average electricity consumption, in units of kWh per year per household, for Tract 5334. The lower bound of this range is informed by the average annual electricity consumption in the state of Michigan per household, which is 8,370 kWh/yr. This is not necessarily a good representation of the electricity consumption for this specific community, so we will try to set another bound to our estimate by investigating Tract 5334 specifically. Only the average energy cost, including both electricity and fuels, could be found per household in Tract 5334. We do not know how much of this cost goes to electricity vs fuel consumption per household, but we can identify whether the building heat is an electric or gas source. By making two assumptions; first, that in households using electric heat the total energy cost is equivalent to the total electricity cost, and, second, that average cost of energy consumed is equivalent to the off-peak cost of electricity in the DTE service area, $0.17/kWh. The exact average cost of electricity depends on the temporal electricity usage patterns,

[914] EIA, "Residential Energy Consumption Survey," n.d., https://experience.arcgis.com/experience/cbf6875974554a74823232f84f563253?src=%E2%80%B9%20Consumption%20%20%20%20%20%20Residential%20Energy%20Consumption%20Survey%20(RECS)-b1; NREL, "State and Local Planning for Energy," n.d., https://maps.nrel.gov/slope/data-viewer; DOE, "Low-Income Energy Affordability Data Tool," n.d., https://www.energy.gov/scep/slsc/lead-tool.; US Census Bureau, "American Community Survey," n.d., https://www.census.gov/programs-surveys/acs/data.html

which is not plausible to estimate in this chapter. Given the average energy cost per household using electric heat, $2098, and a rate of $0.17/kWh, we estimate the upper bound for the electricity consumption in Tract 5334: 12,341 kWh/yr.

Values used:

- Statewide average electricity consumption per year
- Average energy expense per household year
- Average electricity cost per household

Values that could be used to improve the estimates quoted:

- Electricity consumption per household

Financial Constraints

Next, we must consider the funds available for SEU development and costs to be incurred by the rate payers that ensure the SEU is a beneficial, equitable, and viable opt-in alternative to the IOU. For the purposes of this assessment, we will assume the most financially-constrained scenario: that the only funding available is in the form of a loan taken out by the SEU that must be repaid through customer rates. In reality, other funding streams can alleviate some of this financial pressure and enable further development.

In this model of SEU, the rate payer will receive electricity from both the SEU and the IOU. In order to meet the energy justice goals and for the SEU to be viable in a low-income community, the SEU should relieve the energy burden, which includes costs paid to both the SEU and IOU. This means that the more energy provided by the SEU, the less that is paid to the IOU. However, the more energy provided by the SEU, the higher the initial investment. Thus, the SEU must optimize the amount of development such that the combined IOU + SEU bill paid by the customer is below the energy poverty line, defined as an energy burden higher than 6% of a household's income.[915]

In Tract 5334, the average energy cost of $2098 accounts for 19% of the average income per household, corresponding to an energy burden of 19%. This is more than triple the energy poverty line. The SEU, which has the flexibility to address community needs, can prioritize energy poverty reduction by capping the total energy costs incurred by the rate payer at 6% of the average tract income, approximately $1260, though the exact energy poverty level would vary from household to household. The SEU cannot control the IOU rates, but it can control the amount of electricity it is providing to the rate payer and the electricity efficiency improvements incurred. The SEU will pay for the generation and efficiency

[915] Eric Scheier and Noah Kittner, "A Measurement Strategy to Address Disparities across Household Energy Burdens," *Nature Communications* 13, no. 1 (January 12, 2022): 288, https://doi.org/10.1038/s41467-021-27673-y.

resources upfront, while the customer pays this back through a rate, which the SEU has autonomy to choose. In the chosen limit of not exceeding the energy poverty line, financing available to the SEU by rates is limited by:

$$\$\ available\ to\ the\ SEU\ =\ \$1260\ -\ 0.17\$/kWh * (\#\ kWh\ provided\ by\ IOU) \quad (1)$$

For example, a household in Tract 5334 that uses a total of 12,000 kWh/year, where 6,000 kWh are provided by the SEU and 6,000 kWh are provided by DTE, the maximum funding available through rate setting, without pushing the ratepayer into energy poverty, is $240. That is, assuming electricity rates will be the only income for the SEU, the SEU should limit its development to a scale that can be paid off through rates over the technical lifetime of the installed technology. This way the energy burden of the customer informs the scale of development, and the scale of development sets the rate, avoiding legal constraints that prevent variable pricing based on poverty levels.

It is important to note that choosing to set SEU rates relative to the amount owed to the IOU is a choice that must be made by an individual SEU. The trade off in making this choice is between higher SEU rates that enable more sustainable development at a high cost to ratepayers and lower SEU rates that limit development but decrease energy poverty. Without doing community-specific research, it is not possible to know whether sustainability or affordability is more important; because we lack this clarity, we will assume that affordability is the limiting factor, and base our available revenue on Eq. (1).

Values used:

- Average income

Values that could be used to improve the estimates quoted:

- Income per household opting into the SEU

Technical potential constraints

Once we have estimated electricity consumption and funds available through customer rates, we need to determine the generation and energy saving potential for households in Tract 5334. We estimate that the technical potential for rooftop solar generation on residential buildings in Tract 5334 is 118-176% of the household energy consumption.

To arrive at this estimation, we will first assess the technical potential of solar energy generation in Tract 5334. A recent NREL study investigating the technical potential for solar generation in residential, low- and middle-income (LMI) houses estimates that from the 225 LMI households in Tract 5334, ~ 3,720 MWh/yr can be generated from rooftops, and 100

MWh/yr from ground mount solar.[916] This accounts for 31-46% of estimated energy consumption in Tract 5334. We could not find similar data for the remaining 784 households in Tract 5334. This value of generation potential is defined by the base unit of households, referring to the people, rather than by housing unit, which would refer to the building. While we do not have data accounting for the generation potential per housing unit, the number of housing units (n = 855) is less than the number of households (n = 1009). Thus, if we assume average generation potential per household is equivalent to the average generation per housing unit this provides a reasonable underestimate of the generation potential per housing unit.

On average each LMI rooftop in Tract 5334 has the potential to generate 16.5 MWh/yr. Because the technical potential accounts only for roof size, shading, angle, and orientation, but not infrastructure quality, we assume that the generation potential within Tract 5334 is not significantly different for LMI housing units vs all other housing units. So, scaling up the generation potential for all housing units (n = 855, excluding vacant housing units), we can estimate a total rooftop generation potential of 14,108 MWh/yr in Tract 5334. We will not account for ground mount solar given the relatively low contribution and potential zoning issues.

Technology increasing sustainable energy consumption can further reduce household energy consumption, increasing the impact of solar installation. The cost of implementation and energy savings are dependent on the current quality of insulation and appliances, as well as the energy source for heating, water, heating, clothes drying, and cooking, which can all be powered by both gas and electricity. For the purposes of this assessment, we did not include estimates of sustainability and affordability improvements achieved through efficiency improvements, but potential savings and costs are summarized in Table 4. Because efficiency technology is much cheaper than solar panels, efficiency improvements should be considered when household data can be acquired.

Values used:

- Average solar generation potential per household (kW) classified as low- or middle income
- Hours of solar exposure per year

Values that could be used to improve the estimates quoted:

- Solar generation potential per housing unit per year (kWh)
- Number of households per housing unit

[916] NREL, "State and Local Planning for Energy"; Benjamin O. Sigrin and Meghan E. Mooney, "Rooftop Solar Technical Potential for Low-to-Moderate Income Households in the United States," April 17, 2018, https://doi.org/10.2172/1434891.

Proposed SEU Implementation

Now that we have estimated the average electricity consumption per household per year (8000 - 12000 kWh), set a limit to funding available to the SEU through rates per year (Eq. 1), and identified the generation potential per rooftop per year, we can outline a plan for SEU implementation based on tract-specific restrictions. We will outline three scenarios: 1) all housing units in the tract install individual solar sized to meet their energy needs with no microgridding; 2) 28% of housing units in the tract install individual solar sized to meet their energy needs with no microgridding; 3) 28% of housing units in the tract install oversized solar to maximize their generation potential, and interconnect to all other houses in the tract.

Scenario 1: solar adoption by every household: In the first scenario, where every household in the tract both wants to and has sufficient infrastructure to support rooftop solar, the cost per housing unit to install solar would be $9000 - $14,000 corresponding to $8M to $12M for the entire tract. The SEU would provide 57-64% of total electricity needs, decreasing the amount paid to the IOU by approximately $525-675. Thus, the cost of solar would be paid off in 13-26 yrs, which is less than the technical lifetime of rooftop solar.

To arrive at these numbers, we will use the LCOE for rooftop solar provided in Table 2 to estimate upfront costs, $/kWh.[917] Because a household served by the SEU would still remain on the DTE grid, it is not necessary to match the consumption load perfectly or consider energy availability over time. To determine how much of the household electricity consumption could be satisfied by the solar installation, it would be necessary to know the overlap between electricity consumption and solar generation. We assume 75% of a household's energy consumption overlaps with solar energy generation hours[918]. Further, while we assume that all housing units, that is all residential buildings (n = 855) will opt into and be able to support rooftop solar generation, the total energy consumption is defined per household (n = 1009), not per housing unit. To calculate the fraction of total electricity needs provided by the SEU, we will take the ratio of 75% of solar generated on 855 housing units divided by the total electricity consumed by all 1009 households in the tract. This accounts for the fact that some housing units, such as an apartment building, host multiple households. Using Eq. 1, this leaves $526-675[919] available per year to fund the SEU and results in the

[917] LCOE can also be reported in $/kW. To convert this cost to $/kWh, we can divide by the hours of sunlight in Michigan per year, ~2400 h, estimated based on the percentage of cloudy days per month, and average daylight per month. The generation potential needed to satisfy a single household's energy needs is 3 - 5 kW.

