Laborers' International Union of North America

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Feel the Power

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In the Matter of Minnesota Power's Application for Approval of the 2021-2035 *Energy Forward* Integrated Resource Plan.

MPUC Docket No. E015/RP-21-33

LIUNA MINNESOTA AND NORTH DAKOTA COMMENT

APRIL 29, 2022

The Laborers District Council of Minnesota and North Dakota "LIUNA\" appreciates the opportunity to provide replies to comments filed by other parties on the *Energy Forward* Integrated Resource Plan ("IRP") filed by Minnesota Power Minnesota Power ("MP") on February 1, 2021.

LIUNA members have much at stake and at risk in the current IRP process. On one hand, proposals to retire Boswell and Hibbard thermal plants early threaten to eliminate family-supporting job and career opportunities that have support generations of LIUNA members. On the other hand, LIUNA members face the uncertain prospect of future opportunities of which some, such as construction of NTEC, are expected to provide of jobs within MP's service territory, while others could be created hundreds or thousands of miles away, depending on future decisions made by MP and the Public Utilities Commission ("Commission").

Beyond the jobs created or eliminated, LIUNA members could be profoundly affected by the impact of proposed resource decisions on MP's industrial customers, which provide a key source of ongoing employment, as well as impacts on their own utility bills and service. Our members are counting on the Commission to approve a plan along the lines of MP's Preferred Plan, which provides for a thoughtful deliberate transition, not only for the energy system but also for communities like Cohasset whose economies rely on MP generating assets.

Beyond these general observations, we have the following responses to comments filed by other parties.

<u>The Commission Should Reject Flawed Analysis and Recommendations Contained in the Clean Energy Organizations' Environmental Health Report, and Instead Take a Comprehensive Approach to Consideration Environmental Justice and Health</u>

We strongly agree with the Clean Energy Organizations ("CEO") that the Commission should consider the environmental justice and environmental health consequences of resource decisions. There is no question that communities of color, low-income communities, and other communities that have been marginalized may be more vulnerable to negative impacts of resource that may range from job loss to exposure to criteria pollutants to unaffordable utility bills to power outages. Further, in some instances, socioeconomically burdened communities also bear disproportionate environmental burdens – often due to proximity to sources of pollution that may include busy roadways, leaking sewer pipes, and emissions from industrial facilities.

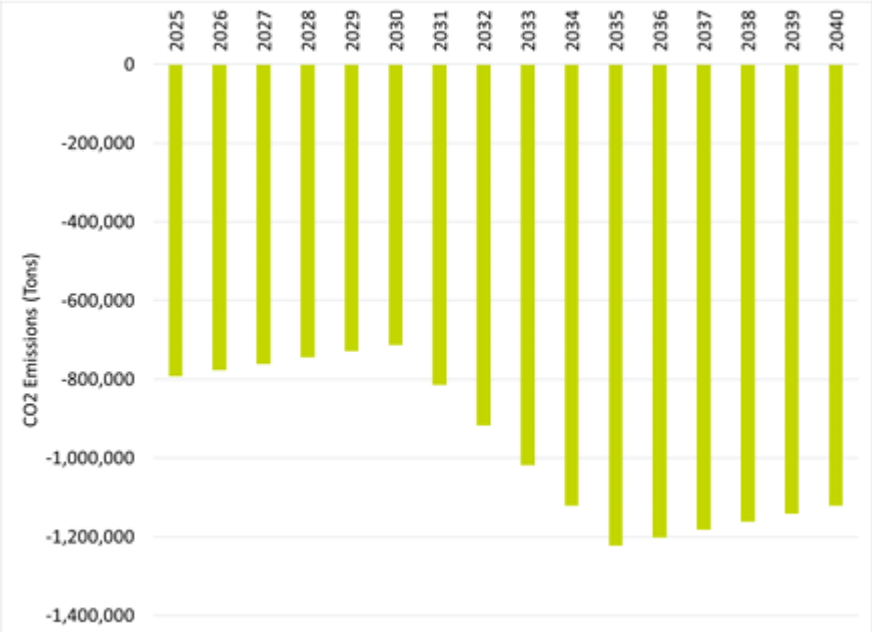
Utility resource decisions can help to mitigate the socioeconomic and environmental burdens faced by marginalized communities, including burdens that are directly tied to these resources (e.g. power plant pollution) and burdens that are not directly related but which may be alleviated in part through a resource plan (e.g. targeting of employment and business opportunities to underrepresented populations).

In our efforts to leverage utility resource planning to address inequities and improve health, however, it is essential to consider impacts broadly rather than cherry-picking certain impacts and ignoring others. For example, a low-income household that faces exposure to air pollution from a peaking plant may also be highly vulnerable to a winter power outage because the owners lack sufficient insurance to pay for the repair of frozen pipes, complicating the question of whether the net impact of the plant's continued operation on equity and health measures is good or bad.

