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SUBMIT A COMMENT

 \mathcal{O} 7 Answers \cdot 0 Replies

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Eben Kowler · Citizen · (Postal Code: unknown) · May 19, 2025 5:04 pm □ 1 Votes

We believe that Clean Air Minnesota's (CAM) collaborative, proven, and practical approach to emission reduction projects could be a model for use in the Community Benefits Agreement (CBA) element (Subdivision 5) of the ongoing Cumulative Impacts Rulemaking process. CAM, a cross-sector partnership administered by Environmental Initiative, is a diverse group of organizations and community members that have been working to develop, fund, implement, and manage voluntary emission and exposure reduction projects for over 21 years. We recommend that the Minnesota Pollution Control Agency (MPCA) consider CAM's method of finding solutions while convening the public and private sectors when implementing CBAs. This work can be used as a model after consultation with businesses and community groups as appropriate. Further description is provided at the end of this document.

CAM's projects all have:

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Many potential projects would be able to utilize other existing funding sources. This would enable CBA-related funding to be leveraged and extended, maximizing the benefits for communities most impacted by air pollution. Utilizing established activities will:

Increase the number of turn-key projects available.

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Allow for the recruitment of small and medium-sized businesses that may otherwise not have the time or resources to participate.

Clean Air Minnesota's active work includes diesel fleet clean-up, efforts to reduce wood smoke, assistance for small and medium-sized businesses using cleaner technology to reduce emissions, and improvements to the highest emitting personal vehicles. All projects listed below offer immediate, significant, and proven opportunities for local health, the environment, and the economy.

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https://environmental-initiative.org/our-work/project-green-fleet/

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The program uses economic, social, and air quality data from multiple government sources to recruit and works primarily in areas disproportionately and historically impacted by poor air quality. These sources of air pollution are also more widespread on a neighborhood scale and less regulated than large industrial facilities. CAAP secures and leverages matching funding to reduce businesses' out-of-pocket costs and incentivize their participation in voluntary projects.

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Project Stove Swap (PSS)

Project Stove Swap, Minnesota's only wood stove change-out project, is a voluntary program providing financial incentives for residents to replace older, uncertified, more polluting wood heating appliances with more efficient, less polluting EPA-certified wood, gas, or electric technologies. Making the switch to a new appliance can cut heating expenses, increase safety, and improve air quality. Project Stove Swap utilizes existing partnerships with skilled appliance vendors and manufacturers, as well as administrative and programmatic capacity, to execute change-outs. There have been nearly 400 swaps across Minnesota.

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These pollution reduction activities are all proven options that have been parts of Supplemental Environmental Projects in Minnesota and around the country. They are core strategies to reduce pollution. For example, clean diesel work has been foundational to Minnesota's Volkswagen Mitigation (VW) and Diesel Emission Reduction Act (DERA) work for decades. The long-standing, powerful collaboration between tribal communities, public and private fleets and equipment owners, and other funders and supporters has created a critical multiplier effect. By any metric or analysis, heavy-duty, off-road equipment and engine replacements achieved the largest and most cost-effective emissions reductions of any VW or DERA work. According to the MPCA's own report, "A significant amount of reductions were achieved through the first round of clean heavyduty off-road projects. On their own, the 16 projects funded through the heavy-duty offroad program achieve not just our Phase 1 emission reduction goals for NOx and PM2.5, but also exceeded our 10-year goal of reducing 150 tons of PM2.5."

It would be prudent public policy to utilize opportunities and investments producing large scale emission reductions in places disproportionately affected by air pollution. These are shovel-ready and well-established programs that will maximize associated health, environmental, and economic gains for Minnesota.

If used in CBA efforts, the types of projects led by Clean Air Minnesota can help achieve tangible emission and exposure reductions. These activities will achieve greater benefits for overburdened communities, give greater emphasis to activities in such identified communities, and demonstrate a multi-faceted set of implementation strategies. As shown by decades of experience, there is no shortage of work that could help people and places disproportionately affected by air pollution in the Twin Cities and Greater Minnesota.

Andrew Morley,

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Director, Environmental Policy

Minnesota Chamber of Commerce

Jon Hunter, Senior Director, Clean Air Program

American Lung Association in Minnesota

Mike Harley, Executive Director

Environmental Initiative

Clean Air Minnesota (CAM)

Since 2003, CAM and its partners have been the leading convening and project-oriented group working on such issues in Minnesota. CAM is working collectively to reduce air emissions and health vulnerabilities in overburdened communities. We must also work to ensure that traditionally marginalized and underserved communities, those most disproportionally impacted by poor air quality, have the resources, access, and opportunities to engage in and experience the health and economic benefits of this important work. We don't all breathe the same air. Given the attention on these issues because of COVID, wildfires, and social unrest, there are new opportunities for such emission-reduction efforts. Clean Air Minnesota and its partners are responding quickly, adeptly, and effectively to seize and act upon project development opportunities to increase and improve the social equity

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Administrative Law Judge Kimberly J. Middendorf Minnesota Office of Administrative Hearings 600 N. Robert Street St. Paul, Minnesota 55101

Comments submitted electronically through OAH's website

I write today on behalf of the Minnesota Chamber of Commerce ("Chamber"), a statewide organization representing more than 6,300 businesses and more than 500,000 employees throughout Minnesota, commenting on the proposed Cumulative Impacts rulemaking (OAH Docket No. 21-9003-39398). The Chamber commented on this rulemaking in an October 5, 2023 Letter (October 2023 Letter) and still stands by those comments.

The First Request For Comments document (RFC) circulated by the Minnesota Pollution Control Agency on July 12, 2023, referenced potential changes to Minnesota Rules, Ch. 7001. The Second RFC, dated April 1, 2025, refers to potential changes to Minnesota Rules, Chs. 7001, 7002, 7005, 7007, 7011, 7017, and 7019. However, there is little to no detail as to what those actual proposed changes include.

While the Chamber appreciates language in the Second RFC detailing that comments do not need to be resubmitted, we feel it's important to reiterate the broader messages in which we contextualized the elements included in the cumulative impacts rule, including, defining "cumulative impacts", relying solely on air quality permit activity as a potential trigger and using the MNRisks model.

Defining cumulative impacts in the way the Legislature intended, with a specific focus on pollution impacts, is imperative to ensure a workable rule. The statute gives the MPCA the latitude to take an incremental approach to implementation and we still recommend the MPCA do so.

The Legislature directed the MPCA in Subdivision 1(h) and Subdivision 2 of the statute to trigger possible cumulative impact evaluation based solely on air quality permit activity. Therefore, we continue to urge the MPCA to focus on air pollution impacts as the drivers behind issuing or denying a permit.

The MPCA has a tool it can build on as a model for cumulative impacts analyses in the MNRisks Model. Starting here instead of "square one" can help the agency solicit and receive constructive feedback.

In closing, please find the attached October 2023 letter as an addendum. The Chamber looks forward to working with the Agency as it drafts and implements cumulative impacts rules.

Sincerely,

Andrew Morley Director, Environmental Policy Minnesota Chamber of Commerce amorley@mnchamber.com 763-221-7523

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May 21, 2025

Frontline Communities Protection Coalition comment on Minnesota Pollution Control Agency rulemaking for the Cumulative Impacts Law

We are members of the Frontline Communities Protection Coalition, a group of environmental and frontline community organizations, working to address environmental injustice at a systemic level, and to support fights for environmental justice across the state. We appreciate the opportunity to submit comments on the cumulative impacts rules and rulemaking process.

Community Benefit Agreement

First and foremost, we want to reaffirm our position on community benefit agreements. We believe this is the most important part of this rulemaking process. This law was passed with the intention of empowering historically marginalized, overburdened communities to have a real say over polluters in their area. Ensuring that community voices are at the center of this process is essential.

A community benefit agreement by definition must be negotiated with and agreed to by the community. This means creating ongoing opportunities for back and forth communication between facilities and communities including collaboration with community organizations who hold deeper connections to the impacted community.

The only way to achieve "significant community participation" as the statute demands is to ensure that community voices will impact the final decision. This includes the content of a community benefit agreement, and the decision whether or not to enter into a community benefit agreement. Having a ratification process will ensure that communities are deciding what is best for them, not the MPCA. The agency having the ability to ignore community sentiment and grant a permit for an unwanted facility undermines the entire purpose of this law.

Cumulative Impacts Analysis

We support the MPCA's idea to adopt a similar cumulative impacts analysis as New Jersey. A geographical comparison of indicative stressors is a clear way to understand disproportionate impacts of pollution. This model is easier for community members to understand compared to more technical forms of analysis.

A major point of this law is to better illustrate the true impacts that environmental justice communities are dealing with. That's why it is important that any cumulative impacts analysis come with a plain language summary. This summary should outline the main findings of the analysis, particularly the ways a facility is contributing to above averagestressors. This summary should be one of the first sections of an analysis as well.

This will help community members understand the implications of a proposed or existing

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facility in their neighborhood, and in the case of facilities that are having a substantial adverse impact, will help community members make an informed decision over whether or not a community benefit agreement is desirable.

EJ Tool

We recommend having the EJ tool include information about various pollution sources in EJ communities. This tool has the opportunity to expand the scope of information and understanding of pollution in EJ communities and serve as a one-stop shop for any community member wishing to find information about local pollution sources.

Not only should the tool include all of the facilities under the purview of the cumulative impacts law, it should include information on their permit status and any history of permit violations. Currently, this information is not easy for an average person to find if they are not already familiar with MPCA documents.

Community Engagement

We have already discussed at length our recommendations for community engagement in our comment from the initial request for comment, so we will not go too in depth on this topic here. We primarily want to reiterate that the people most impacted by industrial pollution are often the ones who lack the time and resources to engage with this kind of process, and are the least familiar with regulatory systems. That is why it is important to use language that is clear and understandable for those who are not familiar with regulatory systems, meet people where they are, and build connections with groups working directly with impacted communities.

We are glad that several staff have been hired to work directly on community outreach and engagement for this process. It has also been good to see food and compensation being consistently offered at events to help reduce barriers to participate.

We do believe that there could be a more clear offer of translation services in outreach materials for MPCA events. We also encourage more outreach to a broad range of organizations outside of the traditional environmental groups who are already engaged in these issues. This includes a variety of justice groups (racial, economic, housing, LGBTQ, etc.), community/neighborhood groups, parent groups, agriculture/farming groups, faith groups, Indigenous groups, and labor unions.

Conclusion

Thank you again for the opportunity to provide feedback on this process. We truly believe that this law has the potential to be historic in how we approach environmental justice through the regulatory system. Many groups worked hard to pass this law with the very clear goal of protecting and empowering historically marginalized, overburdened communities. We look forward to continuing to engage in this process to create cumulative impact rules that meet this goal.

Frontline Communities Protection Coalition COPAL Minnesota Environmental Justice Table Minnesota Environmental Partnership Climate Generation CURE Sierra Club Northstar Chapter Minnesota Center for Environmental Advocacy Fresh Energy

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Minnesota Interfaith Power & Light Health Professionals for a Healthy Climate Clean Water Action MN The Nature Conservancy Environmental Justice Coordinating Council Native Sun Community Power

To Whom It May Concern:

On behalf of the American Petroleum Institute (API), we appreciate the opportunity to provide comments on the Minnesota Pollution Control Agency's (MPCA) Second Request for Comments regarding the development of rules governing cumulative impacts analysis (CIA) in environmental justice (EJ) areas. We reaffirm our October 6, 2023, comments and offer additional input to assist MPCA in crafting a clear, practical, and science-based rule.

1) Support for Statutory Intent, Conditional on Implementation Clarity API supports the intent of Minn. Stat. §116.065 to ensure that environmental permitting decisions in EJ areas account for disproportionate pollution burdens and health vulnerabilities. However, for the rule to be practical and workable, it must:

• Clearly define key terms such as "substantial adverse impact" to ensure consistent and fair application;

• Establish objective thresholds to determine when a CIA is triggered, avoiding unnecessary or duplicative analyses;

• Ensure that any required assessments are science-based, exposure-focused, and proportionate to the scope of the project;

• Maintain procedural clarity to reduce uncertainty and delay in permitting timelines.

2) Build on Evidence-Based, Risk-Informed Practices

We strongly recommend that MPCA adopt a framework grounded in current scientific methods and best practices for risk analysis. This includes:

• Limiting the scope of CIAs to modifiable stressors that are within the influence of the applicant or permitting action;

• Using a combination of quantitative, semi-quantitative, and qualitative tools, such as exposure benchmarks, hazard quotients, and risk indices, to inform conclusions;

• Prioritizing decision-relevant data that supports actionable outcomes rather than exhaustive inventories.

For example, ambient air concentrations of PM2.5 or benzene can be compared against existing EPA or Minnesota health-based benchmarks to determine whether incremental project impacts may be material. This approach helps focus agency and applicant resources on areas with the most significant potential for harm reduction.

3) Addressing Outstanding Concerns from API's 2023 Comments

We reiterate several key issues raised in our October 2023 comments that remain unaddressed in the current RFC:

a) Definition of "Substantial Adverse Impact"

Without an objective, risk-based definition, this term is open to broad interpretation and could lead to inconsistent permitting outcomes. We recommend anchoring the term to well-established public health metrics, such as:

• Hazard Quotient (HQ) > 1 for non-cancer effects;

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- Cancer risk above 1 in 100,000 incremental exposures;
- Exceedance of Minnesota or EPA-recognized air or water quality health benchmarks.

b) Trigger Thresholds for CIAs

Currently, any project within one mile of an EJ area could be subject to CIA, regardless of size or emissions. This geographic-only trigger is overly broad. We recommend a tiered trigger system based on:

- Projected emissions or discharges;
- Facility type and pollution potential;
- Proximity to sensitive receptors and existing cumulative burdens.

Such a system would better align permitting review with risk and community health concerns.

c) Community Benefit Agreements (CBAs)

API supports voluntary CBAs as a mechanism for community engagement, making them a de facto condition of permit issuance raises operational concerns. Negotiations may fail due to reasons beyond the applicant's control. We recommend that MPCA clarify in the rule that:

• CBAs are not mandatory unless a "substantial adverse impact" is formally determined;

• Model templates will be developed to guide consistent, enforceable, and fair expectations;

• The absence of a finalized CBA should not automatically block a permit.

d) Risk of Redundant or Conflicting Review Processes

Minnesota already requires environmental and socioeconomic review under MEPA and federal programs like NEPA. MPCA's rule must avoid duplicating those efforts. We recommend:

- Allowing cross-crediting of existing reviews (e.g., EIS, Title V analyses);
- Defining CIA "scoping boundaries" clearly to avoid overlap;
- Acknowledging tribal consultation frameworks where applicable.

4) Clarify the Public Petition Process for Triggering CIAs

API supports community participation in environmental decision-making. However, the proposed petition process should include basic evidentiary standards to prevent misuse or procedural gridlock.

We recommend:

• Requiring each petition to include at least one credible factual justification linked to a stressor;

• Verifying petition signatures and ensuring geographic relevance;

• Granting MPCA discretion to dismiss unsupported or duplicative petitions, modeled on Minn. R. 4410.1100.

• A tiered petition threshold based on census tract population, recognizing that 100 signatures may represent significantly different proportions of community voice in rural versus urban EJ areas.

5) Encourage Use of Standardized Tools, Templates, and Visualization Aids To promote consistency and reduce the burden on both MPCA and applicants, we recommend that the rule include:

• CIA templates that scale with project size and emissions;

• Use of publicly available data sources;

• Optional use of conceptual models or decision trees to show how cumulative impacts are identified and mitigation measures are selected.

Such tools can increase transparency, improve community understanding, and reduce analysis duplication.

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6) Clarify the Role of CIA Findings in Permit Decisions

As described in Section 3a, we recommend a clear, risk-based definition of "substantial adverse impact." Rulemaking should also clarify that a CIA alone does not compel permit denial unless such a threshold is met.

This distinction ensures that CIAs function as decision-informing tools and not automatic triggers for permit rejection, particularly in cases where anticipated impacts are negligible, uncertain, or fully mitigated through project design or enforceable conditions.

7) Scope of Applicability to Existing Facilities

Minn. Stat. §116.065(h) includes permits for facility expansions and reissuances within the scope of CIA requirements. To ensure regulatory clarity and proportionality, we recommend:

• Exempting routine permit renewals where there is no proposed increase in emissions, operational footprint, or risk profile; and

• Including a de minimis threshold for permit modifications with negligible potential to contribute to cumulative environmental or health impacts.

• These provisions would provide regulatory certainty for low-impact facilities while preserving the law's intent for more consequential projects.

8) Resubmission of API's Original Comments

By MPCA's instructions, we formally resubmit API's comments on October 6, 2023, for inclusion in the rulemaking record. These comments remain highly relevant, and we request they be reviewed alongside this updated submission once the draft rule text is released under a Notice of Intent.

Conclusion

API strongly supports the goal of protecting public health in environmental justice areas. At the same time, achieving this outcome requires a framework grounded in evidence, actionable in scope, and transparent in its expectations. We urge MPCA to develop a rule that delivers tangible community benefits without compromising regulatory certainty, fairness, or feasibility.

As this rule progresses, we remain available to engage with MPCA staff or participate in stakeholder working groups.

Sincerely,

Mike Karbo Midwest Region Director American Petroleum Institute

Justin Fay · Citizen · (Postal Code: unknown) · May 21, 2025 2:48 pm 1 Votes

May 21, 2025

Comments from Fresh Energy re: Planned New Rules Governing Cumulative Impacts Analysis for Permit Decisions in Environmental Justice Areas, Minnesota Rules, chapters 7001, 7002, 7005, 7007, 7011, 7017, and 7019; Revisor's ID Number R-4805

OAH Docket No. 21-9003-39398

Fresh Energy appreciates the opportunity to provide these comments in response to the

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Minnesota Pollution Control Agency's (MPCA) Notice for Comment on its cumulative impacts rulemaking. Fresh Energy appreciates the hard work of community organizations led by the Frontline Communities Protection Coalition, along with key staff and leaders at the MPCA and members of the Minnesota Legislature for their collective effort to better understand, prevent, and remediate environmental and health harms across Minnesota's communities.

