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MONTANA THIRTEENTH JUDICIAL DISTRICT COURT
YELLOWSTONE COUNTY

MONTANA ENVIRONMENTAL INFORMATION CENTER and NORTHERN PLAINS RESOURCE COUNCIL, Plaintiffs, v. MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY, Defendant.	Case No. **COMPLAINT FOR DECLARATORY RELIEF**

INTRODUCTION

1. Greenhouse gas emissions are the most significant driver of human-caused climate change. *Held v. Montana*, No. CDV-2020-307 (1st Dist. Ct. Mont., Aug. 14, 2023) ¶ 91, *aff'd* 2024 MT 312.[1] These emissions are "drastically altering and degrading Montana's climate, rivers, lakes, groundwater, atmospheric waters, forests, glaciers, fish, wildlife, air quality, and ecosystem." *Held v. State*, 2024 MT 312, ¶ 29, 419 Mont. 403, 560 P.3d 1235.

2. Fossil-fuel-burning power plants, like NorthWestern's Yellowstone County Generating Station ("YCGS"), are "the largest contributor of greenhouse gas emissions in Montana."[2] Greenhouse gas emissions harm human health, the environment, and the economy. "Anthropogenic climate change is impacting, degrading, and depleting Montana's environment and natural resources, including through increasing temperatures, changing precipitation patterns, increasing droughts and aridification, increasing extreme weather events, increasing severity and intensity of wildfires, and increasing glacial melt and loss." *Held*, ¶ 29. Every additional ton of greenhouse gases emitted into the atmosphere exacerbates the impacts to the climate and these harms. *Held*, No. CDV-2020-307, ¶¶ 91–92.

3. This case challenges the Supplemental Final Environmental Assessment ("Final EA") issued by the Montana Department of Environmental Quality ("DEQ") on August 1, 2025, relating to the YCGS, a 175-megawatt gas-fired power plant located approximately 300 feet from the north bank of the Yellowstone River near Laurel, Montana. Final EA at 6. A true and accurate copy of the Final EA is attached as Exhibit 3.

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[1] A true and accurate copy of the cited decision from the First Judicial District Court is attached as Exhibit 1.

[2] MONTANA DEQ, *Montana Climate Solutions Plan* at 21 (2020) (attached as Exhibit 2).

4. The Final EA fails to adequately evaluate the environmental impacts of YCGS's greenhouse gas emissions, despite the Montana Supreme Court's clear direction to DEQ in January 2025 to consider and disclose such information. *Mont. Env't Info. Ctr. v. Mont. Dep't of Env't Quality*, 2025 MT 3, ¶ 61, 420 Mont. 150, 561 P.3d 1033 (hereinafter "*MEIC 2025*"). Not only is such an evaluation of climate impacts demanded by the Montana Environmental Policy Act ("MEPA"), but the Court also held that the State's refusal to consider this information would violate Montanans' right to a clean and healthful environment, Mont. Const. Art II, § 3. *Held*, ¶ 68.

5. Here, DEQ failed to take a "hard look" at the climate-related impacts of YCGS's greenhouse gas emissions—including direct, secondary, and cumulative impacts—and no-action alternatives or potential mitigation measures to avoid those impacts, as MEPA requires. As a result, DEQ thwarted MEPA's core purposes of implementing the constitution, informing the public, and ensuring the legislature fully consider "environmental attributes … in enacting laws to fulfill constitutional obligations." MCA § 75-1-102(1) (2021).

6. Plaintiffs request that this Court declare that the Final EA violates MEPA, vacate the Final EA, and order DEQ to complete an analysis that complies with MEPA, the Montana Constitution, and the Montana Supreme Court's directive in *MEIC 2025*.

JURISDICTION AND VENUE

7. Plaintiffs bring this action pursuant to the Uniform Declaratory Judgments Act, MCA §§ 27-8-201, 202, and MEPA, MCA § 75-1-101 et seq (2021).[3]

[3] All citations to MEPA are to the 2021 version of the MEPA statutes of the MCA unless otherwise indicated.

8. Venue is proper in this District because the YCGS is located within Yellowstone County, Montana. MCA § 25-2-126(1); MCA § 75-1-108.

PARTIES

9. Plaintiff Montana Environmental Information Center ("MEIC") is a non-profit environmental advocacy organization founded in 1973 by Montanans concerned with protecting and restoring Montana's natural environment. MEIC plays an active role in promoting Montana clean energy projects and policies, including advocating for the expansion of responsibly sourced renewable energy and increased energy efficiency, while opposing unnecessary reliance on fossil fuel energy that leads to air and water pollution and contributes to climate change. MEIC is also dedicated to assuring that state agencies comply with and fully uphold state laws and constitutional provisions that are designed to protect the environment from pollution. MEIC has approximately 5,000 members and supporters, many of whom are in NorthWestern's Montana service territory and seek increased access to affordable renewable energy. MEIC and its members have intensive, long-standing health, recreational, aesthetic, professional, and economic interests in the responsible production and use of energy, the reduction of greenhouse gas pollution as a means to ameliorate the climate crisis, and the protection of land, air, water, and communities impacted by fossil-fuel energy projects and other industrial development. MEIC members live, work, and recreate in areas that are adversely impacted by DEQ's approval of the YCGS. MEIC brings this action on its own behalf and on behalf of its adversely affected members.

10. Plaintiff Northern Plains Resource Council ("NPRC") is a grassroots conservation and family agriculture group founded in 1972 by local ranchers concerned about the threats that fossil fuels posed to their land, livelihood, and ability to make a living from ranching. For decades NPRC has worked with other citizen groups and played a key role in the passage of

Montana's basic environmental protection laws including the Major Facility Siting Act, Hard Rock Mining Impact Act, Water Use Act, Strip Mining and Reclamation Act, Coal Conservation Act, Coal Severance Tax Act, as well as the federal Surface Mining Control and Reclamation Act of 1977. Today, NPRC continues to organize Montanans to support a healthy, localized, and sustainable economy in farm and ranch country, and surrounding urban areas. NPRC builds strong grassroots leaders dedicated to staying informed of the environmental impacts of fossil fuel infrastructure and generation and preventing excess pollution. NPRC unites roughly 3,500 dues-paying members across Montana who rely on healthy water, land, air, and working landscapes to support their livelihoods. NPRC members live, work, and recreate in areas that are adversely impacted by DEQ's approval of the YCGS. NPRC brings this action on its own behalf and on behalf of its adversely affected members.

11. The legal violations alleged in this complaint cause direct injury to MEIC and NPRC members' health, recreational, property, and aesthetic interests. The challenged decision authorizes construction of a natural gas power plant that increases emissions of greenhouse gases that are contributing to harmful climate change without thoroughly analyzing that harm and alternatives to avoid or mitigate it. Additionally, the challenged decision injures MEIC, NPRC, and their members' procedural interests in being fully informed of the anticipated impacts of potential state actions, as the decision was not based on the requisite analysis and disclosure that MEPA and the Montana Constitution require. These are actual and concrete injuries caused by DEQ's failure to comply with MEPA that would be redressed by the relief requested in this complaint. MEIC and NPRC exhausted their administrative remedies by submitting comments on the Draft EA and thus have no other adequate remedy at law.

12. Defendant DEQ is the agency charged with issuing permits for the construction and operation of air pollution sources in the state, MCA §§ 75-2-204, 75-2-211, and evaluating the environmental impacts of proposed exploration under MEPA, MCA § 75-1-201. DEQ prepared and issued the Final EA approving the air quality permit for the YCGS.[4]

LEGAL AND FACTUAL BACKGROUND

I. THE YELLOWSTONE COUNTY GENERATING STATION

13. The challenged Final EA represents DEQ's second attempt to comply with MEPA for the YCGS's air quality permit. NorthWestern Energy ("NorthWestern") applied to DEQ for an air quality permit to authorize the construction and operation of YCGS[5] in May 2021 and submitted a revised application in June 2021. DEQ issued a preliminary determination on NorthWestern's application in July 2021, including a five-page draft environmental assessment. DEQ received public comments on the preliminary determination and draft environmental assessment and then issued a final environmental assessment and air quality permit for the YCGS in August 2021.

14. MEIC, along with others, brought a lawsuit challenging DEQ's decision in October 2021. Subsequently, and in relevant part, the District Court granted summary judgment to MEIC on the grounds that DEQ's failure to analyze greenhouse gas emissions in connection with its environmental assessment of the requested air quality permit violated MEPA. *Mont. Env't Info. Ctr. v. Mont. Dep't of Env't Quality,* No. DV-21-1307 (Mont. 13th Jud. Dist. Ct. Apr. 6, 2023), *aff'd in relevant part*, *MEIC 2025*. The District Court observed that, "[t]o most Montanans who clearly understand their fundamental constitutional right to a clean and healthful

[4] NorthWestern Energy is not named as a defendant as the utility does not have an interest in the relief requested.

[5] NorthWestern's facility was previously referred to as the Laurel Generating Station.

environment, this is a significant project." *Id.* However, the District Court concluded that challenges to DEQ's significance determination—governing whether an Environmental Impact Statement was warranted—were not ripe for review until DEQ completed its MEPA responsibilities. *Id.*

15. The District Court initially vacated the air quality permit, halting construction of the plant. *Id.* Subsequently, over the plaintiffs' objections, the court granted NorthWestern's and DEQ's motions to stay vacatur pending appeal, allowing plant construction to resume.

16. In January 2025, following NorthWestern's and DEQ's appeal, and MEIC's cross-appeal, the Montana Supreme Court ordered DEQ to conduct further MEPA analysis to evaluate the direct and secondary impacts of greenhouse gas emissions in connection with the environmental assessment of Montana Air Quality Permit Application (MAQP) #5261-00 for the YCGS in Yellowstone County. *MEIC 2025*, ¶ 61. Like the District Court, the Montana Supreme Court allowed construction of the plant to continue, although NorthWestern had already largely completed construction of the YCGS.

17. Subsequently, DEQ issued a Draft Supplemental Environmental Assessment, received public comment from March 28, 2025, through April 28, 2025, and issued the Final EA on August 1, 2025. Ex. 3, Final EA at 1.

18. Today, the YCGS is currently operating and emitting greenhouse gases. NorthWestern anticipates that the plant will continue operating until 2057. The YCGS more than doubles NorthWestern's owned gas-powered electricity generating resources and significantly increases Montana's greenhouse gas footprint. NorthWestern predicts that the YCGS will emit 769,706 tons of CO_{2e} annually. Accordingly, NorthWestern estimates over 25.4 million metric tons of carbon dioxide equivalent ("CO_{2e}") emissions from the YCGS over the facility's lifetime.

19. Each of the YCGS's eighteen methane[6]-fueled reciprocating internal combustion engines includes an independent exhaust stack, rising more than seventy feet into the air and emitting significant—both in volume and effect—climate-harming pollution. In addition to hundreds of tons of hazardous air pollutants, the YCGS emits hundreds of thousands of tons of greenhouse gases each year. DEQ has found that the YCGS will emit 695,195 metric tons of CO_{2e} emissions annually. Ex. 3, Final EA at 5, 26–28.

20. As described in NorthWestern's air quality permit application, the utility selected the YCGS over other resources in a competitive resource solicitation process. However, in proceedings before the Montana Public Service Commission regarding approval of the YCGS, parties argued that NorthWestern's resource-selection process was flawed and unreasonably eliminated cleaner, safer generating alternatives—specifically solar and wind energy projects paired with battery storage—that could have met the utility's needs.

II. CLIMATE CHANGE HAS HARMFUL IMPACTS TO MONTANA'S ENVIRONMENT, MONTANAN'S HEALTH, AND THE STATE'S ECONOMY

21. The State has admitted that "Montana's climate is already changing" and harming Montana's environment, Montanan's health, and the State's economy.

> Our temperatures are 2–3º F warmer on average than in 1950. Historical observations demonstrate a shift to earlier snowmelt and earlier peak spring runoff, impacting flooding, water availability, and stream temperatures. Increased temperatures, insect and disease mortality, and fuel loads together are driving increases in the size and possibly the frequency and severity of wildfires. According to the 2017 Montana Climate Assessment (MCA), the state could experience an additional 3–7º F increase in average temperatures by mid-century, including more days of extreme heat that would dramatically increase many of these impacts moving forward.[7]

[6] Methane comprises only a fraction of atmospheric greenhouse gases but is far more potent than carbon dioxide.

[7] Supra n. 2, at 4.

22. As recently noted by the Montana Supreme Court:

> The world is experiencing a fast rise in temperature that is unprecedented in the geologic record, with the average global temperature increasing by 2.2°F in the last 120 years. Montana is heating faster than the global average and the rate of warming is increasing. Overwhelming scientific evidence and consensus shows that this warming is the direct result of greenhouse gas (GHG) emissions that trap heat from the sun in the atmosphere, primarily from carbon dioxide (CO2) released from human extraction and burning of fossil fuels such as coal, oil, and natural gas.

Held, ¶ 3.

23. Greenhouse gas emissions, including those produced by the YCGS, are harming Montana's environment because those emissions "result in extreme weather events that are increasing in frequency and severity, including droughts, heatwaves, forest fires, and flooding." *Held*, ¶ 4. This harm to Montana's environment will persist through the YCGS's operating life as these extreme weather events "will only be exacerbated as the atmospheric concentration of GHGs continues to rise." *Id*. "Until atmospheric [greenhouse gas] concentrations are reduced, extreme weather events and other climactic events such as droughts and heatwaves will occur more frequently and in greater magnitude[.]" *Held*, No. CDV-2020-307, ¶ 89.

24. "Projections indicate that under a business-as-usual emissions scenario, Montana will see almost ten additional degrees of warming by 2100 compared to temperatures in 2000. By 2050, Montana will have 11–30 additional days per year with temperatures exceeding 90 degrees and a similar loss of days below freezing." *Id*.

25. Montana is projected to experience 11-30 more days above 90 degrees annually by midcentury while also seeing weeks to months of additional above-freezing days. *Held*, No. CDV-2020-307, ¶ 96, *aff'd* 2024 MT 312. By end-of-century, Montana temperatures are projected to have increased by 5.9°F to 9.8°F. *Id.* at ¶ 97. These increases in Montana's temperature are larger than the average changes projected globally and nationally.

26. These impacts to natural systems, caused by greenhouse gases like those emitted by the YCGS, cause harm to Montanans' health and that harm is likely to worsen. *Held*, ¶ 29. The forecasted increase in summer temperatures, along with more frequent wildfires, will worsen heat- and smoke-related health problems, such as respiratory and cardiopulmonary illness. *Id.* at ¶ 4; *Held*, No. CDV-2020-307, ¶ 128, *aff'd* 2024 MT 312. Earlier snowmelt endangers lives and leads to gastrointestinal disease due to contaminated water supplies and increased opportunities for water-borne, food-borne, and mold-related diseases, and reduces water available to humans, fish, and wildlife.

27. Further, these impacts to natural systems caused by fossil-fuel-burning power plants, like the YCGS, generate economic harm in Montana. *Held*, ¶ 4 ("Montana has already seen (and will increasingly see) adverse impacts to its economy, including to recreation, agriculture, and tourism caused by a variety of factors including decreased snowpack and water levels in summer and fall, extreme spring flooding events, accelerating forest mortality, and increased drought, wildfire, water temperatures, and heat waves.").

28. For example, higher temperatures and reduced water availability has harmed the agricultural sector of Montana's economy and that harm is expected to worsen. Decreasing snowpack is forecasted to lead to decreased streamflow and less reliable irrigation capacity during the late growing season, which would have the greatest impact on hay, sugar beet, malt barley, market garden, and potato producers across Montana. Increased temperatures are forecasted to allow winter annual weeds, like cheatgrass, to increase in distribution and frequency in winter wheat cropland and rangeland, resulting in decreased crop yields and forage productivity and increased rangeland wildfire frequency.

