UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
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CHICAGO, IL 60604-3590

July 26, 2022

REPLY TO THE ATTENTION OF:
Mail Code RM-19J

VIA ELECTRONIC MAIL ONLY
(peter.steinour@usda.gov)

Peter Steinour
Environmental Protection Specialist
US Department of Agriculture - Rural Utility Service
1400 Independence Avenue, SW Stop 1548
Washington, District of Columbia 20250

Re: EPA Comments: Supplemental Environmental Assessment - Nemadji Trail Energy Center Project, Douglas County, Wisconsin

Dear Mr. Steinour:

The U.S. Environmental Protection Agency has reviewed the Supplemental Environmental Assessment (Supplemental EA) prepared for the proposed Nemadji Trail Energy Center (NTEC) Project in Douglas County, Wisconsin. Dairyland Power Cooperative (Dairyland) is proposing to participate with South Shore Energy, LLC, a subsidiary of ALLETE, Inc., and Nemadji River Generation, LLC, a subsidiary of Basin Electric Power Cooperative (Basin Electric) (together the "Owners"), in a one-on-one combined cycle natural gas turbine (CCGT) with an in-service date in 2027. Dairyland intends to request financial assistance from the U.S. Department of Agriculture (USDA) - Rural Utilities Service (RUS) under its Electric Loan Program for its share of the Project, thereby making the proposed project a federal action subject to the National Environmental Policy Act (NEPA). This letter provides our comments on the Supplemental EA, pursuant to NEPA, the Council on Environmental Quality's NEPA Implementing Regulations (40 CFR 1500-1508), and Section 309 of the Clean Air Act.

RUS previously published a Draft EA for NTEC in late 2020 and a Finding of No Significant Impact (FONSI) in June 2021. After the publication of the FONSI, RUS received several petitions from both non-profit organizations and Wisconsin tribes to rescind the FONSI and prepare a Supplemental EA to include an analysis of greenhouse gas (GHG) emissions and climate change, including the effects that increased GHG emissions would have on indigenous populations and treaty resources near the NTEC facility. RUS concurred that further analysis of the potential environmental impacts of the Proposed Action was warranted and the Supplemental EA was prepared to address the petitions filed.

EPA issued a comment letter in response to RUS's October 2020 Draft EA on November 30, 2020. Additional comments and recommendations within this letter are limited to the scope of the Supplemental EA, focusing on greenhouse gases, climate change, and impacts to indigenous populations and treaty rights. Following submittal of our November 2020 comment letter, the President has issued multiple Executive Orders related to climate change. For example, *Executive Order 14008: Tackling the Climate Crisis at Home and Abroad* states, "*The United States and the world face a profound climate crisis. We have a narrow moment to pursue action…to avoid the most catastrophic impacts of that crisis and to seize the opportunity that tackling climate change presents*." EPA's review of the 2022 Supplemental EA builds on our December 2020 letter to more fully consider climate change, in line with current climate science and federal policies and directives.

The Supplemental EA does not fully quantify or adequately disclose the impacts of the GHG emissions from the proposed action. EPA recommends that the analysis include quantified estimates of all indirect GHG emissions from the proposed project over its anticipated lifetime, *including reasonably foreseeable emissions from the production, processing, and transportation of natural gas*, as supported by CEQ's preamble to its notice of proposed rulemaking relating to NEPA Implementing Regulations Revisions[1]. Calculations of upstream, construction-related, and indirect GHG emissions, along with the direct emissions already estimated in the Supplemental EA, would provide essential information to the public and RUS decisionmakers. These emissions and more appropriate disclosure of their social cost are critical to disclosing the total climate impact of the proposed action. These impacts include implications for climate justice, given that communities with environmental justice concerns, underserved populations, and tribal nations are disproportionately impacted by climate change[2]. In addition, the Supplemental EA contained no qualitative discussion of the climate impacts resulting from the proposed project.