We offer the following general comments for the MPCA to consider as it develops a framework for cumulative impacts analysis.

To be truly effective and equitable, a cumulative impacts analysis must center the experiences of the communities that have borne disproportionate environmental burdens over time. This includes low-income neighborhoods, communities of color, and tribal nations across Minnesota. Fresh Energy encourages the MPCA to utilize the most granular available data, preferably at the census block group level, to understand environmental and health burdens.

Below are factors Fresh Energy believes are relevant to a cumulative impacts analysis: • Current and historical pollution levels, recognizing that pollution's long-term effects have harmed the health and quality of life.

• Health indicators, including both chronic conditions (e.g., asthma, heart disease) and acute events (e.g., respiratory hospitalizations during high-pollution days), which are linked to pollutant exposure.

• Social vulnerability factors including poverty rates, energy burden, housing quality and costs, educational attainment, employment opportunities, access to healthcare, food security, traffic conditions, and availability of green spaces.

Critically, communities most impacted by cumulative environmental burdens must shape the analysis from its inception. This requires that local organizations and community leaders are meaningfully involved in decision-making processes. In addition, we recommend that agency representatives involved in the development and input process are culturally competent and knowledgeable about how to work directly with community members. The feedback and priorities of affected communities should meaningfully inform both the cumulative impacts framework and any final outcomes.

Gathering community input will allow the MPCA to feel confident that its actions have the support of impacted communities and will have the long-term effect of building trust between government and Minnesotans. Importantly, direct engagement ensures that the MPCA's decisions are informed by the lived experiences, priorities, and knowledge of those most affected, rather than relying on assumptions or incomplete data. Hearing directly from community members provides critical context that data alone cannot capture, such as cultural values, cumulative stresses, and historical experiences with environmental harms. It also demonstrates respect for community agency and expertise, reinforcing that impacted communities are not passive recipients of policy decisions but active partners in shaping them. By grounding its cumulative impacts framework in authentic community-driven input, the MPCA can avoid the risks of misinterpretation, foster more effective and durable solutions, and build enduring public trust in the state's environmental decision-making processes.

In addition, Fresh Energy recommends that the MPCA establish a clear, transparent, and accessible process for how cumulative impacts analyses will inform permitting decisions.

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This process should include opportunities for public review, comment, and appeal. In particular, the agency should ensure that public materials and presentations developed as part of public comment and/or review periods are, to the greatest extent possible, written using plain nontechnical language. Documents and presentations that are entirely or mostly comprised of scientific and technical jargon are not actually transparent or accessible from a community perspective.

Community Benefits Agreements are an important and potentially very useful tool for ensuring that community needs are being met at the front end of project development, in many cases ultimately leading to greater community and public support for projects and avoiding future public remediation. Community Benefits Agreements are contracts negotiated between community groups and developers/project proposers. There are many publicly available resources available for guiding best practices when developing community benefits agreements. One such example is this 2023 paper from Columbia University: https://scholarship.law.columbia.edu/cgi/viewcontent.cgi? article=1207&context=sabin climate change.

To support our comments, we are attaching the report Incorporating Health and Equity Metrics into the Minnesota Power 2021 Integrated Resource Plan, prepared by PSE Healthy Energy on behalf of Fresh Energy, MCEA, and the Sierra Club. This report provides a robust example of how cumulative environmental burdens, public health risks, and socioeconomic disparities can be quantified and mapped using tools such as COBRA and InMAP. It demonstrates the disproportionate impacts of pollution from major power plants on Native and low-income communities and offers a replicable framework for integrating equity and health metrics into environmental decision-making. We encourage the MPCA to review this report closely as it develops Minnesota's cumulative impacts analysis framework.

The PSE report also highlights the importance of considering energy cost burden as a dimension of environmental injustice. Low-income and BIPOC households within the Minnesota Power service territory face energy burdens disproportionate to their income levels and lack adequate access to energy efficiency or renewable energy programs. A comprehensive cumulative impacts analysis should include energy affordability and equitable access to clean energy as core metrics.

Thank you for the opportunity to submit these comments. We look forward to continued collaboration with MPCA and the broader community of stakeholders to ensure that Minnesota's cumulative impacts framework is effective in protecting the health and wellbeing of all communities.

/s Fresh Energy

My Public Comment is attached.

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Addendum: I request that the MPCA include local, neighborhood, community, and ethnic media in your community engagement and outreach work. I also request that all your publications and presentations be made available in simpler language (and other languages) for those many community members who are not used to Public Comment processes, and that the guidance how how to Comment be made less complicated and easier to understand. Thank you.



Eben Kowler Attachment



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Through these partnerships, Project CAR is cleaning up some of the highest polluting cars on the road while reducing barriers to reliable transportation. We are currently working with six organizations at eight garage locations: The Lift, Cars for Neighbors, Leech Lake Small Vehicle Garage, Newgate School, Nghia's Auto Service, and Turbo Tim's. Project CAR has repaired more than 600 cars and prevented over 35 tons of emissions since its inception in 2016.

https://environmental-initiative.org/our-work/project-clean-air-repair/

These pollution reduction activities are all proven options that have been parts of Supplemental Environmental Projects in Minnesota and around the country. They are core strategies to reduce pollution. For example, clean diesel work has been foundational to Minnesota's Volkswagen Mitigation (VW) and Diesel Emission Reduction Act (DERA) work for decades. The long-standing, powerful collaboration between tribal communities, public and private fleets and equipment owners, and other funders and supporters has created a critical multiplier effect. By any metric or analysis, heavy-duty, off-road equipment and engine replacements achieved the largest and most cost-effective emissions reductions of any VW or DERA work. According to the MPCA's own report, "A significant amount of reductions were achieved through the first round of clean heavy-duty off-road projects. On their own, the 16 projects funded through the heavy-duty off-road program achieve not just our Phase 1 emission reduction goals for NOx and PM2.5, but also exceeded our 10-year goal of reducing 150 tons of PM2.5."

It would be prudent public policy to utilize opportunities and investments producing large scale emission reductions in places disproportionately affected by air pollution. These are shovel-ready and well-established programs that will maximize associated health, environmental, and economic gains for Minnesota.

If used in CBA efforts, the types of projects led by Clean Air Minnesota can help achieve tangible emission and exposure reductions. These activities will achieve greater benefits for overburdened communities, give greater emphasis to activities in such identified communities, and demonstrate a multi-faceted set of implementation strategies. As shown by decades of experience, there is no shortage of work that could help people and places disproportionately affected by air pollution in the Twin Cities and Greater Minnesota.

Signed by: Andrew Morley BF1D8D9BBF59498...

4/28/2025 | 7:03 PM CDT

Andrew Morley, Director, Environmental Policy Minnesota Chamber of Commerce

Signed by: Jon Hunter ED94E8711AAF429...

4/28/2025 | 5:43 PM CDT

Jon Hunter, Senior Director, Clean Air Program American Lung Association in Minnesota

Signed by: Mike Harley 2FE3BCE1BEBC41D

Mike Harley, Executive Director Environmental Initiative 4/29/2025 | 1:29 PM CDT

Clean Air Minnesota (CAM)

Since 2003, CAM and its partners have been the leading convening and project-oriented group working on such issues in Minnesota. CAM is working collectively to reduce air emissions and health vulnerabilities in overburdened communities. We must also work to ensure that traditionally marginalized and underserved communities, those most disproportionally impacted by poor air quality, have the resources, access, and opportunities to engage in and experience the health and economic benefits of this important work. We don't all breathe the same air. Given the attention on these issues because of COVID, wildfires, and social unrest, there are new opportunities for such emission-reduction efforts. Clean Air Minnesota and its partners are responding quickly, adeptly, and effectively to seize and act upon project development opportunities to increase and improve the social equity impact of where we work, with whom we partner, and the people who benefit most.

https://environmental-initiative.org/our-work/clean-air-minnesota/





GROWING MINNESOTA

May 21, 2025

Administrative Law Judge Kimberly J. Middendorf Minnesota Office of Administrative Hearings 600 N. Robert Street St. Paul, Minnesota 55101

Comments submitted electronically through OAH's website

I write today on behalf of the Minnesota Chamber of Commerce ("Chamber"), a statewide organization representing more than 6,300 businesses and more than 500,000 employees throughout Minnesota, commenting on the proposed Cumulative Impacts rulemaking (OAH Docket No. 21-9003-39398). The Chamber commented on this rulemaking in an October 5, 2023 Letter (October 2023 Letter) and still stands by those comments.

The First Request For Comments document (RFC) circulated by the Minnesota Pollution Control Agency on July 12, 2023, referenced potential changes to Minnesota Rules, Ch. 7001. The Second RFC, dated April 1, 2025, refers to potential changes to Minnesota Rules, Chs. 7001, 7002, 7005, 7007, 7011, 7017, and 7019. However, there is little to no detail as to what those actual proposed changes include.

While the Chamber appreciates language in the Second RFC detailing that comments do not need to be resubmitted, we feel it's important to reiterate the broader messages in which we contextualized the elements included in the cumulative impacts rule, including, defining "cumulative impacts", relying solely on air quality permit activity as a potential trigger and using the MNRisks model.

Defining cumulative impacts in the way the Legislature intended, with a specific focus on pollution impacts, is imperative to ensure a workable rule. The statute gives the MPCA the latitude to take an incremental approach to implementation and we still recommend the MPCA do so.

The Legislature directed the MPCA in Subdivision 1(h) and Subdivision 2 of the statute to trigger possible cumulative impact evaluation based solely on air quality permit activity. Therefore, we continue to urge the MPCA to focus on air pollution impacts as the drivers behind issuing or denying a permit.

The MPCA has a tool it can build on as a model for cumulative impacts analyses in the MNRisks Model. Starting here instead of "square one" can help the agency solicit and receive constructive feedback.

In closing, please find the attached October 2023 letter as an addendum. The Chamber looks forward to working with the Agency as it drafts and implements cumulative impacts rules.

Sincerely,

1. m

Andrew Morley Director, Environmental Policy Minnesota Chamber of Commerce <u>amorley@mnchamber.com</u> 763-221-7523



GROWING MINNESOTA

October 5, 2023

Administrative Law Judge James Mortenson Minnesota Office of Administrative Hearings

Comments submitted electronically through OAH's website

The Minnesota Chamber of Commerce (Chamber) submits these comments in response to the Minnesota Pollution Control Agency's (MPCA or Agency) request for comments on the Agency's planned rulemaking related to cumulative impacts in environmental justice areas. The Chamber represents members that the rulemaking will impact.

As indicated below, the Chamber welcomes this opportunity to share its point of view regarding the proposed regulations. The Chamber recognizes that these rules, in conjunction with associated rules for air toxics regulation, pose the possibility of a significant impact on the economic vitality of the areas subject to the rules. We believe that the MPCA also recognizes this concern. As such, the Chamber urges MPCA to be deliberative and consultative in its approach.

Toward that end, and as a preliminary matter, the Chamber urges creating an advisory committee of key stakeholders to consult with the Agency before publishing draft rules. These stakeholders should include significant representation from parties that will be subject to new legal requirements under this rule as well as community representatives. Such a process would help drive consensus around key issues to create a strong and well-considered proposed rule and help the MPCA avoid (or at least narrow the scope of) potential rule challenges.

Overview

The Chamber supports efforts to ensure facilities operate in a manner that minimizes public health risks. We understand the importance of maintaining public trust in operating facilities, particularly in communities that may face disproportionate impacts. At the same time, and as acknowledged by the legislation, we note that one way of addressing such issues is through ongoing and future economic development. We urge MPCA to keep in mind the need to protect public health while not unduly stalling or stifling needed economic development.

The Chamber is providing specific responses to the MPCA questions below. However, as a preliminary matter, we note that assessing cumulative impacts for existing or potential industrial operations is complex and challenging. While a number of state agencies and the US EPA may be considering how or whether to

implement some form of Cumulative Impacts Analysis requirement, we are unaware of any agency (local, state, or federal) in the United States that is implementing a program with positive and objectively measurable results. A fit-for-purpose underlying scientific approach is still in development.

We understand that the MPCA has an obligation to undertake this effort consistent with its legislative mandate, and we urge the Agency to be deliberate and thoughtful in its approach. We believe the legislation gives the MPCA the latitude to take an incremental approach to implementation, starting with a program that focuses on the areas of greatest potential concern and, as necessary, expanding from there.

Definition of Cumulative Impacts

We note that cumulative impacts can mean different things to different people. For example, US EPA, in its January 2022 Draft Recommendations for ORD Research, defines cumulative impacts as "the total burden – positive, neutral, or negative – from chemical and non-chemical stressors and their interactions that affect the health, well-being, and quality of life of an individual, community, or population at a given point in time or over a period of time." That is not what the Minnesota Legislature intends here. Section 3 of Article 8 of HF 2310 (Subd. 1 (c)) defines cumulative impacts as the "impacts of aggregated levels of **past and current air, water, and land pollution** in a defined geographic area to which current residents are exposed." (emphasis added). This point is reinforced by the fact that the Legislature chose to trigger possible cumulative impact evaluation based solely on air quality permit activity (per Subd. 2 and Subd. 1 (h)).

Thus, the Legislature intends the focus to be on specific pollution impacts. In that way, this cumulative analysis is more akin to a cumulative risk analysis, focused on the additive impacts of pollutants. While environmental stressors (as defined in the legislation) are relevant to the analysis and the MPCA's ultimate decision to issue or deny a permit, we believe the Legislature's particular focus on pollution impacts was intentional. We urge the Agency to keep this in mind as it proceeds with rulemaking. If the MPCA intends to include a broader scope in its rulemaking, it should make that clear as quickly as possible. We suggest the MPCA refine and focus the scope through the stakeholder process.

Consideration of the MNRisks Process as a Model

We believe the MPCA already has in place a tool it can build on. The Chamber understands the MPCA's MNRISKS process already has defined benchmarks for prioritizing any additional cumulative impacts evaluation. For example, the MNRISKS tool already considers environmental stressors as it evaluates potential focus areas. While this process may have its own concerns, the MPCA could draw insights from this program and solicit feedback to identify what concepts may work or what aspects may need to be improved in establishing criteria for areas to include or exclude from further analysis.

Definition of Environmental Justice Area

Section 3 and Section 5 of Article 8 include similar definitions of "environmental justice area", but they are not exactly the same – Section 3 includes the word "decennial" before "census data". Importantly, neither

definition specifies or implies that the census data should be modified statistically to create a confidence interval. While the Chamber has no indication at this point that the MPCA contemplates making a statistical adjustment to the Census data, the MPCA has done so on one of its current <u>web pages</u> (a map identifying environmental justice areas of concern), resulting in an increase in the number of such areas. The Chamber would oppose such an approach in implementing the Article 8 rules. The MPCA should make its map of environmental justice areas align with the statutory definition, which does not include any statistical adjustment, thereby ensuring a consistent understanding and identification of environmental justice areas across the state.

Not only would such an adjustment be contrary to the express language of the legislation, it would also be inconsistent with the approach utilized by other states (e.g., New Jersey, New York, Colorado) that administer cumulative impacts analysis programs. The addition of a confidence interval would artificially inflate the number of environmental justice areas which in turn would dilute the effectiveness, focus, and credibility of the environmental justice effort. Please see the Attachment for an additional technical description of this issue and concern.

As the attached analysis indicates, including a statistical adjustment (i.e., a margin of error) inappropriately skews the number of environmental justice area based solely on the confidence interval employed in one direction – to increase the number. Further, the data show the confidence interval changes based on the number of census respondents because a confidence interval may be greater for any given year's data if fewer people respond. The U.S. Census data (as presented in the Attachment) illustrates this point.

The direct result of the unidirectional statistical adjustment is to substantially increase the number of environmental justice areas based solely on that confidence interval. Thus, the data indicate that using a confidence interval can almost double the number of potential environmental justice areas in the Twin Cities metropolitan area. As the number of respondents decreased during the COVID-19 pandemic, the statistical confidence intervals increased, almost tripling the number of environmental justice areas.

Such an approach not only inflates the number of environmental justice areas in any year, it also creates greater variability in possible environmental justice areas year-to-year. For example, an area with consistent actual reported data on a year-to-year basis could become an environmental justice area because there was a low number of respondents in any given year. If the number of respondents increases the next year, the area will once again not be listed as an environmental justice area. To meet the legislation's intent, any process for identifying environmental justice areas should aim for accuracy rather than maximization.

Responses to Specific MPCA Questions

The MPCA seeks specific comment on the elements of the rules required under Subd. 6. The following section presents each topic listed in MPCA's Request for Comments (and Subd. 6(c)) with the Chamber's initial thoughts:

1. Establish benchmarks to assist the Commissioner's determination regarding the need for a cumulative impacts analysis.

Developing benchmarks is critical to the effectiveness of the entire program. Based on the public participation timelines in the legislation and the work necessary to prepare an analysis, the Chamber anticipates that any project that triggers the need for a cumulative impacts analysis will take a year or more to complete on top of an already schedule-constrained air quality permitting program. Thus, the decision to require an analysis is consequential. The Chamber urges the MPCA to establish clear screening criteria to ensure that the Agency's focus and resources are devoted to those instances where a cumulative impacts analysis is truly warranted and that the intent of the program is not diluted.

We urge the MPCA to establish benchmarks with clear criteria below which projects, particularly low-impact projects or projects with emissions unrelated to specific pollutants of concern, need no additional follow up. For example, the MPCA should consider:

- De minimis levels of emissions and emission increases below which no further action is needed.
- Pollutant-specific indicators where no additional action is needed if emissions from a project are not pollutants of concern in a given area.
- Air monitoring benchmarks indicating that an area can be exempt from further analysis.
- Criteria clearly defining whether a project has a "material" impact based on the project contribution, not the background conditions.

In addition, we believe the Agency should establish separate criteria for the reissuance of existing permits as opposed to permits for new projects. For existing sources that potentially trigger review upon permit renewal, we urge the Agency to establish an actual-emissions-based approach that considers air quality monitoring data. For new projects, we urge the Agency to adopt screening criteria so that any cumulative impacts analysis process does not unduly stall or prevent needed and beneficial economic activity and infrastructure. Such screening criteria could include limiting a cumulative impacts analysis to construction projects requiring a major permit amendment.