29. The economic harm caused by the YCGS can be estimated using the Social Cost of Greenhouse Gases ("SC-GHG"). SC-GHG is a metric that estimates the economic harm caused by each additional ton of carbon dioxide, methane, and nitrous oxide emitted into the atmosphere. SC-GHG is a tool that allows agencies to describe a project's incremental environmental harm that is otherwise difficult to quantify and helps to translate abstract metric tons of greenhouse gases into more understandable economic value.

30. In 2023, the United States Environmental Protection Agency released its Final Report on the Social Cost of Greenhouse Gases and calculated the Social Cost of Carbon at a rate of $190 per ton of CO_2 emitted in 2021. Applied here, the SC-GHG metric demonstrates that the YCGS is causing at least $132,087,050 in economic harm to Montana's economy every year.

31. MEIC and NPRC submitted timely public comments on DEQ's preliminary determination and Draft EA on April 28, 2025. MEIC and NPRC's comments requested that DEQ conduct a comprehensive MEPA analysis of the YCGS's significant greenhouse gas emissions and resulting direct, secondary, and cumulative impacts, in addition to consideration of no-action alternatives and mitigation measures. The comments specifically addressed the Draft EA's cursory discussion of greenhouse gas impacts that failed to adequately quantify and analyze the environmental consequences of the facility's projected emissions, in violation of both DEQ's obligations under MEPA and the Montana Supreme Court's directive in *MEIC 2025*.

III. MEPA

32. MEPA was designed "to promote efforts that will prevent, mitigate, or eliminate damage to the environment and biosphere and stimulate the health and welfare of humans."

MCA § 75-1-102(2) (2021).[8] "MEPA compliance requires that agencies take a 'hard look' at a project's environmental impacts." *MEIC 2025*, ¶ 14 (quoting *Mont. Trout Unlimited v. Mont. Dep't of Env't Quality*, 2024 MT 36, ¶ 18, 415 Mont. 214, 544 P.3d 163); *Mont. Wildlife Fed'n v. Mont. Bd. of Oil & Gas Conservation*, 2012 MT 128, ¶ 43, 365 Mont. 232, 280 P.3d 877; *see also* MCA § 75-1-201(1)(b)(iv) (2021); ARM 17.4.609(3)(d). The required "hard look" at "environmental consequences" imposes an obligation on agencies to "'make an adequate compilation of relevant information, to analyze it reasonably, and to consider all pertinent data.'" *MEIC 2025*, ¶ 14 (quoting *Belk v. Mont. Dep't of Env't Quality*, 2022 MT 38, ¶ 26, 408 Mont. 1, 504 P.3d 1090). This includes an obligation to address "aesthetic and recreational impacts." *MEIC 2025*, ¶ 14.

33. Properly implemented, "MEPA's procedural mechanisms … enabl[e] fully informed and considered decision making, thereby minimizing the risk of irreversible mistakes depriving Montanans of a clean and healthful environment." *Park Cnty Env't Council v. Mont. Dep't of Env't Quality*, 2020 MT 303, ¶ 70, 402 Mont. 168, 477 P.3d 288. This Court's review of an agency's decision under MEPA asks (1) whether the agency made a reasoned decision (2) "after carrying out its MEPA responsibilities in full." *MEIC 2025*, ¶ 13 (emphasis added).

34. MEPA, and the Montana Supreme Court's interpretation of MEPA in *MEIC 2025*, required DEQ to consider, among other things, the direct, indirect, and cumulative environmental impacts of the action, MCA § 75-1-201(1)(b)(iv); ARM 17.4.609(3)(d) (requiring an evaluation of "impacts, including cumulative and secondary impacts, on the physical environment"); *see also* ARM 17.4.609(3)(e) (describing requirements for environmental

[8] DEQ is required to comply with the 2021 version of MEPA with respect to the Final EA at issue. *MEIC 2025*, ¶¶ 44–45.

assessments). In evaluating environmental impacts under MEPA, DEQ is required to "examine the relevant data and articulate a satisfactory explanation for its action, including a rational connection between the facts found and the choice made." *Mont. Wildlife Fed'n, ¶ 43 (quoting Clark Fork Coal. v. Mont. Dep't of Env. Quality*, 2008 MT 407, ¶ 47, 347 Mont. 197, 197 P.3d 482). Additionally, "administrative processes," like MEPA review, "contemplate public participation and DEQ must consider the substantive comments received in response to an EA." *MEIC 2025*, ¶ 62 (citations omitted). Further, "environmental review under MEPA must… identify 'any adverse effects on Montana's environment that cannot be avoided if the proposal is implemented.'" *MEIC 2025*, ¶ 46 (quoting MCA § 75-1-201(1)(b)(iv)(B)).

35. DEQ must prepare an environmental impact statement ("EIS") before granting an air quality permit if the proposed project will "significantly affect[] the quality of the human environment." ARM 17.4.607(1). DEQ may issue an air quality permit without preparing an EIS only if it rationally determines through preparation of an environmental assessment ("EA") that the project's impacts will not be significant, *see id.* 17.4.607(1)(b), or that otherwise significant impacts can be mitigated below the level of significance, *id.* 17.4.607(4) ("For an EA to suffice in this instance, the agency must determine that all of the impacts of the proposed action have been accurately identified, that they will be mitigated below the level of significance, and that no significant impact is likely to occur.").

36. DEQ undertook the underlying permitting action pursuant to its obligations under the Clean Air Act of Montana, specifically MCA §§ 75-2-204, 75-2-211, and the agency's implementing rules. Montana's Air Quality Permitting Rules require the permit application to include "information regarding site characteristics necessary to conduct an assessment of impacts under the Montana Environmental Policy Act, 75-1-101, et seq., MCA." ARM 17.8.748(4)(k).

37. DEQ's obligations under MEPA are complimentary and additional to its obligations under substantive permitting statutes, and as the Montana Supreme Court has explained, analysis under permitting statutes such as the Clean Air Act of Montana does not satisfy an agency's MEPA obligations. "MEPA's environmental review process is complementary to—rather than duplicative of—other environmental provisions, functioning to, for example, enable DEQ to make an informed decision in responding to [a] permit application under [a permitting statute]." *Park Cnty Env't Council*, ¶ 76.

IV. MONTANA CONSTITUTIONAL ENVIRONMENTAL PROTECTIONS

38. Montana's Constitution compels the state to prevent unreasonable environmental degradation to protect Montanans' inalienable "right to a clean and healthful environment," and requires that "[t]he state and each person shall maintain and improve a clean and healthful environment in Montana for present and future generations." Mont. Const. art. II, § 3, art. IX, § 1(1). In addition, the Constitution requires the Montana Legislature to "provide adequate remedies for the protection of the environmental life support system from degradation and provide adequate remedies to prevent unreasonable depletion and degradation of natural resources." *Id.* art. IX, § 1(3).

39. In enacting these provisions, the drafters of Montana's Constitution aimed to establish "'the strongest environmental protection provision found in any state constitution.'" *Held*, ¶ 23 (quoting *Park Cnty Env't Council*, ¶ 61). To that end, these provisions do not "merely prohibit that degree of environmental degradation which can be conclusively linked to ill health or physical endangerment." *Mont. Env't Info. Ctr. v. Dep't of Env't Quality*, 1999 MT 248, ¶77, 296 Mont. 207, 988 P.2d 1236 (hereinafter *MEIC 1999*). Rather, they provide environmental "protections which are both anticipatory and preventative." *Id.* Specifically, Montana's right to a clean and healthful environment "includes a stable climate system," *Held*, ¶ 30, and "is

contemplated by an affirmative duty upon their government to take active steps to realize this right." *Id.* at ¶ 36 (quoting *Park Cnty Env't Council*, ¶ 63).

40. The Montana Legislature designated MEPA as an essential element of the overall statutory scheme for meeting its constitutional obligation to prevent unreasonable environmental degradation. *See* 2003 Mont. Laws ch. 361, § 5 (HB 437); *see also* MCA §§ 75-1-102(1) (MEPA's purpose), 82-4-302 (MMRA's purpose). The statute crucially "provides for an adequate review of state actions to ensure that 'environmental attributes are fully considered by the legislature in enacting laws to fulfill constitutional obligations' and 'the public is informed of the anticipated impacts in Montana of potential state actions.'" *Held*, ¶ 37 (quoting MCA § 75-1-102(1)). Further, "a clean and healthful environment cannot occur unless the State and its agencies can make adequately informed decisions." *Id.* at ¶ 67(emphasis added) (citing *Park Cnty Env't Council*, ¶ 70).

41. Accordingly, MEPA must be interpreted to serve its constitutional purpose. To the extent any provision of MEPA allows for unreasonable environmental degradation or inadequate analysis of potential environmental degradation, it would violate Plaintiffs' environmental rights guaranteed by Article II, Section 3 and Article IX, Section 1 of the Montana Constitution. *See MEIC 1999*, ¶ 80; *see also Park Cnty Env't Council*, ¶ 88; *see also Held*, ¶ 68.

42. These statutory and constitutional standards govern DEQ's review and approval of the proposed YCGS.

V. JANUARY 2025 REMAND ORDER

43. Also governing DEQ's MEPA process at issue in this case are DEQ's obligations under MEPA as specifically outlined in the Montana Supreme Court's decision in *MEIC 2025*, where the Court ordered DEQ to take a hard look at the effect of YCGS's greenhouse gas

emissions within Montana's borders. *MEIC 2025*, ¶¶ 44, 59 (requiring DEQ to "follow its MEPA obligations to conduct an adequate analysis in an environmental assessment . . . which in this case, includes evaluating GHGs in its analysis of the [YCGS] air quality permit.").

44. The Montana Supreme Court's remand order expressly required DEQ to "identify [greenhouse gas] impacts and acknowledge their significance." *MEIC 2025*, ¶ 62. The Court directed DEQ to evaluate the direct, secondary, and cumulative impacts of YCGS's greenhouse gas emissions. *MEIC 2025*, ¶ 61 (citing *Held*, ¶ 64).

45. DEQ's compliance with the Montana Supreme Court's directive is critical for at least three reasons. First, adequate MEPA review ensures that the State, through its agencies, uses the information it gathers to make a decision that maintains and improves the environment. *Held*, ¶ 67. In the absence of adequate MEPA review, state agencies are prevented from "using any information garnered during [the MEPA] process to inform and strengthen substantive permitting or regulatory decisions or any mutual mitigation measures or alternatives that might be considered when the environmental harms of the proposed project are fully understood." *Held*, ¶ 68.

46. Second, adequate MEPA review "assist[s] the legislature in determining whether laws are adequate to address impacts to Montana's environment and . . . inform[s] the public and public officials of potential impacts resulting from decisions made by state agencies." *MEIC 2025*, ¶ 60.

47. Third, adequate MEPA review ensures that the public is informed of the anticipated impacts in Montana of potential state actions. In the absence of adequate MEPA review, the Montanans' right to participate in government decision making is undermined.

FIRST CAUSE OF ACTION
(INADEQUACY OF FINAL EA – VIOLATION OF MEPA, MCA § 75-1-201, ARM 17.4.608(1)(B))

48. Plaintiffs hereby reallege and reincorporate Paragraphs 1 through 47 as stated above.

49. To fulfill its requirement to take a "hard look" at the environmental impacts of DEQ's authorization to NorthWestern to construct and operate the YCGS, DEQ must comprehensively evaluate the direct, cumulative, and secondary impacts of the project on the physical environment and on the human population affected by a proposed action. ARM 17.4.609(3)(d), (e). Specifically, following the Montana Supreme Court's remand in *MEIC 2025*, DEQ must evaluate the direct, secondary, and cumulative impacts of the greenhouse gases emitted by the YCGS, in addition to no-action alternatives and potential mitigation measures.

50. Direct impacts are those that occur at the same time and place as the action that triggers the effect and secondary impacts are those further impacts "to the human environment that may be stimulated or induced by or otherwise result from a direct impact of the action," ARM 17.4.603(18); ARM 17.4.609(3)(d). The cumulative impact of a project is the "collective impacts on the human environment of the proposed action when considered in conjunction with other past and present actions related to the proposed action by location or generic type." *Mont. Wildlife Fed'n v. Mont. Bd. of Oil & Gas Conservation*, 2012 MT 128, ¶ 45, 365 Mont. 232, 249, 280 P.3d 877, 889 (quoting ARM 36.2.522).

51. The Final EA violates MEPA because it does not disclose or meaningfully evaluate the direct, secondary, or cumulative impacts caused by the YCGS's greenhouse gas emissions. MCA § 75-1-201; ARM 17.4.609(3)(d)

52. The Final EA fails to disclose and analyze the direct impacts of the YCGS's greenhouse gas emissions despite direct recommendations in Plaintiffs' comments that it do so

and descriptions of available data and resources that should be included in an adequate analysis. The entirety of DEQ's analysis of the direct impacts from YCGS's greenhouse gas emissions consists of a numerical calculation of what DEQ predicts to be the total annual emissions from the YCGS.

53. The Final EA fails to disclose and analyze the secondary impacts of the YCGS's greenhouse gas emissions. While DEQ admits that greenhouse gas emissions result in on-the-ground impacts from climate change, DEQ's analysis of such impacts of YCGS's greenhouse gas emissions fails to adequately describe or explain, the scope of the secondary impacts that DEQ admits will occur, including flooding, drought, rising temperatures, and the spread of invasive species.

54. The Final EA also fails to disclose and analyze the cumulative impacts of the YCGS's greenhouse gas emissions. Despite being ordered to analyze and disclose "the direct, secondary, and cumulative impacts" of the YCGS's greenhouse gas emissions, *MEIC 2025*, ¶ 57 (emphasis added), the Final EA reflects DEQ's apparent decision to treat direct and cumulative impacts as substantively identical. As a result, DEQ provides the same conclusory analysis for both sets of impacts: a recitation of the YCGS's total annual estimated emissions. Final EA at 27–28.

55. The cumulative impact analysis is distinct and different from the direct impact analysis and is particularly important for a facility like the YCGS. For example, while acknowledging that NorthWestern plans to operate the YCGS for at least thirty years, DEQ provides no analysis as to the cumulative impact to the environment, health, or the economy posed by the emission of nearly seven hundred thousand metric tons of greenhouse gases every year for thirty years. Moreover, DEQ's analysis fails to consider the YCGS's collective impacts

in conjunction with other regional emission sources. The Laurel area already hosts some of the highest emission sources in the state due to existing refining infrastructure. Yet, DEQ's analysis failed to acknowledge these other sources when assessing the YCGS project's full contribution to climate change and cumulative environmental harm. Such an omission contravenes the very purpose of the cumulative impacts analysis.

56. The Final EA fails to adequately evaluate and disclose appropriate alternatives to the proposed action and failed to complete a meaningful no-action alternative analysis. For example, the Final EA fails to address the "projected beneficial and adverse environmental, social, and economic impact[s] of the project's noncompletion," MCA § 71-1-201(1)(b)(iv)(C) and therefore fails to disclose and establish a scientifically defensible baseline by which the YCGS's climate impacts can be measured.

57. The Final EA fails to adequately evaluate and disclose potential mitigation measures that would ameliorate the YCGS's climate-harming greenhouse gas emissions. For example, DEQ's brief discussion potential mitigation measures, consisting entirely of summary references to geological carbon sequestration, industrial carbon sequestration, and biological sequestration, completely fails to analyze and disclose emissions control technologies and operational limitations that could reduce the YCGS's greenhouse gas emissions and related climate impacts.

58. Because DEQ's approval of the air quality permit allowing NorthWestern to construct and operate YCGS is the direct cause of YCGS's greenhouse gas emissions, which contribute to climate change and its harmful impacts in Montana, and to comply with the Montana Supreme Court's directive in *MEIC 2025*, DEQ was required to evaluate these impacts under MEPA.