The preferred alternative would result in substantial GHG emissions and associated environmental impacts, and mitigation options and reasonable project modifications to reduce GHG emissions were not fully analyzed in the Supplemental EA. RUS should consider additional conditions for the Owners to receive federal funding, including requiring mitigation of the environmental impacts of the proposed action, such as co-firing with and eventually moving

[1] "[A]ir pollution, including greenhouse gas emissions, released by fossil fuel combustion is often a reasonably foreseeable indirect effect of proposed fossil fuel extraction that agencies should evaluate in the NEPA process, even if the pollution is remote in time or geographically remote from a proposed action. And even where an agency does not exercise regulatory authority over all aspects of a project, it may be appropriate to consider and compare the air pollution and greenhouse gas emission effects that the proposal and the reasonable alternatives would have on the environment, even if the agency does not have control over all of the emissions that the alternatives would produce. The consideration of such effects can provide important information on the selection of a preferred alternative; for example, an agency decision maker might select the no action alternative, as opposed to a fossil fuel leasing alternative, on the basis that it best aligns with the agency's statutory authorities and policies with respect to greenhouse gas emission mitigation." 86 FR 55757, 55763 (2021).

[2] See, e.g., Climate Change and Social Vulnerability, EPA (2021). https://www.epa.gov/system/files/documents/2021-09/climate-vulnerability_september-2021_508.pdf

to 100% clean hydrogen[3], or installation of carbon capture equipment at the proposed facility. In the enclosed detailed comments, EPA has provided a table of current examples being implemented. Incorporating mitigation would show leadership in line with the federal policy priority to reduce climate risks and could also reduce regulatory risks for ratepayers.

As discussed in our detailed comments, EPA strongly recommends the proposed action be modified to mitigate expected climate impacts, and that the informational deficiencies be remedied for the public and RUS decisionmakers. Without upstream, construction-related activities, and indirect GHG emission estimates, it is not clear that project GHG emissions would be lower than GHG emissions in the without-NTEC scenario discussed in Appendix B. Our detailed comments include recommendations for consistent disclosure and consideration of upstream and downstream emissions, analyzing GHG emissions in the context of national GHG reduction policies and state reduction targets, disclosing the climate impacts by using the estimated social cost of GHGs, consideration of non-gas alternatives, improving the application of mitigation measures, considering longer term impacts including carbon-lock-in and stranded assets, incorporating climate adaptation, and considering climate-related environmental justice.

We look forward to working with you as this project advances and to reviewing future NEPA documents prepared for this project. Please send us an electronic copy of future NEPA documents, including the decision document, for this project. If you have any questions or comments regarding the contents of this letter or would like to discuss our comments in more detail, please contact the lead NEPA reviewer, Liz Pelloso, at 312-886-7425 or via email at pelloso.elizabeth@epa.gov.

Sincerely,

JENNIFER TYLER

Digitally signed by JENNIFER TYLER
Date: 2022.07.26 13:16:09 -05'00'

Jennifer Tyler
Acting Deputy Director
Tribal and Multimedia Programs Office

cc (via email):
Paul Winters, EPA (winters.paul@epa.gov)
Wayne Dupuis, Fond du Lac Resource Management Division (wayne.dupuis@fdlrez.com)
Linda Nguyen, Red Cliff Environmental Director (linda.nguyen@redcliff-nsn.gov)

[3] Two types of hydrogen production are referred to as "clean" hydrogen - blue and green. Blue hydrogen uses the Steam Methane Reformation process with the addition of carbon capture technology. Green hydrogen is an emerging technology that separates hydrogen from water molecules via electrolysis. As long as zero-emissions electricity is the power source, green hydrogen results in no direct emissions and is one of the cleanest forms of production. See Rhodium Group, "Clean Hydrogen: A Versatile Tool for Decarbonization" https://rhg.com/research/clean-hydrogen-decarbonization/

EPA Detailed Technical Comments and Recommendations
Supplemental EA - Nemadji Trail Energy Center Project (Douglas Co, WI)
July 26, 2022

1. **Consider regulatory, policy, and energy transition trends that will affect new plants, as well as appropriate mitigations.**

   A variety of State and Federal regulations are likely to affect the power sector in the coming decades. In general, these regulatory efforts aim to reduce fossil fuel emissions. There are also forecasts of declining costs and increasing adoption of renewable generation as well as increased electricity demand from increased electrification. Coal and natural gas combustion are relatively mature technologies that have limited potential for further cost-saving innovations.