Finally, we note that the US EPA and several early-acting states have shown an interest in developing a single number, or "score" as a metric for characterizing cumulative impacts. While developing such a metric is in the

early stages and would need additional consideration, if successful, it could provide a benchmark for the MPCA to consider in its rulemaking.

Each of our suggestions would require additional dialogue and technical work to formulate a specific approach. The need for collaboration drives our request, noted above, for an advisory committee and the potential need for technical working groups on certain topics.

2. Establish the required content of a cumulative impacts analysis and provide sources of public information that an applicant can access regarding environmental stressors present in an EJ area.

In the Chamber's view, this issue and the definition of "substantial adverse impact" addressed in item 3 below will be the most important portions of the rule. Thus, we urge caution and an incremental approach. Any rules need to clearly define what is, and is not, relevant to assessing cumulative impacts. MPCA must be clear about their proposed treatment of cumulative impacts across pollutants, media, and health end points. The rule also needs to define clearly when an applicant has met its duty to complete the analysis.

Based on the legislative definition of cumulative impacts, the rules also need to clarify how "environmental stressors" should be incorporated into the analysis. In other words, while relevant, the legislation implies that the MPCA Commissioner should consider stressors but that these are not intended to be part of an applicant's direct impacts analysis. This is reinforced by Subd. 5, which requires the cumulative impacts analysis be considered "in combination with the environmental stressors." To the extent the MPCA wants environmental stressors to be considered in an analysis, data and guidance should be provided to the permittee. This could be included as supporting data within a "score" approach as discussed above. If MPCA wants factors such as historical health effects or adverse social conditions to be included, the agency must develop an approach that is scientifically valid, uses sufficiently available data, and leads to a basis for decision-making. MPCA would also need to characterize uncertainty in the available data and lay out how those uncertainties should be considered.

Any rules should be clear about which data an applicant must collect and develop themselves and which data are available publicly. Requirements should be related and proportional to an applicant's proposed action. For example, it would seem inappropriate for an applicant renewing an existing air quality permit to be required to perform a historical analysis of land pollution in the area. To enable consideration of historic pollution that is unrelated to a permit applicant's operations, the MPCA will need to provide data and analysis for areas across the state in a consistent and easy to access manner. Again, this could be included as supporting data within a "score" approach as discussed above.

3. Define conditions, criteria, or circumstances that establish an environmental or health impact as a <u>substantial adverse impact.</u>

This is of utmost concern and interest to the Chamber. Because the legislation gives the MPCA the authority to deny a permit due to a "substantial adverse impact", the definition of the term must be clear and the threshold for such an impact must be high. In other words, "substantial" must clearly be substantial.

The Chamber believes the most appropriate way to address this question is as an extension of the effects identified in response to the benchmarks in question 1. Those factors/impacts are most relevant to the determination of "substantial adverse impact".

We also note that this determination must be made on a permit-specific basis. In other words, the MPCA must determine that the contribution of the impacts from the permit changes under consideration is "substantial". This is different than a determination that substantial harm is already occurring in an area (likely because of a range of factors) and that a given permit could potentially contribute, however insignificantly, to that harm. That is not the balance the Legislature asks the Agency to make.

To be substantial, we believe a given permit must be determined to contribute some level of disproportionate risk. To that end, MPCA air quality permit regulations are already designed to evaluate a project's emissions impacts on air quality and human health. Only in rare exceptions should a project that meets the air quality permitting requirements still have a substantial adverse impact. The MPCA must be clear on the ways that a cumulative impacts analysis differs from existing analyses for National/Minnesota Ambient Air Quality Standards or Air Emissions Risk Analyses.

4. Establish the content of a community benefit agreement and procedures for entering into community benefit agreements, which must include: i) active outreach to residents of the affected EJ area designed to achieve significant community participation; ii) considerations other than or in addition to economic considerations, but with priority given to considerations that directly impact the residents of the EJ area; and iii) at least one public meeting held within the affected EJ area.

The Chamber generally supports the goal of significant outreach and public participation in EJ areas and believes a community benefit agreement may be a good mechanism to memorialize an applicant's commitments to a community.

We are concerned that the community benefit agreement is directly tied (in Subd. 5) to the Agency decision to issue a permit following the Agency's determination of "substantial adverse impact". While an agreement creates the possibility of eliminating a lengthy cumulative impacts process, we also caution the Agency that it not become a tool by which the MPCA can avoid making a difficult "substantial adverse impact" determination. Thus, again, we urge the MPCA first to establish clear criteria for "substantial adverse impact" and then focus the efforts of any community benefit agreement on proportional measures to balance any adverse impacts and direct net benefits to the community.

A community's input on any benefit agreement is critical to success. Clear decision rights on community benefit agreements are important. If the agreement will be between a permitted entity and the MPCA, requirements for soliciting input and securing concurrence from other parties must be included in the rule. The rule writers should anticipate that many people will claim to speak for the community. The MPCA must outline a process to ensure community members who are part of the process represent the whole of the community. Each requirement in the rule must allow a permitted source operating in good faith to "complete" the process

in a reasonable time frame. The Chamber suggests that the rule focus on the process for seeking community input and not a specific outcome or requirement for community consensus. The MPCA should provide a consistent template for a community benefits agreement but recognize there is no one-size-fits-all approach, and the benefits will be community- and project-specific.

5. Establish a petition process and form to be submitted to the Agency by EJ area residents to support the need for a cumulative impact analysis.

The Chamber supports the creation of a petition process for deciding whether a cumulative impacts analysis is required but stresses the importance of ensuring it is a well-defined process and consistent with the legislatively-specified criteria. Specifically, the rules should define what is considered (i) "material evidence" of a (ii) "potential adverse cumulative impact" resulting from (iii) the permit under consideration. All three of these elements are necessary to support a successful petition.

As noted above, the Chamber believes it is important to clarify that the impacts under consideration must be related to the project under consideration and must be substantial. There is no legislative purpose in granting a petition for a project that, by definition, could not lead to a "substantial adverse impact," and the MPCA should establish rules to guide the petition process accordingly.

In addition, the MPCA should establish clear procedural rules for the petition process. Among other things, we believe the rules should address the timing of a petition (e.g., when in the process will a petition be deemed too late?) and verification of signatures. The rules also should establish the timeline for an MPCA decision on any petition.

The MPCA should expect petitions for projects or issues that fall outside the scope of this rule (e.g., highway projects or general noise concerns). The MPCA must be clear on their future treatment of petitions that raise out-of-scope issues. The Chamber is concerned that a new or modified permit will become a vehicle to potentially address complex and diverse community concerns that are unrelated to the permitted entity. The rule should not put the MPCA and an applicant in the position of delaying a permit's issuance due to issues that may be unrelated or even outside of MPCA's jurisdiction.

We also note that, similar to the petition process (under Subd. 3, (e)(2)), the legislation (under Subd. 3, (e)(1)) allows the MPCA to require a cumulative impacts analysis if a project is below all the benchmarks established for conducting a cumulative impacts analysis but the commissioner determines that such an analysis is "necessary" and supported by "material evidence". Likewise, clear definitions on the application of "necessary" and "material evidence" should be provided by MPCA in the rules and guidance.

6. Establish a process through consultation as defined in MN Statute 10.65 by which a Tribal government can elect to apply this section to a permit application.

The Chamber has no specific comment here other than to note we support Tribal Governments' authority to implement these requirements consistent with the legislation and rules.

7. Establish methods for holding public meetings and handling public comments.

The Chamber fully supports the goal of holding public meetings as a means of disseminating information about a project and collecting public input, particularly in EJ areas. We also support the creation of clearly defined rules and processes to govern such public meetings. We urge the MPCA to set rules that allow meeting facilitators to ensure meetings adhere to the issues at hand and that those persons most affected by a proposed project are heard. We suggest the rules allow engagement processes to run in parallel with technical review to the extent practicable and allow flexibility in the timing of consultation to allow applicants and the MPCA to address potential community concerns in an efficient way and not be bound to predetermined time frames.

Thank you for the opportunity to provide comment and participate in this rulemaking. The Chamber and its members are available for further consultation as the rulemaking process proceeds. Given the complexity of assessing cumulative impacts and the interest of diverse stakeholder, and iterative and consultative process will most likely lead to success.

Sincerely,

To KL.

Tony Kwilas Director, Environmental Policy Minnesota Chamber of Commerce tkwilas@mnchamber.com 651-292-4668

Attachment: U.S. Census American Community Survey Income Data for 7-County Metro and Margin of Error Analysis

U.S. Census American Community Survey Income Data for 7-County Metro and Margin of Error Analysis

Only one of the four demographic criteria for determining whether a census tract is an Environmental Justice (EJ) area – persons of color – can be readily obtained from the most recent decennial census as defined in the law. The low-income-based criterion is outside the decennial census's scope and is expected to be based on the most recent American Community Survey (ACS), as used in other states and in the MPCA's current MNRISKS EJ Map. The current MNRISKS EJ Area Map is inconsistent with the use of ACS income data in other states and the direct read of the definition in the MN law by adding a one-sided and highly consequential margin of error (MOE) to the actual survey result estimate. The Chamber recognizes that this inconsistency is likely an unintended carryover of the prior MNRISKS Program's discretionary and conservative use of the data. Nonetheless, the Chamber provides the technical analysis below to further inform the MPCA as to why the Chamber's recommendations should be followed in making EJ designations. The Chamber believes that any broadening of the definition of environmental justice areas creates the risk of diluting the primary purpose of this legislation. Expanding the focus of this mission will, among other things, divert already scarce agency resources away from the environmental justice focus.

Note: The data below are directly obtained from the tables maintained by the U.S. Census Bureau and represent income-based EJ status, as defined by the 2023 Minnesota legislative session: "35 percent or more of the households have an income at or below 200 percent of the federal poverty level." Specifically, the Census Estimates and Margins of Error were obtained from the 5-year estimate tables for the ACS: Table C17002 for "Ratio of Income to Poverty Level in the Past 12 Months," which is consistent with the data presented with the current MNRISKS EJ Map. The data therein are obtained for census tracts within the 7-county metro area (Anoka, Carver, Dakota, Hennepin, Ramsey, Scott, or Washington counties). The income definition of EJ status is shown here as the most broadly represented definition in current MPCA maps; however, the conclusions stated here are logically consistent for all statistical definitions of EJ status.

The chart below illustrates the direct result when MOE is incorporated into the income-based designation of EJ. In the below chart, prior to 2020, the amount of census tracts selected for EJ status was roughly doubled. In 2020 and 2021, the value that accounted for MOE (orange) roughly tripled despite a continued downward trend in low-income tracts in the actual survey results (blue).



Doubling or tripling the results of the census survey data is inconsistent with the written language and intent of the law, as well as the effectiveness of implementing the law, and it is contrary to a valid assessment of tracts throughout the metro area. As an example of the extent of this relevance, a south metro tract is currently labeled as an EJ area in MPCA'S MNRISKS EJ Map despite an actual survey result of 5% of the population being below the income threshold. This is due to the addition of ~31 percentage point margin of error to the base estimate, causing this tract to cross the 35% low-income EJ threshold defined by the law (~7x base estimate).



The following analysis provides further perspective on the practical application challenges if the MPCA considers such a practice.

The recent step change in the effect of MOE incorporation correlates with the decrease in ACS response rates in 2020 and 2021, as shown below for Minnesota. The decrease in response rates led to a significant increase in the sampling error incurred in those years' surveys and the subsequent spike in the number of EJ-designated tracts without regard to the actual survey results received.

It is important to note that because the selected metric is a 5-year-average estimate, the clustering of poor response rates in 2019, 2020, and 2021 compounds to lower the overall sampling rate across the 5-year period. Note that the 5-year average shown in the chart below does not strictly indicate the complex weighting procedures employed by the Census Bureau and is only shown as an illustration of the compounding effects of poor response rates.



Further, an analysis of the potential variance of MOE in years with poor response rates, displayed below, shows that while the average margin of error jumps in such years, the results also spread. This means those years have greater uncertainty in the reported MOE across census tracts. Previously, those margins would range between 3% and 18%; they now range between 5% and 30% (excluding outliers). This effect is not found in the census estimates, which lends to the consistency that usage of only the estimate (without the MOE) provides.





Legend:

Box: 1st quartile - 3rd Quartile Whiskers: Min (0th Quartile) and Max (4th Quartile), excluding outliers IQR: Interquartile range (3rd Quartile minus 1st Quartile) Outliers: Values outside of 1.5 x IQR added or subtracted to either side of the box X: Mean Middle Line: Median

To this point, it is clear to see that years affected by cumulative poor response rates lead to greater variability in the EJ status, as shown below. A consistent lack of responses is likely to result in consistently large MOE and subsequent instability and exaggeration of EJ status.





May 21, 2025

Frontline Communities Protection Coalition comment on Minnesota Pollution Control Agency rulemaking for the Cumulative Impacts Law

We are members of the Frontline Communities Protection Coalition, a group of environmental and frontline community organizations, working to address environmental injustice at a systemic level, and to support fights for environmental justice across the state. We appreciate the opportunity to submit comments on the cumulative impacts rules and rulemaking process.

Community Benefit Agreement

First and foremost, we want to reaffirm our position on community benefit agreements. We believe this is the most important part of this rulemaking process. This law was passed with the intention of empowering historically marginalized, overburdened communities to have a real say over polluters in their area. Ensuring that community voices are at the center of this process is essential.

A community benefit agreement by definition must be *negotiated with and agreed to by* the community. This means creating ongoing opportunities for back and forth communication between facilities and communities including collaboration with community organizations who hold deeper connections to the impacted community.

The only way to achieve "significant community participation" as the statute demands is to ensure that community voices will impact the final decision. This includes the content of a community benefit agreement, and the decision whether or not to enter into a community benefit agreement. Having a ratification process will ensure that communities are deciding what is best for them, not the MPCA. The agency having the ability to ignore community sentiment and grant a permit for an unwanted facility undermines the entire purpose of this law.

Cumulative Impacts Analysis

We support the MPCA's idea to adopt a similar cumulative impacts analysis as New Jersey. A geographical comparison of indicative stressors is a clear way to understand disproportionate impacts of pollution. This model is easier for community members to understand compared to more technical forms of analysis.

A major point of this law is to better illustrate the true impacts that environmental justice communities are dealing with. That's why it is important that any cumulative impacts analysis come with a plain language summary. This summary should outline the main findings of the analysis, particularly the ways a facility is contributing to above average-stressors. This summary should be one of the first sections of an analysis as well.

This will help community members understand the implications of a proposed or existing facility in their neighborhood, and in the case of facilities that are having a substantial adverse

impact, will help community members make an informed decision over whether or not a community benefit agreement is desirable.

EJ Tool

We recommend having the EJ tool include information about various pollution sources in EJ communities. This tool has the opportunity to expand the scope of information and understanding of pollution in EJ communities and serve as a one-stop shop for any community member wishing to find information about local pollution sources.

Not only should the tool include all of the facilities under the purview of the cumulative impacts law, it should include information on their permit status and any history of permit violations. Currently, this information is not easy for an average person to find if they are not already familiar with MPCA documents.

Community Engagement

We have already discussed at length our recommendations for community engagement in our comment from the initial request for comment, so we will not go too in depth on this topic here. We primarily want to reiterate that the people most impacted by industrial pollution are often the ones who lack the time and resources to engage with this kind of process, and are the least familiar with regulatory systems. That is why it is important to use language that is clear and understandable for those who are not familiar with regulatory systems, meet people where they are, and build connections with groups working directly with impacted communities.

We are glad that several staff have been hired to work directly on community outreach and engagement for this process. It has also been good to see food and compensation being consistently offered at events to help reduce barriers to participate.

We do believe that there could be a more clear offer of translation services in outreach materials for MPCA events. We also encourage more outreach to a broad range of organizations outside of the traditional environmental groups who are already engaged in these issues. This includes a variety of justice groups (racial, economic, housing, LGBTQ, etc.), community/neighborhood groups, parent groups, agriculture/farming groups, faith groups, Indigenous groups, and labor unions.

Conclusion

Thank you again for the opportunity to provide feedback on this process. We truly believe that this law has the potential to be historic in how we approach environmental justice through the regulatory system. Many groups worked hard to pass this law with the very clear goal of protecting and empowering historically marginalized, overburdened communities. We look forward to continuing to engage in this process to create cumulative impact rules that meet this goal.

Frontline Communities Protection Coalition COPAL Minnesota Environmental Justice Table Minnesota Environmental Partnership Climate Generation CURE Sierra Club Northstar Chapter Minnesota Center for Environmental Advocacy Fresh Energy Minnesota Interfaith Power & Light Health Professionals for a Healthy Climate Clean Water Action MN The Nature Conservancy Environmental Justice Coordinating Council Native Sun Community Power




Mike Karbo Midwest Region Director 445 Minnesota Street, Suite 1500 St. Paul, MN 55401 karbom@api.org

Filed electronically: <u>OAH.Webmaster@state.mn.us</u>.

May 20, 2025

Office of Administrative Hearings OAH Attn: Kimberly Middendorf Office of Administrative Hearings 600 North Robert Street, P.O. Box 64620 St. Paul, MN 55164-0620

> Re: American Petroleum Institute Comments on Planned New Rules Governing Cumulative Impacts Analysis for Permit Decisions in Environmental Justice Areas, Minnesota Rules, chapters 7001, 7002, 7005, 7007, 7011, 7017, and 7019; Revisor's ID Number R-4805.

OAH Docket No. 21-9003-39398

To Whom It May Concern:

On behalf of the American Petroleum Institute (API), we appreciate the opportunity to provide comments on the Minnesota Pollution Control Agency's (MPCA) Second Request for Comments regarding the development of rules governing cumulative impacts analysis (CIA) in environmental justice (EJ) areas. We reaffirm our October 6, 2023, comments and offer additional input to assist MPCA in crafting a clear, practical, and science-based rule.