Unfortunately, CEO findings and recommendations on environmental justice and health rely on analysis that relies on flawed methodology, cherry-picks results, and is generally poorly informed regarding Minnesota's energy system and associated impacts. The most troubling flaw in the CEO report can be found in its treatment of mortality and morbidity associated with power plant pollution. While it is reasonable to consider estimated health effects associated with emissions from facilities operated by MP, these impacts cannot be considered in a vacuum.

The PHE report, however, does just that – assigning health impacts to operations without making any effort to assess the impacts of non-operation. For example, the report closely examines potential emissions associated with operation of NTEC but ignores the fact that modeling resutls submitted by Dairyland as part of the cooperative's application for a USDA loan shows that removal of NTEC is associated with a significant increase in coal generation and associated emissions in the MISO market.[1] Based on the location of coal generation in the MISO market, these emissions would likely be generated in areas that are more densely populated and diverse than the areas downwind NTEC, significantly increasing health risks for environmental justice communities in the Upper Midwest.

Figure 1: 2025—2040 MISO West Annual CO_2 Emission Reductions with NTEC



[1] https://www.rd.usda.gov/resources/environmental-studies/assessment/nemadji-trail-energy-center-wisconsin

Table 3: 2025—2040 MISO West Dispatchable Resource Generation Summary (MWh Total over 16 Years)

Generation Type	With NTEC	Without NTEC	Percent Difference
Coal	486,251,143	510,486,609	5%
Combined Cycle (NG) [17]	1,037,156,110	1,046,058,347	1%
NTEC (NG)	66,491,555	0	-100%
Combustion Turbine (NG)	186,816,810	204,008,311	9%
Internal Combustion (NG)	21,070,823	21,891,105	4%
Steam Turbine (NG)	24,487,278	25,305,931	3%
Internal Combustion (Oil)	146,677	163,868	12%
Steam Turbine (Other)	735,790	742,787	1%
Combustion Turbine (Oil)	476,382	490,400	3%

The report also fails to consider the health effects of resource decisions more broadly. For example, early retirement of existing thermal plants and cancellation of NTEC would result in the loss of hundreds of power plant operation and construction jobs that provide middle-class wages and benefits in an area of the state that ranks last in key job metrics among economic development regions as discussed later in the comments. And as with air pollution, there are direct associations between longevity and access to private health insurance as well as associations between longevity and lifetime income.[2]

Likewise, the authors' decision to exclude consideration of environmental indicators developed by the U.S. Environmental Protection Agency obscures rather than illuminates the nature of the challenges facing MP customers and communities. EJ Screen incorporates a dozen environmental indicators including levels of particulate (PM 2.5), ozone and diesel pollution; measures for air toxics cancer risk and respiratory hazards; proximity and volume of traffic; proximity of superfund sites, risk management plan and hazardous waste facilities, and underground storage tanks; and levels of toxic wastewater discharge.[3]

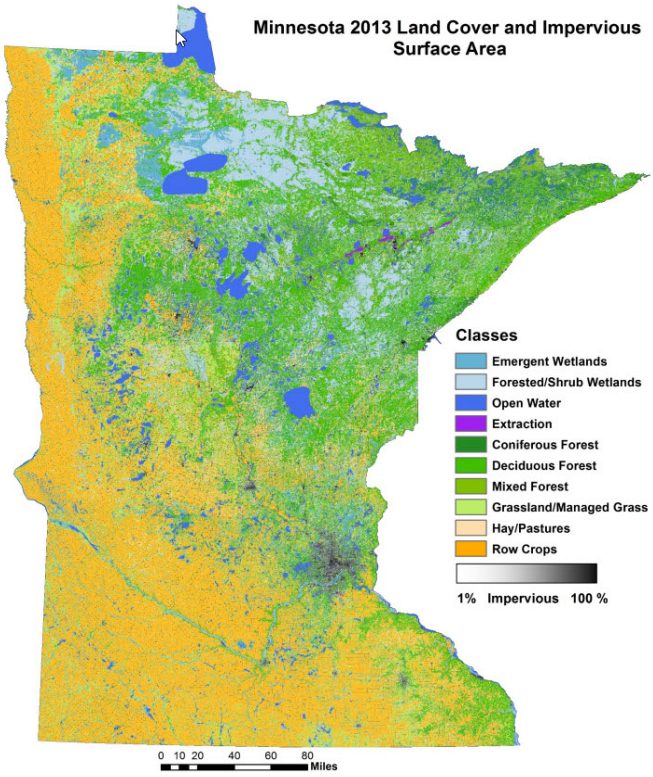
Yet In the authors' words:

> "We conducted a similar analysis using the EJScreen environmental indicators but found that these did not provide significant variation for census tracts within the Minnesota Power territory, and so omitted it from this analysis. EJScreen indicators tend to reflect environmental pollution burdens characteristic of urban areas, such as traffic proximity, but not those that might be characteristic of rural areas, such as pesticide use, resulting in a better characterization of urban pollution concerns but not rural concerns.