[918] We will assume that 10% of energy consumed accounts for the baseload consumption when the household is unoccupied or all inhabitants are asleep. We will assume the remaining 90% of energy is consumed between 7am - 9pm, and that 85% of this time range occurs during daylight. A more accurate estimate can be made by assessing a specific household following protocol such as the method outline by the Better Buildings Partnership's "How to: Energy Consumption Profile" guide.

[919] This assumes that households at the high end of the energy consumption range will also be at the high end of the electricity generation range.

consumption of non-renewable electricity falling to 36-43% of total consumption within the tract.

Scenario 2: solar adoption by 28% of households, no microgrid: However, it is unlikely that *every* house in Tract 5334 would both choose to opt into the SEU and have the infrastructure to support rooftop solar, which was not included in the previous estimate of rooftop generation potential. This is addressed in the second scenario. We will assume that only 71% of owner-occupied housing units will opt-in to the SEU and be able to support rooftop generation, leaving 281 buildings contributing to sustainable generation. The cost to build solar capable of meeting the per household electricity need of 8,000 -12,000 kWh would be approximately $2.4 - 4M. Based on our previous assumptions of consumption time vs solar generation overlap, the generation potential falls to 17-46% of estimated total household consumption in the tract, and the SEU and any associated affordability benefits would only affect households within the 281 buildings receiving solar panel installation.

We approximate that only 281 housing units would be suitable for solar, since we do not have this data specifically for Tract 5334. Conservative estimates from the IOU approximate that only 10% of housing units are suitable for rooftop solar, though it is not clear what considerations go into this number.[920] A recent NREL survey (n = 24,269) found that approximately 29% of LMI housing units would not be suitable for rooftop solar for reasons outside of the technical potential, including interest in installing solar, roof quality, electric wiring quality, and building code issues. The recommended roof age prior to solar installation is 0-10 years, given the technical lifetime of rooftop solar and typical roofs.[921] In multi-family housing units, particularly those with multiple stories, the rooftop area may not scale with the number of households living in the housing unit. To accurately determine the number of housing units suitable for rooftop solar, an in-depth survey of houses in the tract is required. Such a survey should investigate the non-technical limitations listed previously, as well as the vacancy rate and property ownership. In Tract 5334, approximately 54% of non-vacant housing units are renter-occupied. Renter-occupied units present a potential barrier to SEU development since the building residents directly benefiting from SEU affordability do not have control over whether their building can opt in to the SEU.

There are some ways the SEU could expand its sustainability impact in the tract, including: adding distributed storage to compensate for electricity usage during dark hours, conducting roof replacements to increase the number of suitable homes, or interconnecting the distribution resources from homes and community space with solar generation to those without.

[920] Private conversation with DTE former CEO, Gerry Anderson

[921] Becca Jones-Albertus, "Replacing Your Roof? It's a Great Time to Add Solar," Energy.gov, 2021, https://www.energy.gov/eere/solar/articles/replacing-your-roof-its-great-time-add-solar.

Scenario 3: solar adoption by 28% of households plus microgridding: The analysis in this section so far has followed the SEU model proposed throughout this chapter: a non-profit SEU that provides sustainable generation and efficiency technology, but not parallel grid interconnection or microgridding. The purpose of considering only distributed generation and efficiency upgrades, but not microgridding, is because an SEU at this scale can be deployed immediately in the legal landscape of Michigan and distributed solar generation is a well-tested technology. Additionally, because the actual installation of solar can be completed in a matter of days, the implementation of solar even across a large community could happen within a couple years. Interconnection between distributed SEU resources would either require a change to the laws requiring the IOU enable interconnection between SEU-owned distribution resources or a parallel grid built by the SEU. While both options present challenges and are not likely to be achieved in the short term, it is important to consider the potential of a future grid connecting distribution resources when planning for the placement of distribution resources in the first place.

This is the third scenario we will consider. The total estimated cost for installing distributed solar on 281 housing units and interconnecting these units to the remaining housing units in the tract is $9.9M and would account for 36-57% of the energy consumption in the entire tract. Using Eq.1 assuming the average energy consumption is at the low end of our range, 8,000 kWh, and if SEU-generated energy is shared equally across all households (n = 1009), households would pay $585 - 870/yr to DTE, and $390 - 675/yr to the SEU. The total bill, set by Eq. 1 to be maximized at $1260 would provide a significant decrease compared to current bills, which average nearly $3000, and could pay off the investment in installing solar, covered upfront by the SEU, in 14-25 yrs. In the case where energy consumption falls at the high end of the range, the customer bill to DTE alone would range between $877 - 1306/yr, bringing the total for both bills to $1267 - 1981 which would fall above our 6% energy burden goal, though below the current cost. In this case, it may be necessary to supplement development with additional funding or decrease consumption through efficiency measures such that energy justice is not sacrificed.

For calculating the potential and cost of distributed resources installed with the intention of grid interconnection, we assume that some households may host more generation capacity than their consumption. The cost of installing solar reaching the estimated technical generation potential, 16.5 MWh/year, would be approximately $20,000 per housing unit, totaling ~$5.7M for all 281 housing units and accounting for 38-57% of the total tract electricity consumption. To realize resource sharing amongst the entire tract, the SEU would need to deploy microgrid interconnection between all households. The average cost of community microgrid installation is ~$2.1 M/MW.[922] Scaling this to the size of the

[922] Julieta I. Giraldez Miner et al., "Phase I Microgrid Cost Study: Data Collection and Analysis of Microgrid Costs in the United States," October 9, 2018, https://doi.org/10.2172/1477589.

proposed microgrid size, the cost for microgrid installation is estimated to be $4.1M for the entire tract, or approximately $4100 per household. This is a rough estimate based on a limited number of existing microgrids, which can vary greatly depending on the microgrid controller and soft costs, such as installation. Because the SEU grid would rely entirely on distributed solar resources, a control software able to account for variability in generation output and maximize SEU output would be important to include in this cost.

The capacity of the SEU could be further improved using residential batteries. We assume the 2020 CAPEX of $4213/kW of storage in a 5kW battery, which would account for the generation capacity of approximately one household. A proper assessment of the optimal amount of storage capacity needed would require an analysis of the seasonal hourly energy consumption. This data is not available on the tract scale.[923]

Values used:

- Number of renter-occupied housing units
- LCOE of residential solar
- CAPEX of Lithium-ion battery storage

Values that could be used to improve the estimates quoted:

- Number of households interested in opting into the SEU
- Number of housing units meeting necessary infrastructure requirements
- Time-dependent solar exposure per housing unit
- Time-dependent energy consumption per household
- Household-specific accounting of inefficient or gas-powered appliances

Considerations for implementation and future research

The estimate above provides a rough outline of total costs and viability of installing a microgrid on a severely energy burdened tract in Detroit, Tract 5334. The estimate above considers the cost of residential solar installation and specific scenarios of SEU adoption within the community.

We estimate that in a heavily energy-burdened, low income tract, it is possible to develop solar at a scale that secures both an increase in sustainable energy consumption and prevents the total electricity bills paid to the SEU and IOU from exceeding the 6% energy poverty threshold. In order for such development to be realized, the SEU will need to secure sizable loans to cover the initial upfront cost. Though the funding available to the SEU from a low-income community is limited, we estimate that the pay off time for the initial investment will be similar or slightly shorter than the technical lifetime of the solar panels. Importantly,

[923] EIA, "Hourly Electricity Consumption Varies throughout the Day and across Seasons," 2020, https://www.eia.gov/todayinenergy/detail.php?id=42915.

we find that the cost to install solar sized to meet only a single household's consumption needs on all housing units in the tract (scenario 1) is comparable to the cost to install oversized solar on just 28% of housing units in the tract along with a microgrid interconnection (scenario 3). This highlights the flexibility of the SEU model, and underscores the importance of understanding community needs before launching SEU development. In both cases, the SEU can increase sustainable energy consumed to be 36 - 64% of total electricity consumption in the tract.

In order to better estimate the viability of buildings for solar, in-person inspection is required. Tools, such as the Retrofit Decision tool can assist with this estimate when it is not viable to perform in person inspection.[924] In the previous assessment, we have excluded the generation potential of any house not currently viable for rooftop solar. In order to expand the generation potential of the tract, we could consider accounting for roof replacement or hardening. The average cost of roof replacement or hardening is ~$10,000, and depends on roof size.[925] This would increase the cost of solar installation from ~$20,000 to ~$30,000 per housing unit, and would account for an additional 16.5 MWh/yr of generation per improved housing unit. To achieve 60% sustainable energy generation, a minimum 290 - 436 housing units would need to be outfitted with rooftop generation.

Depending on the energy usage of a particular household, the energy cost paid to the IOU may still be above the energy poverty line. One way to further reduce this cost would be to increase the capacity of the SEU, as outlined above. Additionally, we could consider energy efficiency measures to reduce the total energy consumption. This would require more granular knowledge on the current efficiency of appliances in a specific household, which is not readily available. Such information must be collected through a home energy assessment, which can be estimated by a self-assessment with relative ease.[926] Finally, we have only considered residential usage in this scenario. Commercial and public buildings will have different usage profiles and are not directly limited by household energy poverty, but can otherwise be integrated into the assessment in the same way as residential buildings.

In this assessment, we have only considered scenarios in which the customer remains connected to the traditional grid. This alleviates the consideration of how well the distributed generation can handle peak loads and load variability, since the traditional grid provides a constant supply of energy from non-renewable sources. Long-term planning of the SEU microgrid would need to consider the ability of the SEU grid alone to handle any expected load.

[924] PNNL, "Retrofit Design Tool," n.d., https://basc.pnnl.gov/retrofit_decision_tool.
[925] Becca Jones-Albertus.
[926] US DOE Energy Saver, "Do-it-yourself home energy assessments," https://www.energy.gov/energysaver/do-it-yourself-home-energy-assessments

Finally, in this analysis we used readily available tract-wide data, and interpolated values per household or housing unit by averaging total amounts by the number of households or housing units. A more accurate assessment would instead calculate values for each specific household or housing unit, and sum these values to arrive at an estimate for the entire tract.