1) Support for Statutory Intent, Conditional on Implementation Clarity

API supports the intent of Minn. Stat. §116.065 to ensure that environmental permitting decisions in EJ areas account for disproportionate pollution burdens and health vulnerabilities. However, for the rule to be practical and workable, it must:

- Clearly define key terms such as "substantial adverse impact" to ensure consistent and fair application;
- Establish objective thresholds to determine when a CIA is triggered, avoiding unnecessary or duplicative analyses;
- Ensure that any required assessments are science-based, exposure-focused, and proportionate to the scope of the project;
- Maintain procedural clarity to reduce uncertainty and delay in permitting timelines.

2) Build on Evidence-Based, Risk-Informed Practices

We strongly recommend that MPCA adopt a framework grounded in current scientific methods and best practices for risk analysis. This includes:

- Limiting the scope of CIAs to modifiable stressors that are within the influence of the applicant or permitting action;
- Using a combination of quantitative, semi-quantitative, and qualitative tools, such as exposure benchmarks, hazard quotients, and risk indices, to inform conclusions;
- Prioritizing decision-relevant data that supports actionable outcomes rather than exhaustive inventories.

For example, ambient air concentrations of PM2.5 or benzene can be compared against existing EPA or Minnesota health-based benchmarks to determine whether incremental project impacts may be material. This approach helps focus agency and applicant resources on areas with the most significant potential for harm reduction.

3) Addressing Outstanding Concerns from API's 2023 Comments

We reiterate several key issues raised in our October 2023 comments that remain unaddressed in the current RFC:

a) Definition of "Substantial Adverse Impact"

Without an objective, risk-based definition, this term is open to broad interpretation and could lead to inconsistent permitting outcomes. We recommend anchoring the term to well-established public health metrics, such as:

- Hazard Quotient (HQ) > 1 for non-cancer effects;
- Cancer risk above 1 in 100,000 incremental exposures;
- Exceedance of Minnesota or EPA-recognized air or water quality health benchmarks.

b) Trigger Thresholds for CIAs

Currently, any project within one mile of an EJ area could be subject to CIA, regardless of size or emissions. This geographic-only trigger is overly broad. We recommend a tiered trigger system based on:

- Projected emissions or discharges;
- Facility type and pollution potential;
- Proximity to sensitive receptors and existing cumulative burdens.

Such a system would better align permitting review with risk and community health concerns.

c) Community Benefit Agreements (CBAs)

API supports voluntary CBAs as a mechanism for community engagement, making them a de facto condition of permit issuance raises operational concerns. Negotiations may fail due to reasons beyond the applicant's control. We recommend that MPCA clarify in the rule that:

• CBAs are not mandatory unless a "substantial adverse impact" is formally determined;

- Model templates will be developed to guide consistent, enforceable, and fair expectations;
- The absence of a finalized CBA should not automatically block a permit.

d) Risk of Redundant or Conflicting Review Processes

Minnesota already requires environmental and socioeconomic review under MEPA and federal programs like NEPA. MPCA's rule must avoid duplicating those efforts. We recommend:

- Allowing cross-crediting of existing reviews (e.g., EIS, Title V analyses);
- Defining CIA "scoping boundaries" clearly to avoid overlap;
- Acknowledging tribal consultation frameworks where applicable.

4) Clarify the Public Petition Process for Triggering CIAs

API supports community participation in environmental decision-making. However, the proposed petition process should include basic evidentiary standards to prevent misuse or procedural gridlock.

We recommend:

- Requiring each petition to include at least one credible factual justification linked to a stressor;
- Verifying petition signatures and ensuring geographic relevance;
- Granting MPCA discretion to dismiss unsupported or duplicative petitions, modeled on Minn. R. 4410.1100.
- A tiered petition threshold based on census tract population, recognizing that 100 signatures may represent significantly different proportions of community voice in rural versus urban EJ areas.

5) Encourage Use of Standardized Tools, Templates, and Visualization Aids

To promote consistency and reduce the burden on both MPCA and applicants, we recommend that the rule include:

- CIA templates that scale with project size and emissions;
- Use of publicly available data sources;
- Optional use of conceptual models or decision trees to show how cumulative impacts are identified and mitigation measures are selected.

Such tools can increase transparency, improve community understanding, and reduce analysis duplication.

6) Clarify the Role of CIA Findings in Permit Decisions

As described in Section 3a, we recommend a clear, risk-based definition of "substantial adverse impact." Rulemaking should also clarify that a CIA alone does not compel permit denial unless such a threshold is met.

This distinction ensures that CIAs function as decision-informing tools and not automatic triggers for permit rejection, particularly in cases where anticipated impacts are negligible, uncertain, or fully mitigated through project design or enforceable conditions.

7) Scope of Applicability to Existing Facilities

Minn. Stat. §116.065(h) includes permits for facility expansions and reissuances within the scope of CIA requirements. To ensure regulatory clarity and proportionality, we recommend:

- Exempting routine permit renewals where there is no proposed increase in emissions, operational footprint, or risk profile; and
- Including a de minimis threshold for permit modifications with negligible potential to contribute to cumulative environmental or health impacts.
- These provisions would provide regulatory certainty for low-impact facilities while preserving the law's intent for more consequential projects.

8) Resubmission of API's Original Comments

By MPCA's instructions, we formally resubmit API's comments on October 6, 2023, for inclusion in the rulemaking record. These comments remain highly relevant, and we request they be reviewed alongside this updated submission once the draft rule text is released under a Notice of Intent.

Conclusion

API strongly supports the goal of protecting public health in environmental justice areas. At the same time, achieving this outcome requires a framework grounded in evidence, actionable in scope, and transparent in its expectations. We urge MPCA to develop a rule that delivers tangible community benefits without compromising regulatory certainty, fairness, or feasibility.

As this rule progresses, we remain available to engage with MPCA staff or participate in stakeholder working groups.

Sincerely,

Mike Karbo Midwest Region Director American Petroleum Institute



Incorporating Health and Equity Metrics into the Minnesota Power 2021 Integrated Resource Plan

Prepared by PSE Healthy Energy on Behalf of Fresh Energy, Minnesota Center for Environmental Advocacy, and the Sierra Club

April 2022



Bringing science to energy policy

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About PSE Healthy Energy

Physicians, Scientists, and Engineers for Healthy Energy (PSE Healthy Energy) is a multidisciplinary, nonprofit research institute dedicated to supplying evidence-based scientific and technical information on the public health, environmental, and climate dimensions of energy production and use. We put our mission into practice by integrating scientific understanding across multiple disciplines, including engineering, environmental science, and public health.



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Executive Summary

Minnesota Power's 2021 Integrated Resource Plan (MP's 2021 Plan) holds implications for public health, affordability, and equity across its territory, the state, and the region. Here, we develop a framework to analyze the public health and equity dimensions of MP's 2021 Plan, specifically looking at the two coal plants (Boswell Energy Center and Milton R. Young), biomass plant (Hibbard Energy Center), gas peaker (Laskin) and proposed natural gas combined cycle facility (Nemadji Trail Energy Center, or NTEC) in Minnesota Power's electricity generation portfolio. We find that the ongoing operation of coal plants to supply electricity to Minnesota Power customers is associated with dozens of mortalities from 2021-2035, that the construction and use of NTEC is associated with upstream methane emissions that greatly increase its potential climate impacts, and that proposed residential energy efficiency levels lag behind for the low-income households who could most benefit from the affordability gains offered by access to efficiency. Increased adoption of renewable energy and energy efficiency, including targeted programs for low-income households, could help mitigate these public health and equity impacts by increasing affordability and enabling the earlier retirement of coal units and reducing the need to rely on expanded natural gas electricity generation.

Specifically, we estimate that the Boswell plant will contribute 47 PM_{2.5}-related mortalities from 2021-2035. These health impacts fall disproportionately on Native populations by a factor of three. The plant is also located in a disproportionately low-income community with high cumulative socioeconomic burdens. Retiring Boswell Unit 3 by 2025 and Unit 4 by 2030 would save approximately 17-19 lives, reduce adverse health impacts by approximately \$200 million, reduce on-site disposal of 2,260 tons of waste, and save approximately 2.6 billion gallons of water.

Although located in North Dakota, Milton R. Young's emissions have significant health impacts in Minnesota as well as across the whole region. Milton R. Young's emission rates are higher than Boswell's for most pollutants. The portion of electricity Minnesota Power has committed to purchase from this plant is expected to cause roughly 3.5 mortalities per year through 2025, when Minnesota Power's contract expires. The decision in MP's 2021 Plan to reduce reliance on this plant may contribute to lower emissions if there are no other electricity off-takers, which would have great public health benefits across the region, but residents will not see these benefits if the plant gets locked into ongoing operation through new long-term contracts.

The Hibbard Energy Center, which burns biomass and some coal, also has significant public health impacts. Hibbard is the most urban power plant of those analyzed and the nearby populations are disproportionately low-income and face high cumulative socioeconomic burdens. The impacts of this plant are uncertain in the future due to a change in ownership of the attached paper mill, which has historically used steam from the facility. However, ongoing use of Hibbard in MP's 2021 Plan means ongoing air pollutant emissions in this community, affecting those nearby and across the region.

The proposed NTEC facility is located in a relatively low-income community with a higher number of people living nearby than any other facility analyzed except Hibbard. Moreover, the carbon dioxide emissions associated with future gas combustion at this facility only represent about half of the greenhouse gas impacts of this plant in the near term: inclusion of upstream fugitive methane

emissions associated with gas production, processing, and transmission suggests that the total climate impacts of the facility will be nearly double the direct CO₂ emissions over a 20-year timeframe.

Energy cost burdens within Minnesota Power territory are substantially higher in low-income census tracts with a high share of renters and a high share of Black residents. These low-income areas and populations can benefit from energy-saving measures to help reduce energy cost burden inequities. Historically, Minnesota Power's energy efficiency investments in low-income communities have averaged 20 percent of total residential efficiency investments and projected low-income energy savings are only 13 percent of total projected residential energy savings. These numbers are not proportional to the share of the low- and moderate-income population. To achieve a meaningful reduction in energy cost burdens within its territory, Minnesota Power will need to adopt its Very High efficiency scenario with a provision that at least one third of all projected energy savings are attained in low-income households. We estimate that this will more than quadruple the number of low-income households adopting energy-saving and bill-reducing measures annually. In addition, Minnesota Power should invest significantly more in expanding rooftop and community solar programs that provide affordable electricity to low- and moderate-income households.

1. Introduction

In the face of climate change and under statewide targets to reduce greenhouse gas emissions, Minnesota's utilities are planning significant changes to their electricity generation portfolios in the coming years. The resources used in these portfolios, and the pathways utilities take to add these resources, hold implications far beyond resource adequacy and greenhouse gas emissions. Existing power plants produce health-damaging air pollutants that have impacts on communities both near these plants, across the state, and even beyond its borders. The energy resources selected—as well as their costs and distribution—hold implications for energy affordability, choice, and resilience, which may be of particular concern to low-income households, populations of color, and others that have historically faced higher energy cost burdens than their wealthier counterparts.¹ Utility integrated resource plans (IRPs), which are used to identify customer demand and plan accordingly for the requisite energy and capacity resource procurements, can therefore have a direct impact on public health outcomes, affordability, and equity. Here, we take a careful look at Minnesota Power's 2021 proposed Integrated Resource Plan² (hereafter, MP's 2021 Plan) along public health, affordability, and equity dimensions, highlighting the potential impacts and benefits of the Plan's energy and capacity procurement decisions.

Fossil fuel and biomass use in the power sector can have a range of health and environmental impacts through pollution of the air, water, and soil. Combustion of coal, gas, oil, and biomass³ produces both greenhouse gases and hazardous and criteria air pollutants, such as nitrogen oxides (NO_x), sulfur dioxide (SO₂), particulate matter, and heavy metals. These pollutant levels vary with both fuel type and environmental controls at any given facility. Power-sector combustion results in both the emission of *primary air pollutants*, i.e., pollutants that are emitted directly from the plant's combustion, and the creation of *secondary air pollutants*, i.e., pollutants that form in the atmosphere downwind from the plant. For example, NO_x and SO_x emissions from a plant can both react chemically in the atmosphere to form fine particulate matter (PM_{2.5}), while NO_x emissions can also react with volatile organic compounds (VOCs) to form ozone.⁴ Exposure to primary or secondary air pollutants can lead to a wide range of respiratory and cardiovascular health impacts, from asthma attacks to heart attacks and premature death.^{5,6,7} Air pollution from power plants can lead to health impacts hundreds of

⁷ Thurston, G. D., et al. (2016). <u>Ischemic Heart Disease Mortality and Long-term Exposure to Source-related Components of US</u> <u>Fine Particle Air Pollution.</u> *Environmental Health Perspectives*, *12*4(6), 785-794



¹ Drehobl, A. et al. (2020). <u>How High Are Household Energy Burdens? An Assessment of National and Metropolitan Burden</u> <u>Across the United States.</u> *American Council for an Energy-Efficient Economy.*

² Minnesota Power (2021). <u>2021 Integrate Resource Plan</u>. *Docket No. E015/RP-21-33*.

³ Depending on the biomass source, some of the greenhouse gas emissions of biomass combustion may be mitigated when the fuel is analyzed on a full-lifecycle basis.

⁴ Minnesota Pollution Control Agency. "<u>Volatile Organic Compounds (VOCs).</u>" Accessed April 2022.

⁵ Murray, C. J., et al. (2020). Global Burden of 87 Risk Factors in 204 Countries and Territories, 1990–2019: A Systematic Analysis for the Global Burden of Disease Study 2019. *The Lancet*, *396*(10258), 1223-1249.

⁶ Vohra, K., et al. (2021). <u>Global Mortality from Outdoor Fine Particle Pollution Generated by Fossil Fuel Combustion: Results</u> <u>from GEOS-Chem</u>. *Environmental Research*, 195, 110754.

miles downwind from the emission source;⁸ however, the impacts tend to be highest per capita nearest to and downwind from the power plant stacks. Disposal of coal ash in impoundments can result in heavy metal contamination to water and soil, posing health risks to nearby communities.⁹ Living near power plants is associated with adverse health outcomes, such as premature births¹⁰ and asthma,¹¹ and sensitive populations such as the young, the elderly, and those with underlying conditions are most at risk. Moreover, power plants are often disproportionately located in low-income communities,¹² as well as places with high cumulative environmental health burdens from numerous sources,¹³ raising equity concerns. The reduction of emissions and waste from these plants can therefore have potential health benefits for both communities living nearby and across a broad geographical region.

In addition to pollution burdens, many households also struggle with affordability and energy cost burdens associated with paying their energy bills. These burdens are often highest for low-income households and communities of color¹⁴—the same communities that often lag behind in access to solar^{15,16} and other clean energy resources such as energy efficiency.¹⁷ Energy efficiency can help lower utility bills, and residential solar can both reduce bills and provide bill stability. However, those without access to capital, renters, linguistically isolated populations, and others often face barriers to accessing these resources without programs and financing targeted to reach them.

The energy resource choices made within the IRP process hold implications for both energy affordability and the public health burdens and benefits associated with these resources. The choice to operate certain power plants, for example, has direct and calculable public health impacts. The overall costs of any plan have implications for energy affordability because these costs are typically passed on to ratepayers through subsequent cost recovery proceedings. Furthermore, the choice to include specific resources—such as energy efficiency, residential demand response, or rooftop solar—can have affordability implications. For example, the inclusion of residential energy efficiency and low-income energy efficiency resources in IRPs

¹⁷ Reames, T.G. (2016). <u>Targeting Energy Justice: Exploring Spatial, Racial/Ethnic and Socioeconomic Disparities in Urban</u> <u>Residential Heating Energy Efficiency.</u> *Energy Policy* 97, 549-558.



⁸ National Research Council. (2010). <u>Global Sources of Local Pollution: An Assessment of Long-range Transport of Key Air</u> <u>Pollutants to and from the United States.</u> *National Academies Press.*

⁹ Environmental Integrity Project. (2020). <u>Ashtracker</u>.

¹⁰ Casey, J.A., et al. (2018). <u>Increase in Fertility Following Coal and Oil Power Plant Retirements in California.</u> *Environmental Health* 17(1), 1-10.

¹¹ Casey, J.A., et al. (2020) <u>Improved Asthma Outcomes Observed in the Vicinity of Coal Power Plant Retirement, Retrofit and</u> <u>Conversion to Natural Gas.</u> *Nature Energy* 5(5), 398-408.

¹² U.S. Environmental Protection Agency. (2021). <u>Power Plants and Neighboring Communities Graphs</u>.

¹³ Krieger, E.M. et al. (2016). <u>A Framework for Siting and Dispatch of Emerging Energy Resources to Realize Environmental and</u> <u>Health Benefits: Case Study on Peaker Power Plant Displacement. *Energy Policy* 96, 302-313.</u>

¹⁴ Drehobl, A. et al. (2020). <u>How High Are Household Energy Burdens? An Assessment of National and Metropolitan Burden</u> <u>Across the United States.</u> *American Council for an Energy-Efficient Economy.*

¹⁵ Sunter, D. et al. (2019). <u>Disparities in Rooftop Photovoltaics Deployment in the United States by Race and Ethnicity.</u> *Nature Sustainability* 2(1), 71-76.

¹⁶ Lukanov, B.R. and E.M. Krieger. (2019). <u>Distributed Solar and Environmental Justice: Exploring the Demographic and Socio-</u> <u>Economic Trends of Residential PV Adoption in California</u>. *Energy Policy* 134, 110935.

can open the door for these energy efficiency programs to be addressed in other proceedings. Even though the exclusion of energy efficiency resources in IRP planning would not preclude other proceedings from addressing efficiency, such an approach might result in an over-build of capacity resources, resulting in excess costs that may get passed on to ratepayers.