The authors fail to explain why the EJ Screen indicators, which cover a broad range of environmental health risks, including factors that present in both urban and rural areas, fail to adequately capture environmental conditions in the MP service territory. The sole example they cite to argue that these indicators fail to characterize rural concerns is pesticide use, which, ironically, is more likely to trouble residents of the Twin Cities Metropolitan area than heavily forested Northeast Minnesota, as is evident from the state land cover map below. In fact, the bulk of the report is devoted to pollutants included in the EJ Screen, including PM 2.5, ozone, and diesel particulates.

[2] See https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7084505/#:~:text=In%20fully%20adjusted%20models%2C%20private,CI%20%3D%201.15%E2%80%931.27 and https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4866586/

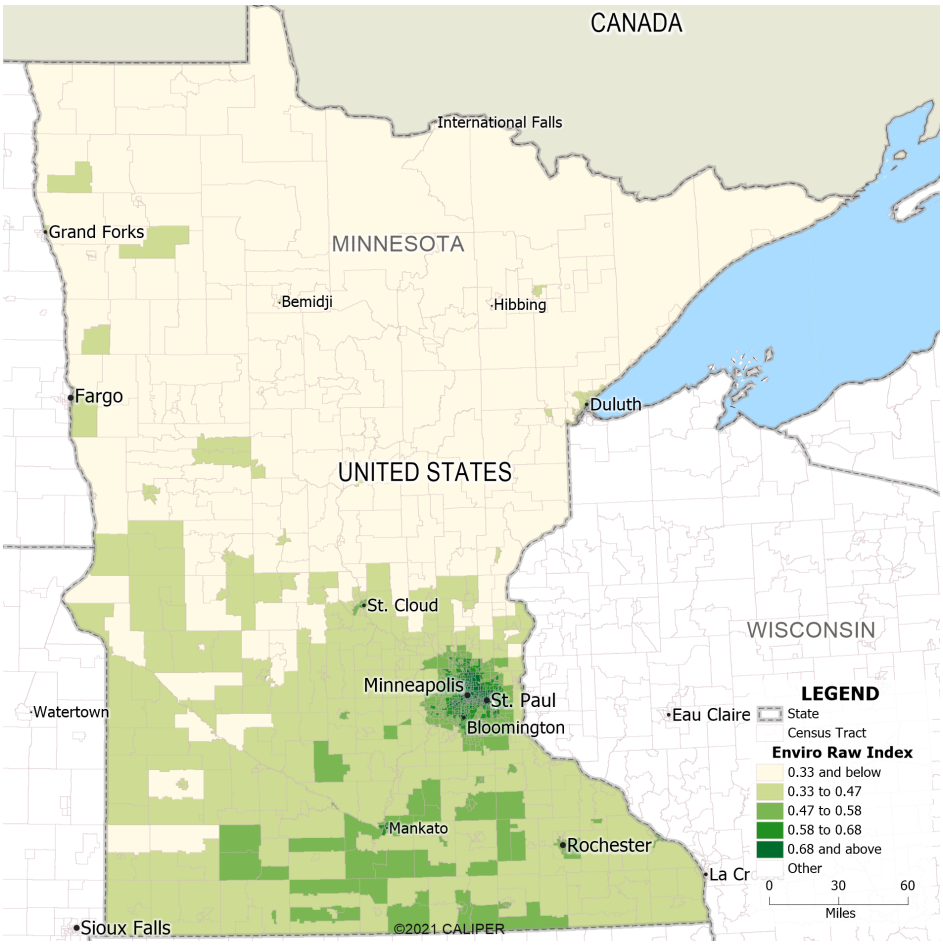
[3] https://www.epa.gov/ejscreen/overview-environmental-indicators-ejscreen



It seems more likely that environmental data were stripped out of the report's analysis because they do not support the authors' narrative in key respects. First, the data show overall that Minnesota Power customers, like other residents of Northern Minnesota, live in a healthy environment. The map below depicts cumulative environmental burden based on the authors' aggregation of EJ Screen indicators by census tract (labeled "EnviroIndexRaw").