To summarize, this assessment has selected a community based on the criteria that 1) publicly available information can be found to characterize its energy needs and solar generation potential, 2) the community is overburdened and underserved by the existing utility, meaning opt-in rates would be high, and 3) the community is unlikely to afford sustainability infrastructure upgrades independently, given its poverty level. The assessment conducted can be replicated for any community identified by utilizing data from the same publicly available data sources (SLOPE, LEAD, and RECS), supplemented with any other data available on their community, such as a survey of information regarding building quality and resident interest in SEU adoption.

4.4 Assessment against Key Criteria

For the SEU model we have described along with considering the best practices and avenues for potential expansion, we have formulated an assessment of how the SEU could perform against climate, reliability, energy justice, and affordability criteria.

Weak	Fair	Strong	Highly Variable

Criteria	**Overall Rating**
Climate	Strong
Reliability	Fair
Equity	Strong
Affordability	Strong

Table 6. Assessment of SEU performance against key criteria

Interpretation guide for the criteria

"Strong" implies a very high possibility of achieving outcomes expected for the assessment criteria without the dependence on external factors such as energy market conditions, consumer adoption, etc. It does not exhibit volatility based on internal factors such as decision-making by the governance board or allocation of priorities and available funds.

"Fair" implies a medium possibility of achieving outcomes expected for the assessment criteria without the dependence on external factors such as energy market conditions, consumer adoption, etc. However, it does exhibit volatility based on internal factors such as decision-making by the governance board or allocation of priorities and available funds, and the outcomes are likely to incline towards other assessment criteria based on these decisions and priorities.

"Weak" implies a low possibility of achieving outcomes expected for the assessment criteria without the dependence on external factors such as energy market conditions, consumer adoption, etc. It exhibits volatility due to a determinate internal factor and is not foreseeably easy to overcome due to legal or governance constraints.

"Highly Variable" implies that a possibility of achieving outcomes expected for the assessment criteria cannot be determined through the scope of this document. Outcomes are highly likely to vary on a case-by-case basis or on external factors such as energy market conditions, consumer adoption, etc. It may exhibit volatility based on internal factors such as decision-making by the governance board or allocation of priorities and available funds.

Climate

- **Set Michigan on a path to meet or exceed MI Healthy Climate Plan goals?**
    - Good - 100% of SEU new build generation will fall under the MI Healthy Climate Plan definition of renewable, and construction could theoretically start immediately. The impact of the SEU will depend on the adoption rate, but, as was outlined in our model analysis of Tract 5334, adoption of sustainable generation in just 29-43% of housing units could bring the fraction of sustainable energy consumed within the tract to 60% or higher.
- **Reduce per ton costs of GHG reductions?**
    - Neutral - Compared to the "business as usual" scenario where individuals are paying out of pocket for efficiency, electrification, and generation, the SEU can decrease costs to the individual by sharing the cost of generation over a community microgrid. However, microgrid construction is an added and variable cost. The SEU could also invest in utility-scale sustainable generation or bulk purchasing for distributed generation, which would decrease costs. Residential solar funded by the SEU has a higher LCOE than utility-scale solar,

and must pay back interest incurred on the initial loan. However, while the IOU can invest in utility-scale solar, which has a lower LCOE, the IOU must also pay a fraction of its rates to its investors.

- **Demonstrably increase/accelerate clean energy generation over baseline predictions?**
    - Good - The SEU provides a method for supplying sustainable energy generation to any community, regardless of income. Current plans rely on individuals to fund their own development.
- **Incentivize investments and innovative approaches to reducing GHGs?**
    - Good - it is unlikely that the SEU would be able to financially incentivize innovation toward reducing GHGs, but by deploying community scale sustainable solutions, the SEU could provide valuable data for future technology development.
- **Substantially reduce overall electricity usage?**
    - Fair - The SEU can be designed to fund efficiency upgrades for homes and motivate the implementation of sustainable building codes, but in very energy poor areas such upgrades may not be affordable alongside the construction of generation/storage resources. Additionally, some of the largest sources of increased energy cost are gas appliances - electrifying these would increase electricity usage, but decrease energy usage.

Reliability

- **Substantially decrease outages?**
    - Fair - in “business as usual” grid architectures, front-of-the-meter distributed generation resources must be shut down during a grid outage to protect utility workers. For an SEU with an entirely separate grid, distributed generation and storage could stay online during an outage on the traditional grid. It should be noted that a single distributed resource installed on a home interconnected to the home in isolation from the traditional grid would have the same outage resilience. This also gives the SEU authority to prevent a total energy shut off in the event of an unpaid bill. Additionally, since any microgridding would require new infrastructure development, grid management systems and new construction could help to decrease outages.
- **Substantially decrease the response times to outages?**
    - Neutral - the community-scale nature of the SEU grids means that it could be easier to identify areas in need of repair. However, while the SEU could potentially hire locally based and trained “full-service” technicians to install,

repair, and service lines, it is unclear if such a workforce would be immediately available at the scale needed.

- **Increase the incentives for modernizing the grid and planning for future load increases?**
    - Fair - because the SEU is required for constructing a new grid, modern grid design is a logical design principle for the SEU to follow. The smaller area served by each grid may make it easier to plan for future loads, but it is unclear how the parallel SEU grid would function in a future legislative landscape that allows for line sharing between the SEU and traditional utility, or a CCA that allows the SEU to sell power to the traditional grid. Regardless, the focus on local use and generation would reduce strain on regional transmission lines and substations. Future load increases may be difficult to predict in energy poor communities, where energy usage may be dangerously low as a result of high rates.
- **Result in higher customer satisfaction with electric service?**
    - Neutral - The SEU should decrease the total utility bill for customers, but the customer would be receiving two separate bills, which might be confusing or bothersome. A municipality could opt to combine the SEU bill with an existing municipal utility bill, such as water, to avoid increasing the number of bills. The SEU may not be able to onboard all interested households immediately due to financing or load considerations, which could anger some potential future customers. Additionally, the SEU cannot control the traditional utility's response. If formation of the SEU drives IOU rates up, this would understandably anger customers.
- **Increase accountability to communities and customers?**
    - Fair - the SEU must be municipally-owned, which forces a level of public accountability and removes investors, so that the SEU would only be accountable to its customers. The SEU, by nature of running parallel to the traditional utility, would be an opt-in service, so there would be significant motivation to have a good image in the community. However, the funding model of the SEU relies on rate payers to pay off debt incurred when resources are installed. This could potentially force ratepayers to sign a contract to stay with the SEU for a certain amount of time, which could displease some customers.

Energy Justice

- **Recognition justice**

- Strong- The SEU can achieve recognition justice through identifying and tracking SEU customers who have been historically disadvantaged by the preexisting energy system. Tracking the demographics and historic energy burden of community members is a key best practice in achieving recognition justice. Additionally, the SEU can create an indigenous land acknowledgment statement to recognize indigenous peoples who have experienced historical harms of the energy system.

- **Procedural justice**
  - Strong- The ability to achieve procedural justice standards is a strength of the SEU model. More specifically, an SEU can establish processes that provide extensive and meaningful community participation opportunities to meet the community ownership aspect central to the SEU model.
  - **Establish or enhance transparent, democratic and inclusive governance structures and decision making, particularly for frontline communities?**
    - Strong - Because an SEU acts as a form of community trust, it can and should prioritize and establish transparent governance structures and decision-making, particularly for frontline communities. Plentiful opportunities for community input should be offered, and mechanisms for accountability should be in place. Community members should sit on working groups and boards for the SEU, and specific positions should be held for frontline community members.
  - **Result in meaningful and significant community engagement in public processes?**
    - Strong - The establishment of an SEU provides an excellent opportunity to create a utility that prioritizes and offers meaningful and significant community engagement. An example of these structures include planning and vision workshops. A special emphasis on the accessibility of engagement opportunities, such as paid participation, transportation, time and date considerations, childcare, language accommodations, and readily available online information should be prioritized in the creation and charter of an SEU.
  - **Include effective reporting and accountability mechanisms?**
    - Strong - Effective accountability and reporting mechanisms can and should be established in creating an SEU. For example, access to transparent data and information offered by the SEU through annual reports on the status, successes, and weaknesses is a key route in achieving effective reporting. Additionally, numerous evaluation tools exist that can be utilized to evaluate the SEU against previously determined goals and assess progress.

- **Distributional justice**
    - Strong - Distributive justice is another tenet of energy justice inherent to the SEU model so much so that existing SEUs embody many key aspects of distributive justice discussed below. These existing programs have room for improvement to satisfy a more robust distributionally just SEU.
        - **Reduce projected residential electricity rates for low income customers?**
            - Fair - Because an SEU serves as a complementary energy system to the pre-existing IOU or municipal utility, an SEU could not affect IOU electricity rates. However, an SEU can provide bill assistance, renewable energy generation, and energy efficiency programs that help make bills more affordable for low income customers. This is discussed further in the affordability criteria section below.
    - **Cap energy burden appropriately for low-income households?**
        - Fair - Similar to the discussion above, an SEU could not cap energy burden, because it serves as a complementary energy system to the pre-existing IOU or municipal utility. However, an SEU can provide bill assistance, renewable energy generation, and energy efficiency programs that help lower bills and energy burden for low-income households. Even in cases where only a fraction of a household's energy consumption is covered by the SEU, the cost savings provided by an affordable SEU rate can bring the total energy bill from both the SEU and the traditional utility to a level near or below the energy poverty line, as is outlined in the prior tract-based case study.
    - **Ban shutoffs for low income customers?**
        - Fair - Because an SEU serves as a complementary energy system to the pre-existing IOU or municipal utility, an SEU cannot ban shutoffs for low income customers. However, an SEU can provide bill assistance, renewable energy generation, and energy efficiency programs that help make bills more affordable for low income customers. Additionally, households that are receiving electricity from the SEU would not experience a total loss of energy in the event of a shut off from the traditional utility since the SEU resources would be housed on a separate grid. This would apply for houses connected through an SEU microgrid, and houses not on a microgrid, but with their own behind-the-meter solar.
    - **Result it in the adoption of effective low-income assistance programs?**