   Multi-decade time horizons associated with new or refurbished natural gas electric generating units (EGUs) present financial risks to owners and ratepayers. Many coal plants are already uneconomic. Natural gas plants could become similarly pressured in the face of stiff competition from renewable sources with lower climate risk and cost-reduction potential[4]. Many natural gas EGUs are over 30 years old with the capacity-weighted age of the current U.S. natural gas fleet around 22 years[5]. Numerous coal-fired power plants have operated continuously for even longer periods, with the average age of operating U.S. coal plants currently at 45 years[6]. Given that initial fixed costs represent a large share of total or levelized costs for these fossil fuel sources, locking them in risks locking in higher costs for plant owners and ratepayers. Investing in long-lived combustion turbines due to inaccurate expectations about the costs of alternatives may lead to higher overall costs. Moreover, long-lived fossil assets may become uneconomic faster than expected if alternatives and mitigation are not fully considered.

   EPA offers the following specific recommendations to consider and mitigate regulatory and energy transition risks:

   a) *Project proponents should consider site characteristics that could promote or impede responses to regulatory and technology developments.*

      EPA recommends the project proponents and RUS consider the infrastructure and siting requirements related to the need for future potential carbon mitigation measures at combustion turbines. The project proponents should also provide the total costs for these mitigation measures so that risks of financial impact are fully understood. This should include assessment of the following: 1) space to locate carbon capture equipment or electrolyzers for clean hydrogen production; 2) pipeline routes and

[4] Report Release: Headwinds for US Gas Power - Six Trends Eroding the Business Case for New Gas Power Plants https://rmi.org/report-release-headwinds-for-us-gas-power/

[5] U.S. utility-scale electric generating capacity by initial operating year (as of Dec 2016), U.S. Energy Information Administration - Independent Statistics and Analysis https://www.eia.gov/todayinenergy/detail.php?id=34172

[6] U.S. coal power plant capacity by initial operating year (1950-2021), U.S. Energy Information Administration - Independent Statistics and Analysis https://www.eia.gov/todayinenergy/detail.php?id=50658

storage sites for potential CO_2 sequestration; and 3) any pipeline and/or storage needs associated with clean hydrogen.

b) *RUS should disclose why carbon mitigation options were not included or should otherwise analyze those options.*

Renewables and storage are not only projected to continue declining in cost over time while substantially reducing GHG and non-GHG pollution, but also to help stabilize domestic energy supply, e.g., renewable energy is less subject to global price fluctuations than natural gas[7].

Before the Final EA is published, EPA recommends that RUS and the project proponents provide a detailed explanation of why options that included carbon mitigation were not more fully considered. The alternatives considered did not include information on transitioning the turbines in the preferred alternative to lower GHG emitting technologies, e.g., use of hydrogen as an alternate fuel, or implementation of carbon capture and storage (CCS), nor was an analysis provided on the potential resulting emissions reductions. Neither the Draft EA nor the Supplemental EA considered access to clean hydrogen and/or carbon sequestration sites or the ability to construct to add post combustion CCS. Given the trends noted above, the Final EA should explain the rationale to not to consider them or address such considerations.

RUS and the project proponents should review EPA's draft whitepaper on GHG measures for turbines[8]. For illustration, the EPA has included Table 1, below, containing a list of hydrogen and CCS projects currently under development with online dates in the 2025/2026 timeframe. EPA recommends that RUS and the project proponents evaluate these types of technologies as mitigation options and discuss short or long-term plans for reducing GHG emissions from new fossil assets like the turbines proposed in the preferred alternative.