REQUEST FOR RELIEF

THEREFORE, Plaintiffs respectfully request that this Court:

1. Declare that DEQ violated MEPA, as defined by *MEIC 2025*, and DEQ's MEPA rules by failing to rationally evaluate the direct, secondary, and cumulative effects of YCGS's greenhouse gas emissions, as well as feasible alternatives and mitigation to avoid these effects;

2. Declare unlawful and set aside the Final EA related to MAQP #5261-00 for the YCGS in Yellowstone County;

3. Order DEQ to complete an analysis of the YCGS's direct, secondary, and cumulative impacts, in addition to no-action alternatives and potential mitigation measures, that is compliant with MEPA, *MEIC 2025*, and Montana's Constitution; and

4. Grant Plaintiffs such additional relief as the Court may deem just and proper.

Respectfully submitted this 29th day of September, 2025.

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Exhibit 1

MONTANA FIRST JUDICIAL DISTRICT COURT
LEWIS AND CLARK COUNTY

RIKKI HELD, et al., Plaintiff, v. STATE OF MONTANA, et al., Defendant.	Cause No. CDV-2020-307 **FINDINGS OF FACT, CONCLUSIONS OF LAW, AND ORDER**

PROCEDURAL HISTORY

On March 13, 2020, sixteen Montana youth (collectively Plaintiffs or Youth Plaintiffs) filed a Complaint for Declaratory and Injunctive Relief (Doc. 1) against the State of Montana, the Governor, Montana Department of Environmental Quality, Montana Department of Natural Resources and Conservation, Montana Department of Transportation, and Montana Public Service Commission (collectively Defendants or State). Plaintiffs' Complaint challenged the constitutionality of the State's fossil fuel-based state energy system, which they allege causes and contributes to climate change in violation

of their constitutional rights guaranteed under Article II, Section 3; Article II, Section 4; Article II, Section 15; Article II, Section 17; Article IX, Section 1; Article IX, Section 3 of the Montana Constitution; and the Public Trust Doctrine. (Doc. 1 ¶¶ 3-4).

Specifically, the Complaint challenged the constitutionality of fossil fuel-based provisions of Montana's State Energy Policy Act, Mont. Code Ann. § 90-4-1001(1)(c)-(g); a provision of the Montana Environmental Policy Act (MEPA), Mont. Code Ann. § 75-1-201(2)(a) (MEPA Limitation), which forbids the State and its agents from considering the impacts of greenhouse gas (GHG) emissions or climate change in their environmental reviews; and the aggregate acts the State has taken to implement and perpetuate a fossil fuel-based energy system pursuant to these two statutory provisions.
(Doc. 1 ¶¶ 4, 105, 108, 118).

Youth Plaintiffs asked the Court for a declaration of law concerning their constitutional rights; a declaration of law that the fossil fuel-based provisions of Montana's State Energy Policy, Mont. Code Ann. § 90-4-1001(1)(c)-(g), are unconstitutional; a declaration of law that the MEPA Limitation is unconstitutional; and a declaration of law that Defendants' past and ongoing affirmative aggregate actions to implement a fossil fuel-based energy system—carried out in furtherance of the State Energy Policy and perpetuated through the MEPA Limitation—are unconstitutional. (Doc. 1, Requests for Relief # 1-5). The Complaint further requested injunctive relief to enjoin Defendants from subjecting Plaintiffs to the fossil fuel-based State Energy Policy, Mont. Code Ann. § 90-4-1001(1)(c)-(g), the MEPA Limitation, and aggregate acts; order Defendants to prepare a statewide GHG accounting; order

Defendants to develop a remedial plan to reduce statewide GHG emissions; retain jurisdiction until Defendants have fully complied with the Court's orders; and, if necessary, appoint a special master to review the remedial plan for efficacy. (Doc. 1, Requests for Relief # 6-9). Plaintiffs also requested an order awarding Youth Plaintiffs their reasonable attorneys' fees and costs, and any such further or alternative relief as the Court deems just and equitable. (Doc. 1, Requests for Relief # 10-11).

On April 24, 2020, Defendants filed a motion to dismiss pursuant to Mont. R. Civ. P. 12(b)(1), 12(b)(6), and 12(h)(3). (Doc. 11). After briefing and oral argument, the Court issued an Order on Motion to Dismiss on August 4, 2021, (Doc. 46), partially granting and partially denying Defendants' motion to dismiss.

The Court found that Plaintiffs' requests for the Court to order Defendants to develop a remedial plan, to retain jurisdiction over the matter until Defendants complied with the remedial plan, and, if necessary, appoint a special master to assist the Court in reviewing the remedial plan exceeded the Court's authority under the political question doctrine. (Doc. 46 at 21). Nevertheless, the Court held that prudential standing considerations did not merit dismissal because the Court "may grant declaratory relief regardless of injunctive relief. The court possesses the authority to grant declaratory or injunctive relief, or both." (Doc. 46 at 22).

Finally, the Court declined to dismiss Plaintiffs' challenge to MEPA for want of administrative exhaustion, finding that "Youth Plaintiffs properly brought this action in district court rather than through the administrative review process." (Doc. 46 at 24). The Order granted Defendants'

motion with respect to Plaintiffs' Requests for Relief # 6, 7, 8, and 9, and denied Defendants' motion with respect to Plaintiffs' Requests for Relief # 1, 2, 3, 4, and 5.

Defendants filed their Answer on September 17, 2021, (Doc. 53), denying virtually all allegations in the Complaint and raising several affirmative defenses.

Pursuant to the December 27, 2021, Scheduling Order (Doc. 61), the parties engaged in discovery throughout 2022.

On May 6, 2022, Defendants filed a Motion for Clarification of Order on State's Motion to Dismiss pursuant to Rule 60(a), Mont. R. Civ. P. (Doc. 84), seeking clarification on whether Plaintiffs' Request for Relief # 5 had been dismissed by the August 04, 2021, Order on Motion to Dismiss. Plaintiffs filed a Response in Opposition on May 20, 2022. (Doc. 102).

On June 10, 2022, Defendants filed a Petition for Writ of Supervisory Control (OP 22-0315), requesting the Montana Supreme Court exercise supervisory control and "dismiss Request for Relief 5 from this case." On June 14, 2022, the Supreme Court denied the Petition. (OP 22-0315).

On June 15, 2022, the Court issued an Order Partially Granting Defendants' Motion to Modify Scheduling Order and Setting Scheduling Conference. (Doc. 145) (Modified Scheduling Order). The Modified Scheduling Order governed the timeline thereafter. Pursuant to the Modified Scheduling Order, the parties engaged in discovery through January 9, 2023 — including disclosing expert witnesses (Docs. 222, 227), rebuttal expert witnesses (Docs. 240, 242), and conducting dozens of depositions.

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On June 30, 2022, the Court issued an Order on Defendants' Rule 60(a) Motion for Clarification (Doc. 158), clarifying that "requests for injunctive relief contained in the complaint were dismissed, except for Request for Relief 5." (Doc. 158 at 3).

On July 19, 2022, Defendants filed a Motion for Independent Medical Examination, or, in the Alternative, Motion to Strike Opinions and Testimony of Plaintiffs' Expert Dr. Lise Van Susteren Pursuant to Rule 35(a), Mont. R. Civ. P. (Doc. 163), alleging that Plaintiffs' allegations of mental health impacts as a result of climate change had placed their mental health at issue. (Doc. 163 at 2). On October 14, 2022, the Court issued an Order denying Defendants' motion (Doc. 225), ruling that IMEs were unwarranted because "Plaintiffs have not placed their mental health at the center of this case, nor is it really and genuinely in controversy," (Doc. 225 at 6), and because "Defendants have not established good cause for the requested examinations." (Doc. 225 at 7).

On July 20, 2022, Defendants filed a Second Motion for Clarification of Order on State's Motion to Dismiss pursuant to Rule 60(a), Mont. R. Civ. P. (Doc. 167). Defendants' second motion for clarification sought clarification from the Court as to why Plaintiffs' Requests for Relief # 1, 2, 3, 4, and 5 "don't violate the political question doctrine." (Doc. 167 at 3). On September 22, 2022, the Court issued an Order (Doc. 217), denying Defendants' Second Rule 60(a) Motion for Clarification of Order on State's Motion to Dismiss.

On September 30, 2022, pursuant to the Modified Scheduling Order, Plaintiffs disclosed their expert witnesses and expert disclosures. (Doc. 222). On October 31, 2022, Defendants disclosed their expert witnesses and

expert disclosures. (Doc. 227). On November 30, 2022, the parties exchanged rebuttal expert disclosures. (Docs. 239, 242).

Discovery closed on January 9, 2023. Between the parties, discovery included the completion of thirty-six depositions, the exchange of twenty-two expert reports, the exchange of over 50,000 pages of documents, and responses to dozens of interrogatories.

On February 1, 2023, Plaintiffs and Defendants file motions *in limine*. Plaintiffs filed seven motions *in limine* (Docs. 260, 262, 264, 266, 268, 270, 272) and Defendants filed seven motions *in limine* (Docs. 284, 286, 288).

On February 1, 2023, Defendants filed a Motion for Summary Judgment pursuant to Mont. R. Civ. P. 56. (Doc. 290). On February 14, 2023, Plaintiffs filed a response brief opposing summary judgment. (Doc. 299). Plaintiffs filed sixteen declarations from Plaintiffs, experts, and counsel in support of their response brief. (Docs. 300-315). On February 28, 2023, Defendants filed a reply. (Doc. 332).

On March 16, 2023, Governor Greg Gianforte signed House Bill 170 into law, repealing the Montana State Energy Policy, Mont. Code Ann. § 90-4-1001.

On March 31, 2023, Defendants filed a Motion to Partially Dismiss for Mootness pursuant to Mont. R. Civ. P. 12(b)(1), 12(b)(6), and 12(h)(3). (Doc. 339). Defendants moved to dismiss Plaintiffs' claims premised on the Montana State Energy Policy Act, Mont. Code Ann. § 90-4-1001, on the ground that the repeal of Mont. Code Ann. § 90-4-1001 (HB 170) mooted claims concerning the statute.

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On April 14, 2023, Plaintiffs filed a Response Brief in Opposition to Defendants' Motion to Partially Dismiss for Mootness. (Doc. 354). Plaintiffs filed nine declarations from experts in support of their response. (Docs. 355-363).

On April 26, 2023, unable to reach agreement on a joint proposed Pre-Trial Order, the parties submitted separate proposed pre-trial orders. (Docs. 366, 367). On April 27, 2023, a Final Pre-Trial Conference was held with the Court.

In response to Judge Moses' April 6, 2023, Order on Summary Judgment in *MEIC, et al. v. DEQ, et al.*, Yellowstone County Cause No. DV-56-2021-1307, the Montana Legislature adopted House Bill 971, an amendment to clarify the MEPA Limitation. On May 10, 2023, Governor Greg Gianforte signed into law HB 971, which clarified Mont. Code Ann. § 75-1-201(2)(a). The clarifications in HB 971 explicitly prohibit Montana's agencies from considering "an evaluation of greenhouse gas emissions and corresponding impacts to the climate in the state or beyond the state's borders" in their MEPA reviews.

On May 12, 2023, the Court heard oral argument on Defendants' Motions for Summary Judgment, Motion to Partially Dismiss for Mootness, and Motion to Stay Proceedings.

On May 18, 2023, Defendants filed a Motion to Dismiss MEPA Claims based on the enactment of HB 971. (Doc. 376). On June 1, 2023, Plaintiffs filed a response brief opposing Defendant's motion to dismiss the claims. (Doc. 382). Defendants filed a reply and request for oral argument on June 9, 2023. (Doc. 385).

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On May 19, 2023, Governor Gianforte signed into law Senate Bill 557, amending several provisions of MEPA, Mont. Code Ann. § 75-1-201.

On May 23, 2023, the Court issued an Order on Defendants' Motions to Partially Dismiss for Mootness and For Summary Judgment. (Doc. 379). As to Defendants' Motion to Partially Dismiss for Mootness (Doc. 343), the Court granted Defendants' motion and dismissed without prejudice Plaintiffs' claims involving the State Energy Policy and Defendants' aggregate acts taken pursuant to and in furtherance of the State Energy Policy on redressability and prudential standing grounds. (Doc. 379 at 3-4). The Court denied Defendants' motion for summary judgment and allowed Plaintiffs' MEPA claims to proceed to trial. (Doc. 379 at 20-26).

On June 1, 2023, the Court issued an order on the remaining motions *in limine*. (Doc. 381). The Court granted Plaintiffs' motion # 2; granted in part and denied in part Plaintiffs' motions # 3 and 5; and denied Plaintiffs' motions # 4, 6, and 7. The Court granted Defendants' motions # 1, 4, 5, 6, 7; and denied Defendants' motions # 2 and 3.

On June 2, 2023, Defendants filed an Emergency Petition for Writ of Supervisory Control with the Montana Supreme Court (OP 23-0311), requesting again that the Supreme Court exercise supervisory control and reverse this Court's denial of the State's motion for summary judgment. The State also asked the Supreme Court to stay the trial set to begin June 12, 2023.

On June 6, 2023, the Montana Supreme Court denied the Emergency Petition for Writ of Supervisory Control. (OP 23-0311). The Supreme Court observed that Defendants had "not demonstrated that HB 971's

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amendments alter the allegations the Plaintiffs make in the Complaint" concerning the MEPA provision. (OP 23-0311 at 3).

On June 7, 2023, this Court entered the Final Pre-Trial Order governing this proceeding. (Doc. 384). In addition to "supersed[ing] the pleadings as to the remaining issues and govern[ing] the course of the trial of this case," (Doc. 384 at 38), the Court's Final Pre-Trial Order denied Defendants' Motion to Dismiss MEPA Claims (Doc. 376). (Doc. 384 at 38).

Trial began June 12, 2023, and ended on June 20, 2023.

On June 19, 2023, while trial was proceeding, Defendants filed a Bench Memorandum on the Constitutional and Procedural Limits of the Montana Environmental Policy Act. (Doc. 396). On June 25, 2023, Plaintiffs filed a response (Doc. 402). This briefing discussed in detail SB 557.

FINDINGS OF FACT[1]

The Findings of Fact and Conclusions of Law are based on the evidence and arguments presented at trial. The Court heard live testimony from twenty-seven witnesses. Plaintiffs presented testimony from twenty-four witnesses and Defendants presented testimony from three witnesses. The Court admitted one hundred sixty-eight of Plaintiffs' exhibits and four of Defendants' exhibits.

I. PARTIES

A. Plaintiffs

1. Plaintiffs are youth citizens of Montana. When the Complaint was filed in March 2020, Plaintiffs were from two to eighteen years old. They are now between five and twenty-two years old.

[1] Citations to the trial transcript, exhibits, and demonstrative slides are in brackets and identified by witness using their initials. For example, "SR-14", refers to Steven Running demonstrative slide 14.

2. Plaintiffs are Rikki Held, Lander Busse, Sariel Sandoval, Kian Tanner, Georgianna Fischer, Kathryn Grace Gibson-Snyder, Olivia Vesovich, Claire Vlases, Taleah Hernández, Badge B., by and through his guardian Sara Busse, Eva L., by and through her guardian Mark Lighthiser, Mica K., by and through his guardian Rachel Kantor, Jeffrey K., by and through his guardian Laura King; Nathaniel K., by and through his guardian Laura King, Ruby D., by and through her guardian Shane Doyle, and Lilian D., by and through her guardian Shane Doyle.

3. Rikki Held is from Broadus, Montana, was eighteen years old when this case was filed, and is currently twenty-two years old.

4. Lander Busse is from Kalispell, Montana, was fifteen years old when this case was filed, and is currently eighteen years old.

5. Sariel Sandoval is from Ronan, Montana, and lives on the Flathead Indian Reservation. She was seventeen years old when this case was filed and is currently twenty years old.

6. Kian Tanner is from Bigfork, Montana, was fourteen years old when this case was filed, and is currently eighteen years old.

7. Georgianna Fischer is from Bozeman, Montana, was seventeen years old when this case was filed, and is currently twenty-one years old.