        - Strong - An SEU can and should adopt effective low-income assistance programs. This is a key offering provided by existing SEUS in Delaware and Washington, DC. An SEU can offer low-income assistance programs such as Percent of Income Payment Plans (PIPPs), expand or modify existing affordability programs, and establish renter-specific programs.
    - **Modernize the grid in marginalized communities?**
        - Weak - Because an SEU serves as a complementary system to the pre-existing IOU or municipal utility, the energy infrastructure will continue to be owned by the pre-existing utility. Therefore, the SEU could not modernize the grid, as it would not own it. In the case of the SEU building its own microgrid, the SEU is uniquely positioned to prioritize grid modernization in a marginalized community, where the inability of customers to afford the upfront cost of sustainable technology and the effects of electric grid redlining contribute to slow progress toward sustainability goals, since the SEU is structured to maximize community sustainability rather than profit. Advancing the SEU to a scale that includes microgridding requires substantial investment in other resources, which could stall grid modernization.
    - **Result in substantial local hiring?**
        - Strong - The SEU can prioritize increasing green training and job opportunities and placing local community members into those jobs, as has been demonstrated in the DCSEU and Energize Delaware. An SEU can and should establish hiring practices that prioritize and set targets for local community members and historically disadvantaged groups such as people of color, women, and LGBTQ+ workers and track data to ensure goals are met.
- **Restorative justice**
    - Strong - Restorative justice standards could be more difficult for an SEU to achieve. However, the two key aspects of restorative justice, placing power in the hands of the people it serves and accountability, can be accomplished in an SEU through centering the community's voice in decision making and establishing accountability mechanisms discussed in the procedural justice criteria section.

Affordability

- **Increase affordability for customers by reducing projected electricity rates?**
    - Fair - SEUs do not affect IOU electricity rates, but provide cost savings by lowering consumption of energy provided by the IOU through energy efficiency

improvements or through the installation of DS. Our estimates based on the projected costs of the AASEU predict a rate of $0.12-$0.22/kWh, comparable to DTE Energy rates ranging from $0.13 - $0.25/kWh.[927] Additionally, planning of the SEU scale can be tailored such that the expenses to be repaid through rates do not exceed the current energy burden of customers. Our analysis of Tract 5334 demonstrates that it is possible to maintain affordability for low-income communities opting-in to the SEU, but this may limit the size of development that can be addressed.

- **Decrease fiscal burdens to communities?**
    - Strong - The SEU can further lower community costs by securing funding to supplement the rate paid by customers. The SEU's flexibility allows each community to decide whether to provide their services to low-income households at little or no cost, which would provide the most cost savings to those that need them the most, or disperse cost savings across more consumers through ratepayers. Ultimately, such a decision and the extent of affordability improvements in a community will be determined by individual community needs, sources of funding, and the cost structure of the SEU, and the services provided. Nonetheless, both options lead to overall consumer electricity savings. Moreover, the add-value of the SEU is enabling Michigan residents to afford cost-prohibitive solar panel installation or energy efficiency services either at no or low cost, or by dispersing costs across time.

4.5 Basic Steps to Adoption

In this report we have outlined a model for an SEU that describes initial implementation within the confines of current legal and technical constraints, while allowing for potential future expansion. The basic steps for adopting the SEU from our model can be broken into two parts:

Initial implementation

1. Survey interest in and demand for an opt-in SEU and commission a feasibility study to determine the technical and financial constraints limiting an SEU
2. Establish the SEU as a municipally-owned utility through a city ordinance
3. Create a governance and management charter that outlines the SEU's jurisdiction, leadership, objectives and procedures

[927] DTE Energy "Electric Pricing Options," https://www.dteenergy.com/us/en/residential/service-request/pricing/rate-options/residential-pricing-options.html. Accessed April 13, 2024

4. Finance start-up funds for initial SEU development through the issuance of bonds, or federal/state grant funding
5. Extend the initial feasibility study to determine the highest impact locations for installing distributed resources, and how these resources might fit into a future microgrid
6. Begin assessing and building distributed solar and energy efficiency resources for customers

Future expansion

1. Finance additional funds to interconnect existing resources with a community microgrid
2. Address a change to state legislation to enact CCA, which would allow distributed resources to interconnect without requiring a parallel grid

4.6 Conclusion and Discussion

Summary of Proposal

In this work we have proposed an SEU with the following goals and desired outcomes:

- Goal 1: sustainable generation of electricity and its distribution to ratepayers;
- Goal 2: increasing the sustainability of electricity consumption through energy efficiency, weatherization, and energy use management

- Outcome 1: improve sustainability within a community
- Outcome 2: expand and maintain long-term sustainability advances through self-funding.

We propose that the SEU is structured such that:

- Municipally-owned and operating only within the municipality as an opt-in alternative to the traditional utility
- Primarily focused on deploying sustainable generation via SEU-owned distributed solar and energy efficiency upgrades

This model presents a feasible legal path for the implementation of municipally-owned SEUs in Michigan that does not require changes to state laws or policies. The proposed structure of the SEU, which prioritizes intersectional sustainability, provides a timely way to meet the MI Healthy Climate goals.

Many sustainable generation and sustainable energy consumption technologies are prevalent in the market and relatively easy to deploy throughout individual households.

Because the SEU proposed in this work would exist as a parallel to the existing utility, the generation resources do not need to meet peak demand of the community they serve. This allows for the SEU to optimize as much sustainable generation and efficient consumption as possible, while keeping total electricity costs below the poverty line. The SEU can also provide a space for the study of sustainable energy system technologies, where community voices can be prioritized.

We assume the worse case scenario when it comes to SEU financing, which is 100% debt. Cities will be able to issue revenue bonds that will be repaid across several years, and will recuperate start-up and operation costs through a solar electricity rate. In terms of affordability, the SEU model shows potential in lowering electricity costs for consumers by decreasing reliance on more expensive IOU-provided electricity and increasing reliance on cheaper SEU solar-generated electricity. The SEU's ability to recover costs across longer periods of time lessens the financial burden for cost-prohibitive solar and efficiency services. Depending on whether SEUs are awarded grant funding, they have the potential to further lower costs of solar and efficiency services.

The proposed SEU will not be under direct state authority. Local municipalities and their communities will have direct involvement in the governance and management of the SEU. The SEU will require careful management of resources, alongside organizing construction projects for renewable generation, prioritizing equity through diverse hiring and inclusive practices, implementing affordability programs like Percent of Income Payment Plans, and ensuring reliability through community-scale operations and customer service teams.

The potential for meeting equity and justice standards in each of the four tenets of energy justice, recognition, procedural, distributive, and restorative, is high due to the community ownership and trust aspects central to the SEU model. More specifically, recognizing historically disadvantaged community members, implementing extensive community engagement and participation opportunities, offering low-income assistance and affordability programs, and ensuring transparent accountability mechanisms are all key considerations for meeting energy justice goals.

Areas for Further Research

In order to pursue successful SEU deployment within Michigan, several areas warrant exploration. First, given the limited number of existing SEUs, future research should focus on building an evidence base for this model, particularly in prioritizing energy justice standards within SEU frameworks. This could involve conducting case studies that demonstrate the SEUs ability to achieve these principles effectively. Additionally, assessing the viability of community participation in the SEU through surveys would provide insights into demand and potential uptake. Evaluating the technical feasibility and financial viability of SEUs, particularly regarding rooftop solar integration without infrastructure hardening, is critical for

determining their scalability. Refining cost estimations through a more comprehensive analysis of the Levelized Cost of Energy (LCOE) specific to each community would enhance the accuracy of financial estimates. Communities should be encouraged to conduct their own research on startup, operational, and maintenance costs tailored to their unique needs. Investigating the long-term management of SEUs as standalone systems, rather than complementary to existing utilities, would offer valuable insights into their sustainability and independence. Furthermore, continuing to explore legal frameworks for statewide SEUs versus municipal-scale SEUs would aid in evaluating their feasibility and scalability. Lastly, identifying communities most vulnerable to energy burdens and assessing their readiness for distributed generation, along with potential funding streams and revenue opportunities would inform targeted SEU implementation efforts. These future research avenues would contribute to a more comprehensive understanding of SEU models and their potential impact on sustainability, reliability, and energy justice.

Key Takeaways and Recommendations

While the SEU model presents many strengths and opportunities for municipalities in Michigan, there exist several important weaknesses and threats to the model in its implementation in Michigan. Firstly, the shift of ratepayers from the traditional utility to the SEU would happen gradually and could result in increased IOU rates shifting to communities not yet served by an SEU. This is expected in the Ann Arbor SEU, where the IOU, DTE, is likely to increase rates for remaining customers due to the customer exit of Ann Arbor residents who have shifted to the SEU. Therefore, if the SEU model takes off throughout Michigan, frontline communities are likely to be left behind struggling to keep up with increased rates set by the IOU due to customer exit in surrounding municipalities, creating an equity and justice issue. Additionally, equity and justice principles are completely dependent on the selected governance structure, charter, culture, and priorities of the SEU. While energy justice could be achieved through the SEU model, this is completely dependent on each municipality's prioritization of these standards. If these standards are not a priority for the municipality, the default operation of an SEU looks more like a traditional municipal utility with limited community participation and accountability opportunities. Also, the ability to analyze the effectiveness of an SEU is undetermined due to the small sample size of existing examples. Because there are only two existing SEUs, the effectiveness of the overall goal, reducing energy usage and shifting to sustainable sources, is unclear. Moreover, the Ann Arbor SEU's emphasis on renewable energy generation is a novel application of the SEU, and there are no existing models to evaluate success. So, there is a risk of failure by being on the cutting edge.