Table 1: Turbine projects with GHG mitigation technologies in development in 2026 timeframe

Type of Project	Location	Developer	Amount of Carbon Mitigation	Current Status	Next Expected Milestone	Projected On-line Date
Projects Where Construction Contract Has Been Awarded						
Hydrogen co-firing	Utah	Intermountain Power[9]	30% Green Hydrogen Co-firing on day 1	Contracts Awarded For manufacture and construction	December 2022- Award hydrogen contract	July 2025

[7] EPA. 2018. Quantifying the Multiple Benefits of Energy Efficiency and Renewable Energy: A Guide for State and Local Governments, EPA-430-R-18-00000

[8] https://www.epa.gov/stationary-sources-air-pollution/white-paper-available-and-emerging-technologies-reducing

[9] https://www.ipautah.com/ipp-renewed/#

Type of Project	Location	Developer	Amount of Carbon Mitigation	Current Status	Next Expected Milestone	Projected On-line Date
Projects On-line with Stated Commitment to Run on Green Hydrogen						
Hydrogen Co-firing	Ohio	Long Ridge Power Project[10]	Currently capable of burning 20% hydrogen	5% hydrogen Test Burn Completed in April 2022	Procure Green Energy	Currently on-line
Projects Where Decision to Build Is Expected Soon						
Oxy Combustion Turbine	Southern Ute Reservation, Colorado	Coyote Clean Power[11], NET Power	100% Carbon Capture	February 2022 – Interconnection Application Filed	Final Investment Decision Expected in 2022	2025
Oxy Combustion Turbine	Illinois	ADM[12] – NET Power	100% Carbon Capture	April 2021 Agreement in principle	Final Investment Decision Expected in 2022	2025
Oxy Combustion Turbine	UK	Sembcorp Energy – NET Power – Whitetail Energy[13]	100% Capture	July 2021 – project announced 2022 – Pre-FEED Study Completed	Regulatory Approval?	2025
Projects Considering Retro-fit CCS						
Retrofit CCS	Texas	Deer Park Energy Center[14]	95% capture	FEED study underway	TBD	TBD
Retrofit CCS	CA	Delta Energy Center[15]	95% capture	FEED study underway	TBD	TBD

[10] https://www.longridgeenergy.com/news/2020-10-13-long-ridge-energy-terminal-partners-with-new-fortress-energy-and-ge-to-transition-power-plant-to-zero-carbon-hydrogen

[11] https://www.prnewswire.com/news-releases/coyote-clean-power-begins-wapa-interconnection-301479049.html

[12] https://www.powermag.com/8-rivers-unveils-560-mw-of-allam-cycle-gas-fired-projects-for-colorado-illinois/ and https://www.prnewswire.com/news-releases/8-rivers-capital-adm-announce-intention-to-make-illinois-home-to-game-changing-zero-emissions-project-301269296.html

[13] https://energydigital.com/renewable-energy/whitetail-appoints-atkins-uks-first-net-zero-plant

[14] https://www.regulations.gov/comment/EPA-HQ-OAR-2022-0289-0016

[15] Ibid.

Type of Project	Location	Developer	Amount of Carbon Mitigation	Current Status	Next Expected Milestone	Projected On-line Date
Additional Hydrogen Turbine Projects Under Development						
Hydrogen Turbine	TX	Orange County Advanced Power Station[16]	30% hydrogen co-firing on day 1	Seeking PUC approval	Decision expected September 2022	May 2026
Electrolyzers Being Installed to Supply Green Hydrogen for Existing Turbine Project						
Electrolyzer	FL	Cavendish Next Gen Hydrogen Hub[17]	25 MW	Contract for Electrolyzer Awarded, Feb. 2022		

2. **Consider project modifications to address all practicable mitigation measures.**

Table 3.5 of the Supplemental EA summarizes Technically Feasible GHG technologies for combustion turbines, yet notes that many mitigation technologies, both pre-and post-combustion, were deemed "infeasible." EPA disagrees with these conclusions.

Specifically, neither the Supplemental EA nor Appendix A discussed the potential for use of zero or carbon neutral fuel, such as hydrogen (H_2), synthetic (renewable) methane, or ammonia (NH_3). The most common approach today to tackle pre-combustion decarbonization is to change the fuel. An advantage of gas turbines is that they are able to operate on many other fuels besides natural gas. Some of these fuels, such as hydrogen, do not contain carbon and will therefore not emit CO_2 when combusted. Furthermore, H_2 can be introduced to new gas turbines and existing gas turbines alike, reinforcing the concept that solutions are available today to decarbonize assets already in the field and those waiting to be installed. The possibility of burning hydrogen in a gas turbine avoids the potential "lock-in" of CO_2 emissions for the entire life of the power plant. While natural gas was selected as the fuel for the proposed project, the Supplemental EA did not discuss alternate sources of fuel as a means to reduce GHGs, both now and in the future.