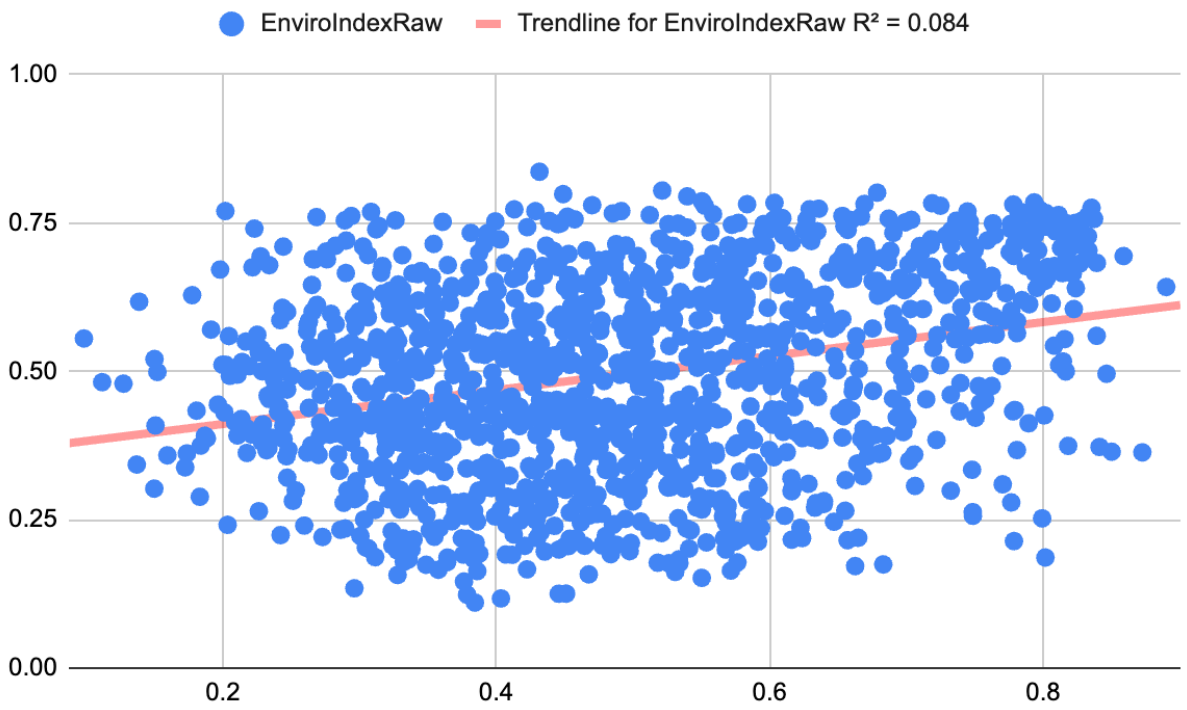
The overwhelming majority of census tracts in Northern Minnesota fall into the lowest category of cumulative environmental impacts (scores of 0.33 and below), while a handful of census tracts, including some in and around Duluth, score in the second-lowest burden category (0.33 to 0.47). It is clear from the map that the EJ Screen data capture environmental burdens in rural as well as urban areas, with most of rural Southern Minnesota assigned a higher cumulative burden than almost any census tract in Northern Minnesota.

There are, of course, environmental health risks and pollution sources in Northern Minnesota, including but not limited to thermal power plants and industrial operations. But sources of pollution are fewer and far between, resulting in lower levels of exposure and pollutant concentration than in parts of the state where emissions and/or populations are more dense.



Second, the environmental data provide weak support for the report's environmental justice thesis, namely that socioeconomically burdened communities are disproportionately exposed to pollution and other environmental hazards. The following chart depicts the relationship between EJ Screen measures of cumulative socioeconomic burden and cumulative environmental burden for each census tract in Minnesota, using the aggregate indices calculated by the authors and provided to LIUNA. The data show that, while there is some degree of correlation between socioeconomic and environmental burden as measured by EJ Screen, most of the difference in environmental impact appears to be unrelated to social indicators.

The weak relationship is clearly visible in the chart, which shows that census tracts are all across the map when it comes to socioeconomic and environmental indicators, with census tracts that are largely white, affluent and/or highly educated reporting significant environmental burdens, while many census tracts that are home to a higher proportion of non-white, low-income and/or less educated residents enjoy healthy environments. The R-squared value for the data, which provides a rough measure of the degree of correlation between independent variables, finds that just 8.4 percent of statewide variation in the cumulative environmental indicator can be explained by variation in the social burden indicator, while over 90% of the difference may be attributed to other factors.



This is not to say that environmental injustice does not exist in Minnesota, or that socioeconomically burdened communities do not face greater vulnerability to environmental health risk as the authors suggest. There are clear examples where public and private decisions have exposed vulnerable communities to elevated environmental health impacts. Instead, the data suggest that we need to be careful not to assume that socioeconomic and environmental burdens are either correlated or interchangeable.

While the authors fail to provide evidence of cumulative environmental burden in MP's service territory, they do show that many Northeastern Minnesota communities and households face socioeconomic burdens that include lower levels of household income, educational attainment, and labor force participation than the state as a whole.

Data published by the Department of Employment and Economic Development (DEED) show that 2020 median household income in Minnesota's Arrowhead was just $57,751, compared to $73,382 statewide (21 percent less), and that close to half of households (43.6 percent) earned less than $50,000 vs. a third (33.5 percent) in the state as a whole.[4] Residents of Northeast Minnesota also have lower levels of educational attainment, with just 38.3 percent of adults possessing at least an Associate's Degree compared to 45.3 percent for the state as a whole.