The scalability and flexibility of the SEU model makes it unique compared to other non-SEU alternatives. ach municipality can establish an SEU structure that best meets their

needs, whether that be a focus on renewable energy generation or energy efficiency programs. The flexible nature of the SEU model is not only a strength, but can also enable an SEU structure that achieves sustainability goals at the sacrifice of other metrics. For example, both technical investment and rate setting could result in vastly different models between municipalities and perpetuate discrepancies in accessibility, an energy justice issue. Rate setting is left up to the SEU. This means that the suppression or elevation of certain community voices could determine costs for all SEU members. For example, more affluent SEU customers might vote in favor of a higher rate in order to enable larger scale development of distributed solar, but this could result in an unaffordable rate for LMI members. An explicit effort to balance the needs of all customers is required to avoid imposing unjust rates on some community members.

In sum, an SEU is an easily scalable, low risk, and relatively quick option to implement in Michigan. Additionally, the SEU does not require significant changes to the political or legal landscape, so the process to establish an SEU in Michigan can start immediately in any municipality throughout the state. Lastly, the SEU model is relatively low risk. The SEU model requires little upfront costs relative to municipalization or public power alternatives. Moreover, the extent of renewable energy generation or energy efficiency program offerings by the SEU can be determined and changed based on customer demand and SEU profit. Therefore, if the SEU profits less than anticipated, the SEU can scale back its program offerings and spending.

In terms of improving electricity affordability, the SEU model shows promise by lowering residents' reliance on expensive electricity sold by IOUs, and in part substituting it with cheaper SEU solar-generated electricity. Predictions show that SEU rates are either lower or compete with current IOU rates, making SEU services financially attractive. Moreover, the SEU model enables residents to afford solar or efficiency investments that would otherwise require cost-prohibitive upfront investment by providing the ability to pay off services across a longer period of time.

Additional key strengths and opportunities of the SEU include the prioritization of climate concerns through the nature of the sustainable energy initiative. The SEU model inherently prioritizes lowering fossil fuel energy usage through energy efficiency programs and renewable energy generation. Therefore, climate and sustainability goals are at the forefront of the SEU model. For example, Ann Arbor's SEU has been identified as a key solution to the City's ambitious carbon neutrality goals. Also, an SEU has the potential to exist alongside any public utility structure (investor-, municipality-, or state-owned) and does not require buying the existing utilities' infrastructure. Therefore, any municipality in Michigan can establish an SEU regardless of the preexisting utility. However, an SEU does require collaboration and cooperation with the existing utility if the SEU plans to use the pre-existing utility's infrastructure to facilitate distributed solar generation. Lastly, the SEU is a natural

environment for gathering data on next steps in energy technology research. The microgridding aspect of the SEU model is a newer concept, and municipalities that implement this technology could help lower the barriers to this new technology by gathering data and sharing with other interested municipalities and technology experts.

Final Conclusion & Discussion

This roadmap examines alternatives to the traditional Investor-Owned Utility (IOU) model for providing electricity to residents of the state of Michigan. By evaluating each option against defined criteria – based in part on the state of Michigan's MI Healthy Climate Plan - of climate goals, energy justice, reliability, and affordability, this report seeks to provide evidence-based recommendations for sustainable and equitable energy transformation in the state. Our conclusion is that through comprehensive analysis and thoughtful stakeholder engagement, the path forward toward clean and equitable power in Michigan can be realized, paving the way for a more resilient and just energy future for all.

Cumulative Assessment

	Overall Rating

Criteria	Michigan Public Service Commission (MPSC) Reform	Statewide Publicly-Owned (SPO) Power	Individual Municipal-ization	Statewide Impacts of Widespread Municipal-ization	Sustainable Energy Utility (SEU)
Climate	Fair	Fair	Fair	Highly Variable	Strong
Reliability	Strong	Strong	Strong	Strong	Fair
Energy Justice	Fair	Strong	Strong	Weak	Strong
Affordability	Strong	Fair	Fair	Fair	Strong

Table 1. Matrix of assessments of each proposed alternative against key criteria

Table Key:

Ratings for Key Criteria	Definition
Weak	Low probability of achieving outcomes that meet the assessment criteria
Fair	Fair probability of achieving outcomes that meet the assessment criteria
Strong	High probability of achieving outcomes that meet the assessment criteria
Highly Variable	High variability as to whether the proposed alternative will improve outcomes relative to the status quo: unable to rate

With consideration of the cumulative matrix of assessments of each proposed alternative utility pathway, numerous opportunities and hurdles exist for each model and are summarized below. In addition to evaluating the potential of each proposed alternative to achieve key outcomes, considerations for the scalability, speed to transition, and key risks to successful establishment and operation are explored.

MPSC Reform

Our proposed four-pronged approach of Performance-Based Regulation (PBR), Innovation Promotion, Percentage of Income Payment Plans (PIPPs), and an Office of Consumer Advocate (OCA) earns a score of **"strong"** for reliability and affordability, and a score of **"fair"** for climate and energy justice. The reform's reliability performs strongly because of its strong potential for emphasis on reliability metrics and measures. Our MPSC reform explicitly includes incentives that aim to reduce the frequency and length of outages and increase long-term consumer satisfaction and accountability.

The reform also performs strongly in improving electricity affordability. PBR metrics like those utilized in Hawaii can effectively incentivize utilities to make their services more affordable. The proposed PIPP improves energy affordability for the state's most vulnerable and financially burdened residents by considering the proportion of energy costs to residents' incomes. A limitation of PIPP is that it does not improve affordability for middle-income households. The existence of an OCA provides communities with tools to combat future unreasonable rate hikes, but does not address existing energy unaffordability.

PBR policies could increase the speed of renewable energy deployment across the state while preparing the grid for a renewable transition. Although Innovation Promotion has the potential to advance the state's clean energy goals through investment in community solar, micro-gridding, and electric vehicles, the other two components of the reform will have limited impact.

The proposed reform can somewhat improve energy justice for customers. OCA and PBR have the potential to improve fairness in the process of energy provision by enabling communities to engage with the process more meaningfully, resulting in increased accountability. The reform advances distributive justice by lowering electricity costs for low-income consumers but does not address the risk of shutoffs as adequately.

Overall, the proposed MPSC reform must include all four components outlined in this report to maximize improvements in reliability, affordability, energy justice, and climate readiness. While OCA and Innovation Promotion do not require legislative or legal action, PIPP and PBR cannot immediately be pursued without further legislative or legal action. The biggest strengths of this reform is its ability to improve reliability for consumers and encourage valuable innovation. Successful implementation in other states makes this a low-risk option with a high potential for benefits in reliability and affordability. The biggest weakness of this solution is its ineffectiveness at challenging the power and influence of the state's IOUs, leaving them still in an advantageous position to continue their profit-maximizing practices that are often to the detriments of their consumers. Ultimately, our proposed MPSC reform is a scalable, quick, and demonstrably successful approach to improving the quality and cost of electric service in Michigan, but does not bring about transformative change to the energy system and current problematic IOU structure.

Statewide Publicly-Owned Power

Overall, the SPO model has the potential to create significantly more just and reliable power in Michigan, warranting **"strong"** ratings for each respective criterion. There are unique and notable strengths of the proposed SPO model attributable to legal, governance, and financing opportunities which can be leveraged to structurally ensure advancements to statewide energy justice and reliability. Some of these most salient opportunities include having access to loans and capital with lower interest rates and reinvesting the IOUs' profits into the utility. As it is not immediately obvious how electricity bills will change for ratepayers under an SPO model, the potential for this model to advance affordability was rated **"fair."** While profit savings can allow the utility to implement affordability programs such as the Percentage of Income Payment Plan (PIPP), the significant investments the state would be expected to make towards grid hardening or clean generation could increase rates in the short term. These investments would likely lead to lower bills in the long term, however, and are pertinent to creating cleaner, more reliable power in Michigan. The climate assessment for the SPO model is rated as "fair" because there is high potential and strong incentive for an SPO to pursue climate goals that are likely to yield positive outcomes for the state of Michigan across a 10+ year timeline. However, there needs to be substantial upfront monetary investment to achieve that. Based on the priorities set by the SPO's governance board and the tradeoffs made while balancing affordability with climate action, there is no guarantee that climate goals will be prioritized.

The implementation of the SPO model represents a large-scale approach with the potential to benefit residents across the state. The necessary scale of this approach, however, introduces challenges in the implementation, planning, and management of day-to-day operations. Integration of grid technologies owned and operated by the IOUs and unifying them under the information system owned by the new IOU is likely to be the biggest scalability obstacle that the SPO will face. Additionally, building public trust in a large population that has been underserved by the IOUs may be a substantial challenge.

The SPO can anticipate intense political and litigatory opposition on behalf of IOUs, introducing hurdles to a speedy transition. With regards to the speed of transition, *after* the IOUs have been acquired, an SPO would experience unique legal opportunities such as through the "quick-take" statute to instigate a relatively smooth transition. Numerous steps to adoption are outlined to facilitate a smooth transition, as informed by the Pine Tree Power proposal in Maine.

In terms of risks to successful establishment and operation, the SPO model will inherit legacy distribution infrastructure from the IOUs, which is widely known for its underperformance and low reliability. The use of this infrastructure poses major operational hurdles and introduces risks of failing to meet ratepayers' expectations in a timely manner.

Municipalization

Municipal electric utilities, with their focus on community-driven decision-making, cost-based rates, and local reinvestment, present a compelling alternative to the status quo. While there is nationwide evidence to suggest that municipal utilities can decarbonize faster than IOUs if there is local will and access to renewable resources, there is not conclusive evidence that existing municipal utilities in Michigan, specifically, perform better on climate. Climate goals can also be in tension with other goals, such as affordability, and therefore will ultimately depend on local preferences, warranting the rating of **"fair"** for climate impacts. Climate outcomes are "**highly variable**" when considering widespread municipalization, as climate action depends on the priorities and activities of the individual municipal utilities.