Minnesota Power's electricity supply by the end of 2020 included 50 percent renewables largely wind and hydropower and a small amount of solar and biomass—with most of the rest supplied by coal and modest contributions from gas.¹⁸ Currently, the combustion power plants in Minnesota Power's generation mix includes five fossil fuel electricity-generating units-three coal units (Boswell Units 3 and 4 in Cohasset, Minnesota and Milton R. Young 2 in Center, North Dakota), one biomass-and-coal plant (Hibbard Energy Center in Duluth, Minnesota) and a natural gas peaking plant (Laskin Energy Center in Hoyt Lakes, Minnesota). Minnesota Power owns 100 percent of Boswell 3 (350 megawatts (MW)) and 80 percent of Boswell 4 (582 MW); 20 percent of Boswell 4 is owned by WPPI Energy, a Wisconsin public power provider. Minnesota Power does not own the 439 MW Milton R. Young plant but has historically purchased approximately half of the electricity generated at the plant. Minnesota Power has been phasing down this contract since 2014 and starting in 2026 will not purchase output from Young 2. Minnesota Power owns both the Hibbard and Laskin plants. Hibbard is a 47 MW facility that has historically burned both wood/paper waste and, to a lesser extent, coal. Until recently, Hibbard provided large quantities of steam to the Verso Duluth Paper Mill in addition to electricity generation. Laskin is a 99 MW facility that was converted from coal to natural gas in 2015.¹⁹

Under MP's 2021 Plan, the utility's fuel mix shifts away from coal towards renewable energy and gas between 2021-2035, with additional demand reduction being met through ongoing energy efficiency savings. The plan relies, in part, on construction of a new natural gas plant just across the border in Wisconsin-the Nemadji Trail Energy Center (NTEC). In MP's 2021 Plan, Minnesota Power analyzes several scenarios, focusing on a central case with mid-range environmental costs and carbon dioxide (CO₂) prices. Additional scenarios test the sensitivity of environmental costs, the retirement year of the coal-fired Boswell Energy Center, various levels of energy efficiency and fuel prices, alternative energy resources, and other variables. In this analysis, we introduce a framework to incorporate public health and equity metrics into MP's 2021 Plan. We focus primarily on MP's recommended 2021 Plan but additionally address (1) the potential early retirement of the Boswell plant, (2) the development of NTEC, and (3) the benefits of additional resources such as efficiency and rooftop solar. Under Minnesota Statute 216B.2422, the Public Utilities Commission "shall, to the extent practicable, quantify and establish a range of environmental costs associated with each method of electricity generation. A utility shall use the values established by the Commission in conjunction with other external factors, including socioeconomic costs, when evaluating and selecting resource options in all proceedings before the Commission, including resource plan and certificate of



¹⁸ Allete Inc. (2020). Minnesota Power Reaches 50 Percent Renewable Energy Milestone to Lead Minnesota Utilities.

¹⁹ Minnesota Power (2021). <u>2021 Integrate Resource Plan</u>. Docket No. E015/RP-21-33.

need proceedings."²⁰ To date, this approach has largely entailed incorporating a carbon price into IRPs and the Commission has adopted a \$/ton value for criteria pollutant emissions. The methods we introduce here provide a more extensive approach to addressing these environmental and socioeconomic costs, both for the MP's 2021 Plan and for similar IRPs across the state. Our results are not directly comparable to the externality approach used by the Commission, because the inputs, models, and health and environmental factors considered differ. Additionally, the externality factors used by the Commission aggregate information across all power plants in Minnesota rather than accounting for plants individually.

In the following sections we describe our methodology (<u>Section 2</u>) and then discuss our findings (Section 3), including how specific IRP decisions relate to (1) populations living near power plants, (2) public health impacts of coal plant emissions and hazards of coal ash waste, (3) public health impacts of the biomass plant Hibbard, (4) environmental health and climate concerns associated with gas plants, including the proposed NTEC facility, and (5) equitable access to energy and energy affordability. We summarize our key findings in Section 4.



²⁰ Minnesota Legislature. (2021). <u>216B.2422 Resource Planning; Renewable Energy.</u>

2. Methodology

We approached our analysis by first reaching out to community-based organizations and nonprofit organizations in the Minnesota Power territory to conduct informal interviews and identify priorities and concerns related to power generation in the region. We used these conversations to inform our analytical approach. Below, we describe the methods by which we (1) analyze populations living near power plants serving Minnesota Power, (2) model the $PM_{2.5}$ related morbidity and mortality associated with power plant emissions, (3) assess environmental hazards (such as coal ash) not included in our air pollutant analysis, (4) analyze lifecycle greenhouse gas implications of gas combustion if NTEC is constructed, and (5) address equitable energy access and energy affordability.

2.1 Equity Screening and Demographics

While power plant emissions have health impacts over broad regions, these emissions typically have higher health impacts *per capita* on populations living nearby and downwind from power plants. Nearby populations may also be exposed to additional environmental health stressors beyond power plant stacks (e.g., on-site waste disposal, industrial equipment operation). To assess who may face increased risks from living next to power plants, we performed an equity screening analysis on populations living within one mile and three miles of each facility. The EPA has set a precedent for this approach in its Power Plants and Neighboring Communities screening tool, used to identify environmental justice concerns for populations living in proximity to power plants.²¹ The Power Plants and Neighboring Communities tool reports socioeconomic and environmental burden indicators from its environmental justice screening tool EJScreen 1.0.²² These indicators are reported both as absolute values (e.g., the percent of low-income households) and as percentiles (e.g., how a given location compares to census tracts across the state; for example, ranking at the 70th percentile for low-income populations would mean a region had more low-income households than 70 percent of census tracts statewide).

Both the Power Plants and Neighboring Communities tool and EJScreen 1.0 are somewhat limited in that they report indicators either *individually*, or in aggregation, i.e., by combining non-White population indicators, low-income population indicators, and a single environmental indicator. However, the EJScreen 1.0 tool itself includes six demographic indicators and 12 environmental indicators. Other environmental justice screening tools, such as CalEnviroScreen,²³ combine indicators together to identify locations with high *cumulative* socioeconomic burdens, high *cumulative* environmental burdens, and high *cumulative* socioeconomic and environmental burdens. High cumulative socioeconomic and



²¹ U.S. Environmental Protection Agency. (2021). <u>Power Plants and Neighboring Communities.</u>

²² U.S. Environmental Protection Agency. (2021). <u>EJSCREEN: Environmental Justice Screening and Mapping Tool</u>. Note: EPA updated EJScreen to version 2.0 in 2022. The data used here are from EJScreen 1.0.

²³ California Office of Environmental Health Hazard Assessment. (2022). <u>CalEnviroScreen 4.0</u>.

environmental burdens typically contribute to increased vulnerability to additional environmental stressors, meaning that these populations have more adverse health outcomes when exposed to the same pollutants than other populations. Such combined indices can also indicate where populations face disproportionate shares of legacy pollution, and where interventions to reduce pollution may be particularly valuable.

Therefore, we created a Demographic Index based on the six EJScreen 1.0 demographic indicators—populations of color, under age 5, over age 64, low-income, linguistically isolated, and low educational attainment populations.²⁴ For each census tract, we averaged the *state percentile* value for each of these six indicators. We created a Demographic Index by re-ranking these integrated scores for each census tract in the state and calculating the percentile value for this new index. 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,²⁵ resulting in a better characterization of urban pollution concerns but not rural concerns. We also note that the Census data underlying EJScreen data may be less accurate, leading to additional uncertainties for our findings in rural areas.

We used EJScreen to calculate the value for each demographic indicator for both a one-mile and three-mile region around each power plant. Following the methods above, we calculated the Demographic Index for each of the existing fossil fuel facilities, as well as the proposed NTEC plant. We omitted Milton R. Young from our analysis because a very limited population lives within close proximity to this facility.

2.2 Power Plant Air Pollutant Health Impact Modeling

Fossil fuel and biomass combustion at power plants emits hazardous and criteria air pollutants. The emitted pollutants can both cause direct public health impacts and can transform chemically or physically in the atmosphere to form secondary pollutants, which can also have public health impacts. The majority of these public health impacts are associated with PM_{2.5}, which is both emitted directly from power plant stacks and formed as a secondary pollutant from NO_x, SO₂, and volatile organic compounds (VOCs). There are widely accepted methods to model PM_{2.5} in the atmosphere and extensive epidemiological evidence linking PM_{2.5} exposure to health impacts, inclusive of cardiovascular and respiratory impacts and premature death.^{26,27,28} Here, we use two models to calculate the morbidity and mortality

²⁸ Lepeule, J., Laden, F., Dockery, D., & Schwartz, J. (2012). Chronic Exposure to Fine Particles and Mortality: An Extended



 ²⁴ See: U.S. Environmental Protection Agency. (2022). <u>Overview of Demographic Indicators in EJScreen.</u>
²⁵ For comparison, pesticide exposure *is* included in CalEnviroScreen.

²⁶ Dockery, D. et al. (1993). <u>An Association Between Air Pollution and Mortality in Six US Cities</u>. *New England Journal of Medicine*, 329(24), 1753-1759.

²⁷ Krewski, D., et al. (2009). <u>Extended Follow-Up and Spatial Analysis of the American Cancer Society Study Linking Particulate</u> <u>Air Pollution and Mortality</u>. *Res Rep Health Eff Inst.* (140), 5-114; discussion 115-136.

impacts of $PM_{2.5}$ -related power plant emissions under MP's 2021 Plan. As noted previously, NO_x and VOCs may chemically react in the atmosphere to form ozone, and ozone as well as other pollutants emitted from power plant stacks can have health impacts. However, the health impacts of pollutants other than $PM_{2.5}$ are more challenging to model and typically have a lower total impact than $PM_{2.5}$.^{29,30} As such, we focus on $PM_{2.5}$, but suggest that our results are likely an *underestimate* of the actual health impacts of these plants given the emission and secondary formation of these other pollutants.

To assess power plant impacts, we first characterized pollutant emissions at each power plant serving Minnesota Power to create emission factors for each plant; second, we applied these emission factors to the projected generation under MP's 2021 Plan; and third, we modeled the cumulative health impacts of each fossil plant in MP's 2021 Plan using the U.S. Environmental Protection Agency's (EPA) CO-Benefits Risk Assessment Health Impacts Screening and Mapping Tool (COBRA)³¹ and the peer-reviewed Intervention Model for Air Pollution Tool (InMAP).^{32,33,34}

Characterizing air pollutant emissions. As discussed earlier, four coal-, biomass-, and gasfired power plants currently serve Minnesota Power: Boswell (coal), Milton R. Young (coal), Laskin (gas), and Hibbard (biomass and coal). At times, Minnesota Power purchases additional power from the Midcontinent System Operator (MISO), which we do not directly address here but the emissions from which should be considered in future analyses. We acquired data on electricity generation (megawatt-hours, MWh) and SO₂ and NO_x emissions from each facility from the EPA's Air Markets Program Database (AMPD),³⁵ which reports hourly emissions from power plant stacks recorded using continuous emissions monitoring systems. Coal VOC emissions are calculated using the low-end emission factor estimate for coal from Peng et al.,³⁶ who suggested application of an additional 65 percent emission reduction factor from an additional air pollution control device to provide a conservative emissions estimate. Natural gas PM_{2.5} emissions were calculated using the AP-42 emission factor from the EPA's eGRID resource.³⁷ Gas VOC emissions were calculated using EPA emission factors.³⁸ We note that VOCs



Follow-up of the Harvard Six Cities Study from 1974 to 2009. Environmental Health Perspectives, 120(7), 965-970.

²⁹ Lelieveld, J., et al. (2015). <u>The Contribution of Outdoor Air Pollution Sources to Premature Mortality on a Global Scale</u>. *Nature*, 525(7569), 367-371.

³⁰ Murray, C. et al. (2020). <u>Global Burden of 87 Risk Factors in 204 Countries and Territories, 1990–2019: A Systematic Analysis</u> for the Global Burden of Disease Study 2019. *The Lancet, 3*96(10258), 1223-1249.

³¹ U.S. Environmental Protection Agency. (2021). <u>CO-Benefits Risk Assessment Health Impacts Screening and Mapping Tool</u> (<u>COBRA</u>).

³² Tessum, C. W., et al. (2017). INMAP: A Model for Air Pollution Interventions. *PloS One*, 12(4), e0176131.

³³ Thakrar, S. K., et al. (2020). <u>Reducing Mortality from Air Pollution in the United States by Targeting Specific Emission Sources</u>. *Environmental Science & Technology Letters*, 7(9), 639-645.

³⁴ Paolella, D. A., et al. (2018). Effect of Model Spatial Resolution on Estimates of Fine Particulate Matter Exposure and Exposure Disparities in the United States. Environmental Science & Technology Letters, 5(7), 436-441.

³⁵ U.S. Environmental Protection Agency. (2021). <u>Air Markets Program Data</u>.

³⁶ Peng, Y., et al. (2021). <u>VOC Emissions of Coal-fired Power Plants in China Based on Life Cycle Assessment Method</u>. *Fuel*, 292, 120325.

³⁷ U.S. Environmental Protection Agency. (2016). Estimating Particulate Matter Emissions for eGRID. Table 2.

³⁸ U.S. Environmental Protection Agency. (2020). <u>Natural Gas Combustion</u>.

are not the primary driver of PM_{2.5} formation from these power plant stacks, and using a standardized emission factor should not greatly affect our estimates. Primary PM_{2.5} emissions for Boswell Units 3 and 4 were calculated using emission factors derived from Minnesota Pollution Control Agency (MPCA)³⁹ data and PM_{2.5} for Milton R. Young from the EPA's eGRID.⁴⁰ For each of the pollutants reported in the AMPD database, pollutant emission factors (tons pollutant/MWh) were calculated based on average generation and emissions from 2018-2020. For Hibbard, a biomass and coal-burning facility, emission factors for PM_{2.5}, NO_x, SO_x, and VOCs were derived from the MPCA's Permitted Facility Air Emissions Data tool.⁴¹

Calculating scenario emissions. We applied the above emission factors to calculate the projected annual emissions from each power plant under MP's 2021 Plan. To do so, we multiplied the emission factors (tons/MWh) for each pollutant by the estimated generation (MWh) for each power plant—or, in the case of Boswell and Laskin, for individual units (3 and 4 for Boswell, 1 and 2 for Laskin)—for every year of operation from 2021-2035.

Air pollutant models. We used two reduced-form models to estimate PM_{2.5}-related health impacts. The EPA's COBRA model is widely used to calculate the public health benefits and impacts of emission changes.⁴² Inputs into the COBRA model include pollutant emissions (in this case, PM_{2.5}, NO_x, SO₂, VOCs), facility characteristics (e.g. stack height), and location (on a county basis). COBRA calculates how primary and secondary PM_{2.5} associated with these emissions affects ambient (i.e., outdoor) PM_{2.5} concentrations, and uses a concentration-response function to calculate the public health impacts associated with the change in PM_{2.5} pollution. COBRA uses two different epidemiological models to characterize some of the public health endpoints of PM_{2.5}, resulting in a low and a high estimate. These impacts are reported both by health-endpoint incidences (e.g. asthma exacerbations) and by cost (\$), which is calculated by assigning a monetary value to each health outcome. COBRA reports the spatial impacts of PM_{2.5} on a county basis for the entire US.⁴³

InMAP⁴⁴ is an independent peer-reviewed air quality model which uses similar inputs to COBRA combined with pre-processed chemical and meteorological information to calculate the marginal impacts of changes in emissions on ambient $PM_{2.5}$ concentrations. Here, we used InMAP in addition to COBRA because, while COBRA reports more extensive information on health outcomes, InMAP reports results at a much higher spatial granularity than COBRA (up to 1km resolution). Therefore, InMAP enables us to better identify whether certain populations

⁴⁴ Tessum, C. W., et al. (2017). <u>INMAP: A Model for Air Pollution Interventions</u>. *PloS One*, 12(4), e0176131.



³⁹ Minnesota Pollution Control Agency. (2019). <u>Permitted Facility Air Emissions Data</u>.

⁴⁰ U.S. Environmental Protection Agency. (2016). Estimating Particulate Matter Emissions for eGRID. Table 2.

⁴¹ Minnesota Pollution Control Agency. (2019). <u>Permitted Facility Air Emissions Data</u>.

⁴² U.S. Environmental Protection Agency. (2021). <u>Publications that Cite EPA's CO-Benefits Risk Assessment (COBRA) Health</u> <u>Impacts Screening and Mapping Tool.</u>

⁴³ U.S. Environmental Protection Agency. (2021). <u>CO-Benefits Risk Assessment Health Impacts Screening and Mapping Tool</u> (COBRA).

are disproportionately affected by a given pollution source and provides the racial demographics of the affected populations.

InMAP and COBRA represent atmospheric chemistry and physics differently and there were also differences in model resolution, concentration-response function, and underlying demographic data. Thus, while the 2021 *total* PM_{2.5}-mortality estimates from InMAP were similar to COBRA estimates they were not exactly the same. The total mortality estimates from InMAP were closer to the low mortality estimates from COBRA, because the underlying epidemiological model that we used in InMAP was more similar to the model used for the COBRA "low" estimate. Additionally, the population data used in InMAP is older than COBRA, likely contributing to lower mortality values. As a result, the InMmAP results are likely an underestimate of total PM_{2.5} mortality, compared to COBRA. We use the InMAP data to better understand the distributional impacts of these power plants, and which populations may be most burdened by this pollution, but rely more heavily on the COBRA data for estimating total impacts in the previous sections.

2.3 **Power Plant Environmental Hazards**

In addition to air pollutant emissions, fossil fuel power plants pose additional environmental health risks to the surrounding population. For example, coal ash waste is typically disposed of in impoundments, which may be structurally unsound and lead to local groundwater contamination. Water is typically used to cool thermal generating stations like coal and gas plants and may be returned in degraded form to the source or consumed on site. For power plants with available data, we therefore identified the coal ash waste from each site, aggregated data on groundwater contamination near coal ash impoundments, calculated water use, and estimated the annual coal ash disposed and water used by these plants under MP's 2021 Plan.

We retrieved on-site and off-site disposal of coal ash waste for Boswell and Milton R. Young from the EPA's Toxic Release Inventory (TRI).⁴⁵ In addition to total tons of waste disposed onand off-site, TRI reports the mass of specific pollutants of concern, such as heavy metals. We used historic generation data from EPA's AMPD⁴⁶ database to calculate the tons of waste per MWh of electricity generation from each site and used these factors to calculate the projected waste produced under MP's 2021 plan. In addition, we reviewed coal ash impoundment structural integrity reports,^{47,48} pollutant exceedances at groundwater monitoring wells at each site,⁴⁹ and federal environmental regulation violations reported through TRI. These additional

⁴⁸ Minnesota Power. (2022). Boswell.