8. Kathryn Grace Gibson-Snyder is from Missoula, Montana, was sixteen years old when this case was filed, and is currently nineteen years old.

9. Olivia Vesovich is from Missoula, Montana, was sixteen years old when this case was filed, and is currently twenty years old.

10. Claire Vlases is from Bozeman, Montana, was seventeen years old when this case was filed, and is currently twenty years old.

11. Taleah Hernández is from Polson, Montana, was sixteen years old when this case was filed, and is currently nineteen years old.

12. Badge B. is from Kalispell, Montana, was twelve years old when this case was filed, and is currently fifteen years old.

13. Eva L. is from Livingston, Montana, was fourteen years old when this case was filed, and is currently seventeen years old.

14. Mica K. is from Missoula, Montana, was eleven years old when this case was filed, and is currently fifteen years old.

15. Jeffrey K. is from Montana City, Montana, was six years old when this case was filed, and is currently nine years old.

16. Nathaniel K. is from Montana City, Montana, was two years old when this case was filed, and is currently five years old.

17. Ruby D. is from Bozeman, Montana, was twelve years old when this case was filed, and is currently fifteen years old.

18. Lilian D. is from Bozeman, Montana, was nine years old when this case was filed, and is currently twelve years old.

B. Defendants

19. Defendants are the State of Montana, Governor Greg Gianforte, Montana Department of Environmental Quality, Montana Department of Natural Resources and Conservation, Montana Department of Transportation, and Montana Public Service Commission.

20. The State of Montana is a governmental entity.

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21. Greg Gianforte is the current Governor of Montana. He is sued in his official capacity.

22. As Governor, Governor Gianforte is charged with seeing that the State's laws are faithfully executed, including the Constitution. Mont. Const. Art. VI, Sec. 4.

23. Governor Gianforte has supervisory authority over the principal departments of the executive branch.

24. Governor Gianforte holds cabinet meetings, communicates with other state officers, oversees budget expenditures, and has authority to issue executive orders. [Def. Answer, Doc. 11 ¶ 84].

25. Defendant Montana Department of Environmental Quality (DEQ) is a department of the State of Montana.

26. DEQ is the primary administrator of Montana's environmental regulatory, environmental cleanup, environmental monitoring, pollution prevention, and energy conservation laws. [Def. Answer, Doc. 11 ¶ 88].

27. DEQ is mandated to ensure that projects and activities for which it issues permits, licenses, authorizations, or other approvals comply with Montana's environmental laws and rules (including MEPA) to maintain and improve Montana's natural environment. [Agreed Facts, Final PTO, Doc. 384 at 2; Def. Answer, Doc. 11 ¶ 88].

28. DEQ is mandated to comply with the Montana Constitution and state law. [CD 1308:6-12].

29. DEQ issues air quality permits for applications that demonstrate compliance with all applicable requirements of the Federal and/or Montana Clean Air Act and their implementing rules, including but not limited to

coal and natural gas-powered energy plants, coal mining operations, and oil and gas refineries. [Agreed Facts, Final PTO, Doc. 384 at 2; Def. Answer, Doc. 11 ¶ 90].

30. DEQ prepares environmental review documents under MEPA, including for projects related to fossil fuels, such as natural resource extraction and power generating facilities. [CD 1313:21-1315:13].

31. DEQ has authority to certify certain pipelines that meet the definition provided in the Major Facility Siting Act, § 75-20-104(9)(b), MCA, and that comply with the requirements of the Major Facility Siting Act. [Agreed Facts, Final PTO, Doc. 384 at 2; Def. Answer, Doc. 11 ¶ 91].

32. DEQ permits coal mining for applications which meet the requirements set forth in Titles 82 (Minerals, Oil, and Gas) and 75 (Environmental Protection). DEQ has issued permits for surface coal mining in Montana on state, private, and federal land. [Agreed Facts, Final PTO, Doc. 384 at 2; Def. Answer, Doc. 11 ¶ 92].

33. Pursuant to its statutory authority, DEQ has discretion to deny and revoke permits. [SN 1392:24-1393:6].

34. Since 2011, pursuant to the MEPA Limitation, DEQ has not analyzed in its environmental review documents the cumulative impacts of the permits it issues on GHG emissions or climate change. [AH 846:1-3, 818:11-819:10].

35. Defendant Montana Department of Natural Resources and Conservation (DNRC) is a department of the State of Montana.

36. DNRC prepares environmental review documents under MEPA. [Shawn Thomas Perpetuation Deposition, 42:1-16].

37. DNRC manages the resources of the state trust lands through the State Board of Land Commissioners (Land Board). [Agreed Facts, Final PTO, Doc. 384 at 2; Def. Answer, Doc. 11 ¶ 95].

38. DNRC regulates, permits, and authorizes activities that result in GHG emissions in Montana. [Agreed Facts, Final PTO, Doc. 384 at 2].

39. DNRC issues leases, permits, and licenses for uses of lands under its jurisdiction, including licenses for exploration and leases for production and extraction of oil and gas in Montana and permits for drilling. [Agreed Facts, Final PTO, Doc. 384 at 2].

40. DNRC has exercised its authority to grant easements for the operational rights-of-way for interstate pipelines, with the approval of the Land Board, and issues land use licenses for the construction of rights-of-way and other activities on state lands and waterways for the construction and operation of interstate pipelines, which are used to transport fossil fuels. [Agreed Facts, Final PTO, Doc. 384 at 2; Def. Answer, Doc. 11 ¶ 95].

41. DNRC, through its Forestry Division, is responsible for planning and implementing forestry and fire management programs, as well as authorizing and permitting commercial timber sales on trust lands. [Agreed Facts, Final PTO, Doc. 384 at 3; Def. Answer, Doc. 11 ¶ 97].

42. Defendant Montana Department of Transportation (MDT) is a department of the State of Montana.

43. MDT is responsible for state planning in the transportation sector and is charged with collecting and enforcing fuel taxes. [Agreed Facts, Final PTO, Doc. 384 at 3].

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44. Defendant Montana Public Service Commission (PSC) is a governmental entity.

45. PSC regulates, supervises, and controls public utilities, common carriers, railroads, and pipelines. [Agreed Facts, Final PTO, Doc. 384 at 3].

46. PSC sets standard-offer contracts for qualifying facilities and utility rates. [Agreed Facts, Final PTO, Doc. 384 at 3].

47. PSC is responsible for the safety of interstate pipelines, including crude oil or petroleum products that operate within or through Montana. [Agreed Facts, Final PTO, Doc. 384 at 3].

48. Defendants' performance of their respective governmental functions has resulted in the extraction, transportation, and consumption of fossil fuels. [Agreed Facts, Final PTO, Doc. 384 at 3].

49. The extraction, transportation, and consumption of fossil fuels results in GHG emissions. [Agreed Facts, Final PTO, Doc. 384 at 3].

50. Defendants authorize the operation of coal-fired powerplants in Montana. [Def. Answer, Doc. 11 ¶ 118].

51. The drilling for and production of oil in Montana is authorized by Defendants. [Def. Answer, Doc. 11 ¶¶ 90, 96].

52. Montana has an abundance of energy sources, including fossil fuels yet to be extracted. [PE 944:24-946:4; PE-37].

53. The Montana Legislature enacted Mont. Code Ann. § 90-4-1001 (repealed) and the MEPA Limitation as amended. [Def. Answer, Doc. 11 ¶ 82].

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54. Montana's State Energy Policy was codified at Mont. Code Ann. § 90-4-1001. [Def. Answer, Doc. 11 ¶ 112].

55. Mont. Code Ann. § 90-4-1001 was enacted by the Montana Legislature in 1993 and amended in 2011. [Def. Answer, Doc. 11 ¶ 115].

56. The Montana Legislature repealed Mont. Code Ann. § 90-4-1001 in 2023. The Governor signed the repeal, HB 170, into law on March 16, 2023.

57. The provisions of MEPA governing environmental reviews are codified at Mont. Code Ann. § 75-1-201.

58. In 2011, the Montana Legislature amended MEPA to limit the scope of environmental reviews—enacting the MEPA Limitation, which prohibited Montana's agencies from considering in their MEPA reviews "actual or potential impacts beyond Montana's borders . . . [or] actual or potential impacts that are regional, national, or global in nature."

59. The Montana Legislature adopted amendments to clarify the MEPA Limitation in 2023. The Governor signed the clarifying legislation, HB 971, into law on May 10, 2023.

60. The MEPA limitation now provides that Montana's agencies are prohibited from considering "an evaluation of greenhouse gas emissions and corresponding impacts to the climate in the state or beyond the state's borders." Mont. Code Ann. § 75-1-201(2)(a) (enacted by HB 971, 68th Legislature (2023)).

61. The 2023 Montana Legislature amended various provisions of MEPA that pertain to legal challenges to MEPA environmental reviews.

62. SB 557 was introduced on March 27, 2023, passed by the Legislature, and signed into law by the Governor on May 19, 2023.

63. SB 557 enacted a new provision, Mont. Code Ann. § 75-1-201(6)(a)(ii), which eliminates the preventative, equitable remedies for MEPA litigants who raise GHG or climate change issues. The new subsection provides in part:

> [a]n action alleging noncompliance or inadequate compliance with a requirement of parts 1 through 3, including a challenge to an agency's decision that an environmental review is not required or a claim that the environmental review is inadequate based in whole or in part upon greenhouse gas emissions and impacts to the climate in Montana or beyond Montana's borders, cannot vacate, void, or delay a lease, permit, license, certificate, authorization, or other entitlement or authority unless the review is required by a federal agency or the United States congress amends the federal Clean Air Act to include carbon dioxide as a regulated pollutant.

Mont. Code Ann. § 75-1-201(6)(a)(ii) (enacted by SB 557, 68th Legislature (2023)).

64. Defendants cited Mont. Code Ann. § 75-1-201(6)(a)(ii) and SB 557 as foreclosing redressability in this case in their June 19, 2023, Bench Memorandum on the Constitutional and Procedural Limits of the Montana Environmental Policy Act. (Doc. 396).

II. CLIMATE SCIENCE AND PROJECTIONS.

A. Climate Science

65. Dr. Steven Running is a University Regents Professor Emeritus of Global Ecology in the College of Forestry and Conservation at the University of Montana. [SR-2]. Dr. Running currently co-chairs the standing Committee for Earth Science and Application from Space of the National Academy of Science. In 2007, Dr. Running shared the honor of the Nobel Peace Prize as a chapter Lead Author for the 4th Assessment Report of the

Intergovernmental Panel on Climate Change (IPCC). [P193]. Dr. Running provided expert testimony in the general areas of the climate system, including the energy balance and imbalance, the physics of GHG emissions that are driving climate change, the global carbon cycle, the global hydrologic cycle, how they control this energy imbalance, and then how human caused fossil fuel development is harming Montana's ecosystems and hydrology. Dr. Running is a well-qualified expert, and the Court found his testimony informative and credible.

66. Dr. Cathy Whitlock is Regents Professor Emerita of Earth Sciences and a Fellow of the Montana Institute on Ecosystems at Montana State University (MSU). Dr. Whitlock was lead author of the 2017 Montana Climate Assessment, and in 2020 co-authored a state-level Montana Climate Solutions Plan and a 2021 special report of the Montana Climate Assessment entitled Climate Change and Human Health in Montana. Dr. Whitlock was also co-lead author of the 2021 Greater Yellowstone Climate Assessment. Dr. Whitlock provided expert testimony explaining how human-caused fossil fuel development and the resulting release of CO_2 into the atmosphere are harming Montana's ecosystems, water supplies, communities, and the Plaintiffs themselves. Dr. Whitlock also discussed recent trends and future projections in temperature, precipitation, snow accumulation and snowmelt, and stream runoff in Montana and explained how they affect terrestrial ecosystems, communities, and the livelihoods of people that depend on these ecosystem services. Dr. Whitlock's testimony

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primarily focused on the effect GHG emissions in Montana. Dr. Whitlock is a well-qualified expert, and the Court found her testimony informative and credible.

67. There is overwhelming scientific consensus that Earth is warming as a direct result of human GHG emissions, primarily from the burning of fossil fuels. [SR 102:10-103:9, 125:11-22, 141:18-20; CW 257:14-25; P6, P13, P23, P34, P223, P143; SR-22].

68. Fossil fuels include coal, crude oil or its derivatives (such as gasoline or jet fuel), and natural gas. [PE 901:24-902:8].

69. While several GHGs are emitted from the burning of fossil fuels, carbon dioxide (CO_2) is the GHG most responsible for trapping excess heat within Earth's atmosphere. [SR 114:20-116:10].

70. Science is unequivocal that dangerous impacts to the climate are occurring due to human activities, primarily from the extraction and burning of fossil fuels. [SR 103:5-9; P6, P23, P34, P223, P143; SR-46, SR-47].

71. A substantial portion of every ton of CO_2 emitted by human activities persists in the atmosphere for as long as hundreds of years or millennia. As a result, CO_2 steadily accumulates in the atmosphere. [SR 166:2-10, 168:2-10; CW 279:14-20, 314:20-315:8, 318:2-5].

72. The cumulative effect of GHG emissions causes the impacts to the climate being experienced today. [SR 168:2-16]. Human activity and the burning of fossil fuels have accelerated the accumulation of CO_2 to the point that 42% of the total accumulation of CO_2 emissions has happened in the last thirty years. [SR 141:16-142:2; SR-42].

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73. It has long been understood that certain GHGs, including CO_2 and methane (CH_4), trap heat in the atmosphere, causing the Earth to warm. [SR 107:16-25]. An American, Eunice Newton Foote, was one of the first scientists to research and write about the ability of atmospheric carbon dioxide to affect solar heating in the 1850s. [SR 108:22-109:3; SR-14].

74. In 1896, Svante Arrhenius, a Swedish chemist, wrote that the practice of burning fossil fuels emitting CO_2 could one day warm the planet. [SR 108:1-8]. Arrhenius, and other early climate scientists, understood that the more CO_2 that was added to the atmosphere, the more the surface of the Earth would warm. [SR 108:8-13]. At the time of Arrhenius's work, atmospheric CO_2 levels were approximately 295 parts per million (ppm). Pre-industrial levels were approximately 280 ppm. [SR 109:22-25; SR-14].

75. In 1958, Dr. David Keeling began the modern monitoring of atmospheric CO_2 at Mauna Loa, Hawaii, a remote location not near any local CO_2 sources. [SR 111:12-21]. Keeling's data, now replicated at dozens of stations worldwide, proved that CO_2 has continued to rise every year from 1958 to the present from an initial concentration of 315-316 ppm in 1958, to an annual mean level of around 424 ppm today. [SR 112:22-113:4, 113:16-114:8]. The curve showing a long-term increase in CO_2 concentrations has become known as the "Keeling Curve." [SR 110:22-111:11, 113:20].

76. Between 1960 and 2000, CO_2 levels rose at about 2 ppm per year, but since approximately 2000, CO_2 levels are rising at about 3 ppm per year, primarily from fossil fuel emissions. [SR 117:14-20, 118:1-12, 121:9-11; SR-21].