National data has shown that municipal utilities consistently perform better than IOUs on reliability. This is likely due to the smaller service area of a municipal utility as opposed to an IOU, as well as the increased accountability of a municipal utility to its customers. As such, the potential for municipalization to improve reliability in Michigan is evaluated as **"strong."**

Energy justice is rated **"strong"** for municipal electric utilities as this structure is well-equipped to prioritize community needs through transparent, accessible energy policymaking. Public power also allows for local hiring and the ability to meet the needs of residents with different energy needs such as senior citizens and low-income households. While an individual municipal electric utility can reap the benefits of equity, widespread municipalization runs into significant equity concerns for the state and surrounding communities. Widespread municipalization will likely lead to a utility death spiral for remaining IOU customers, meaning IOU customer areas that do not municipalize are left to pay for the legacy infrastructure costs of the IOU, making rates unaffordable to the IOU customers. There are also concerns about this widening of inequities for frontline and disadvantaged communities, as some municipalities may not be able to municipalize due to financial and legal barriers, but would be left with higher rates as more resourced municipalities form new public power utilities. As such, the statewide impacts of widespread municipalization on energy justice are deemed **"weak."**

Affordability ranks as **"fair"** for both individual and widespread municipalization. Rates may increase in the short run as a municipal utility begins to pay for the costs of buying out the infrastructure and making needed investments. However, over the long run, rates likely will decrease as savings from access to municipal bonds with lower interest rates and not paying for shareholder profits and the electricity sales tax allows the utility to save money and lower rates for customers.

Due to the localized nature of municipal utilities, the outcomes of municipalization vary greatly depending on the city. This variability poses challenges to replicability and **scalability**, making widespread municipalization complex. While some municipalities may be

well-equipped and motivated to provide renewable, reliable, equitable, and affordable electricity, such outcomes are not guaranteed across the board.

Sustainable Energy Utility

The Sustainable Energy Utility (SEU) model proposed in this report, which focuses on providing distributed solar generation and energy efficiency services, has the potential to quickly address Michigan's clean energy needs while providing affordable electricity to Michigan residents. The SEU model performs strongly on three of the four matrix criteria—climate, energy justice, and affordability.

The SEU model received a score of **"strong"** in terms of climate impacts for its ability to provide at least 10% of Michigan households access to renewable energy. Although Michigan communities that choose to create an SEU will maintain connectivity to current IOUs, residents that subscribe to SEUs' services will consume less of IOUs' electricity and more of the SEUs'. Moreover, SEUs that choose to provide electrification and energy efficiency services will aid residents in consuming less energy through weatherization repairs and efficient appliances.

The SEU model gets a score of **"strong"** on energy justice for its ability to advance the four pillars of this metric—recognition, procedural, distributional, and restorative justice. Communities interested in SEUs can tailor their services to disadvantaged residents who historically face a high energy burden. The SEU model's governance and management allow for communities to engage Michigan residents and provide them agency over the services they receive.

Overall, the SEU model gets a **"strong"** score on affordability for having the potential to provide SEU subscribers electricity at a lower cost than current IOUs do. Although SEUs do not affect IOU rates, they enable residents to use less of IOUs' more expensive electricity and substitute it with charged solar-generated electricity, lowering their overall electricity bills. The SEU model threatens to shift costs of IOU grid maintenance to non-SEU communities when residents completely disconnect from IOUs' services, which is not part of our current model. When communities consider developing SEU capabilities that allow residents to completely rely on SEU services through battery storage and micro-gridding, the cost-shifting phenomenon becomes relevant.

The SEU model performs worst on reliability and receives a score of **"fair"** for safeguarding some but not all residents from outages. Our current distributed generation model enables those with access to solar to be unaffected by electricity outages, but leaves those without solar panels entirely affected by outages. Energy storage further boosts the reliability of residents who use solar panels by enabling them to use stored energy during times when panels do not produce electricity. Although it is not part of our SEU model, micro-

gridding and community solar options have the potential to increase reliability for those who do not have the potential to install residential solar panels.

Ultimately, the SEU model has no legal barriers that prevent communities from creating them, other than needing a 60% vote to approve of bond financing. Upon securing bond funding, communities can quickly scale according to the number of financial resources available. The flexible and nimble nature of the SEU allows communities to individually tailor their respective SEU models according to their communities' needs. Our proposed model for an SEU—just distributed solar generation—can be achieved easily at the community level. Although community-wide micro-gridding and CCA are not part of our model, they're a natural progression of the SEU once it reaches the limits of distributed solar generation. Both these expansions require additional funding and structural investment that is more difficult to realize. Overall, the SEU model can quickly scale up, and faces limitations only on the state's solar potential. While the SEU does not require legal, legislative or regulatory action, legislation that legalized community solar could enable better integration of the SEU within communities.

Looking Forward

This report establishes a foundation for future discussion on Michigan's clean and equitable energy transition and evaluates four pathways toward this trajectory, each of them with its unique strengths and weaknesses. Each pathway performs differently according to our four chosen metrics, but collectively they demonstrate that communities and the state have numerous impactful and achievable solutions to Michigan's energy goals and challenges. In addition to considerations for climate, energy justice, reliability, and ratepayer affordability, there is value in examining the scalability, speed to transition, and risks to successful establishment and operation associated with each alternative utility structure.

With regard to scalability, all four evaluated pathways have strong opportunities, with MPSC reform and SEUs presenting the fewest legal and administrative hurdles to widespread adoption. The SPO has powerful opportunities for operation statewide, but presents significant legal and political barriers to establishment, threatening scalability. Municipalization holds substantial variability at scale, introducing complexity to the evaluation of scalability. In terms of speed of transition, municipalization has relatively limited challenges. With MPSC reform, some components of the recommended reform package possess more legal barriers than others, introducing a variable speed to transition. An SPO would offer relatively low speed, with numerous operational, administrative, and legal hurdles to complete the transition. SEUs, on the other hand, inherently circumvent many of these barriers, offering higher speed to transition. Finally, each alternative pathway introduces unique risks to successful establishment. An SPO, for example, has a low likelihood of failing to achieve energy justice and climate goals upon establishment, but the significant

hurdles to establishment introduce the potential risk of prolonging these goals. Similarly, the outcomes of municipal utilities are highly variable as they are orchestrated by individual municipalities, thus this model inherently poses a risk to achieving widespread energy justice and climate goals. Although some parallel considerations hold true for widespread SEU adoption, the SEU model has the highest potential for positive climate impact due to its ability to provide more renewable energy generation for localities. Moreover, as a competitive entity, the SEU has a great capacity to advance equity and accountability measures through its management and governance structure. However, given that no other state has taken on an SPO, municipalization, or SEU structure to the extent considered in this report, there is limited evidence to support navigating these presented risks. MPSC reform, on the other hand, has relatively low risk for successful establishment and operation, since the components of the recommended reform package are developed from existing programs across the country.

This report is part of a discourse that will stretch into the future as communities and states across the country reckon with a quickly approaching mass energy transition, increased demand for clean and just energy, and climate-change-induced obstacles. As communities begin to think about each of the four pathways analyzed in this report, they should carefully evaluate their climate and reliability goals, and identify which approach best aligns with their goals and their communities' needs. Moreover, communities should further the research presented in this report by assessing how each approach performs in each uniquely local setting. While our methodology is data- and expert-informed, numerous aspects of these pathways and their intricacies are in their nascent stages, requiring further careful consideration.

Through thoughtful analysis and stakeholder engagement, the path forward toward clean and equitable power in Michigan can be realized, paving the way for a more resilient and just energy future for all.

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Appendices

7.1 Appendix A (SPO)

Appendix A.1

Breakdown of DTE and Consumers Generation Assets

Please note: DTE lists their generation assets in book value ($), while Consumers lists their generation assets in GWh produced. Percentages were calculated so they can be compared.

DTE Electric Generation Assets[928]		
Type	**Dollar Value ($M)**	**%**
Nuclear	$ 3,812	27%
Renewables	$ 3,074	22%
Fossil and other generation	$ 4,157	29%
Other	$ 3,220	23%
Total	**$ 14,263**	**100%**

Consumers Energy Generation Assets[929]		
Type	**GWh**	**%**

[928] DTE Energy, "Form 10-K: Annual Report for the Fiscal Year Ended December 31, 2023," Securities and Exchange Commission, accessed March 26, 2024, https://d18rn0p25nwr6d.cloudfront.net/CIK-0000936340/28477a4e-8214-40c5-a20a-a5f8c4fbe3d8.pdf.

[929] CMS Energy Corporation, "Form 10-K Annual Report," accessed February 18, 2024, https://d18rn0p25nwr6d.cloudfront.net/CIK-0000028385/fa2454b8-dc84-43ab-94bc-cf637ce2a45e.pdf.

Gas	11,221	57%
Coal	6,884	35%
Renewable Energy	1,993	10%
Oil	2	0%
Net Pumped Storage	(349)	-2%
Total	**19,751**	**100%**

Appendix A.2

Michigan Electric Providers by Number of Consumers

Michigan Electric Company	Number of Consumers
Alpena Power[930]	16,650

[930] Alpena Power Company, "Press Release: December 15, 2023," accessed February 18, 2024, https://www.alpenapower.com/press-release-december-15-2023/#:~:text=Alpena%20Power%20is%20a%20locally,Montmorency%20and%20Presque%20Isle%20counties.