While the cost of living is also lower in Northern Minnesota, the roughly $25,000 income shortfall greatly exceeds the $10,000 cost-of-living gap for a two-parent, one-child household. These problems are particularly acute for Black and Native American residents whose household incomes were roughly $20,000 and $25,000 lower than white households, respectively.

The average annual wage in Itasca County was just $47,892 in 2020, an average that is currently boosted by well-paid jobs associated with Boswell. By contrast, in 2018, the annual base wage for Boswell's operations workforce was nearly twice that amount at $88,317. This figure does not include

[4] https://mn.gov/deed/assets/2022_Northeast_RP_tcm1045-133251.pdf

the cost of employer-paid family health coverage and pension benefits which typically boost the economic impact of such jobs by a third but are increasingly hard to find in other sectors of private industry. After considering the value of health and pension benefits, additional taxes paid by skilled power plant workers, and the public cost of social supports that subsidize many low-wage jobs, it is reasonable to assume that it will take between three and five average Itasca County jobs to replace the positive economic contributions of a single power plant job.

Yet if the most pressing environmental justice problem in Northeastern Minnesota is lack of income and economic opportunity, then the recommendations of the report are likely to exacerbate rather than mitigate those problems. By accelerating plant retirements and canceling construction of NTEC, these recommendations will make matters worse by increasing the number of socioeconomically burdened communities and households, and by displacing energy production to facilities that will generate more pollution in areas that are more densely populated and where people of color and other socioeconomically burdened individuals are more likely to live and be exposed to pollutants.

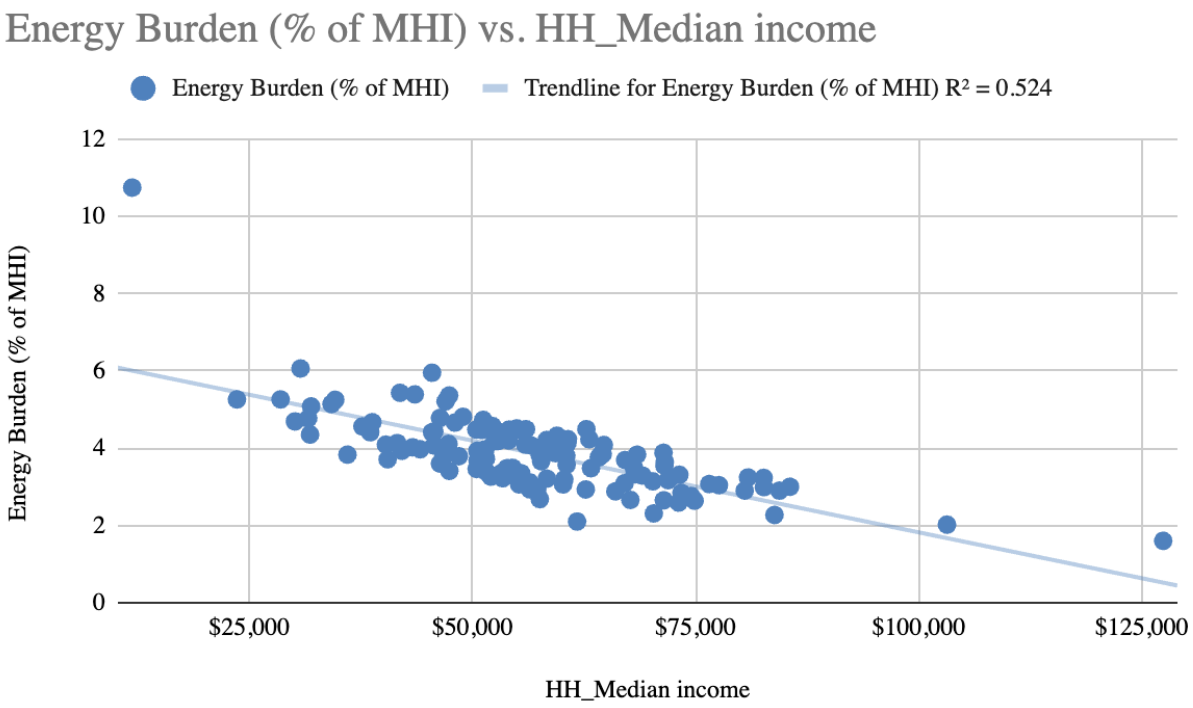
The final area where the report widely misses the mark is in its discussion of energy cost burden. The term “energy cost burden” is presented in the report as an analytical tool for energy planning and policymaking, but in practice, it is largely a function of the denominator in the burden equation: household income. While other factors such as age of building stock and type of energy (e.g. use of electricity, natural gas or delivered fuel for building heat) play a role, they are heavily overshadowed by income. This is especially true in a regulated system where utilities are required to provide service on an equitable basis and prevented from engaging in the sort of redlining that is all-too-common in other areas of our economy.