⁴⁵ U.S. Environmental Protection Agency. (2021). <u>Toxic Release Inventory (TRI) Program</u>.

⁴⁶ U.S. Environmental Protection Agency. (2021). <u>Air Markets Program Dat</u>a.

⁴⁷ AMEC Earth & Environmental Inc. (2010). <u>Report of Geotechnical Assessment of Coal Combustion Surface Impoundments</u> <u>Minnesota Power Boswell Energy Center, Cohasset, MN.</u> AMEC Project No. 3-2106-0174.0300. Prepared for the U.S. Environmental Protection Agency.

⁴⁹ Environmental Integrity Project. (2020). <u>Ashtracker</u>.

measures give insight into which plants may pose additional environmental health hazards. Finally, we aggregated cooling water data from the U.S. Energy Information Administration's Electricity Data Browser,⁵⁰ and calculated the water used per MWh of generation for each facility. We used 2019 waste data and 2020 water data to assess both the hazards posed by these facilities—including in the context of nearby populations—and the cumulative waste disposal and water use projected under MP's 2021 Plan.

2.4 Equitable Energy Access

Residential energy consumption data are not readily available at granular geographic scales conducive to detailed spatial and demographic analysis. To estimate average household energy consumption by census tract, we use a linear regression model that simultaneously approximates energy consumption by fuel type (propane, gas, electricity, wood), and end use (space heating, space cooling, water heating, and appliances) based on a variety of geographic, housing, demographic, and climate characteristics. We generate these estimates using previously developed models^{51,52} with a combination of predictive variables extracted from the most recent 2015 Residential Energy Consumption Survey (RECS)⁵³ and the 2015-2019 American Community Survey.⁵⁴ We use this output, supplemented with the number of households in each census tract within Minnesota Power territory, to develop a weighting factor for each tract's share of Minnesota Power's residential electricity demand as well as each tract's share of statewide energy consumption for other fuels such as propane and gas. As Minnesota Power's service area boundaries do not neatly align with census tract borders, we derived the number of people within each tract living in the Minnesota Power territory using a block-weighted geographic apportionment method. This involved taking the intersection of the Minnesota Power territory and census block centroids and allocating the entire block's population to the service area if the centroid fell within its boundaries. Block population totals were then aggregated to determine what proportion of each tract is served by Minnesota Power.

To characterize residential energy cost burdens, we multiplied our census tract-level energy consumption estimates by Minnesota Power's 2019 electricity prices and the 2019 Energy Information Administration's Minnesota prices for other fuels⁵⁵ to estimate census tract-level energy expenditures. Average household energy cost burden was then calculated for each census tract by dividing the average household energy expenditures by the census tract median household income.

⁵⁵ U.S. Energy Information Administration. (2021). <u>Residential Sector Energy Price and Expenditure Estimates, 1970-2019,</u> <u>Minnesota.</u>



⁵⁰ U.S. Energy Information Administration (2022). <u>Electricity Data Browser</u>.

⁵¹ Min, J., et al. (2010). <u>A High-Resolution Statistical Model of Residential Energy End Use Characteristics for the United States</u>. Journal of Industrial Ecology, 14(5), 791-807.

⁵² Jones, C., and Kammen, D. M. (2014). <u>Spatial Distribution of US Household Carbon Footprints Reveals Suburbanization</u> <u>Undermines Greenhouse Gas Benefits of Urban Population Density</u>. *Environmental Science & Technology*, *48*(2), 895-902.

⁵³ U.S. Energy Information Administration. (2015). <u>Residential Energy Consumption Survey 2015.</u>

⁵⁴ U.S. Census Bureau. (2019). <u>TIGER/Line FTP Archive: 2019 ACS.</u>

3. Findings

3.1 **Populations Living Near Power Plants**

Populations living close to power plants have some of the highest health impacts *per capita* from facility-related PM_{2.5}, which we will discuss in the PM_{2.5} modeling sections below. In addition, many environmental health hazards and concerns are not reflected in this PM_{2.5} modeling, such as the air pollution from diesel used in industrial equipment at the facility and from trucks coming to and from the site, the ground and water pollution from on-site disposal of waste, and non-PM_{2.5} air pollutant emissions. While the health impacts of such pollution may be difficult to model directly due to a wide range of factors, including lack of sufficient data, they still pose potential equity concerns for populations nearby. To evaluate these concerns, we analyze the demographics of populations living near power plants and, to the extent possible, quantify some of the environmental health hazards posed by these plants. **Figure 1** shows the location of Hibbard, Boswell, and Laskin in relation to Minnesota Power's utility service territory and certain population indicators: communities of color, low-income communities, and rent-burdened communities. Notably, tribal lands stand out for their proximity to the power plants.

We built on this initial view by looking at *cumulative* socioeconomic burdens for census tracts across the state. As described in <u>Section 2.1</u> we combined indicators for low-income populations, populations of color, under age 5, over age 64, linguistic isolation, and low educational attainment to create a Demographic Index, mapped in **Figure 2**. This index mirrors some, but not all, of the indicators mapped individually in **Figure 1**, including tribal land boundaries. These combined metrics may indicate locations where populations are both particularly vulnerable to environmental pollution and where economic savings from measures such as energy efficiency may be particularly beneficial, as we discuss later in <u>Section 3.5</u>.





Figure 1. Map of select demographic indicators, power plants, and Minnesota Power territory. The map illustrates where low-income populations, communities of color, and rent-burdened populations are prevalent across Minnesota, near Minnesota Power's facilities, and in Minnesota Power territory.





Figure 2. Demographic Index for Minnesota. Census tracts colored orange and red rank in the top quarter of census tracts for a combination of six socioeconomic indicators: low-income, population of color, under age 5, over age 64, linguistically isolated, and low educational attainment.

We next analyzed populations living within a one-mile and three-mile radius of each power plant using this Demographic Index. As our models will show in <u>Section 3.2.4</u>, the health impacts of these power plants extend far beyond a three-mile radius, but by analyzing the populations near to the plants we can get a sense of which populations may have the highest



per-capita health impacts as well as those more likely to be exposed to additional air-, water-, and soil-based pollution pathways beyond PM_{2.5}. In **Figure 3**, we plot demographic indicators for the population living within one mile of each facility. We omit Milton R. Young due to very low population density near the plant. The x-axis represents the *state percentile* for population of color. For example, a state percentile of 55 would indicate that the population living near the plant has a higher concentration of people of color than 55 percent of census tracts statewide. On the y-axis we plot the state percentile for low-income populations. The bubble size reflects the total population living within one mile, so a larger bubble means more people live nearby. The bubble is colored by the Demographic Index value for the nearby population, reflecting the values calculated in **Figure 2**. We also include the proposed NTEC facility, although we note that the values used here are Wisconsin-specific, while Hibbard, Boswell, and Laskin are plotted using Minnesota-specific values.



Figure 3. Demographics of populations living within one mile of existing and proposed power plants in MP's 2020 Plan. Circle radius indicates population size living within one mile of the plant. The x-axis indicates the state percentile for the population of color living within one mile of each plant, and the y-axis reflects the state percentile for low-income populations living within one mile. Bubble color reflects the Demographic Index for each population. Nemadji (NTEC) is compared to Wisconsin populations rather than Minnesota populations for state percentile calculations. Milton R. Young is omitted due to lack of sufficient population living within one mile of the plant.



The Hibbard Energy Center in Duluth, in particular, stands out as having a comparatively large population living nearby (more than 3,000 people in a one-mile radius and nearly 30,000 people within three miles. The proposed NTEC facility also borders an urban area, with nearly 2,000 people living within one mile and nearly 15,000 people living within three miles. The population within one mile of Hibbard ranks at the 89th percentile for low-income population and ranks at the 78th percentile on our Demographic Index; the population within one mile of Boswell ranks at the 81st percentile for low-income populations and ranks at the 71st percentile on the Demographic Index; and NTEC ranks in the 74th percentile for low-income population in Wisconsin and 66th percentile on our demographic index. All these plants rank near the state median for population of color. Laskin ranks relatively low on most indicators. These values suggest that Hibbard, Boswell, and the proposed NTEC facility are all located near populations with relatively high cumulative socioeconomic burdens, and that these populations may be particularly vulnerable to the health hazards posed by these plants.

3.2 Coal Power Plants

3.2.1 Baseline 2018-2020 Coal Plant Air Pollutant Emissions

Minnesota Power plans to continue to receive power from two existing coal plants over some or all of the period 2020-2035: Boswell Energy Center (Units 3 and 4) and Milton R. Young, located in North Dakota. We report the average annual *total* emissions and *rate* of emissions per unit MWh generated by Boswell Energy Center Units 3 and 4⁵⁶ and by Milton R. Young in **Table 1** and **Table 2.** We report values for Boswell units 3 and 4 separately because MP's 2021 Plan includes different retirement dates for each unit. Values are averaged for 2018-2020 unless otherwise indicated in the Methodology section.

Plant Name	Primary Fuel	Generation	Carbon Dioxide (CO ₂)	Nitrogen Oxides (NO _x)	Sulfur Dioxide (SO ₂)	Particulate Matter (PM _{2.5})	Volatile Organic Compounds (VOCs)
		MWh	Metric Tons	Metric Tons	Metric Tons	Metric Tons	Metric Tons
Boswell 3	Coal	1,975,000	1,906,000	515.1	120.0	58.6	2.6
Boswell 4	Coal	3,652,000	3,556,000	1785.3	433.9	170.4	4.8
Milton R. Young⁵7	Coal	5,258,000	5,210,000	7995.8	2453.3	40.9	7.7

Table 1. Average annua	l coal power plar	nt emissions (2018-2020)).
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Table 2. Average annual coal power plant emissions rates (2018-2020).

⁵⁷ These are the total emissions from Milton R. Young, but Minnesota Power only contracts for part of this plant's generation, which we discuss below.



⁵⁶ We omit Boswell units 1 and 2, which ceased operation in 2018.

Plant Name	Generation	Carbon Dioxide (CO ₂)	Nitrogen Oxides (NO _x)	Sulfur Dioxide (SO ₂)	Particulate Matter (PM _{2.5})	Volatile Organic Compounds
	MWh	Metric tons/MWh	Lbs/MWh	Lbs/MWh	Lbs/MWh	(VOCs) Lbs/MWh
Boswell 3	1,975,000	0.97	0.57	0.13	0.07	0.0029
Boswell 4	3,652,000	0.97	1.08	0.26	0.10	0.0028
Milton R. Young	5,258,000	0.99	3.35	1.03	0.02	0.0032

The *total* emissions reported provide an initial indication of which power plants have the greatest total pollutant impacts. The emission *rates* given an indication of where displacing a MWh of generation with a MWh of clean generation would reduce the most emissions. For example, Milton R. Young has the highest total emissions of CO₂, NO_x and SO₂ as well as the highest emission rates of these pollutants per MWh. Boswell Unit 4 has higher emission rates for most pollutants than Unit 3. In **Figure 4**, we show the emissions per MWh for each of these facilities. This comparison provides an apples-to-apples comparison of potential benefits of alternatives, as each facility currently generates different quantities of electricity.



Figure 4. Criteria pollutant emission rates per MWh of electricity generation. Based on 2018-2020 emissions and generation.



3.2.2 Baseline 2021 Coal Plant Health Impacts

1.6

4.6

3.5

We calculated the baseline health impacts for each of the currently operating coal units for the 2021 model year using the Mid-Carbon Regulation Scenario in MP's 2021 Plan. We modeled these impacts by applying the emission factors in **Table 2** to the Plan's estimated 2021 generation and inputting these values into COBRA. The 2021 estimated total health impacts, by health outcome, are reported in **Table 3**. The modeled 2021 emissions estimates may not match the actual 2021 values, due to differences in modeled vs. actual energy generation. However, the emissions and generation are not yet fully reported at the time of writing; furthermore, 2021 electricity demand was likely impacted by COVID-19, and the modeled generation may better reflect typical annual operations.

historic emissio	n factors and e	estimated 2021	generation in M	IP's 2021 Plan.	30	
Plant Name	Mortality (high est.)	Upper Respiratory Symptoms	Respiratory Hospital Admits	Nonfatal Heart Attacks (high est.)	Infant Mortality	Total Health Impacts (\$)

0.16

0.47

0.4

0.67

2.0

1.6

0.003

0.01

0.01

\$17,196,087

\$50,493,432

\$38,933,940

14.7

43.2

36.5

Table 3. Estimated 2021 coal power plant health impacts. Health impacts are estimated based onhistoric emission factors and estimated 2021 generation in MP's 2021 Plan.58

Table 3 indicates that Boswell (Units 3 and 4 combined)—which is located closer to population centers than Milton R. Young—has the greatest total health impacts, including an annual estimated mortality impact of 6.2. This calculation is in line with estimates from Clean Air Task Force's *Toll from Coal* analysis, calculated to be 8 mortalities per year.⁵⁹

3.2.3 Scenario-Based Coal Plant Health Impacts 2021-2035

Minnesota Power proposes to continue to operate these three coal units to meet capacity needs for some or all of the 2021-2035 period. The Plan assumes that Boswell 3 will shut down by the end of 2029 and Boswell 4 will cease burning coal by the end of 2035. Milton R. Young is phased out of Minnesota Power's portfolio by the end of 2025. We analyzed the annual and cumulative 2020-2035 health impacts associated with MP's 2021 Plan using COBRA. The total health impacts over the 2021-2035 period are given in **Table 4.** If Boswell Unit 3 were to retire at the end of 2024 rather than 2029, it would save approximately 3-4 lives and reduce health

⁵⁸ Milton R. Young impacts only reflect the portion of power contracted for by Minnesota Power, which we calculated by assigning emissions to Minnesota Power proportional to the electricity contracted as a fraction of total generation. ⁵⁹ Clean Air Task Force (2021). Toll from Coal. <u>https://www.tollfromcoal.org</u>



Boswell Unit 3

Boswell Unit 4

Milton R. Young

impacts by \$39,100,000. If Boswell Unit 4 were to retire at the end of 2029 rather than running through 2035, it would save 14-15 lives and reduce health impacts by another \$164,152,000.

Plant Name	Mortality (high est.)	Upper Respiratory Symptoms	Respiratory Hospital Admits	Nonfatal Heart Attacks (high est.)	Total Health Impacts (\$)
Boswell Unit 3	9.3	88.6	0.97	4.1	\$104,249,043
Boswell Unit 4	38.2	364.4	4.0	16.8	\$429,737,900
Milton R. Young	9.9	102.3	1.1	4.5	\$109,740,750

Table 4. 2021-2035 cumulative coal	power	plant health im	pacts.	modeled by	COBRA.
				,	,

We show projected cumulative 2021-2035 emissions in **Figure 5**. This figure only includes the emissions from Milton R. Young for power contracted by Minnesota Power; some of Milton R. Young's generation is delivered elsewhere and this power is not subject to this IRP process.



Coal Plant Cumulative Emissions - 2021-2035 Midpoint Carbon Regulation

Figure 5. Modeled total 2021-2035 coal power plant emissions. Data reflect the 2021-2035 Mid-Carbon Regulation Scenario from MP's 2021 Plan. Emissions for Milton R. Young only reflect power contracted by Minnesota Power.



In **Figure 6** we show the cumulative health impacts from each coal plant over 2021-2035 based on projected use in MP's 2021 Plan. **Figure 6** illustrates the particularly high health impacts from Boswell 4 as compared to other facilities in Minnesota Power's portfolio.



Figure 6. Modeled total 2021-2035 coal power plant health impacts (\$). Data reflect the 2021-2035 Mid-Carbon Regulation Scenario from MP's 2021 Plan. Emissions for Milton R. Young only reflect power contracted by Minnesota Power.

3.2.4 Spatial Distribution of Coal Power Plant Health Impacts

We next used InMAP to model the spatial distribution of PM_{2.5}-mortality for each of the coal plants. We used the same Mid-Carbon Regulation Scenario 2021 emissions data for InMAP as we did for the COBRA model. The total health impacts from each plant (reported in \$) are mapped in **Figure 7.** These impacts are highest near to and downwind from each facility, but clearly extend across state borders. Notably, Milton R. Young is located in North Dakota, but its cumulative health impacts in Minnesota are actually slightly higher than in North Dakota itself. Boswell Energy Center has significant impacts in Minnesota, but also in states downwind. It is worth noting that the health impacts in Canada are not reflected in this analysis, so these maps do not reflect the full PM_{2.5}-related human health impacts of these plants.











Table 5. Per capita coal plant health impacts by race and ethnicity. Data are from InMAP model runs. The analysis included only mortality as a health outcome and did not include a discount rate in the economic valuation.

Plant Name	Black \$/100 people	Latino \$/100 people	Native \$/100 people	Asian \$/100 people	White \$/100 people	Overall \$/100 people
Boswell	0.8	0.6	9.9	1.0	4.8	3.4
Milton R. Young	1.8	1.3	10.7	2.1	5.6	4.2

In order to determine where human populations are *disproportionately* impacted by the emissions from each plant, we also mapped the *per-capita* PM_{2.5}-mortality estimates from each plant (reported in \$ per person) in **Figure 8.** These per-capita impacts are important for equity considerations related to these power plants. For example, the highest cumulative health impacts of the power plants are often located in the downwind city closest to each plant, but this only captures half the story; a plant located in a rural area, for example, might have low cumulative impact on nearby populations because not many people live there, but the percapita impact may still be very high, indicating a disparity in impacts. As noted previously, these analyses only include the PM_{2.5}-related health impacts of these plants and are therefore likely an underestimate of the total health impacts. For example, plant emissions also contribute to the formation of ozone, which also contributes to respiratory and cardiovascular health impacts near and downwind from these facilities.