Consumers Electric[931]	1.8 million
DTE Electric[932]	2.3 million
Indiana Michigan Power Company[933]	600,000 (across Indiana and Michigan, with less than 50% of territory in MI)
Northern States Power Company[934]	8,900
Upper Peninsula Power Company[935]	52,000
Wisconsin Electric Power Company[936]	42,000
Wisconsin Public Service Corporation[937]	0 (served by Wisconsin Electric Power Company)

Appendix A.3

Net book value calculations and assumption for DTE and Consumers Electric Assets

Formula: Net book value = Book value of asset - Accumulated depreciation on asset

	DTE ($M)	Consumers ($M)
Book Value	$ 13,673	$ 11,339

[931] Consumers Energy, "What We Do," accessed February 18, 2024, https://www.consumersenergy.com/company/what-we-do#:~:text=We%20work%20for%20you.,more%20than%206%20million%20Michiganders.
[932] DTE Energy, "About DTE," accessed February 18, 2024, https://www.dteenergy.com/us/en/business/about-dte/about-dte/about-dte.html#:~:text=DTE%20Gas%20is%20engaged%20in,1.3%20million%20customers%20in%20Michigan.
[933] Indiana Michigan Power, "Community Involvement," accessed February 18, 2024, https://www.indianamichiganpower.com/community/caring/view?id=9057.
[934] Michigan Public Service Commission, "Electric Data Book 2019," accessed February 18, 2024, https://www.michigan.gov/-/media/Project/Websites/mpsc/consumer/electric/electricdata_19.pdf?rev=71b8ed35059e43f29c60cd31ead5bed1.
[935] Upper Peninsula Power Company, "About Us," accessed February 18, 2024, https://business.keweenaw.org/list/member/upper-peninsula-power-company-houghton-396#:~:text=About%20Us,counties.
[936] WEC Energy Group, "About Us," accessed February 18, 2024, https://www.wecenergygroup.com/about/aboutus.htm.
[937] Wisconsin Public Service Corporation, "Michigan Electric Rates," accessed February 18, 2024, https://www.wisconsinpublicservice.com/services/business/mi-electric.

Minus: Accumulated Depreciation	$ 3,205	$ 3,144
Net Book Value	**$ 10,468**	**$ 8,195**

Appendix A.4

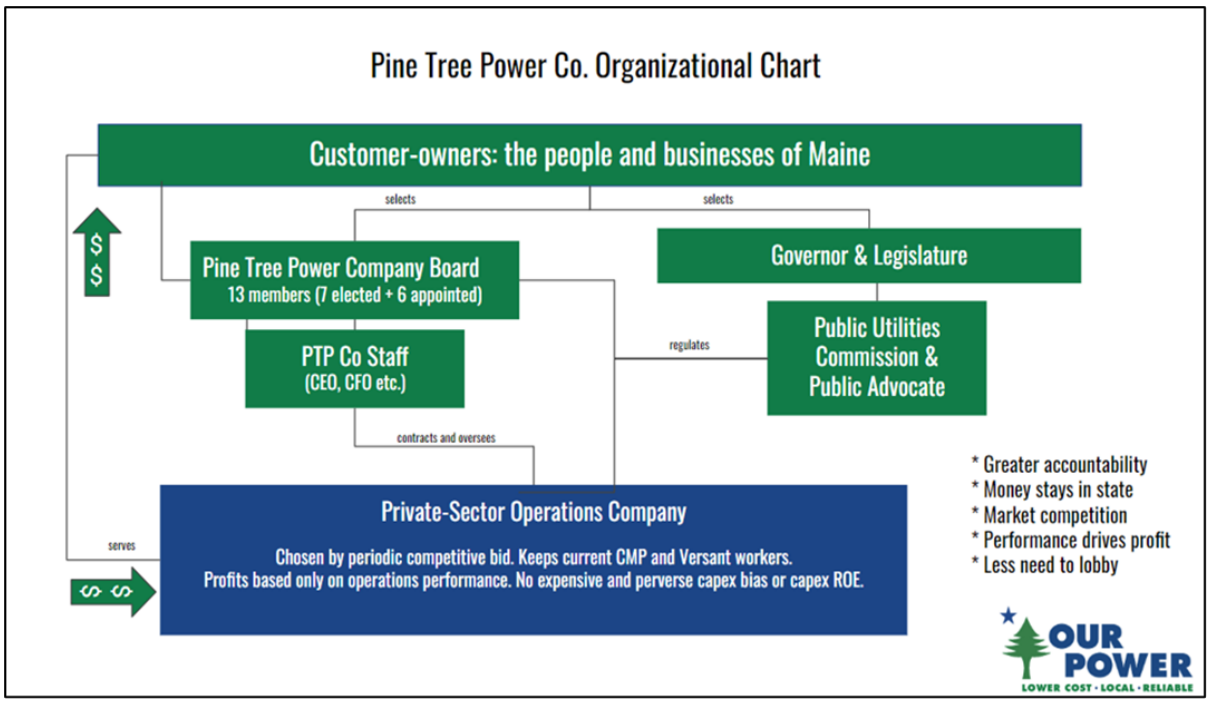
Using other municipalities as a case study for multipliers related to going concern (Pulled from Concentric's Whitepaper: Analysis of Government-Controlled Power in Maine)[938]

MUNICIPALITY	ACQUISITION PRICE [$M]	NET BOOK VALUE [$M]	ACQUISITION MULTIPLIER
Hermiston, OR	$8.0	$3.8	2.1x
Winter Park, FL	$43.1	$7.8	5.5x
Jefferson County, WA	$109.3	$46.7	2.3x

Appendix A.5

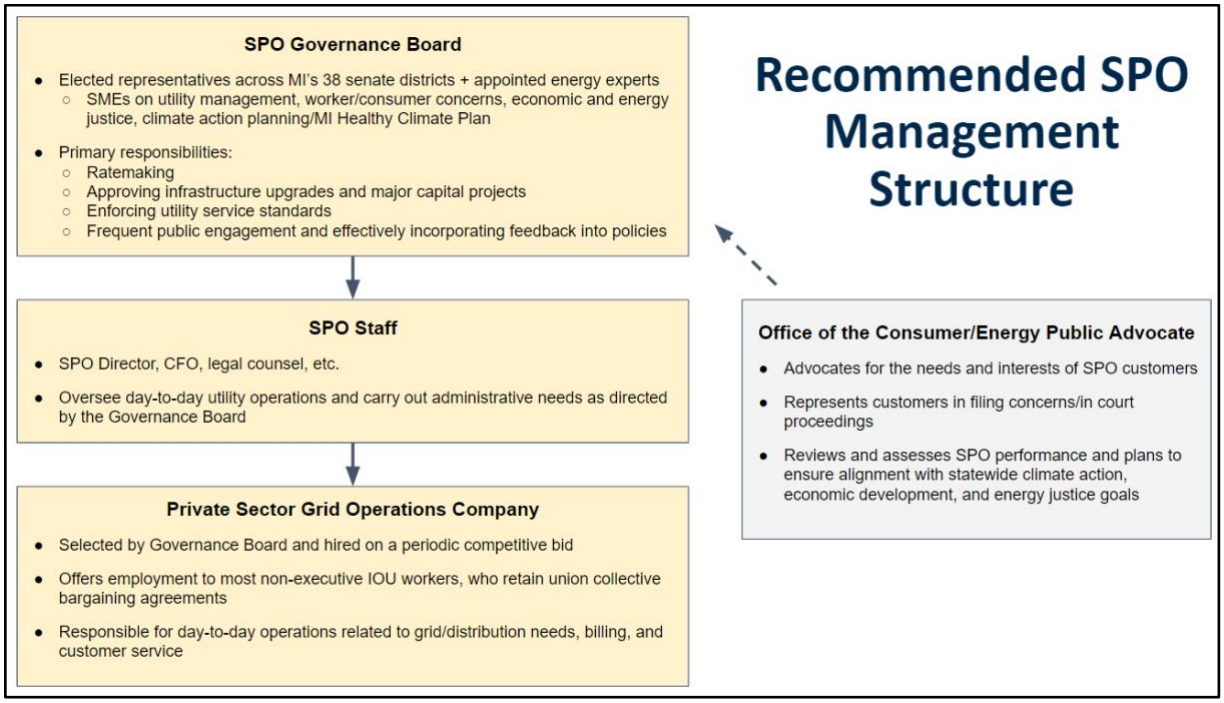
Pine Tree Power Company Organizational Chart.[939]

[938] Concentric Energy Advisors, "Whitepaper: Analysis of Government-Controlled Power in Maine" (May 2021).
[939] Dunkle, Daniel. "Pine Tree Power Supporters Underdogs in Fight for Maine Power Grid." Courier-Gazette, August 25, 2023. https://knox.villagesoup.com/news/pine-tree-power-supporters-underdogs-in-fight-for-maine-power-grid/article_f8548be6-3cff-11ee-971e-5f6e3aa8c12b.html.


Pine Tree Power Co. Organizational Chart
Customer-owners: the people and businesses of Maine
selects
selects
$
$
Pine Tree Power Company Board
13 members (7 elected + 6 appointed)
Governor & Legislature
PTP Co Staff
(CEO, CFO etc.)
regulates
Public Utilities Commission & Public Advocate
contracts and oversees
Private-Sector Operations Company
Chosen by periodic competitive bid. Keeps current CMP and Versant workers.
Profits based only on operations performance. No expensive and perverse capex bias or capex ROE.
serves
$ $
* Greater accountability
* Money stays in state
* Market competition
* Performance drives profit
* Less need to lobby
OUR POWER
LOWER COST · LOCAL · RELIABLE

Appendix A.6

Proposed Michigan SPO Management Structure.



7.2 Appendix B (Muni)

Appendix B.1

Shifts in the Michigan Legal Landscape: 1900 - 2024		
Name of Constitutional Provision, Statute, or Case:	**Related Legal/ Policy Barrier:**	**Overview:**
Foote Act (1905)	Franchise agreements	Established state franchise agreements without contractual term limits for electrical utilities operating in Michigan, excluding Wayne County.
Mich. Const. Art. XII, §1 (1909)	Franchise agreements	Adopted during the 1908 Constitutional Convention, this provision specifically sought to supersede the Foote Act and render it inoperative.