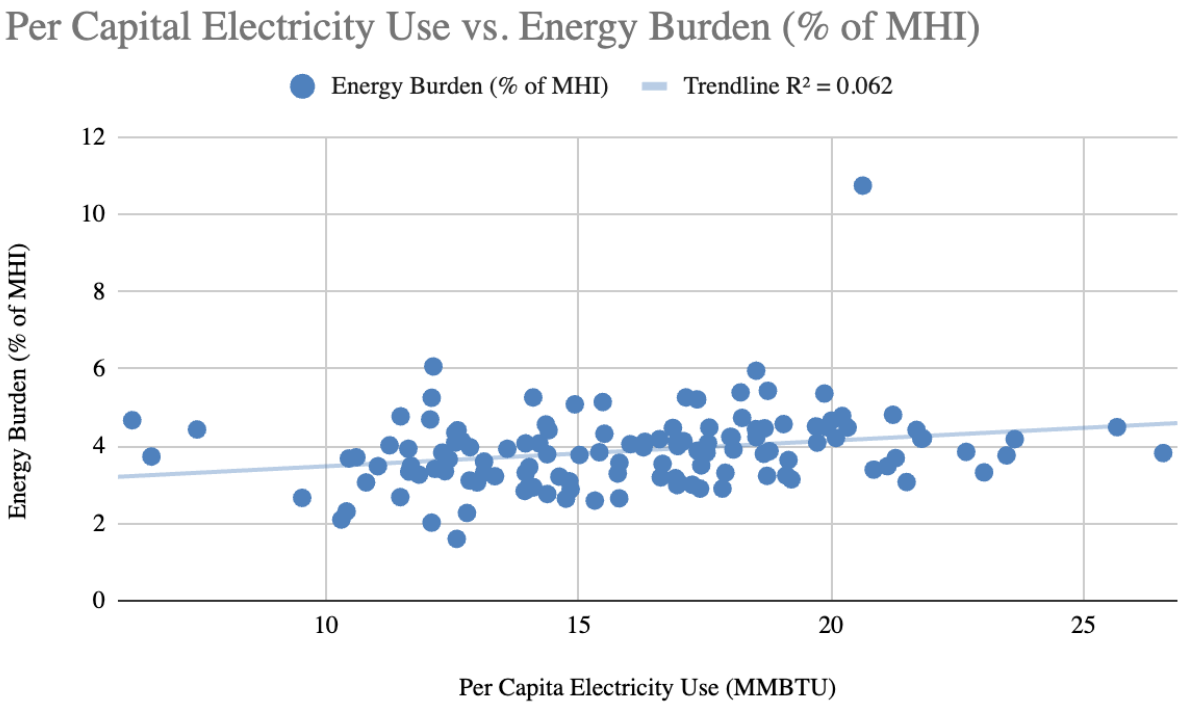
The chart below, which presents the authors’ data on median estimated energy burden and household income by census tract, shows that there is little meaningful difference between describing a community as “energy burdened” and describing the same community as “low income”. The data points cluster tightly along the trend line, generating an R-squared value of 52 percent, which suggests that more than half of all variation in energy burden correlates directly to variation in household income. The correlation rises to 54 percent after excluding the census tract where the data suggest that the average household spends more than 10 percent of income on energy (the flaws in this data point are discussed at greater length below).

It should be noted that the report provides a different chart mapping the data on question featuring a trend line that shows a sharp upward curve, which the authors conclude proves that there is a “non-linear” relationship between household income and energy burden which they say is “dramatically higher” for very low-income households. But it doesn’t take a statistician to recognize that this apparently dramatic, non-linear trend is based on a single outlier data point.

While the remaining data show a largely linear and unsurprising correlation between energy cost burden and household income, the result is very different when we look for a correlation between energy burden and usage of electricity. Variations in estimated per capita consumption of electricity, derived from the energy consumption and population data used by the authors, accounts for a scant six percent of variation in energy burden, which falls to five percent when the outlying data point is removed.

In short, communities are described as “energy burdened” not because they consume too much electricity, or too much energy generally, but because household incomes are too low. While there are certainly opportunities to reduce energy consumption and costs for low income households through energy efficiency programs, moving the needle on energy burden will depend more on increasing incomes than reducing energy use – especially in a climate as cold as Northern Minnesota. This is particularly true in this case, since electricity represents a fraction of total energy cost.