In **Table 5** we show these per-capita health impacts broken down by race and ethnicity. For every plant analyzed, the health impacts per capita were highest for Native populations, and larger by a factor of two to three as compared to the population at large. This result is likely due to the location of many of these plants upwind or near to Tribal Lands. For example, Boswell Energy Center is located just outside the Leech Lake Reservation, and upwind from the Fond du Lac and Milles Lac Reservations. The per-capita health impacts are also higher for White populations than the population at large, although not as much as for Native populations. These results are likely due to the higher share of White and Native populations living in rural areas where most of these facilities are located. In addition to the human health impacts, both Tribal and non-Tribal populations have expressed concern (in personal communication with our team) about how pollution from these plants affects animals and the environment, including mercury poisoning of fish.





\$0 \$0.01 \$0.05 \$0.10 \$0.50 \$1.00 \$5.00 \$10.00 \$50.00 \$150







3.2.5 Coal Plant Ash Disposal

In order to assess additional environmental health hazards associated with Minnesota Power plants, we aggregated waste disposal from and groundwater pollutant measurements near the two coal plants serving Minnesota Power: Milton R. Young and Boswell Energy Center.

Coal ash waste produced at Boswell is disposed of in coal ash ponds. The aerial view of the coal ash impoundment by Boswell Energy Center is shown in **Figure 9**. Boswell released 804 metric tons of waste on-site in 2020.⁶⁰ Of the pollutants recorded in the EPA's Toxic Release Inventory, the highest-mass source of waste was barium, followed by manganese, copper, vanadium, chromium, zinc, hydrochloric acid, sulfuric acid, and lead. The EPA's Highest Risk-Screening Environmental Indicators score for these pollutants, reflecting quantity of waste and human hazard, was highest for chromium (which is associated with cancer, gastrointestinal, blood, and respiratory impacts) and lead (associated with cancer, childhood neurological development, cardiovascular, and other impacts). A 2021 inspection rated the Unit 3, Unit 4, and Bottom Ash Surface Impoundment at Boswell as a *significant hazard* to the environment and nearby infrastructure in case of failure.⁶¹



Ashtracker aggregated pollutant measurements from groundwater monitoring wells at Boswell during 2016 and 2017.⁶² Of Boswell's 17 monitoring wells, 10 recorded exceedances of federal pollutant standards during this period, including for arsenic, boron, cobalt, lithium, molybdenum, and sulfate. These exceedances pose risks to nearby populations, downstream populations, and particularly any households nearby that use wells to provide drinking water.

Boswell has had five inspections over the past five years according to the EPA's Toxic Release Inventory.⁶³ During that time, it spent four quarters (a total of 12 months) in noncompliance with the Clean Water Act, including one for significant violations.

Figure 9. Boswell Energy Center's coal ash ponds.⁶⁴



⁶⁰ U.S. Environmental Protection Agency. (2021). <u>Toxic Release Inventory (TRI) Program</u>.

 ⁶¹ <u>CCR Surface Impoundments Periodic Hazard Potential Classification, and Structural Stability and Safety Factor Assessment</u>
⁶² Environmental Integrity Project. (2019). <u>Boswell Energy Center</u>. *Ashtracker*.

 ⁶³ U.S. Environmental Protection Agency. (2021). <u>Toxic Release Inventory (TRI) Program</u>.

⁶⁴ Image source: Google. (2021). Maps.

Assuming that Boswell continues to produce waste at current rates for every MWh of electricity generated, we project that MP's 2021 Plan would lead to on-site disposal of an additional 6,240 metric tons of waste from 2021-2035. Retiring Boswell Unit 3 by 2025 would reduce approximately 690 tons of waste, and retiring Boswell Unit 4 by 2030 would reduce another 1,570 metric tons of on-site waste disposal, reducing pollution hazards to nearby communities.

In **Figure 10** we show an aerial view of the coal ash impoundment at Milton R. Young in North Dakota. According to the EPA's Toxic Release Inventory, Milton R. Young released 2,130 metric tons of waste on-site and 608 tons off-site in 2020.⁶⁵ By mass, pollutants recorded included barium, manganese, arsenic, vanadium, chromium, zinc, copper, and hydrochloric acid. The pollutants with the highest EPA Risk-Screening Environmental Indicators score were arsenic



(associated with cancer, neurological, developmental, respiratory, skin, and other health impacts) and chromium. Milton R. Young produced more than twice the solid waste per MWh of generation than Boswell. While Milton R. Young's Alternate Bottom Ash Pond was rated as a *low* hazard in a 2011 inspection report, its Cell 1 and Cell 2 disposal sites are considered *significant* hazards.⁶⁶ The Alternate Bottom Ash Pond was rated as *fair* and Cell 1 and Cell 2 as *satisfactory*.

Ashtracker reports that one of six groundwater monitoring wells at Milton R. Young recorded exceedances of federal standards for arsenic and radium when measured in 2016 and 2017. According to the Toxic Release Inventory, Milton R. Young has had 12 inspections over five years, during which it spent five quarters in noncompliance with the Clean Water Act, two quarters of which it was in significant violation.

Figure 10. Coal ash impoundment at Milton R. Young.⁶⁷

⁶⁶ GEI Consultants, Inc. (2011). <u>Specific Site Assessment for Coal Combustion Waste Impoundments at Minnkota Power</u> <u>Cooperative Milton R. Young Station</u>. *Prepared for the U.S. Environmental Protection Agency*.



⁶⁵ U.S. Environmental Protection Agency. (2021). <u>Toxic Release Inventory (TRI) Program</u>.

⁶⁷ Image source: Google. (2021). <u>Maps</u>.

The ash associated with Minnesota Power's electricity procurement from Milton R. Young during 2021-2035 in the Mid-Carbon Regulation Scenario comes to a total of 720 metric tons on site and 230 off site.

3.2.6 Coal Plant Water Use

Boswell Energy Center withdrew 1.5 billion gallons of water for cooling in 2020 and consumed 1.0 billion gallons.⁶⁸ Based on projected generation, Boswell will consume 7.1 billion gallons from 2021-2035, but retiring Boswell 4 by 2030 would save 1.8 billion gallons of water.

Milton R. Young withdrew 173 billion gallons of water for cooling in 2019 and is projected to withdraw 69 billion gallons for cooling associated with Minnesota Power's contracted power (scaled proportionally) from 2021-2025.

3.3 Biomass Power: Hibbard

MP's 2021 Plan continues to utilize electricity from Hibbard, a biomass facility attached to a paper mill that has historically burned biomass waste (paper pulp) from the mill, along with some coal, and provided steam for the mill's operations. Over the planning period 2021-2035, Hibbard's projected generation declines (although from an estimated generation level in 2021 that is roughly three times higher than actually reported for 2020) and then increases again. However, the paper mill itself halted operations in 2020, while the plant has continued to produce electricity. Furthermore, the paper mill was sold in 2021 to a new operator⁶⁹ who has indicated the new facility will not use steam from the Hibbard plant.⁷⁰ It is unclear what fuel Hibbard is burning now that the paper mill is no longer operational. Historically, coal fueled up to 11 percent of the electricity generated annually at Hibbard (which occurred in 2019).⁷¹ During 2020, fuel consumption dipped, possibly due to a combination of the pandemic and the idling of the paper mill, but fuel consumption has grown steadily since then and reached nearly historic levels as of October 2021. As noted previously, however, the total *electricity* generation has increased, and steam production has likely decreased. Given all these changes, the plant's future fuel source and level of electricity generation is uncertain.

Hibbard's 2018-2020 average electricity generation, steam production, and emissions are given in **Table 6.**



⁶⁸ U.S. Energy Information Administration (2022). <u>Electricity Data Browser</u>.

⁶⁹ Mentzer, R. (2021). <u>Sale of Duluth Mill Points to Paper Industry Trends</u>. *Wisconsin Public Radio*.

 $^{^{\}rm 70}$ Minnesota Power response to Clean Energy Organizations Information Request No. 70

⁷¹ U.S. Energy Information Administration (2021). <u>Electricity Data Browser</u>.
Plant Name	Primary Fuel	Generation	Steam	Carbon Dioxide (CO ₂)	Nitrogen Oxides (NO _x)	Sulfur Dioxide (SO ₂)	Particulate Matter (PM _{2.5})	Volatile Organic Compounds
		MWh	Million Tons	Metric Tons	Metric Tons	Metric Tons	Metric Tons	Metric Tons
Hibbard	Biomass (paper pulp)	21,800	734	29,3	:00 Z	401 101	28	19

Table 6. Average annual emissions for Hibbard (2018 - 2020).

Hibbard's public health impacts going forward are hard to model given the described unknowns about steam production, electricity generation, and fuel source. Assuming that steam is going to continue to be produced in the same ratio to electricity as historically, the ongoing operation of Hibbard as modeled in MP's 2021 Plan from 2021-2035 would cause an estimated 38.9 mortalities, based on COBRA modeling, and a total of \$437 in million in health impacts. The modeled health impacts for base year 2021 were 6.4 mortalities and \$70 million in health impacts. However, these specific values should be interpreted with caution. The values we input into the model included air pollutant emissions per MWh of electricity generation reported historically, but do not directly reflect the fact that Hibbard has produced steam as well and these values have changed in the past year and are projected to continue to change. As mentioned above, Hibbard has recently reduced its steam production and increased its electricity generation in tandem with the idling of the attached paper mill, and the new owner of the paper mill will not use steam from the plant. This increase in MWh generated will likely cause air pollutant emissions per MWh to decline, though the scale of the impact is uncertain, and total emissions will remain high if the amount of electricity generated at the facility continues to increase. As such, the pollutant emissions from Hibbard should be monitored closely.

In **Figure 11**, we show the total and per-capita health impacts of Hibbard from InMAP. This InMAP modeling suggests that the facility poses significant health risks to nearby and downwind communities, and disproportionately so for Native populations (**Table 7**), but the actual impacts going forward are likely to change depending on how the plant is operated.

Table 7. Per capita biomass plant health impacts by race and ethnicity. Data are from InMAP model runs. The analysis included only mortality as a health outcome and did not include a discount rate in the economic valuation.

Plant Name	Black	Latino	Native	Asian	White	Overall
	\$/100 people					
Hibbard	1.6	1.0	19.2	2.1	9.1	6.4





Figure 11. Total (top) and per-capita (bottom) health impacts from Hibbard for model year 2021. Values are given in \$ and \$ per person, respectively.



3.4 Gas Power Plants

MP's 2021 Plan relies on ongoing generation from Laskin, a former coal plant which now burns gas to meet limited periods of peak electricity demand, and the proposed NTEC natural gas combined cycle plant. Laskin is used infrequently—it generated an average of 16,300 MWh/year from 2018-2020—and has low pollutant emissions compared to other plants in Minnesota Power's portfolio, but its average NO_x emission rate during that period (1.8 metric tons/MWh) was actually higher than Boswell's. Since Laskin is used to meet peak energy demands, the emissions are likely to be released over a shorter period of time, which may lead to high short-term air quality and acute health impacts. For example, if Laskin is used to meet higher electricity demand on hot summer days, high NO_x emissions may contribute to increased ozone or secondary PM_{2.5} formation, depending on background air pollutant levels and meteorological conditions. The modeled PM_{2.5}-related mortality impacts from Laskin from 2021-2035 sum to \$5.4 million.

Both Laskin and NTEC are expected to rely on ongoing combustion of gas to generate electricity. Methane, a potent greenhouse gas and the primary constituent in gas fuel, is known to leak throughout the entire gas system, including during gas production, processing, transmission, and use.⁷² A recent synthesis of the scientific literature addressing methane leakage found that in the US, methane leaks at a rate of approximately 2.3 percent of gas production, or 2.9 percent of gas delivered to end-users.⁷³ Fossil-sourced methane has a global warming potential (CO₂-equivalent, or CO₂e) of 30 over a 100-year time period and 83 over a 20-year time period.⁷⁴ The result of this methane leakage is that the global warming impacts of natural gas combustion are significantly higher than reflected in the direct CO₂ emissions reported at power plant stacks.

In this analysis, we use estimates from Alvarez et al. $(2018)^{75}$ to estimate the lifecycle greenhouse gas impacts of gas combustion at the proposed NTEC facility. This review indicates that the radiative forcing (global warming impact) of gas use is 92 percent higher than the direct CO₂ emissions from gas combustion alone over a 20-year time period, and 31 percent higher over 100 years. We use these factors to calculate the lifecycle greenhouse gas emissions associated with proposed gas use at NTEC. The Supplemental Environmental Assessment for NTEC suggests that the facility will produce 2.24 million tons of CO₂ per year, as well as 1,227 tons of methane and 1,564 tons of nitrous oxide, another potent greenhouse gas.⁷⁶ If we

⁷⁶ Prevention of Significant Deterioration Air Construction Permit Application, Nemadji Trail Energy Center (2021).



 ⁷² Brandt, R.A., et al. (2014). <u>Methane Leaks from North American Natural Gas Systems</u>. *Science*, *343*(6172), 733-735.
⁷³ Alvarez, R.A., et al. (2018). <u>Assessment of Methane Emissions from the US Oil and Gas Supply Chain. Supplementary</u> <u>Material</u>. *Science*, *361*(6398), 186-188.

⁷⁴ Forster, P., et al. (2021). <u>The Earth's Energy Budget, Climate Feedbacks, and 40 Climate Sensitivity. In: Climate Change</u> 2021: The Physical Science Basis. Contribution of Working Group I 41 to the Sixth Assessment Report of the <u>Intergovernmental Panel on Climate Change</u>. Table 7.15. *Cambridge University Press*. In Press.

⁷⁵ Alvarez, R.A., et al. (2018). <u>Assessment of Methane Emissions from the US Oil and Gas Supply Chain. Supplementary</u> <u>Material</u>. *Science*, *361*(6398), 186-188.

incorporate lifecycle methane emissions into the greenhouse gas impacts of this plant (assuming that the Assessment's methane estimates are a subset of the lifecycle emissions estimated in Alvarez et al.,) NTEC's annual emissions are equivalent to 3.4 million tons CO₂e over a 100-year time period and 4.8 million tons CO₂e over a 20-year time period. These figures represent the annual emissions from the full plant. MP's portion of annual NTEC greenhouse gas emissions, based on a 20 percent ownership stake, is equivalent to 680,000 tons CO₂e over a 100-year time period or 960,000 tons CO₂e over a 20-year time period.

In addition to methane leakage, the upstream production, processing, and transmission of natural gas is associated with the emission of a wide range of health-damaging air pollutants, such as the carcinogens benzene, toluene, ethylbenzene and xylene (known collectively as BTEX), as well as NO_x, VOCs, and other criteria air pollutants.⁷⁷ These upstream pollutants are attributable to both fugitive emissions of non-combusted gasses from liquid storage tanks, pneumatic controllers, and other major equipment as well as combustion-related emissions from flares, gas-fired compressor stations, diesel-powered equipment, and other fuels used to power production operations. These emissions constitute a health hazard for populations living nearby and downwind and living near wells has been associated with such health concerns as adverse birth outcomes⁷⁸ and asthma^{79,80} and is considered a cancer risk.⁸¹ As such, the avoidance of gas combustion at NTEC can also help mitigate the upstream health hazards and risks associated with gas production and processing.⁸²

⁸² While not detailed in this report, reduced coal combustion will similarly reduce upstream environmental health impacts of coal production, lifecycle impacts such as the health hazards and risks associated with coal train transport, and downstream impacts such as mercury pollution in streams and waterways. We suggest these factors may be valuable for research in future analyses.



⁷⁷ Michanowicz, D. et al. (2021). <u>Methane and Health-Damaging Air Pollutants from the Oil and Gas Sector: Bridging 10 Years</u> of Scientific Understanding. *PSE Healthy Energy*.

⁷⁸ Tran, K. V., et al. (2020). <u>Residential Proximity to Oil and Gas Development and Birth Outcomes in California: A</u> <u>Retrospective Cohort Study of 2006–2015 Births</u>. *Environmental Health Perspectives*, *128*(6), 067001.

⁷⁹ Willis, M. D., et al. (2018). <u>Unconventional Natural Gas Development and Pediatric Asthma Hospitalizations in Pennsylvania</u>. *Environmental Research*, *166*, 402-408.

⁸⁰ Rasmussen, S. G., et al. (2016). <u>Association Between Unconventional Natural Gas Development in the Marcellus Shale and</u> <u>Asthma Exacerbations.</u> JAMA Internal Medicine, 176(9), 1334-1343.

⁸¹ McKenzie, L. M., et al. (2018). <u>Ambient Nonmethane Hydrocarbon Levels Along Colorado's Northern Front Range: Acute and</u> <u>Chronic Health Risks</u>. *Environmental Science & Technology*, *52*(8), 4514-4525.

3.5 Equitable Energy Access

MP's 2021 Plan holds both direct and indirect implications for energy affordability. Many households struggle to pay their utility bills, and decisions made within the IRP can hold longterm implications for those bills. While actual utility rates are typically decided in rate cases, the resource portfolio selected within IRPs can still directly affect ratepayers. For example, a more expensive overall portfolio holds the potential to have those costs passed on to ratepayers. A riskier portfolio—such as one relying heavily on fossil fuels, which are subject to price variability and may turn into stranded assets in a carbon-constrained future-may similarly pose a future risk to ratepayers. Those who currently struggle the most to pay their utility bills are likely to be the most impacted by supply costs being passed on to them. More directly, however, the choice to incorporate resources such as energy efficiency or rooftop solar may provide more direct economic savings to households than utility-scale resources. MP's 2021 Plan outlines not only its proposed overall residential energy efficiency savings but also its proposed low-income energy efficiency savings; we can thus evaluate whether these resources are equitably distributed to energy cost-burdened households and whether other resource portfolios may better alleviate these energy cost burdens for those who most need it. We therefore analyze energy cost burdens in Minnesota Power territory, analyze efficiency and distributed solar resources within MP's 2021 Plan, and discuss the implications for resource selection in reducing energy cost burdens.