The Supplemental EA and Appendix A also stated that post combustion CO_2 capture was deemed infeasible. Appendix A states, "*No commercially available post-combustion CO_2 capture systems are known to have been installed at large power plant other than pilot-scale demonstration projects*." This is inaccurate, as noted by information provided above in

[16] https://www.naturalgasintel.com/texas-combined-cycle-natural-gas-hydrogen-project-proposed-by-entergy/
[17] https://www.businesswire.com/news/home/20220228005567/en/FPL-Announces-Cummins-to-Supply-Electrolyzer-for-%20Florida%E2%80%99s-First-%E2%80%9CGreen%E2%80%9D-Hydrogen-Plant-%E2%80%93-Potential-Key-to-Carbon-Free-Electricity

Table 1 and in recent studies[18]. When it comes to the actual process of capturing CO_2 the most mature option today, and the baseline for all other carbon capture technologies, is the post-combustion technology of Amine Carbon Capture. In addition to the benefit of applying Carbon Capture and Utilization or Sequestration (CCUS) to existing assets, it can also be deployed as a modular solution, allowing for incremental amounts of carbon reduction with each additional module deployed. This translates to greater optionality for plant owners, taking either a phased approach by deploying carbon capture systems over years and spreading out the capital expenses over a longer period, or an immediate approach by building out the carbon capture system to full capacity in one go. Similar to introducing hydrogen to a plant, CCUS can be applied to both new and existing gas power plants, again avoiding lock-in of CO_2 emissions for the life of the power plant. The Supplemental EA did not discuss the potential for and option to implement post combustion CO_2 capture at the proposed project.

Additionally, EPA recommends the use of switchgears that are sulfur hexafluoride (SF_6) free for the proposed project, and system wide as larger switchgears become available[19]. The Supplemental EA indicates that small leaks of SF_6 are expected from gas-insulated circuit breakers (the circuit breakers will be sealed so SF_6 leakage will be minimized but will still occur). SF_6 is the most potent known GHG and is approximately 26,000 times more effective at trapping infrared radiation than carbon dioxide. SF_6 is also a very stable chemical, with an atmospheric lifetime of 3,200 years. Thus, a relatively small amount of SF_6 from each of the thousands of switchgears associated with the energy sector can have a major impact. Emissions of SF_6 also come from the manufacture and recycling of SF_6, as well as charging, repairing, and decommissioning the switchgears. As such, EPA recommends use of switchgears that are SF_6-free for the proposed project.

Finally, EPA recommends that RUS require adoption of the recommendations in EPA's Methane Challenge program to reduce potential GHG emissions attributable to the project[20].

3. **Disclose all direct and indirect GHG emissions for the proposed project.**

The Supplemental Draft EA included incomplete estimates of GHG emissions. While Table 3-6 presented estimates of CO_2, CH_4 and N_2O emissions, these estimates did not include indirect (fugitive) emissions or upstream emissions. It is also not clear that these estimates included emissions emanating from construction. As is stated in Section 3.2.2.1.1 - Construction, construction emissions would be temporary and once construction activities are completed, emissions from those activities would end. The expected decrease over time in construction-related emissions does not appear to be reflected in the emission estimates provided in Table 3-6 of the Supplemental EA. Without upstream, construction-related activities, and indirect GHG emission estimates, it is not clear that project emissions will be lower than GHG emissions in the without-NTEC scenario discussed in Appendix B.