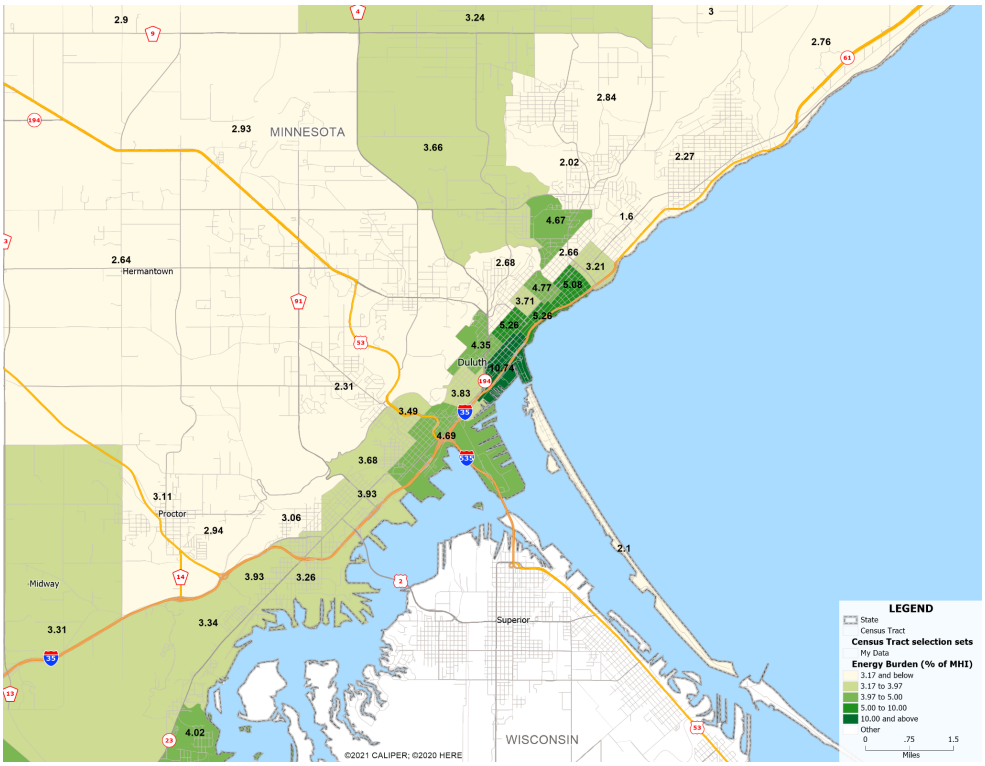


There is also reason for caution when drawing conclusions from the energy cost burden data presented in the report. For example, the charts above show an outlier data point that purports to describe a census tract where households spend more than 10 percent of their household income on energy – an extraordinary number that is nearly double the figure for the second-most-burdened census tract.

A closer examination of the area in question, however, raises questions about how accurate or representative the data are of energy costs for low-income residents. Census data, for example, show that median household income in the area was just $11,866 (vs. $30,729 for the next-most-burdened area); 78 percent of households reported a single occupant (vs. 43 percent for the median census

tract); and children under 15 accounted for just *two percent* of residents (vs. 17 percent for the median census tract).

In sum, the data are not consistent with a low-income residential neighborhood. Instead, they suggest a census tract where a significant number of single adults live in institutional housing, whether a hospital, jail, or treatment center or single-room occupancy housing. Unsurprisingly, a look at the map shows that the anomalous census tract is located in the commercial heart of downtown Duluth – an area that appears to house Essentia St. Mary's Medical Center, St. Luke's Hospital, the Duluth Bethel halfway house, and other institutional facilities where utility costs are either paid entirely by the facility or covered by affordable housing caps that limit the total cost of rent and utilities based on income.



The authors' failure to investigate an outlier data point and recognize that it is likely unrepresentative of the problem that they seek to explain is troubling. It also suggests that the report's measure of energy burden may not be able to distinguish adequately between households where residents pay the full cost of energy bills and households where bills are subsidized or directly paid by building owners.

The report's recommended steps for reducing energy burden are no better founded than the report's conclusions about the prevalence of energy burden. Specifically, the report recommends expansion of a utility program that subsidizes the installation of rooftop solar and tends to benefit more affluent customers who face fewer barriers to participation.

Unfortunately, such programs increase costs for non-participating residential customers, a burden that falls hardest on the low-income customers who can least afford to subsidize someone else's expensive solar installation. While inclusion of more low-income customers could expand access, costs must grow even faster in order to effectively address barriers, exacerbating negative impacts on non-participating low-income customers. Further, to the degree that rooftop and community solar programs, which have a patchy record of family-supporting job creation, displace utility-scale solar, there is a danger that these programs will reduce availability of high-quality renewable energy jobs in the MP service territory.

The report's recommendations regarding weatherization also demonstrate a troubling lack of familiarity with Minnesota's energy efficiency programs. The authors suggest that MP could take the costs and savings associated with the Very High efficiency program and simply reallocate benefits to low-income households. This proposal ignores the fact that most efficiency programs are cost-effective precisely because they leverage significant customer investments through mechanisms such as rebates that have less practical use to low-income customers.