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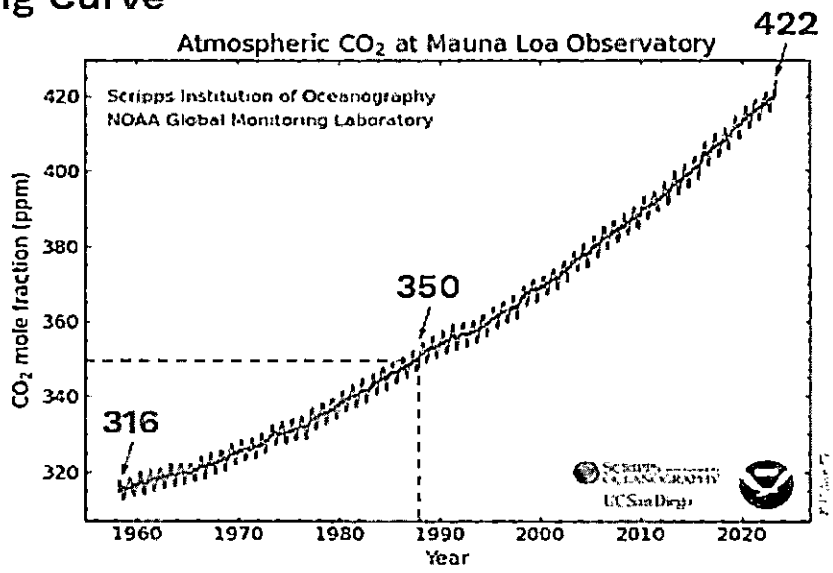
Keeling Curve



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77. CO_2 levels have fluctuated throughout history, but the rate of increase in atmospheric CO_2 is 100 times faster than in natural CO_2 fluctuations and cycles, and it is happening in a very short timeframe that is unprecedented in the geologic record. [SR 119:20-121:11; SR-19].

78. The continuous rise in atmospheric CO_2 has caused global, national, and Montana air temperatures to rise, as measured by meteorological stations. Total global temperature rise over the last 120 years is on average 2.2°F, or about 1.2°C. [SR 132:19-22; SR-38; CW 262:4-21; CW-18, CW-19, CW-20].

79. Montana is heating faster than the global average because higher latitudes are heating more quickly. [CW 263:20-264:7].

80. Montana is warming, and the rate of warming is increasing. [CW 266:15-16].

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81. The Earth has warmed by 1.3 to 2.2°F in only the last thirty-five years, as atmospheric CO_2 concentrations have risen from 350 ppm to over 420 ppm today. [SR 130:14-18; SR-35, SR-64]. It previously took 140 years for the Earth to warm by 0.9°F. [SR-35]. The Earth is heating more quickly now. 2020 was the second warmest year on record, and land areas were record warm. The ten warmest years on record have occurred since 2005, and since 1981, a new global temperature record has been set every three years. Since 1980, the Earth has not experienced a single year with below long-term average temperatures. [SE 131:20-132:10; SR-37].

82. The Earth's energy imbalance (the difference in energy from sun arriving at the Earth and the amount radiated back to space) is what climate scientists describe as the most critical metric for determining the amount of global heating and climate change we have already experienced and will experience as long as the Earth's energy imbalance exists. [SR 122:1-15, 129:17-20; SR-34]. Scientists measure and calculate how much extra energy, or heat, is being retained in Earth's systems, like oceans, ice, air, and land surface, compared to what Earth's natural balance would be if more heat escaped our atmosphere. [SR 122:1-15, 129:21-130:4].

83. The Earth's energy imbalance is currently significant and is due to accumulation of energy within Earth's oceans, ice, land, and air, with the energy measured in joules and the rate of additional energy measured in watts per square meter. [SR 124:14-125:18]. A watt is the addition of one joule of energy in one second, which is then averaged by the area of the Earth to yield watts per square meter. From 1971 to 2018, the Earth gained about 360 zeta joules of heat (a zeta is a unit with 21 zeros; a trillion has 12 zeros). [SR-29]. Adding this much

energy over forty-eight years yields an energy imbalance of about 0.5 W m^{-2}. However, the rate of energy addition has continued to increase due to increasing GHG emissions and the Earth's energy imbalance for 2010 to 2018 is about 0.9 W m^{-2}. [SR 122:14-24; SR-29; P79].

84. 358 zeta joules are enough energy to bring Flathead Lake to boil 40,000 times over. [SR 125:3-6; SR-30].

85. As long as there is an energy imbalance, the Earth will continue to heat, ice will continue to melt, and weather patterns will become more extreme. [SR 127:7-22, 131:9-15, 137:6-9, 149:2-14]. If more GHGs are added to the atmosphere and more incoming energy received from the sun is trapped as thermal energy, the Earth's climate system will continue to heat up. [SR 125:7-22].

86. The scientific consensus is that CO_2 from fossil fuel pollution is the primary driver of Earth's energy imbalance. [SR 117:21-118:12; 125:11-22]. Due to the buildup of CO_2 from about 280 ppm to 419 ppm in the last 140 years (and to a lesser extent other GHGs), more solar energy is now retained on Earth and less energy is released back to space. [SR 130:8-14; P20, P22, P79; SR-14].

87. The buildup of CO_2 and the current Earth energy imbalance is due to anthropogenic changes in the environment, not natural variability. [SR 103:5-9, 121:7-11].

88. Approximately 89% of annual anthropogenic CO_2 emissions, or 35 gigatons of CO_2, is attributable to burning fossil fuels. [SR 115:9-17; SR-20]. Approximately 11% of annual anthropogenic CO_2 is from land use change, which includes wildfires, agricultural burning, and deforestation.

[SR 115:18-22, 116:7-15; SR-20]. This means that fossil fuel use is around 10 times as large as other sources of emissions due to human management. [SR 115:15-21]. In terms of the CO_2 humans emit each year, approximately 48% of these emissions end up in the atmosphere, 29% are absorbed in back up in the biosphere, and 26% are absorbed by the oceans. [SR 115:7-117:10; SR-20].

89. Until atmospheric GHG concentrations are reduced, extreme weather events and other climactic events such as droughts and heatwaves will occur more frequently and in greater magnitude, and Plaintiffs will be unable to live clean and healthy lives in Montana. [SR 128:22-129:5, 131:5-15, 149:2-150:7; SR-45; LVS-44].

90. There is scientific certainty that if fossil fuel emissions continue, the Earth will continue to warm. [SR 106:15-18, 168:20-24; SR-46, SR-47].

91. Each additional ton of GHGs emitted into the atmosphere exacerbates impacts to the climate. [SR 106:15-18, 188:3-6; CW 279:14-20, 314:20-315:8, 318:2; P143].

92. Every ton of fossil fuel emissions contributes to global warming and impacts to the climate and thus increases the exposure of Youth Plaintiffs to harms now and additional harms in the future. [SR 168:17-169:7; CW 279:14-20, 314:20-315:8, 318:2-5; PE-40].

B. Climate Change Projections.

93. Computer models used by scientists are an important tool for predicting climate change and are reasonably relied upon by members of the scientific community. [SR 90:23-91:9].

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94. Projections indicate atmospheric CO_2 and other GHGs will increase the severity of all impacts to the climate for the foreseeable future, absent drastic reduction in fossil fuel use and the resulting GHG emissions. [SR 106:1-18, 169:22-170:10, 170:16-22; CW 269:14-18; SR-46, SR-47].

95. There is a strong scientific consensus that as GHG emissions continue to increase, impacts to the climate will become more severe. [SR 106:15-18, 137:3-9; SR-43].

96. The yearly days in Montana with extreme heat, meaning temperatures over 90 degrees, is expected to increase by 11 – 30 days by midcentury, and by as much as two months by the end of the century. [CW 273:6-20; CW-24, CW-28]. At the same time, the number of days above freezing will increase by weeks to months in the future. [CW 273:6-20, 275:21-276:7; CW-27; P222].

97. Projections indicate a high-emission scenario results in 9.8°F of warming in Montana by 2100, relative to temperatures in 1971-2000. An intermediate emission scenario projects an increase of 5.6°F in Montana by 2100, relative to temperatures in 1971-2000. [CW 270:1-271:9; CW-23; P222].

98. According to the Intergovernmental Panel on Climate Change (IPCC), "Climate change is a threat to human well-being and planetary health (*very high confidence*). [SR-48]. There is a rapidly closing window of opportunity to secure a liveable and sustainable future for all (*very high confidence*) . . .. The choices and actions implemented in this decade will have impacts now and for thousands of years (*high confidence*)." [SR 149:15-150:7; P143; SR-48, SR-63; LB-43].

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99. According to the IPCC, "[i]n the near term, every region of the world is projected to face further increases in climate hazards (*medium to high confidence*, depending on region and hazard), increasing multiple risks to ecosystems and humans (*very high confidence*). Hazards and associated risks expected in the near-term include an increase in heat-related human mortality and morbidity (*high confidence*), food-borne, water-borne, and vector-borne diseases (*high confidence*)." [SR-46, SR-47; LB-42].

III. CLIMATE CHANGE HARMS CHILDREN AND SPECIFICALLY THE YOUTH PLAINTIFFS.

100. Dr. Lori Byron obtained a Doctor of Medicine degree in 1984. She has been a board-certified pediatrician since 1988. Dr. Byron earned a M.S. in Energy Policy and Climate from Johns Hopkins in 2020. From 1988-2015, Dr. Byron worked with the Indian Health Service in Crow Agency, Montana, providing primary care, emergency care, and public health services to Crow Indian children. Dr. Byron now works as a pediatric hospitalist at SCL Health in Billings, Montana. Dr. Byron has decades of experience caring for children who have suffered Adverse Childhood Events (ACEs). Over the past decade, Dr. Lori Byron and her husband, Dr. Rob Byron, have made presentations on climate change and health locally, nationally, and internationally. Dr. Lori Byron finished a six-year term on the Executive Committee of the Council on Environmental Health and Climate Change with the American Academy of Pediatrics and a six-year term on the Children's Health protection Advisory Committee with the Environmental Protection Agency (EPA). Dr. Byron was an author on the 2021 report "Climate Change and Human

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Health in Montana: A Special Report of the Montana Climate Assessment," as well as other climate and health publications.

101. Dr. Byron provided expert testimony that climate change and the air pollution associated with it are negatively affecting children in Montana, including Youth Plaintiffs, with a strong likelihood that those impacts will worsen in the absence of aggressive actions to mitigate climate change. Dr. Byron outlined ways in which climate change is already creating conditions that are harming the health and well-being of the Youth Plaintiffs. Dr. Byron testified that reducing fossil fuel production and use, and mitigating climate change now, will benefit the health of the Youth Plaintiffs now and for the rest of their lives. Dr. Byron is a well-qualified expert, and the Court found her testimony informative and credible.

102. Dr. Lise Van Susteren is a board certified general and forensics clinical psychiatrist, in practice for thirty years. She is a Clinical Associate Professor of Psychiatry and Behavioral Sciences at George Washington University in Washington, D.C. In 2009, Dr. Van Susteren co-convened one of the first conferences on the psychological effects of climate change. In 2013, Dr. Van Susteren worked with Dr. James Hansen and other experts on a paper, Assessing "Dangerous Climate Change": Required Reductions of Carbon Emissions to Protect Young People, Future Generations and Nature. (Hansen et al., 2013). In May 2018, Dr. Van Susteren received the Distinguished Fellow award of the American Psychiatric Association, its highest membership honor. Dr. Van Susteren has helped develop youth climate anxiety assessment tools, conducted research and reviewed data in assessing the mental health of young people faced with climate change. Dr. Van Susteren provided

expert testimony on the physiological harms caused by climate change to Montana's youth, including the Youth Plaintiffs, the psychological harms caused by the MEPA Limitation, and the availability of remedies to alleviate Plaintiffs' psychological injuries. Dr. Van Susteren is a qualified expert, and the Court found her testimony credible.

103. Michael Durglo, Jr., is a member of the Confederated Salish and Kootenai Tribes (CSKT). He has a Bachelor of Science degree in Environmental Science from Salish Kootenai College. Mr. Durglo has worked in different capacities for the CSKT for over three decades. In his current role as Head of the Tribal Preservation Department and Chairman of the Climate Change Advisory Committee (CCAC), Mr. Durglo has worked extensively with tribal elders and youth on climate related issues. He has been involved with the Institute for Tribal Environmental Professionals' Climate Change Adaptation Planning Workshop, and he served as the co-chair of the National Tribal Science Council and the chair of the EPA Region 8 Tribal Operations Committee, consisting of EPA tribal environmental directors in Montana, Wyoming, Colorado, Utah, and North and South Dakota. He has taught workshops and seminars on climate adaptation planning throughout North America. Mr. Durglo is a qualified expert and the Court found him informative and credible.

104. Children are uniquely vulnerable to the consequences of climate change, which harms their physical and psychological health and safety, interferes with family and cultural foundations and integrity, and causes economic deprivations. [LB 473:12-24, 474:12-477:12; LVS 1177:5-8, 1202:6-24, 1215:13-24, 1217:2-1222:11; MDJ 597:9-18, 600:23-604:14, 609:23-610:10; LB-9, LB-15, LB-16; LVS-11, LVS-25].

105. Children are at a critical development stage in life, as their capacities evolve, and their physiological and psychological maturity develops more rapidly than at any other time in life. [LB 474:12-477:12, 485:10-486:1; LVS 1177:10-21, 1213:7-23, 1215:13-24].

106. The brains and lungs of children and youth are not fully developed until around age 25. [LB 474:18-25; LVS 1213:7-16].

107. All children, even those without pre-existing conditions or illness, are a population sensitive to climate change because their bodies and minds are still developing. [LB 473:12-24, 474:12-477:12; LVS 1177:2-1178:12, 1213:7-23; LB-9; LVS-11].

108. The physical and psychological harms are both acute and chronic and accrue from impacts to the climate such as heat waves, droughts, wildfires, air pollution, extreme weather events, the loss of wildlife, watching glaciers melt, and the loss of familial and cultural practices and traditions. [LB 498:12-25, 524:11-22; LVS 1178:13-1179:6, 1196:6-11, 1200:7-1201:25, 1202:6-24, 1204:21-1205:19, 1206:19-1209:12, 1218:2-16, 1219:25-1220:11, 1221:19-21; MDJ 595:18-596:2, 597:6-18, 600:23-604:14, 606:11-607:2, 608:1-13, 609:23-610:10].

109. Climate change can cause increased stress and distress which can impact physical health. [LB 526:8-16; LVS 1188:16-24; LVS-15]. Dr. Van Susteren observed that Youth Plaintiffs testified to specific personal consequences. For example:

a. Grace feels fearful due to the glaciers disappearing from a state she loves.

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b. Sariel has suffered significant distress due to the impacts of climate change on culturally important plants, and snow for creation stories. Her cultural connection to the land increases this impact.

c. Mica has experienced a sense of loss from having to stay inside due to wildfire smoke.

d. Olivia expressed despair due to climate change.

e. Claire has been impacted by fear and loss from glaciers melting, and anxiety over whether it is a safe world in which to have children.

110. Heat waves are associated with significant psychological stress. Increased heat and temperature negatively affect cognition and are linked to increased incidence of aggression and exacerbation of pre-existing mental health disorders. [LVS 1197:1-1198:7, 1200:7-12; LVS-29].

111. Children have a higher risk of becoming ill or dying due to extreme heat. [LB-15, LB-16].

112. Drought is associated with anxiety, depression, and chronic despair. [LVS 1200:24-1201:25].

113. Wildfires, including those witnessed by Badge, are traumatic. Being surrounded by wildfires can make the world feel unsafe and the inability to breathe clean air creates anxiety. [LVS 1202:6-24, 1204:21-1205:19].

114. The threat of loss can be enough to cause mental health harms, especially when there are no signs the future will be any different. [LVS 1203:15-1204:6].

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115. As climate disruption transforms communities, some Plaintiffs are experiencing feelings that they are losing a place that is important to them.

116. The IPCC has found, with *very high confidence*, that climate change has "detrimental impacts" on mental health and the harms to mental health are expected to get worse. [LVS 1185:12-1186:3, 1192:23-1194:9, 1195:6-13; P127; LVS-23, LVS-24].

117. The 2021 report, Climate Change and Human Health in Montana, found that "[t]he mental health impacts of climate change are profound and varied." [LVS-27]. Extreme weather events, prolonged heat and smoke, and environmental change can all impact mental health and increase feelings of disconnectedness and despair. [LVS 1196:6-11; P31; LVS-28].

118. Exposure to extreme heat can cause heat rash, muscle cramps, heatstroke, damage to liver and kidney, worsening allergies, worsening asthma, and neurodevelopmental effects. [LB 485:2-9; P31; LB-13, LB-14].