[18] See this article for a case study of technology installed in Utah. Palash Panja, Brian McPherson, Milind Deo. Techno-Economic Analysis of Amine-based CO_2 Capture Technology: Hunter Plant Case Study, Carbon Capture. Science & Technology, Volume 3, 2022, 100041, ISSN 2772-6568. Available online: https://doi.org/10.1016/j.ccst.2022.100041

[19] https://www.epa.gov/eps-partnership

[20] https://www.epa.gov/natural-gas-star-program/recommended-technologies-reduce-methane-emissions

Additionally, GHG emissions should be analyzed in the context of national and state GHG reduction targets and policies, including Governor Evers' order that Wisconsin achieve a goal of ensuring all electricity consumed within the State of Wisconsin is 100 percent carbon-free by 2050[21]. A revised analysis should inform and improve RUS's consideration of mitigation measures and climate adaptation. Also, as recommended in detail below, this discussion should inform improved disclosure of climate impacts using the estimated social cost of GHGs (SC-GHG).

Direct Emissions

The Supplemental EA states that project modeling shows a "*net decrease in GHG emissions*" is expected in the Midcontinent Independent System Operator (MISO) west region by an average of 964,000 tons per year (from 2025-2040) by eventually displacing coal generation and requiring less frequent operation of less efficient fossil fuel units. It is not clear if this projected "net decrease" was calculated solely against a "business as usual" baseline. EPA recommends that such calculation should also be estimated against decarbonization pathways that are necessary to meet science-based targets for GHG reductions, e.g., in the Long-Term Strategy of the United States[22].

Net GHG emissions calculations and assumptions for displacement of higher emitting alternative fuels are complex. EPA recommends that RUS and project proponents use a peer reviewed model or approach for the assessment and disclose all assumptions and levels of uncertainty associated with the analysis. Experts at EPA's National Center for Environmental Economics (NCEE) are available for assistance, as needed.

The Supplemental EA did not discuss the project's GHG emissions in the context of national GHG emission reduction goals over the anticipated project lifetime. It also did not address the increasing conflict over time between continued emissions and national GHG emissions reduction goals, including ways to avoid or mitigate that conflict, which increases over time, created by projects that otherwise expand and lock-in fossil fuel consumption[23].

Upstream and Downstream (Indirect) Emissions

Petitions for the Supplemental EA requested that climate impacts of upstream methane emissions during extraction and due to leaks be assessed for the Proposed Action. Page 3-27 of the Supplemental EA states, "*Specific sources of natural gas to be transported to the NTEC facility are unknown and may change through the operation of NTEC. Due to this, the environmental impacts of upstream natural gas production are not reasonably foreseeable to predict with any specificity*."

We appreciate that the Supplemental EA quantifies construction and operational GHG emissions in carbon dioxide equivalents (CO2e) in Table 3-6. However, the

[21] https://evers.wi.gov/Documents/EO%20038%20Clean%20Energy.pdf

[22] www.whitehouse.gov/wp-content/uploads/2021/10/US-Long-Term-Strategy.pdf

[23] Recent Intergovernmental Panel on Climate Change (IPCC) reports conclude that we have less than a decade to transition for fossil fuels to clean energy if we are to stay below 1.5 degrees Celsius warming. IPCC, 2022: Climate Change 2022, Impacts, Adaptation, and Vulnerability, Sixth Assessment Report of the Intergovernmental Panel on Climate Change. February 2022.

Supplemental EA did not adequately quantify indirect emissions, as noted above. EPA recommends quantification of all upstream and downstream GHG emissions associated with the proposed action, as supported by CEQ's preamble to its notice of proposed rulemaking relating to NEPA Implementing Regulations Revisions[24]. Federal agencies have a legal obligation to consider direct and indirect impacts including upstream and downstream emissions caused by production, processing, transportation, and consumption of the project's resources.