3.5.1 Assessing Energy Cost Burdens

Energy cost burden—the percentage of household income used to pay energy bills—is typically considered high if over six percent, although different jurisdictions may use higher or lower thresholds. We show the median energy cost burden by census tract for Minnesota Power's territory in **Figure 12.** These energy cost burdens include electricity, gas, and propane; even though MP's 2021 Plan only addresses electricity, it is important to evaluate the full energy cost picture in order to accurately understand the true energy cost burden a household faces and to make more accurate comparisons between houses that heat with electricity and those that heat with propane or gas. The tracts colored orange or red have energy cost burdens above four percent and are notably high in rural areas and particularly in parts of Duluth. It is worth noting that these are *average* energy cost burdens by census tract, meaning that some individual households may face much higher energy cost burdens, even in census tracts colored blue on the map. Accordingly, these maps can provide a sense of overall trends regarding where cost burdens may be high, but do not show the full range of energy cost burdens faced by individual households.





Figure 12. Average household energy cost burden by census tract. Census tracts with cost burdens over four percent are shown in orange and red. The highest census tract energy cost burdens are seen in Duluth and in rural areas. Note that individual households within each census tract may have much higher energy cost burdens than the tract average.

In **Figure 13**, we plot census tract energy cost burdens compared to median household income. By definition, energy cost burden is inversely related to household income. The relationship is non-linear, however, and lower-income census tracts tend to experience dramatically higher energy cost burdens compared to higher income census tracts. The highest estimated energy cost burden for an individual census tract in Minnesota Power's territory is 10.7 percent. This census tract is located in downtown Duluth and is also the census tract with the lowest median household income within Minnesota Power territory.

In **Figure 14**, we see that energy cost burdens are also high for census tracts with a high share of renters and for census tracts with a higher share of Black residents. These are all populations that may benefit from energy-saving measures, such as energy efficiency. Programs to increase access to such energy saving measures can help reduce the energy cost burden inequities of the existing system.





Median Household Income (MHI)

Figure 13. Energy cost burdens and median household income. Census tract average cost burdens are shown as a percent of median household income. Lower-income census tracts tend to spend a much greater fraction of their income on energy bills.



Figure 14. Energy cost burdens and population indicators. Electricity + natural gas cost burdens are higher for census tracts with a larger share of renters and for census tracts with a larger share of Black residents, both of which also tend to be lower income.



3.5.2 Efficiency and Solar Access in MP's 2021 Plan

We next analyzed the proposed residential energy efficiency and rooftop solar deployment in MP's 2021 Plan. The choice to invest more heavily in distributed energy resources, such as energy efficiency and rooftop solar, can significantly impact residential energy bills for the adopters. Weatherization and other energy-saving measures help reduce overall energy demand and provide long-term bill savings. Similarly, rooftop solar can provide long-term economic benefits and bill consistency through net metering policies. However, low-income households face numerous barriers to adopting clean energy technologies, including lack of access to capital, lower levels of home-ownership, linguistic isolation, and others. Efficiency programs that target low-income households directly need to be adequately funded in order to help reduce overall disparities in energy cost burden. At a minimum, funding for low-income households within Minnesota Power territory. However, low-income programs are often more expensive to implement and the energy savings achieved per dollar invested are generally lower. A more equitable approach would therefore aim to guarantee proportional energy *savings* in low-income households rather than proportional funding.

We estimate that the low-income population in Minnesota Power territory (below 200 percent of the Federal Poverty Level) is about 30 percent. **Figure 15** shows the spatial distribution of low-income households by census tract based on the percentage of low-income population within each tract. We note the especially high concentration of low-income households in Downtown Duluth, Lincoln Park, Central Hillside, and East Hillside.



Figure 15. Distribution of Low-Income Population. Percentage of population with incomes below 200 percent of the Federal Poverty Level. The color break between blue and orange is set at 40 percent. Lower income communities are shown in orange.



Historically, Minnesota Power's energy efficiency investments in low-income communities have averaged 20 percent of total residential energy efficiency investments over the last four years (2017-2020). This number is substantially lower than the proportion of the low-income population in Minnesota Power territory, which, as mentioned above, is around 30 percent. What is more, the projected fraction of residential energy efficiency savings in low-income households over the next three years (2021-2023) is lower yet-the projected low-income energy savings are around 13 percent of the total projected residential energy savings as filed in the MP 2021-2023 CIP Triennial Filing.⁸³ In the longer timeframe (2024-2029), the projected energy savings in low-income communities are about 11 percent of total projected residential energy savings. Based on these numbers, we estimate that Minnesota Power investments in low-income residential energy efficiency need to be tripled as a fraction of the total levels of investment currently proposed in MP's 2021 Plan to not exacerbate further existing energy cost burden disparities. Alleviating the existing energy cost burden inequities would require additional funding for energy efficiency and weatherization in low-income communities. Minnesota's Energy Conservation and Optimization Act of 2021⁸⁴ requires an increase in spending on low-income energy efficiency programs. This bill may help facilitate an increase in low-income efficiency savings, although it is unclear to what extent the bill's increased requirements are already included in Minnesota Power's current projections. To ensure CIP programming reduces energy burden disparities, additional measures are likely needed.

In addition to the Baseline CIP Scenario, Minnesota Power has evaluated two alternative energy savings scenarios that begin in the year 2024 and go above and beyond the proposed Baseline scenario in terms of energy savings: 1) a "High" Scenario, and 2) a "Very High" scenario, modeled after the "Max Achievable" scenario of the 2020-2029 Minnesota State Demand Side Management Potential Study.⁸⁵ The High Scenario increases the total energy savings by about 25 percent and the Very High Scenario by over 50 percent compared to the Baseline efficiency scenario. However, both alternative scenarios project that only 11 percent of the overall energy savings would go to low-income households. As discussed above, this proportion is inequitable, given that the fraction of low-income population in Minnesota Power territory is closer to 30 percent. To achieve a meaningful reduction in energy cost burdens within its territory, Minnesota Power will need to ensure that at least one-third of the projected energy savings are attained in low-income communities. We recommend that Minnesota Power adopt the Very High efficiency scenario with the provision that one third of the projected energy savings go to low-income households. We estimate that this will more than quadruple the number of low-income households adopting energy-saving and bill-reducing measures annually. These efforts can be coupled with additional measures addressed in other dockets to comprehensively address energy cost burdens, such as the recently approved discounted time-of-day rates for low-income customers.⁸⁶



⁸³ Minnesota Power. 2021-2023 CIP Triennial Filing Docket No. E015/CIP-20-476

⁸⁴ Minnesota Legislature. (2021). <u>HF 164: Energy Conservation and Optimization Act of 2021</u>.

⁸⁵ Nelson, C. et al. (2018). <u>Minnesota Energy Efficiency Potential Study: 2020–2029</u>. Prepared for the Minnesota Department of Commerce, Division of Energy Resources.

⁸⁶ Citizens Utility Board. (2021). <u>Minnesota Power to Transition to Time-of-Day Rates</u>.

3.5.3 Existing Solar Distribution

Access to rooftop solar is not distributed evenly across income brackets in Minnesota. **Figure 16** shows that rooftop solar adoption in low-income communities significantly lags behind solar adoption among higher income households. Less than five percent of rooftop solar adopters are in the lowest-income quintile, while more than 40 percent of rooftop solar adopters are in the highest-income quintile.



Solar Adopter Income Distribution Minnesota (Installs in 2019)

Figure 16. Rooftop solar adoption by income bracket in Minnesota.⁸⁷

Low-income solar programs, such as community solar with virtual net metering, can enable subscribers who otherwise face substantial barriers to rooftop solar adoption to benefit from solar. In addition, when residential or community solar is coupled with energy storage systems, additional resilience benefits can be attained such as in the case of power outages. Resilience benefits may be particularly valuable in communities with frequent power outages, rural areas, and places facing climate disruption, and even more so for vulnerable populations, such as the elderly and those reliant on electricity to support medical equipment.

Minnesota Power's Low-Income Solar Program aims to create a long-term solar market for lowincome customers. Its dedicated funding recently increased to \$120,000 per year from 2021-2024 as the program moved out of the pilot phase,⁸⁸ but additional funding will be needed to reach a significant share of low-income households. Additional investments to fund a substantial increase in the number of community solar projects can help reduce electricity costs for a significantly larger pool of low-income customers.



⁸⁷ Image Source: Berkeley Lab. (2021). <u>Solar Demographics Tool.</u>

⁸⁸ Minnesota Power. (2022). <u>Minnesota Power's Low Income Solar Program</u>.

4. Key Findings and Discussion

Our analysis holds several key implications for the Minnesota Power IRP.

Boswell Energy Center: Under MP's 2021 Plan, Unit 3 at the Boswell Energy Center is expected to run through 2029, and Unit 4 through 2035, contributing to an approximate PM_{2.5}-related mortality impact of 47 individuals over 15 years from 2021-2035 (an average of three deaths per year). These health impacts fall disproportionately on Native populations by a factor of three. Based on historic water usage and coal ash disposal on site—in ponds near monitoring wells which have recorded pollutant exceedances of federal standards for numerous pollutants including arsenic—the plant is expected to dispose of 6,240 tons of waste and consume 7.1 billion gallons of water from 2021-2035. The plant is also located in a disproportionately low-income community with high cumulative socioeconomic burdens. Retiring Unit 3 by 2025 and Unit 4 by 2030 would save approximately 17-19 lives, reduce adverse health impacts by approximately \$200 million, reduce on-site disposal of 2,260 tons of waste, and save approximately 2.6 billion gallons of water.

Hibbard Energy Center: The magnitude of public health impacts of the Hibbard Energy Center are somewhat uncertain given changes in mill ownership and an unknown future distribution of electricity and steam generation at this plant. However, the biomass and coal combustion at the plant is associated with relatively high health impacts, and the ongoing use of this plant for any purpose will continue to have these health impacts. Moreover, it is the most urban power plant of those analyzed, and the nearby populations are disproportionately low-income and face high cumulative socioeconomic burdens. The ongoing use of Hibbard in MP's 2021 Plan means ongoing air pollutant emissions in this community, affecting those nearby and across the region.

Milton R. Young: Although located in North Dakota, Milton R. Young's emissions have significant health impacts in Minnesota as well as across the whole region. Milton R. Young's emission rates are higher for most pollutants than Boswell's, and the portion of electricity contracted for by Minnesota Power alone is modeled to cause roughly 3.5 mortalities per year. The decision in MP's 2021 Plan to reduce reliance on this plant may contribute to lower emissions if there are no other electricity off-takers, which would have great public health benefits across the region, in addition to reducing greenhouse gas emissions, local water consumption, and coal ash waste disposal. However, these reductions will not be realized if new long-term contracts support ongoing coal combustion at Milton R. Young.

NTEC: The proposed NTEC facility is located in a relatively low-income community with a higher number of people living nearby than any other facility analyzed except Hibbard. Moreover, the carbon dioxide emissions associated with future gas combustion at this facility only represent about half of the greenhouse gas impacts of this plant in the near term: inclusion



of nitrous oxide emissions and upstream fugitive methane associated with gas production, processing, and transmission suggests that the total climate impacts of the facility will be nearly double the direct CO₂ emissions over a 20-year timeframe. In addition, gas production is associated with the emissions of health-damaging air pollutants that can pose risks to communities living near gas production sites. Finally, if NTEC is required to retire early in a gas-constrained future—or grows increasingly expensive with future greenhouse gas pricing or natural gas price volatility—it may pose a risk as an expensive or stranded asset, and there is a risk these costs would get passed on to customers and exacerbate energy affordability concerns.

Energy Equity: Energy cost burdens within Minnesota Power territory are substantially higher in low-income census tracts with a high share of renters and a higher share of Black residents. These low-income areas and populations can benefit from energy-saving measures to help reduce energy cost burden inequities. Historically, MP's energy efficiency investments in lowincome communities have averaged 20 percent of total residential efficiency investments and projected low-income energy savings are only 13 percent of total projected residential energy savings. These numbers are not proportional to the share of the low- and moderate-income population in Minnesota Power territory, which we estimate to be around 30 percent of the total population. In order to achieve a meaningful reduction in energy cost burdens within its territory, Minnesota Power will need to adopt the Very High efficiency scenario with a provision that at least one third of all projected energy savings are attained in low-income households. We estimate that this will more than guadruple the number of low-income households adopting energy-saving and bill-reducing measures annually. In addition, Minnesota Power should invest significantly more in expanding rooftop and community solar programs that provide affordable electricity to low- and moderate-income households. Transparent data sharing for these programs would also enable more robust analysis to identify and mitigate energy cost burdens.





TO: Minnesota Pollution Control Agency.

RE: SECOND REQUEST FOR COMMENTS on Planned New Rules Governing Cumulative Impacts Analysis for Permit Decisions in Environmental Justice Areas, Minnesota.

From: Nahid Khan, resident of Brooklyn Center, MN.

DATE: Submitted May 21, 2025.

With reference to the following:

39398 Minnesota Pollution Control Agency Request for Comments on the Cumulative Impacts Rule

REQUEST FOR COMMENTS

Planned New Rules Governing Cumulative Impacts Analysis for Permit Decisions in Environmental Justice Areas, Minnesota Rules, chapters 7001, 7002, 7005, 7007, 7011, 7017, and 7019; Revisor's ID Number R-4805

OAH Docket No. 21-9003-39398

Presiding Judge: Administrative Law Judge Kimberly J. Middendorf

Comment Period: April 21, 2025, through 4:30 p.m. on May 21, 2025

I respectfully submit the following points for consideration:

 "Facility" or "facilities" should include highways and freeways, within an EJ area or within 1 mile of an EJ area, that are being proposed for any type of expansionistic construction work beyond road repairs and specific safety improvements, especially when they are intended to or are projected to increase traffic capacity and / or turn them into truck routes.

"Facility" or "facilities" should include significant rebuilding or expansion of existing highways and freeways (such as I-94 through Brooklyn Center and North Minneapolis, as well as I-94 through St. Paul), and especially construction of new ones, whether conversion of an existing boulevard, divided highway or expressway with at-grade signalized intersections (as with Hwy 252 through Brooklyn Center and Brooklyn Park), and especially entirely new ones.

- Environmental Justice areas should be considered holistically, and not allowed to be "atomized" such that smaller areas within them (such as blocks or groups of blocks) are separated out which happen to have residents with higher incomes or lower percentage of BIPOC, to make the false argument that the area therefore does not fall under EJ provisions.
- 3. New facilities, or existing facilities proposed for expansion, that are located next to or within 1 mile of a highway or freeway facility should receive extra scrutiny because of the combined cumulative impacts of air pollution from traffic on the highway or freeway facility and the industrial facility. The 1-mile designation reflects the EJ provision that facilities within 1 mile of an EJ area are to be considered under this rulemaking process.
- 4. Regarding public meetings on a community benefit agreement with any proposed facility, there should be at least one in-person community meeting and one virtual community meeting, and full accommodations should be made for people with any sort of barrier to full participation.
- The equity, health and especially environmental adverse impacts and irreparable harms of a facility potentially or likely to be imposed upon residents must be independently studied, measured, evaluated and assessed.

These must be fully communicated to the public in advance of opening up any community benefit discussion let alone a negotiation.

- 6. One or more independent neighborhood community organizations with no connections to the facility or conflicts of interest whatsoever must be involved as representatives of the people to review and provide feedback on any community agreement.
- 7. The equity, health and especially environmental adverse impacts and irreparable harms of a facility must be prioritized far above any claims of economic benefit to the residents of at least 1 mile around the area of the existing or proposed new facility. A supposed economic benefit is not much use to residents of EJ areas when their equity, health and environment are already compromised and in need of protection and improvement, rather than being made at risk of becoming worse through an expanded or new facility that is going to be an additional polluter in the area. Polluters ADD to the cost of residents' medical care, which means that the supposed economic benefit is questionable. Any claim of economic benefit is cancelled out by the added medical costs to individual people, families, residents and to society and the taxpayer in general. The medical costs at all levels might be well be more than any supposed economic benefit of jobs, wages / salaries, and job benefits, or the taxes that a facility might pay to any level of government, since those taxes might have to pay for health costs to society and cleanup costs to the environment: all of which will have to be borne by the taxpayer and various levels of government.

- 8. Claims of economic benefit must be investigated carefully, including claims of new jobs for area residents. It is well known that most jobs available at industrial facilities end up being given to workers who live well outside the area of the facility, indeed to workers in other cities entirely.
- 9. Claims that jobs and associated benefits are a community benefit should be treated skeptically, particularly when workers at the proposed facility may well be exposed to hazardous health and environmental conditions that force workers to spend more of their wages/salaries than they otherwise would have, on maintaining their health and especially on medical expenses resulting from damage to their health, and possibly their family members' health, because of the exposure to pollution from the facility.
- 10. I fully support the inclusion of a petition process to raise questions or oppose an existing facility being expanded or new facility being built. I request that the petition process be as simple as possible for any individual person or group of people or organization to follow, and that provisions be made such that the MPCA personnel assist the people in creating a petition as well as supporting their work to publicize it and help with submitting it, as well as push for it to be fully considered as it continues through the subsequent process of review, especially since the people conducting a petition are likely to be ordinary people, non-specialists, but concerned citizens, and MPCA is a state agency working on behalf of residents and taxpayers.
- 11. All surrounding facilities should be located and their levels of pollution should be studied so as to fully understand the cumulative impacts of existing pollution as well as to understand how the facility in question (existing one or proposed new one) will perform / interact with / add to in terms of pollution in relation to existing polluters, and expand cumulative adverse impacts and irreparable harms of air (and other types of) pollution.
- 12. Other state agencies are reaching out to diverse community organizations and places of worship to conduct community engagement, including MnDOT with regard to their Hwy 252 / I-94 project through Brooklyn Center, Brooklyn Park and North Minneapolis, as well as "rethinking" I-94 project through St. Paul-Minneapolis. The Met Council and Hennepin County is doing similar community engagement work for their Blue Line Light Rail Extension project from downtown Minneapolis to Brooklyn Park. I suggest that the MPCA also do similar types of community engagement work.
- 13. Many people are unable to read or understand many of your documents and presentations for various reasons, from limited education generally to limited English language ability. As a result, they also are unable to provide public comments. I suggest that you look at additional ways to provide information, including audio and video messaging rather than just written formats, involve a broader range of community members, and create additional ways for people to give you public comments, including verbal methods such as spoken in addition to written comments.