MP Should Not Seek to Mitigate Risks of Shifting Industrial Load by Underinvesting in Large Generation and Transmission Projects as Suggested by Citizens Utility Board

The Citizens Utility Board ("CUB") notes MP's heavy reliance on an industrial load which can vary significantly based on market cycles and the business decisions of a few large customers to argue that the utility should cautious when considering commitments to "large new generation or transmission projects, such as a new natural gas plant" in order to avoid investment in stranded assets. We agree that the ups and downs of industrial demand pose a significant challenge for Minnesota Power which requires careful planning and consideration of varied demand scenarios. But in our view, a strategy that avoids large investments in new generation and transmission carries risks at least as significant as those posed by stranded assets.

Mining companies and firms engaged in other energy-intensive industries such as paper products manufacturing consistently cite reliable power and predictable pricing as key attributes when deciding whether to maintain existing operations or make significant new investments. Representatives of large industrial customers have testified in particular that reliability is critically important for industrial facilities where even brief periods of downtime can generate significant costs in the form of lost production, or in the worst case, impacts to the facility itself.

A strategy geared toward minimizing MP's exposure to changing demand by avoiding large investments would also expose MP and its customers to additional market and reliability risks by leaving the utility dependent on outside actors and markets to meet demand that exceeds its own limited generation capacity. This could make Minnesota businesses less competitive and make the state less attractive to mining and other industrial customers that seek greater certainty and reliability of power supply. Loss of current and potential future industrial load would, in turn, increase costs for remaining customers, making Minnesota even less attractive to industry.

Given the risks and potential consequences of underinvestment, it makes little sense for MP to deliberately undershoot projected future demand by avoiding investment in large new generation projects. Fortunately, utilities that are "long" on capacity and energy are reaping benefits for consumers in a MISO market that faces significant shortfalls, as CUB observes a mere three pages later in its comments to argue that MP should procure an extra 200 MW of renewable generation that the utility's modeling suggested would unnecessarily increase costs for customers.

CUB correctly observes that MP can afford to err on the side of additional generation given the pattern of underinvestment elsewhere in MISO, but that is certainly no less true of MP's 125 MW share of NTEC, which the utility's modeling indicates is needed, than an extra 200 MW of wind and solar. CUB also suggests that MP could minimize risks by adding "relatively smaller increments of demand- and supply-side resources, which can be scaled up in a relatively short period of time." But CUB does not explain what cost-effective and easily-scalable resources the organization has in mind or provide evidence that they would be sufficient to meet what they acknowledge could be very large and relatively rapid growth of industrial load.

The Union of Concerned Scientists' "On the Road to 100% Renewables" suffers from serious methodological flaws and does not directly address MP's need for firm dispatchable generation.

Union of Concerned Scientists contends that "On the Road to 100% Renewables," which purports to be an analysis of the feasibility and impact of adoption of renewable energy standards ("RES") or similar policies by 24 states that participate in the U.S. Climate Alliance, shows that Minnesota can meet 100%

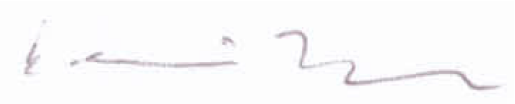
of electricity demand with renewable generation, obviating the need for NTEC. Unfortunately, the report suffers from serious methodological flaws and does not directly address the questions at issue in this docket.

On one hand, “On the Road to 100% Renewables” places a heavy thumb on the scale when comparing outcomes of various policy scenarios by using inconsistent and unrealistic cost estimates that support UCS’ preferred scenario and undercut competing scenarios. For example, as described in the technical appendix, the report explicitly uses NREL’s 2020 “low” utility-scale renewable costs to analyze the preferred 100% RES scenario, while assigning higher “mid-cost” values to other scenarios.

This decision, which skews the analysis in favor of the 100% RES scenario, was explained by UCS staff as their effort to reflect “economies of scale” that they anticipate could be achieved through more rapid deployment of renewable energy generation. But the authors provide no evidence that further economies of scale are available for technologies that are already widely deployed, let alone that their preferred policy would secure them. In fact, the recent experience of renewable energy markets – which face upward pricing pressure due to a combination of growing demand and supply chain, siting and transmission constraints – suggests that the adoption of 100% RES would increase rather than decrease the cost of renewable generation by ratcheting up competition for renewable resources.

On the other hand, “On the Road to 100% Renewables” engages in sleight of hand by limiting 100% RES requirements to roughly half of the country, and allowing covered states to import fossil-generated power from non-RES states to meet reliability requirements and smooth market impacts. As a consequence, even if the model were not rigged to favor the preferred policy scenario, the report would do little to inform the current docket because it does not show that energy systems can run on 100% renewable energy, but rather that fossil generation (and associated emissions) can theoretically be displaced to other states.

Respectfully,



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Dated: August 29, 2022