EPA asserts that both upstream and downstream GHG emissions are reasonably foreseeable and are indirect impacts of the proposed project. The reasonably foreseeable impacts from those production and consumption activities are both causally connected to the proposed project and possible to estimate in a manner that provides reliable, important information to decisionmakers and the public for purposes of NEPA. We recommend that RUS use EPA's *Inventory of U.S. GHG Emissions and Sinks* as the basis to develop generalized upstream emission estimates and contact EPA for assistance, if needed.[25]

4. **Require a Social Cost of Greenhouse Gases (SC-GHG) analysis to accurately reflect the proposed project's monetized cost, incorporating climate impacts from both direct and indirect GHG emissions.**

EPA strongly recommends that agencies use estimates of the SC-GHG[26] to assess climate impacts and help weigh their significance in cost-benefit balancing for proposed projects. Estimates of the SC-GHG reflect the best available science and methodologies to monetize the value of net changes in direct and indirect GHG emissions resulting from a proposed action to society. The estimates provide the decisionmakers and public meaningful information on the impacts of the project's GHG emissions for NEPA purposes including disclosing GHG impacts and benefits of mitigation and for comparison across alternatives.

The SC-GHG is the monetary value of the net harm to society associated with adding a small amount of that GHG to the atmosphere in a given year. In principle, it includes the value of all climate change impacts (both negative and positive), including (but not limited to) changes in net agricultural productivity, human health effects, property damage from increased flood risk and natural disasters, disruption of energy systems, risk of conflict, environmental migration, and the value of ecosystem services. In practice, estimates of the SC-GHG are unable to include all of the important physical, ecological, and economic impacts of climate change due to data and modeling limitations

SC-GHG estimates help describe the social benefits of reducing emissions of GHGs and the social costs of increasing such emissions. This makes these estimates useful to

[24] 86 FR 55757, 55763 (2021).
[25] EPA's Inventory of U.S. Greenhouse Gas Emissions and Sinks is available at: https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks
[26] SC-GHG collectively refers to the SC-CO_2 and other GHGs (including, for example, the social cost of methane (SC-CH_4) and social cost of nitrous oxide (SC-N_2O)).

analyses across a broad spectrum of proposed actions. The SC-GHG estimates provide a monetary measure (in U.S. dollars) of the future stream of damages associated with a metric ton of GHG emissions in a particular year. The effect of GHG emissions on the climate system and, in turn, on public welfare involves a multitude of complex processes and endpoints. By mapping those effects into a single dollar denominated value, the SC-GHG estimates provide a measure of impacts that are more easily understood by decision makers and the public than a measure of metric tons of emissions and can be compared to other values denominated in dollars.

The SC-GHG estimates can also help agencies analyze and disclose aggregate and cumulative climate change impacts over time. Reporting total GHG emissions over the life of a proposed action in metric tons does not disclose or explain when and how society will be affected by those emissions. The SC-GHG estimates are emissions-year specific, so applying the SC-GHG estimate corresponding to each year of emissions change provides a more comprehensive assessment of the climate damages expected from a proposed action. This long-term view is relevant because many fossil fueled projects seek approval for decades or more.

Using emissions from Table 3-6 of the Supplemental EA, applying the social cost of GHG (assuming 2020 dollars), and assuming the project would run from 2025-2040, EPA calculated the total SC-GHG and the SC by individual GHG in the following tables. Assuming the GHG estimates in Table 3-6 reflect operating and downstream (combustion turbine) emissions, the present value of aggregated climate damages from these emissions from 2025 to 2040 would be $2.15 billion dollars (in 2020 dollars) using the interim estimates of the social cost of CO_2, CH_4 and N_2O.

Total; Present Value of GHG Emission Changes (in millions, 2020$)

GHG	Total	Total	Total	Total
Discount Rate	5.00%	3.00%	2.50%	3%
Statistic	avg	avg	avg	95th
Present Value in 2025 (N Periods, 2020$)	$616	$2,150	$3,195	$6,349

Present Value of CO_2 Emission Changes (in millions, 2020$)

GHG	CO_2	CO_2	CO_2	CO_2
Discount Rate	5.00%	3.00%	2.50%	3%
Statistic	avg	avg	avg	95th
Number of periods (N)	16	16	16	16
Present Value in 2025 (N Periods, 2020$)	$471	$1,684	$2,511	$5,112

Present Value of CH_4 Emission Changes (in millions, 2020$)

GHG	CH_4	CH_4	CH_4	CH_4
Discount Rate	5.00%	3.00%	2.50%	3%
Statistic	avg	avg	avg	95th
Number of periods (N)	16	16	16	16
Present Value in 2025 (N Periods, 2020$)	$13	$30	$39	$79