Russel v. Sebastian (1914)	Franchise agreements	The United States Supreme Court held that when a state's offer to grant a privilege is accepted by a public utility, the public utility's acceptance of the offer and its assumption of the duty to provide services then vests a property right in the utility. This property right is protected by the Constitution's contract clause.
Lansing v. Mich. Power Co. (1914)	Franchise agreements	On the heels of *Russel*, the Michigan Supreme Court held that the Constitution of 1909 applied prospectively only. As a result, the court interpreted the Foote Act of 1905 to contractually grant vested rights (state franchise) to electrical utility companies operating between the passage of the Foot Act in 1905 and the adoption of the Constitution in 1908.
City of Benton Harbor v. Michigan Fuel & Light Co. (1930)	Franchise agreements	The Michigan Supreme Court held that when a utility renews or extends its charter term, it extends the life of a franchise granted without term to the utility. This ruling applies to state franchise agreements established under the Foote Act, which did not include a term. The court also recognized rights provided under state franchise agreements as assignable from one corporation to another.
Constantine v. Michigan Gas & Electric Co. (1941)	Franchise agreements	The Michigan Supreme Court held that a municipally-owned utility operating in 1905 received a state franchise that was later validly assigned to an IOU.
Michigan Public Service Co. v. Cheboygan (1949)	Franchise agreements	The Michigan Supreme Court held that an electric utility's vested franchise right for use of the city's public ways was not exclusive; the city could operate an electric plant or distribution system. The court also rejected the city's argument that the IOU was operating under a city franchise rather than a state franchise. The IOU accepted a state franchise under the Foote Act by continuing to use the city's public ways to deliver electricity.
Traverse City v. Consumers Power Co.(1954)	Franchise agreements	The Michigan Supreme Court held that a state franchise reasonably extends to areas not originally covered by the franchise, including beyond municipal limits, even where a competing municipal utility sought to provide service to the area in dispute.
MCLS §460.816 (1976)	Eminent Domain	This statute places limits on municipal powers of eminent domain by requiring written permission of the private owner to acquire existing electrical generation or transmission assets.
Headlee Amendment (1978)	Tax and expenditure limitations	This amendment requires voter approval for taxes levied after 1978 and institutes a millage revenue limitation.

Proposal A (1994)	Tax and expenditure limitations	This amendment places a cap on property taxes by limiting taxable value for each individual parcel to the rate of inflation or five percent, whichever is less
Mich. Const. Art X, §2 (2006)	Eminent Domain	This amendment strengthened protections against the taking or private property by indicating specific procedures, including a just compensation requirement.
City of Coldwater v. Consumers Energy Co. (2017)	Franchise Agreements	The Michigan Supreme Court held that MPSC Rule 411, which restricts competition between utilities, does not apply to municipal utilities that have not consented to the jurisdiction of the MPSC. This is true even where utilities hold an existing franchise.
Bolt v. City of Lansing (2020)	Tax and expenditure limitations	The Michigan Supreme Court established three factors that may be used to distinguish taxes from service fees: 1) regulatory purpose, 2) proportionality, and 3) voluntariness. The court's application of these factors could limit a municipality's ability to levy service fees to fund initiatives related to regulatory compliance. Additionally, these factors will impact the design and implementation of utility rate structures.

Appendix B.2

When FERC is asked to determine stranded asset costs, the agency applies the formula:

$$SCO = (RSE - CMVE)L$$

In this formula, the stranded cost obligation (SCO) equals the revenue stream estimate (RSE) minus the competitive market value estimate (CMVE), multiplied by the reasonable expectation period (*L*). The SCO is capped at the "average annual contribution to fixed power supply costs (defined as RSE less variable costs) that would have been made by the departing generation customer had it remained a customer."[940] The RSE reflects "the average annual revenues from the departing customer over three years prior to the customer's departure (with the variable costs component of the revenues clearly identified), less the average transmission-related revenues that the host utility would have recovered from the departing

[940] 96 FERC ¶61, 163.

generation customer over the same three years[.]"[941] The CMVE can be calculated in one of two ways: 1) the IOU's estimation of the average annual revenues over the reasonable expectation period, *L*, that the IOU can receive upon selling released capacity, or 2) the average annual cost to the customer of replacement capacity, calculated based on the exiting customers' new contractual commitment with an alternative supplier.[942] *L* designates the time that the IOU "could have reasonably expected to continue to serve the departing generation customer."[943]

Appendix B.3

Below is a range of acquisition costs for the top 10 electricity consuming counties in Michigan who have either DTE or Consumers as their IOU. These ranges should be considered as the spectrum of possible acquisition costs that a county would pay to acquire their share of the IOU as part of municipalization.

County Name	Primary Electric Utility	NBV ($B)	1.25x Multiple ($B)	1.5x Multiple ($B)	1.75x Multiple ($B)	2x Multiple ($B)	2.5x Multiple ($B)	3x Multiple ($B)
Wayne	DTE Energy	3.94	4.93	5.92	6.90	7.89	9.86	11.83
Oakland	DTE Energy	2.75	3.44	4.13	4.82	5.50	6.88	8.25
Macomb	DTE Energy	1.62	2.03	2.44	2.84	3.25	4.06	4.87
Kent	Consumers Energy	1.30	1.62	1.95	2.27	2.60	3.25	3.90
Genesee	Consumers Energy	0.57	0.71	0.86	1.00	1.14	1.43	1.72
Ottawa	Consumers	0.56	0.70	0.84	0.98	1.12	1.40	1.68

[941] Gregory N Basheda, "Setting Stranded Costs for Retail-Turned Wholesale Customers: Why FERC Needs to Change Its Approach," *Utilities Policy* 8, no. 2 (June 1999): 121–37, 122 https://doi.org/10.1016/S0957-1787(99)00015-6.
[942] Ibid.
[943] Ibid.

	Energy							
Washtenaw	DTE Energy	0.64	0.79	0.95	1.11	1.27	1.59	1.91
Ingham	Consumers Energy	0.44	0.55	0.66	0.78	0.89	1.11	1.33
Kalamazoo	Consumers Energy	0.43	0.54	0.65	0.76	0.87	1.08	1.30
Midland	Consumers Energy	0.40	0.49	0.59	0.69	0.79	0.99	1.19

Appendix B.4

Below is a range of acquisition costs for the top 10 electricity consuming cities in Michigan who have either DTE or Consumers as their IOU. These ranges should be considered as the spectrum of possible acquisition costs that a county would pay to acquire their share of the IOU as part of municipalization.

City Name	Primary Electric Utility	NBV ($B)	1.25x Multiple ($B)	1.5x Multiple ($B)	1.75x Multiple ($B)	2x Multiple ($B)	2.5x Multiple ($B)	3x Multiple ($B)
Detroit	DTE Energy	1.57	1.97	2.36	2.76	3.15	3.94	4.72
Grand Rapids	Consumers Energy	0.40	0.50	0.60	0.70	0.80	1.00	1.20
Midland	Consumers Energy	0.34	0.43	0.51	0.60	0.68	0.85	1.02
Dearborn	DTE Energy	0.41	0.52	0.62	0.73	0.83	1.04	1.24
Warren	DTE Energy	0.33	0.41	0.49	0.58	0.66	0.82	0.99
Livonia	DTE Energy	0.30	0.38	0.46	0.53	0.61	0.76	0.91
Southfield	DTE	0.27	0.34	0.40	0.47	0.54	0.67	0.81

	Energy							
Sterling Heights	DTE Energy	0.26	0.33	0.39	0.46	0.52	0.65	0.78
Ann Arbor	DTE Energy	0.23	0.28	0.34	0.40	0.45	0.57	0.68
Flint	Consumers Energy	0.17	0.21	0.25	0.30	0.34	0.42	0.51

7.3 Appendix C

List of interviewees/experts consulted by chapter.

Note: The interviewees listed below did not have editorial control of the content, and the views/analysis represented in the chapters are those of the authors, not of the interviewees (unless explicitly referenced).

Chapter 1: MPSC

- Alexandra Klass, Energy Law Expert and Professor at the University of Michigan Law School
- Justin Schott, Energy Justice Expert and Professor at the University of Michigan School for Environment and Sustainability
- Laura Sherman, President of the Michigan Energy Innovation Business Council
- Katherine Peretick, MPSC Commissioner

Chapter 2: SPO

- Lucy Hochschartner; Deputy Campaign Manager, Pine Tree Power
- Dr. Noah Weaverdyck, PhD; University of Michigan
- Dr. Richard Silkman, PhD; economist and utility regulation expert
- Dr. Lindsey Gallo, PhD;, accounting professor at the University of Michigan Ross School of Business
- Graham Matthew Turk; former Innovation Strategist, Energy Programs, Green Mountain Power, Vermont

Chapter 3: Municipalization

- Lindsay Gallo, Coopers and Lybrand, Norman E. Auerbach Assistant Professor of Accounting at the Ross School of Business, University of Michigan
- Richard Silkman, PhD
- Greg Woodring, President of Ann Arbor for Public Power

- Don Lee, Ann Arbor for Public Power

Chapter 4: SEU

- Dr. John Byrne, founder of SEU model, University of Delaware
- Thomas Bartholomew, Associate Director for Policy and Compliance DOEE, Washington DC
- Valery Brader, Ann Arbor SEU
- Catherine Hausman, University of Michigan, Ford School
- Rick Bunch, 5 Lakes Energy

7.4 Appendix D

A detailed criteria matrix broken down by specific criterion for the MPSC reform chapter (1).

Criteria Theme		**Criteria Rating** **Is this option expected to…**
Climate		Set Michigan on a path to meet or exceed MI Healthy Climate Plan goals?
		Reduce per ton costs of GHG reductions?
		Demonstrably increase/accelerate clean energy generation over baseline predictions?
		Incentivize investments and innovative approaches to reducing GHGs?
		Substantially reduce overall electricity usage?
Reliability		Substantially decrease outages?
		Substantially decrease the response times to outages?
		Increase the incentives for modernizing the grid and planning for future load increases?
		Result in higher customer satisfaction with electric service?
		Increase accountability to communities and customers?
Equity	Recognition	Acknowledgment and respect for all people
	Procedural	Establish or enhance transparent, democratic, and inclusive governance structures and decision-making, particularly for frontline communities?

		Result in meaningful and significant community engagement in public processes?
		Include effective reporting and accountability mechanisms?
	Distributive	Reduce projected residential electricity rates for low-income customers?
		Cap energy burden appropriately for low-income households?
		Ban shutoffs for low-income customers?
		Result in the adoption of effective low-income assistance programs?
		Modernize the grid in marginalized communities?
		Result in substantial local hiring?
	Restorative	Recognize and work to alleviate past harms?
Affordability		Increase affordability for customers by reducing projected electricity rates?