119. The psychological harms caused by the impacts of climate change can result in a lifetime of hardships for children. [LVS 1194:4-9, 1210:2-1211:2, 1213:24-1215:4; P127; LVS-12].

120. The physiological features of children make them disproportionately vulnerable to the impacts of climate change and air pollution. [LB 474:14-25, 475:4-10; LVS 1213:7-23; LB-9, LB-10; LVS-11].

121. Children have a higher basal metabolic rate, which makes it harder for them to dissipate heat from their bodies. [LB 475:14-21].

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122. Children breathe in more air per unit of time than adults and consume more food and water proportional to their body weight, making children more susceptible to polluted or contaminated air, water, or food. [LB 476:21-477:12].

123. Typical child behavior and physiology—which involves spending more time recreating outdoors and more difficulty self-regulating body temperature—render children more susceptible to excess heat, poor air quality, and other climate change impacts. [LB 476:21-477:12, 481:9-19].

124. Childhood exposure to climate disruptions and air pollution can result in impaired physical and cognitive development with lifelong consequences. Air pollution can trigger or worsen juvenile idiopathic arthritis, leukemia, and asthma in children. [LB 482:9-21, 502:4-22; LB-25; LVS 1205:20-1206:8, 1207:18-1208:3].

125. The air quality where Plaintiffs live has been negatively impacted by smoke from wildfires contributed to by climate change.

126. Allergies are increasingly prevalent among children and anthropogenic climate change is extending the allergy season and exacerbating allergy symptoms. An increase in these symptoms can affect children's physical and psychological health by interfering with sleep, play, school attendance, and performance. [LB 484:25-485:9, 508:2-16; LVS-30].

127. Climate change is contributing to an increase in the severity and frequency of asthma in children. Six million children in the U.S. ages 0-17 have asthma, which translates to approximately one in every twelve children. [LB 485:7-8, 503:1-14, 505:4-25; LB-26, LB-30].

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128. Children who have pre-existing respiratory conditions, including asthma, are especially vulnerable to climate impacts, including increasing air pollution and rising temperatures. Wildfire smoke has harmed the health of Plaintiffs Olivia, Jeffrey, and Nate, all who have pre-existing health conditions, and other Plaintiffs, including Badge and Eva. [LB 505:12-506:20, 508:23-509:1; LB-28].

129. Plaintiffs Olivia and Grace are distressed by feeling forced to consider foregoing a family because they fear the world that their children would grow up in. [LB 497:4-21; LVS 1214:21-1215:1, 1221:19-1222:5; GGS 208:3-22].

130. Plaintiffs Rikki, Kian, Claire, and Taleah, face economic deprivations, including barriers to keeping family wealth and property intact and decreased future economic opportunities.

131. Extreme heat threatens the health of competitive athletes, including Kian, Georgi, Claire, and Grace. [LB 490:6-491:15; LB-18].

132. For indigenous youth, like Ruby, Lilian, and Sariel, extreme weather harms their ability to participate in cultural practices and access traditional food sources, which is particularly harmful to indigenous youth with their place-based cultures and traditions. [LB 491:23-493:9; MDJ 579:19-580:9].

133. Because of their unique vulnerabilities, their stages of development as youth, and their average longevity on the planet in the future, Plaintiffs face lifelong hardships resulting from climate change. [LB 474:14-25, 475:4-10; LVS 1177:2-1178:12, 1189:1-6,1194:4-9, 1210:2-1211:2, 1213:7-23, 1215:13-24].

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134. Youth are more vulnerable to the mental health impacts of climate change because younger people are more likely to be affected by the cumulative toll of stress and have more adverse childhood experiences (ACEs). ACEs increase the likelihood of cumulative trauma that leads to mental and physical illness, as well as an increased risk of early death. [LB 521:14-16, 5236-15; LVS 1210:2-1211:2; LB-33; LVS-31].

135. ACEs can cause prolonged fear, anxiety, and stress, cognitive impairments, and unhealthy risk behaviors. ACEs can also cause long-term health impacts including increased risk of obesity, diabetes, heart disease, depression, strokes, chronic obstructive pulmonary disease, and broken bones. [LB 516:3-20, 519:16-520:4, 522:17-523:2; LB-34].

136. Children born in 2020 will experience a two to sevenfold increase in extreme events, particularly heatwaves, compared with people born in 1960. [LB 495:1-11, 497:1-3; P45; LB-20].

137. According to the IPCC, "Climate change is a threat to human well-being and planetary health (*very high confidence*)." The IPCC stated, "Without urgent, effective, and equitable mitigation and adaptation actions, climate change increasingly threatens ecosystems, biodiversity, and the livelihoods, health and wellbeing of current and future generations (*high confidence*)." [LB 530:11-533:9; LB-43, LB-44; P143; SR-61].

138. The unrefuted testimony at trial established that climate change is a critical threat to public health. [LB 536:10-537:14].

139. Actions taken by the State to prevent further contributions to climate change will have significant health benefits to Plaintiffs. [LB 534:25-535:9].

IV. CLIMATE CHANGE IS ALREADY ADVERSELY AFFECTING MONTANA'S NATURAL ENVIRONMENT.

140. Anthropogenic climate change is impacting, degrading, and depleting Montana's environment and natural resources, including through increasing temperatures, changing precipitation patterns, increasing droughts and aridification, increasing extreme weather events, increasing severity and intensity of wildfires, and increasing glacial melt and loss. [JS 655:2-658:10, 659:6-660:11; *see generally* SR, CW, DF; CW-56; DF-20].

141. Climate change impacts result in hardship to every sector of Montana's economy, including recreation, agriculture, and tourism. For example, private water supplies will be harmed. [SR 144:13-145:17; CW-52].

142. Montana has already warmed significantly more than the global average. [CW 263:12-17, 263:20-264:7; CW-18, CW-19].

143. All parts of Montana have seen a long-term trend of increasing mean annual temperatures since 1950. Winter and spring have warmed the most [CW 267:18-268:20; CW-21; P6].

144. There is a scientific consensus that rising temperatures in Montana are due to rising GHG concentrations, primarily CO_2. [SR 103:5-9, 117:25-118:12; CW 269:18-25].

145. Montana's snowpack has been decreasing and is likely to continue decreasing with warmer temperatures, as a long-term trend caused by impacts to the climate. [CW 283:11-19; CW-33, CW-35, CW-55; DF 421:12-23].

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146. Montana's April 1, Snow Water Equivalent, which is an important metric for how much water will be available during the dry summer months in Montana, has been declining since the 1930s. [CW 284:23-286:15; CW-34].

147. The decline in snowpack is directly attributed to elevated temperatures due to high levels of GHG emissions. [CW 283:11-19, 288:3-10].

148. Warming temperatures in Montana are resulting in more precipitation falling as rain instead of snow, particularly in western Montana. This results in reduced snowpack and shorter snowpack runoff duration in the spring and summer. Warming temperatures and rapid snowmelt and rain-on-snow events have been a major cause of spring flooding in Montana. [CW 291:17-292:20].

149. Extreme spring flooding events are consistent with climate change, including more spring precipitation, which can cause flash flooding when rain falls on snow. [SR 144:24-145:8; SR-44]. Spring flooding is expected to increase in frequency with increased climate change. [CW 291:15-292:20].

150. The 2018 Shields River flooding and the 2022 Yellowstone River flooding event are examples of rain on snow and heavy precipitation events that will be more frequent with climate change. [CW 291:15-292:20].

151. Dr. Dan Fagre holds a Ph.D. from the University of California, Davis. He joined the National Park Service as a research scientist in 1989 and, in 1991, he became the Climate Change Research Coordinator at Glacier National Park as part of the nationwide United States Global Change Research Program. His position was transferred to the United States Geological Survey (USGS), where he served until his retirement in 2020, after which he has

continued as Scientist Emeritus. At Glacier National Park, Dr. Fagre helped develop a national climate change research program within the National Park Service, coordinating with other scientists at national parks from Florida to Alaska. He built a research program centered on Glacier Park as a representative mountain ecosystem, engaging faculty and scientists from Montana universities and across the U.S. [P190]. Dr. Fagre is a well-qualified expert, and his testimony was informative and credible.

152. Glacier National Park is a major driver of the regional economy and a source of fresh water for countless communities. [Def. Answer, Doc. 54 ¶ 159; DF 404:10-406:10, 407:1-3, 408:11-25, 426:2-17; DF-13].

153. The glaciers in Glacier National Park were an early focus of the U.S. Geological Survey climate change research because they are excellent indicators of impacts to the climate. Located above the rest of the mountain ecosystem, glaciers respond only to climatic forces that affect summer temperatures that melt ice and snow and winter snow accumulation (i.e., snowpack). [DF 394:15-396:1, 396:25-397:17].

154. Of the approximately 146 glaciers present in Glacier National Park in 1850, only twenty-six glaciers larger than twenty-five acres remained in 2015. 82% of Glacier Park's glaciers are gone and there has been a 70% loss of area of all glaciers. [DF 418:1-8, 422:25-424:4; DF-17, DF-20].

155. Since 1900, glaciers in Glacier Park lost 66% of their area, making Montana the largest region for glacier loss in the U.S. lower forty-eight. Agassiz Glacier, Grinnell Glacier, Jackson Glacier, Sperry Glacier, and

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Thunderbird Glacier have all experienced significant retreat. [DF 409:9-23, 410:23-415:5, 412:13-21, 415:12-416:20; P61-P64; DF-8, DF-15, DF-16, DF-18, DF-20, DF-21].

156. The scientific consensus is that the retreat of Glacier Park's glaciers over the past century is due to human GHG emissions (mainly CO_2 from fossil fuel burning). [DF 409:24-410:19, 416:21-417:15, 422:8-19, 424:5-11, 428:13-24].

157. The current ice retreat of Glacier Park's glaciers is in response to modern, human-caused warming of the region. [DF 428:13-24].

158. Computer models project the loss of Glacier Park's glaciers if fossil fuel emissions continue to rise. [DF 425:9-23].

159. The loss of Glacier National Park's glaciers will affect the water sources of many communities, stream and river hydrology, local economies, and the recreational opportunities of several Plaintiffs because they will be denied access to natural resources enjoyed by previous generations of Montanans. [DF 404:10-406:10, 407:1-3, 408:11-25, 426:2-17; DF-13].

160. If GHG emissions are reduced glaciers would slow their melting, eventually stabilize, and then begin to grow again. [DF 428:1-12].

161. Climate change results in water levels in Montana's rivers and lakes that are routinely well below normal levels in summer and fall months and water temperatures that are well above historical levels. [JS 686:18-687:4, 690:7-17, 692:22-25, 693:2-7; JS-25].

162. Dr. Jack Stanford received his Ph.D. in Freshwater Ecology at the University of Utah. [JS-2]. He is Professor Emeritus at the Flathead Lake Biological Station (FLBS) of the University of Montana. He was the Director and

Bierman Professor of Ecology at the University of Montana (1980-2016). His primary area of research is aquatic ecosystem processes, including influences of human activities. He has published over 220 scientific papers and books on aquatic ecosystem processes, including influences of human activities. [P194]. Dr. Stanford is a well-qualified expert, and his testimony was informative and credible.

163. Montana is part of the northern Rocky Mountain region. The northern Rocky Mountains are a headwaters region, including for the Missouri River system to the East and the Columbia River System to the West, where most of the water originates as snow. [Def. Answer, Doc. 54 ¶ 157].

164. Montana is a key "water tower" of the Continent. Water that drains from the Rocky Mountains feeds three of the great rivers of North America: the Columbia, the Saskatchewan, and the Missouri-Mississippi. Snow at high elevations provides eighty-five percent of the fresh water that people use in Montana. [DF 405:22-406:10, 407:16-409:1; DF-13; JS 656:21-657:7].

165. The accumulation of winter snowpack in the mountains naturally acts as a reservoir for the hotter, drier months, gradually melting with onset of spring, and in summer providing continuous flow downstream, which is critical in the period of less precipitation and warmer temperatures. [SR 152:2-18]. Some accumulations are held in mountain glaciers which add meltwaters to the flow paths. [DF 407:16-409:1; DF-13].

166. Precipitation also is retained in lakes and wetlands where a large share of runoff penetrates into the ground, feeding aquifers that store water or augment river and stream flows. [JS 655:20-24, 657:13-17, 660:12-661:7; JS-4].

167. Montana's river and lake ecosystems are interconnected with each other and with aquatic and terrestrial ecosystems beyond Montana's borders. [JS 646:2-647:2]. The interconnectivity of Montana's river and lake ecosystems includes being connected with groundwater and atmospheric waters. [JS 661:8-12; JS-4, JS-8, JS-9; P82].

168. The rivers of Montana are interlinked and their flows and the quantity of materials (e.g., sediments) that they naturally transport are now, without functioning glaciers, increasingly dependent on seasonal rain and Snow. These river networks transport and deliver the water and materials that sustain the natural and cultural (human) elements of Montana's ecosystems. [JS 661:8-664:18, 646:2-647:2; JS-4; DF-19].

169. Montana's water resources are critically important to Youth Plaintiffs and all Montana citizens and to many people beyond the State's borders. Montanans must have a dependable supply of clean freshwater. [JS 659:6-19; JS-25].

170. Anthropogenic climate change is disrupting the natural range of variation in the flow paths of Montana's river systems. Compared to the 1960s, the summer streamflow in Montana's rivers has decreased by approximately 20% and stream temperatures have increased between 1-2°C. [JS 666:15-667:20; JS-10, JS-25].

171. As a result of anthropogenic climate change:

a. Surface temperatures in Flathead Lake are too warm for bull and cutthroat trout to sustain their historic populations. [JS 687:5-14].

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b. The Flathead River is experiencing low streamflow and a decline in cutthroat trout populations due to warm temperatures and low water. Bull trout populations have also declined in Flathead Lake. [JS 687:5-14].

c. The Missouri River is experiencing discharge declines, and increase in stream temperatures, fishing restrictions, and algae blooms. [JS 687:15-688:25].

d. The Clark Fork River is experiencing low streamflow and discharge declines. [CW 292:21-293:18; CW-42].

e. The Yellowstone River is experiencing discharge declines, low streamflow, increasing temperatures, fish die offs due to diseases, record-setting floods, a decline in brown trout populations, and algae blooms. [JS 676:4-25, 689:9-690:1].

f. The Powder River is experiencing low streamflow and a decline in water quality. [JS 690:7-17].

g. The Madison River is experiencing increased temperatures, declining discharge, fishing closures, a decline in brown trout populations, algae blooms, fish die offs and river closures. [JS 692:2-10].

h. The Blackfoot River is experiencing declining discharge, increased temperatures, and river closures. [JS 692:22-25].

i. The Smith River is experiencing record low flows in June, increased temperatures, and fishing restrictions. [JS 693:2-7].

j. The Shields River is experiencing low flows and river closures. [JS 693:9-10].

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k. The Bitterroot River has experienced increased temperatures, a reduction in bull trout habitat, algae blooms, and fishing closures. [JS 693:12-22].

172. One impact of anthropogenic climate change to Montana's aquatic ecosystems is that runoff (spring spate) from snowmelt is days to weeks earlier. Loss of snowpack also accelerates warming and water loss owing to reduced reflection than would occur if the snowpack was sustained. [JS 670:20-671:2].

173. Low water levels and abnormally warm water temperatures create harmful conditions for fish and other aquatic organisms. [JS 671:3-17].

174. Access to boating and fishing on certain rivers and lakes in Montana has been limited, and in some instance completely foreclosed, because of low river flows or high-water temperatures. These changes limit the ability of some Plaintiffs to fish and access the State's rivers and lakes for sport or recreation. [SR 152:25-153:9, 153:10-13; JS 679:7-15].

175. Wildfires resulting from climate change have caused nitrogen levels in Montana's lakes to increase. This has caused nutrient imbalances that threaten the plant and animal life in the lakes. [JS 683:1-684:4].