Present Value of NO Emission Changes (in millions, 2020$)

GHG	N_2O	N_2O	N_2O	N_2O
Discount Rate	5.00%	3.00%	2.50%	3%
Statistic	avg	avg	avg	95th
Number of periods (N)	16	16	16	16
Present Value in 2025 (N Periods, 2020$)	$133	$436	$645	$1,157

5. **Consider and disclose climate resilience and adaptation planning in project design.**

The long-lived nature of natural gas infrastructure makes consideration of the ongoing and projected impacts of climate change extremely important. Infrastructure designed for historical climate trends is more vulnerable to future weather extremes and climate change. Impacts include, but are not limited to, changes to energy performance and corrosion of structures. The potential impacts of climatic changes on the proposed action should be discussed as part of the potential implications to flooding, changes to public safety, and reliability. EPA recommends that additional information be provided on how climate resiliency has been considered in the design of the proposed action. We also recommend that the RUS require consideration and disclosure of climate resilience and adaption planning in project design, including measures to ensure resilience to protect infrastructure investments from the effects of climate change on the project. By considering potential climate change impacts, RUS would help ensure that investments made today continue to function and provide benefits, even as the climate changes. This would also help RUS avoid making infrastructure investments in vulnerable locations, along with unintended impacts to local communities.

6. **Address Tribal and environmental justice concerns and mitigate disproportionate impacts.**

Communities with environmental justice (EJ) concerns are disproportionately affected by, and vulnerable to, climate change[27]. The increased vulnerability to climate risks and impacts should be explicitly factored into evaluations of the cumulative impact of the project on overburdened communities, consistent with section 219 of E.O. 14008. Section 3.3.2.1 of the Supplemental EA discusses impacts that will be borne by tribes, including limited access to, or closing of the fishing access at 18th Street and the Nemadji canoe launch during construction. While these impacts may be temporary, the proposed siting of the facility on the Nemadji River will result in increased traffic and operational noise near the 18th Street fishing access, which would likely be permanent. Construction of the proposed transmission line associated with the project would require tree and woodland clearing in portions of the Allouez Area Parcel 1 hunting area, the Itasca Area hunting area, and the Annex hunting area. Access to these areas would also be restricted during construction. The Supplemental EA did not discuss how these impacts would be remedied or mitigated. In addition, it's

[27] EPA. 2021. Climate Change and Social Vulnerability in the United States: A Focus on Six Impacts. U.S. Environmental Protection Agency, EPA 430-R-21-003. www.epa.gov/cira/social-vulnerability-report

unclear how closely RUS and the project proponents have engaged tribes to learn of potential impacts; direct input from impacted tribes is essential to understanding how the project could impact tribal resources, cultural practices, and treaty rights.

EPA recommends that RUS disclose coordination with tribes to date and discuss whether the level of engagement was sufficient to reach an understanding of potential impacts to tribal resources, cultural practices, and treaty rights; supplement outreach prior to the Final Supplemental EA if robust engagement has not already occurred. In addition, consider whether communities may already be experiencing existing pollution and social/health burdens and how the proposed project may potentially result in disproportionate impacts in that context. EPA recommends that the project proponents and RUS determine if any impacts to tribal communities or any identified communities with EJ concerns will be disproportionally high or adverse. We also recommend that RUS document (1) how input from these populations and communities will be considered and incorporated into specific mitigation and adaptation decisions; (2) mitigation measures and best practices for construction impacts to the specific hunting areas listed above; and (3) how consideration of non-gas alternatives and mitigation of GHGs can reduce climate impacts on these communities and produce co-benefits such as reducing air pollution.

We are unable to tell if EJSCREEN[28] was utilized to identify and clarify EJ concerns regarding the Project. For reference, EPA notes that a new version of EJSCREEN, titled EJSCREEN 2.0, became available for public use in February 2022. This version provides a streamlined interface; up-to-date indices and indicators; and new demographic, environmental, and public health data sets. EPA encourages RUS to use this EPA tool.

[28] https://www.epa.gov/EJScreen