176. If GHG emissions continue to rise, impacts to the climate will further harm Montana's wildlife and fisheries, and the ability of Plaintiffs to hunt and fish. [JS 679:7-15; 687:8-14].

177. The western United States, including Montana, has experienced a trend of increased drought and heat stress from climate change,

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which has killed trees and altered ecosystem dynamics, and this trend toward hotter and drier summers will continue in the future. [SR 106:1-18, 146:18-21, 156:2-17; CW 258:24-259:8, 283:3-10; CW-44].

178. Droughts in Montana are more expansive and longer term which negatively affects stream systems: aquifer systems become depleted due to reduced infiltration of streamflow and rainfall. Where aquifers contribute significantly to base flow maintenance in Montana streams, the outcome is even more extreme and with sustained drying. [JS 677:7-678:1].

179. Anthropogenic climate change is producing a shift from snow to rain earlier in the year, and flooding from intense but extreme, short-duration flooding is more commonly occurring today than in the past (especially in the spring). That ultimately means less water is retained in the drainage network. [JS 676:12-25].

180. Increases in the frequency, duration, and/or severity of drought and heat stress associated with climate change are fundamentally altering the composition, structure, and biogeography of forests in Montana. [SR 106: 1-14]. There is already evidence of accelerating forest mortality in western forests, and this acceleration is clearly tied to increasing temperatures and plant water stress. [SR 156:2-17, 163:9-164:2].

181. Montana's forests are being drastically altered due to the combination of drought, pest infestations, and wildfires. [SR 156:12-157:15].

182. Climate scientists have long known that increasing temperatures intensify drought conditions, and the combination of drier and hotter weather leads to larger, more frequent, and severe wildfires. [SR 106:1-14, 157:2-158:6].

183. The wildfire season in Montana is two months longer than it was in 1980s. [SR 159:7-13]. The lengthening of the fire season is largely due to declining mountain snowpack, earlier spring snowmelt, decreased summer precipitation, and warmer summer temperatures leading to deficits in soil and fuel moisture—which are all due to increasing GHG emissions. [SR 106:1-14, 156:24-157:13, 159:18-160:6, 160:22-24; SR-54; CW 305:3-24; CW-47].

184. The extent of area burned in the U.S. each year has increased since the 1980s. According to National Interagency Fire Center data, of the ten years with the largest acreage burned, all have occurred since 2004, including the peak year of 2021. This period coincides with many of the warmest years on record nationwide. [SR 158:4-11; SR-52].

185. Wildfires in Montana are expected to become significantly worse in the coming years without immediate steps to reduce GHG emissions. [SR 106:1-24; CW 306:11-307:11; CW-49].

186. The effects of anthropogenic climate change, including rising temperatures, changing precipitation patterns, and drought conditions, create challenges and uncertainty for farmers. [CW 312:2-313:15].

187. Climate change affects wildlife, and some species will be more sensitive to impacts to the climate than others. Species may adapt, move, or go extinct. For example, the American pika and Snowshoe hares are considered highly sensitive to climate change due in large part to their dependence on subalpine habitat and snow cover, which is also projected to decline. [SR-59; P72; DF 406:11-15]. Dependence on climate-sensitive habitats like seasonal

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streams, wetlands and vernal pools, seeps and springs, alpine and subalpine snowfield areas, grasslands and balds, is a large driver of species sensitivity. [SR 164:5-16, 165:6-166:6].

188. Rising temperatures will increase the number of freeze-free days in Montana and increase in the number of days above 90°F. [CW 273:6-20, 275:18-276:7; P6; CW-24, CW-27].

189. There will be increasing seasonal variation in Montana's precipitation, with more precipitation falling in the spring and fall and less in the winter and summer. The change in precipitation timing and a decrease in precipitation during the summer months, combined with increasing summer temperatures, will contribute to increasing risk of summer drought conditions in parts of Montana and more precipitation falling as rain as opposed to snow. [CW 281:4-21; CW-30, CW-35; P6, P34].

190. Increasing temperature will offset small increases in precipitation by increasing rates of evaporation and transpiration and will make late-summer and fall droughts highly likely and increasingly severe. [CW 283: 3-10].

191. The current decline in Montana snowpack and snow accumulation is projected to continue. The loss of snowpack and snow accumulation is primarily driven by increasing temperatures, which are caused by anthropogenic GHG emissions. [CW 283:11-19, 284:23-285:21, 286:9-15, 287:15-288:10, 290:20-291:9; CW-35].

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192. Spring runoff in Montana is projected to increase through the 21st century because of warmer temperatures and earlier snowmelt. Increased January-April runoff will lead to increasingly low streamflow in July-September. [CW 293:8-18].

193. The science is clear that there are catastrophic harms to the natural environment of Montana and Plaintiffs and future generations of the State due to anthropogenic climate change. [SR 105:9-21, 149:15-150:7]. The degradation to Montana's environment, and the resulting harm to Plaintiffs, will worsen if the State continues ignoring GHG emissions and climate change. [SR 105:22-106:18, 137:10-15, 168:17-169:7, 169:19-21; CW 318:2-5, 316:17-317-14; DF 428:6-12; JS 712:8-12].

V. CLIMATE CHANGE IS ALREADY HARMING PLAINTIFFS.

194. The unrefuted testimony established that Plaintiffs have been and will continue to be harmed by the State's disregard of GHG pollution and climate change pursuant to the MEPA Limitation.

195. Plaintiff Rikki Held lives on her family's ranch twenty miles outside of Broadus, Montana. Broadus is a ranching community in Southeastern Montana, with a population of approximately 450 people in the town and approximately 2000 in Powder River County.

a. Rikki has experienced climate change-related harms to herself and her family ranch, including harms from flooding, severe storms, wildfires, and drought.

b. The Powder River runs through Rikki's ranch. The ranch includes five pivot fields and pine-covered hills. Rikki and her family have raised cattle on the ranch, grew crops to feed cattle, and owned horses.

c. Rikki started riding horses and herding livestock when she was four. Rikki grew up involved in ranching activities, working with livestock, haying, and fixing fences.

d. Rikki's grandparents are from Broadus and her dad grew up in Broadus.

e. Rikki and her family run a motel that rents rooms to travelers. Rikki often works for the family motel business. The primary source of Rikki's family's income is the ranch (currently leased) and motel business. Loss of this income affects Rikki personally.

f. Impacts to the climate are already harming Rikki's home, family, community, income, and way of life.

g. Rikki was often required to work outside on the ranch regardless of the temperatures or air quality. Rikki's physical well-being has been harmed by wildfires and wildfire smoke, as well as extreme heat.

h. In 2012, the Ash Creek fire burned seventy miles of power poles, causing the loss of electricity on Rikki's ranch for a month. Electricity is required to access water for both cattle and Rikki's house on the ranch, so the loss of electricity harmed both cattle and Rikki.

i. Climate change has impacted the snowpack on the ranch in recent years, with snow typically not lasting through the winter. Reduced winter snowpack means less natural water available for cattle. As a result, the cattle must rely on water tanks, which are far apart and expensive to install. With less water, there is also less grass available for the cattle to eat.

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j. With less water and grasses, cattle travel further for water and food, and lose weight. This means the cattle are not as valuable and the ranch profits and income declined.

k. Wildfires have closed roads around Broadus limiting the number of people that can reach Rikki's family motel business, causing lost income for Rikki and her family.

l. Climate change has caused increased variability in water levels in the Powder River. Rikki's family relies on the river to water their livestock. Increasingly, the river levels are extremely low while at other times the river floods.

m. In 2017, the Powder River flooded and eroded the riverbank on Rikki's ranch, undercutting a fifty-year-old fence. Since then, continued flooding has eroded about fifty feet of riverbank, with floodwaters that nearly reach Rikki's home.

n. Rikki experiences stress and despair from how climate change impacts her well-being, the well-being of her family, and the well-being of other Montanans. Montana is Rikki's home and seeing how climate change is impacting Montana and her family ranch is a heavy emotional burden for Rikki.

o. Rikki faces economic harm, including barriers to keeping family wealth and property intact and decreased future economic opportunities.

196. Plaintiffs Lander Busse and Badge B. are brothers, living in Kalispell, Montana.

a. Lander and Badge enjoy hunting and fishing.

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b. Lander and Badge hunt with their parents and grandparents. Hunting is an important family activity.

c. Lander and Badge's ability to hunt and fish is inhibited due to climate change consequences, including extreme heat and wildfires.

d. Climate change has adversely impacted Lander and Badge's ability to fish by rendering certain waterways impassible by raft due to low instream levels or too-warm water temperatures, which harm fish and decrease their populations.

e. Lander and Badge have had their ability to fish limited or foreclosed due to fishery closures as a result of climate change-induced conditions in Montana's rivers. Lander and Badge have also had their access to rivers limited for other recreational activities.

f. The extreme temperatures and smoke have at times made hunting unbearable and impossible for Lander and Badge. Smoky conditions have also impacted their fishing activities.

g. Due to climate change, the wildfire smoke in Kalispell, and in other parts of Montana where Badge recreates, makes it difficult for Badge to breathe and triggers a cough, which negatively impacts his health and well-being.

h. In 2018, a wildfire near the Busse's home forced their family to prepare to evacuate. Preparing to evacuate was a traumatic experience for Lander and Badge. Badge is worried that wildfires will continue to threaten his home.

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i. Lander has seasonal pollen allergies, which are worsening due to the increased pollen count and a changing climate.

j. Lander is an accomplished musician and theater performer and often performs outdoors. Climate change and wildfires have hampered his ability to perform music and theater at a high level and have negatively impacted his physical well-being.

k. Badge is named after the Badger-Two Medicine, an area where he frequently recreates and fishes. Wildfires in the Badger-Two Medicine have destroyed trees and have degraded areas important to Badge and where he enjoys visiting and recreating, which has had a powerful emotional impact on Badge. Badge experiences a sense of loss and distress knowing that the area is being damaged and degraded due to climate change. Badge feels as if a part of him were lost in the Badger Two-Medicine fire.

l. Badge is passionate about skiing and has skied for as long as he can remember. Climate change is reducing Badge's ability to participate in this important recreational activity.

m. Badge is anxious when he thinks about the future that he, and his potential children, will inherit.

n. Lander and Badge care deeply about protecting Montana's environment, which is an integral part of their family traditions, culture, and identity. Witnessing the current impacts of climate change in Montana is traumatic for both Lander and Badge.

o. Lander and Badge are experiencing the loss of ties to the land in Montana.

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197. Plaintiff Sariel Sandoval is a member of the Confederated Salish and Kootenai Tribes and is from Ronan, Montana.

a. Sariel and her family have a deep connection to the natural world, and have a unique connection to the land, the natural environment, and the seasons. Climate change is harming Sariel's culture and tribal practices. Sariel went to a Salish language immersion school called Nkwusm in Arlee. At school, Sariel was taught her native language and learned about the Salish culture.

b. Sariel was excited to receive her Salish name, which means "Person Who Brings the Cedar." Cedar has important cultural significance because it provides a connection through the land to the Creator.

c. Sariel feels a strong sense of connection to her community. She believes that carrying on her community's traditions is important because it is their way of life and reflects their connection to the land.

d. Gathering and using sweet grass and bear root is important to Sariel culturally and spiritually.

e. Sariel is concerned about how climate change affects the seasons because her culture is very ingrained with the land and the seasons. It also affects plants and foods her tribe needs to survive, and she is concerned that these changes will change the community itself. Because of earlier-than-normal snowmelt and the consequent drying of mountain streams as a result of climate change, plants used in Salish and Kootenai medicines are becoming scarcer and more difficult for tribe members to gather.

f. Coyote Stories are a culturally important type of Creation Story that can only be told when there is snow on the ground. Sariel is

concerned because the snow is not staying on the ground as long, and she does not know what will happen to the stories when there is no more snow.

g. Climate change impacts Sariel's ability to partake in cultural and spiritual activities and traditions, which are central to her individual dignity. Climate change has disrupted tribal spiritual practices and longstanding rhythms of tribal life by changing the timing of natural events like bird migrations.

h. Sariel worked at Blue Bay Campground the summer after she graduated high school. Sariel lost a few weeks of work and income due to the nearby Finley Point fire (also known as the Boulder 2700 Fire) in 2021. The fire also led to the road being shut down, homes being lost, and people being evacuated.

i. Sariel is often unable to see the mountains near her home due to wildfire smoke.

j. Berry picking is a staple cultural activity for Sariel and her family. Some huckleberry bushes are not producing fruit because of drought and Sariel must travel higher up into the mountains to find healthy huckleberries.

k. Climate change has a profound emotional impact on Sariel, who experiences stress and despair about the impacts her community is facing due to climate change.

l. Sariel was greatly distressed when she learned that Montana was almost at the point of no return with respect to climate change.

198. Plaintiff Kian Tanner lives on his family's property in Bigfork, Montana.

a. Kian's property has been degraded by wildfire smoke.

b. Kian is a passionate fly fisher and has fished with his dad since he was about four years old. Kian hopes he will be able to preserve this tradition and fish for the next fifty years or more.

c. The warmer water temperatures, lower oxygen levels, and declining instream flows due to climate disruption are harming Montana's rivers and fish. These climate impacts have decreased fishing opportunities for Kian as he has had to cancel fishing trips due to wildfires. Not being able to fish is devastating for Kian.

d. Kian lives near and enjoys visiting and recreating in Glacier National Park, which is a very special place for Kian. He is distressed he will never be able to see the natural glaciers as they have historically existed, and as other generations experienced them.

e. Kian enjoys downhill and cross-country skiing, which is an activity he does with his mom, who taught him to ski. Kian cross-county skis on his family's property. Impacts to the climate have reduced his opportunities to downhill and cross-country ski.

f. Increased smoke in the summer has harmed Kian's ability to play soccer, fish, and otherwise recreate outside, activities which are crucial for his emotional health and foundational to his family. Kian's soccer practices have been cancelled due to heat and wildfire smoke.

g. The smoke often forces Kian to seek refuge indoors, which makes him feel very claustrophobic.

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h. Kian's fears about impacts to the climate take an emotional toll on him and he feels a heavy burden to carry the mantel of the generation that must address climate change.

199. Plaintiff Georgianna Fischer (Georgi) is from Bozeman, Montana.

a. Georgi's family has lived in Montana for generations. Goergi's great grandmother, Mary "Polly" Wisner Renne, is someone that Georgi admires because of her work to protect Montana's environment. Renne was a key figure in establishing protections for the Lee Metcalf Wilderness Area.

b. Georgi is a competitive Nordic skier. She has competed on the national level, including Junior National Championships, U.S. National Championships, and the 2021 NCAA competition. She trains eleven months of the year, six days a week. Georgi's ability to compete and participate in Nordic skiing has been directly impacted by climate disruption. Declining winter snowpack has inhibited Georgi's ability to complete necessary and appropriate training and hinders her ability to continue to compete at a high level, which adversely impacts her health and mental well-being.

c. In recent years there has not been enough snow to groom trails or create tracks in the snow to Nordic ski race until January, although historically tracks were created in November.

d. Georgi's summer Nordic skiing training has been impacted by wildfires and wildfire smoke. Practices have been cancelled or curtailed due to smoke and the smoke prevents Georgi from training at a high intensity. Georgi is increasingly worried about the long-term effects that the exposure to heavy wildfire smoke while training has on her health and respiratory

system. Extreme heat also harms Georgi and her ability to recreate and train outdoors. The heat has caused her to feel dizzy, nauseous, generally unwell, and has caused persistent nosebleeds that led Georgi to seek medical attention.

e. Georgi enjoys paddleboarding, rafting, backpacking, hiking, and other outdoor activities. Georgi's recreation on Montana's rivers has been impaired due to low water levels and stream flows. Georgi and her family have had to cancel river rafting trips, including one on the Smith River, due to low stream flow.

f. Georgi experiences feelings of despair and hopelessness because of the declining winter snowpack and what that trend entails for her snow-based sport.

200. Kathryn Gibson-Snyder (Grace) is from Missoula, Montana.

a. Grace's recreation on Montana's rivers and streams has been affected due to both low water levels and flooding conditions. Because of climate change, Grace's access to the Clark Fork River for recreational activities has been increasingly impaired, limiting her ability to enjoy activities important to her health and family.

b. Grace enjoys many outdoor activities, including long-distance biking, hiking, soccer, and kayaking.

c. Grace has been harmed by wildfire smoke and extreme heat; which have adversely impacted her ability to play competitive soccer. Smoke and heat have led to fewer soccer practices and the cancellation of games. Wildfires have impacted Grace's ability to go outside, enjoy outdoor activities, and have placed her safety, health, and well-being at risk.

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d. One of Grace's environmental community education events was cancelled due to wildfire smoke.

e. Grace has had hiking activities impacted by wildfire smoke.

f. Grace experiences psychological harms, is distressed from day-to-day climate conditions, and is anxious about climate change. It is devastating for Grace to think that Montana's special landscapes, like Glacier National Park's glaciers, will not exist as they have in the past, or at all, when she is older.

g. Even though Grace would like to raise children in Montana, she questions whether she can morally bring children into the world, because of her knowledge and fear of the world that her children would grow up in if climate change is not ameliorated.

201. Plaintiff Olivia Vesovich is from Missoula, Montana.

a. Olivia has exercise-induced asthma and is therefore particularly vulnerable to smoke-filled air. In smoky conditions, Olivia feels she is suffocating if she spends more than thirty minutes outdoors. During smoky conditions, Olivia is forced to stay inside and reduce or eliminate the outdoor activities she enjoys. Olivia has been forced to spend recent summers away from Montana due to the smoke-filled air and her asthma.

b. Olivia suffers from spring pollen allergies, which force her to stay indoors and prevent her from engaging in the recreational activities she enjoys. Olivia's spring allergies cause her eyes to swell shut and can cause eye pain for weeks at a time. Olivia's allergies have become progressively worse in recent years.

c. Olivia is affected emotionally and psychologically by climate change, and experiences bouts of depression when she thinks about the dire projections of the future. Olivia would like to have children of her own, but she questions whether this is an option in a world devastated by the effects of climate change.

d. Olivia experiences psychological harms and is distressed from day-to-day climate conditions and is anxious about climate change. There are days when Olivia feels paralyzed by the impacts and threats of climate change and she fears that it is too late to address climate change.

e. For Olivia, climate anxiety is like an elephant sitting on her chest and it feels like a crushing weight. This climate anxiety makes it hard for her to breathe.

202. Plaintiff Claire Vlases is from Bozeman, Montana.

a. Claire works as a ski instructor at Big Sky Resort, and her ability to earn money is harmed by climate disruption, which is decreasing Montana's winter snowpack and the number of days Claire can work. Claire has been sent home from her job as a ski instructor without working her scheduled shift, and without pay, because of insufficient snow. Claire relies on her income as a ski instructor, so the lost income is a financial hardship for her.

b. Claire regularly visits Glacier National Park where she loves to hike. Seeing the loss of glaciers in Glacier National Park is terrifying for Claire and reduces her enjoyment of the park. Claire's ability to enjoy hiking in Glacier National Park has also been diminished due to increasing wildfire smoke, which obstructs the beautiful views and is harmful to her health.

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c. Claire has been harmed by the reduced snowpack in Montana and the related impacts to winter sports and tourism.

d. Claire's ability to run cross-country has been harmed by extreme heat and wildfire smoke. Claire has had cross-country practices cancelled due to dangerously smoky air quality conditions. The heat and smoke make it difficult for Claire to train and compete.

e. Claire's family has water rights to Bozeman Creek. Claire and her family use the water for drinking, plumbing, watering their garden, and all other water needs at their home.

f. Claire's water security is threatened by Montana's melting glaciers, declining snowpack, and increasing summer drought conditions, which lead to water scarcity and low water levels in Bozeman Creek.

g. As an individual born with a disability, Claire relies on the outdoors for recreational therapy to replace the physical therapy her insurance stopped providing when she was ten years old. The outdoors helped Claire to grow strong and she continues to rely on activities like skiing, biking, hiking, and running to maintain her physical health. Claire depends on a clean and healthful environment for her physical and mental health and well-being.

h. Climate change impacts harm Claire's mental health, causing her to feel stress, anxiety, and a sense of helplessness about the future.

203. Plaintiff Taleah Hernández is from Polson, Montana, and lives on the Flathead Indian Reservation.

a. Taleah has been forced to remain inside for extended periods of time during the summer because of poor air quality caused by excessive wildfire smoke. Wildfires have caused Taleah to lose electricity at her

home and forced her to prepare to evacuate her home. The Boulder 2700 fire in 2021, forced Taleah to cut down trees around her property for fire safety.

b. Taleah works outdoors with horses and other animals. Dangerous air quality conditions created by wildfire smoke have caused Taleah to miss days of work, lose pay, and lose opportunities to ride horses.

c. Wildfires and wildfire smoke have prevented Taleah from participating in outdoor recreation activities, including hiking and paddleboarding on Flathead Lake.

d. Changes in weather and climate patterns, including warming winter temperatures, have reduced the number of opportunities Taleah has to ice skate on Flathead Lake in the winter.

e. Wildfires and wildfire smoke have caused Taleah physical and emotional distress.

204. Plaintiff Eva L. is from Livingston, Montana.

a. Eva enjoys many outdoor activities, including backpacking, climbing, and cycling, which are central to her family life.

b. Eva has been harmed by wildfire smoke in Montana on numerous occasions, and Eva has suffered eye, nose, and throat irritation and headaches because of the smoky air.

c. Eva and her family had a family trip to Glacier National Park negatively impacted by excessive wildfire smoke, which posed risks to Eva's health and safety.

d. Eva has been harmed by the impacts of extreme flooding. In 2018, flooding along the Shields River damaged a bridge and rendered impassable for more than a year the primary route from Eva's home to

the town of Livingston. A temporary bridge was also washed away due to extreme flooding. Eva's family eventually decided to relocate because of this hardship. Being cut off from town was very stressful for Eva and her family.

e. Eva moved to Livingston and now lives near the Yellowstone River. Eva feels a strong connection to the river. In 2022, there was major flooding along the Yellowstone River, including in Livingston. [CW-41; JS-11]. Eva helped fill sandbags to hold back the flood waters. [P108, P109]. A park near Eva's home was underwater. [P110]. Eva saw her community and close friends lose property due to flooding.

f. The 2022 flooding in Livingston caused Eva acute emotional distress, panic, and dread. Parks and other public places she often visits were significantly damaged, preventing her enjoyment of them.

g. Eva's access to the Yellowstone River in summer 2016 was significantly curtailed, as a 180-mile portion of the river was closed for several weeks due to a parasite growth in cutthroat and rainbow trout perpetuated by abnormally high air temperatures and historically low river flows.

h. Eva has experienced forced relocation and the loss of ties to the land.

i. Eva has had her ability to access Montana's rivers for other recreational activities limited due to river conditions.

j. Wildfire smoke has impacted Eva's ability to hike and spend time outdoors with her family.

k. Eva is anxious about how she, her family and community can adapt to the devastation of public resources and infrastructure as the impacts of climate change worsen. Eva is increasingly anxious about the

climate change impacts she and her family are experiencing. She is distressed that climate change will worsen if action is not immediately taken.

205. Plaintiff Mica K. is from Missoula, Montana.

a. Rising temperatures and wildfires resulting from climate change make it difficult for Mica to recreate outdoors and participate in activities he loves, and which are important to his health and well-being.

b. Mica has been forced to spend extended periods of time indoors and has lost school recess time because of wildfire smoke. In 2019, a forest fire started approximately one mile from Mica's home, and Mica is anxious that, as climate change worsens, he may lose his family home.

c. Wildfire smoke has impacted Mica's training as a long-distance runner. Mica is an avid runner, running his first half-marathon when he was nine. He runs regularly with his dad. Running is a way for Mica to be in nature and relieve stress. Running in smoke makes Mica feel sick, so he cannot run as much due to increasingly smoky summers in Missoula. Smoke has limited Mica's ability to train and compete in sports.

d. Mica gets frustrated when he is required to stay indoors during the summer because of wildfire smoke.

e. Mica's family now avoids camping and other outdoor activities in August and September due to wildfire smoke and its negative effect on Mica's health.

f. Mica was recently diagnosed with exercise-induced asthma, which puts him at greater risk for respiratory hardship when the air is smoky.

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g. Mica's favorite animal is the pika. Mica understands the pika is uniquely vulnerable to climate impacts, and its survival is in jeopardy due to climate change.

h. Mica's outdoor recreation activities such as enjoying the views of glaciers in Glacier National Park are disrupted by climate change. Seeing the glaciers recede in Glacier National Park is depressing for Mica.

i. Climate change causes Mica to feel anxious, stressed, and depressed, and makes it hard for him to sleep at times.

206. Plaintiffs Jeffrey K. and Nathaniel K. are brothers who grew up in Montana City, Montana.

a. Jeffrey K. has pulmonary sequestration and is uniquely susceptible to respiratory complications, such as infections. Nathaniel K. also has respiratory issues. Both Jeffrey and Nate are therefore especially vulnerable to poor air quality, such as smoke-filled air caused by wildfires. [LB 487:21-488:11, 505:4-25].

b. The increasing length and severity of the wildfire season harms Jeffrey's and Nathaniel's health, especially given their young age and pre-existing respiratory health conditions. It has forced their family to make changes in daily activities. [LB 487:21-488:11, 505:4-25].

207. Plaintiffs Ruby D. and Lilian D. are from Bozeman, Montana. Shane Doyle is their father and he testified on their behalf.

a. Ruby and Lilian are members of the Crow Nation. Ruby and Lilian regularly travel to the Crow Reservation to visit family members and engage in traditional cultural activities.

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b. Ruby's Crow name is Biachəgata, which means "Pretty Woman." Lilian's Crow name is Malesch, which means "Loved by Many."

c. Abnormal and extreme weather conditions caused by climate change have impacted Ruby's and Lilian's ability to engage and otherwise partake in cultural practices that are central to their spirituality and individual dignity.

d. Ruby and Lilian visit their family on the Crow Reservation several times a year. Ruby and Lilian attend Crow Fair on the Crow Reservation every year. Crow Fair takes place each August and is a large gathering to celebrate cultural activities and events. Many people, including Ruby and Lilian, stay in teepees. Attending Crow Fair is a highlight for Ruby and Lilian. Ruby and Lilian love dancing at Crow Fair, and enjoy the parades, the rodeo, and doing family events.

e. In recent years, increasing temperatures at Crow Fair have made it hard to wear traditional regalia and participate in cultural activities because it is dangerously hot, sometimes over 100 degrees.

f. Wildfire smoke has also made it difficult for Ruby and Lilian to enjoy the Crow Fair.

g. It is a huge disappointment to Ruby and Lilian when they are unable to dance or participate in other events at the Crow Fair due to heat or smoke.

h. Crow Fair used to coincide with when chokecherries were ripe, which was important because many meals eaten at Crow Fair involved

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chokecherries. In recent years chokecherry harvest has become much harder to predict, and drought has meant there are less chokecherries available for the festival.

i. Ruby and Lilian pick chokecherries with their family as part of the Crow tradition. They enjoy participating in the process of picking the berries, processing them into syrup, and eating them. But due to drought and heat, fewer chokecherries are available and some stands that usually have berries had none. Increased wildfire frequency has impacted the ability of Ruby and Lilian to participate in these traditional cultural practices.

j. Ruby was diagnosed with asthma when she was eight years old and had an acute form of pneumonia. As a result, Ruby stays inside when it is smoky, and Lilian often stays inside too. This is a disappointment for Ruby and Lilian.

k. During the Bridger fire, which burned near Bozeman in 2020, Ruby and Lilian were worried to see a fire so close to their home and it brought up concerns about whether they were safe.

l. Climate disruption has impacted Ruby and Lilian's outdoor recreation activities, such as rafting, swimming, and floating. Drought has created low river conditions that have impacted Ruby and Lilian's ability to enjoy recreating on the river because it has such low flow.

m. Ruby and Lilian believe that protecting Montana's environment and natural resources is important because in their culture taking care of the Earth is their responsibility.

208. The testimony of the Youth Plaintiffs and their guardian was credible and was undisputed.

VI. DEFENDANTS' ACTIONS CONTRIBUTE TO CLIMATE CHANGE AND HARM PLAINTIFFS.

209. Anne Hedges received a B.S. in environmental policy analysis and planning from the University of California at Davis in 1988 and a Master of Environmental Law, *magna cum laude,* from Vermont Law School in 1993. She is Co-Director and Director of Policy and Legislative Affairs at the Montana Environmental Information Center (MEIC). She directs MEIC's program work, including its legislative, regulatory, policy, and legal activities. She has worked at MEIC since 1993, and her work is focused on pollution-related policy issues in Montana, with a primary emphasis on impacts to air, water, landscapes, and climate from fossil fuels. Ms. Hedges is a well-qualified expert, and the Court found her testimony informative and credible.

210. Peter Erickson received a bachelor's degree in Geology in 1998 at Carleton College, Minnesota, as well as coursework in intermediate microeconomics and macroeconomics at the University of Washington. Mr. Erickson has worked as an environmental and climate policy and technical analyst in greenhouse gas emission accounting, most recently with the Stockholm Environment Institute, an international research institution providing, in part, technical analysis to government and NGOs on the details of climate policy and emissions accounting. Mr. Erickson has served on both national and international committees devoted to GHG emissions accounting: one convened by the International Council of Local Environmental Initiatives (ICLEI) to create a U.S. Community-scale GHG Emissions Accounting and Reporting Standard, and one convened by the Greenhouse Gas Protocol to create the Greenhouse Gas Mitigation Goals Standard. [P192]. Mr. Erickson testified about Montana's fossil

fuel consumption, extraction, and infrastructure, focusing on three categories: (1) extraction of fossil fuels; (2) processing and transportation of fossil fuels; and (3) consumption of fossil fuels by end users. For each of these categories, Mr. Erickson quantified the amount of coal, oil, and gas and translated that in units of carbon dioxide (CO_2) emissions released from the fuels once they are combusted. Mr. Erickson added up all the coal, oil, and gas to determine the emissions associated with the extraction, consumption, and transportation of those fuels. In his opinion, emissions from Montana's fossil fuel consumption, extraction, and infrastructure are globally significant quantities. Mr. Erickson is a well-qualified expert, and the Court found his testimony informative and credible.

211. Defendants offered the testimony of Dr. Terry Anderson as an expert economist. Purporting to be based on data from the Energy Information Agency (EIA), Dr. Anderson provided extremely limited testimony in response to three questions: (1) the total greenhouse gas emissions for the world; (2) the 2020 greenhouse gas consumption emissions for the state of Montana; and (3) the 2022 greenhouse gas consumption emissions for the state of Montana. Dr. Anderson's testimony was not well-supported, contained errors, and was not given weight by the Court.

212. Defendants permit three types of fossil fuel-related activities: (1) extraction of fossil fuels; (2) processing and transportation of fossil fuels; and (3) consumption of fossil fuels by end users. [PE 914:12-915:3; PE-9].

213. Fossil fuel consumption includes any combustion, or burning, of these fuels, primarily for energy. Fossil fuel extraction is mining, pumping, drilling, or otherwise taking fossil fuels out of the ground for purposes of making fuels. Fossil fuel processing and transportation are activities that occur

between that initial extraction and combustion by the end user, such as refining, or moving the fuels in bulk from one place to another. [PE 914:14-21; PE-11].

214. It is possible to calculate the amount of CO_2 and GHG emissions that results from fossil fuel extraction, processing and transportation, and consumption activities that are authorized by Defendants. [PE 915:13-21; P311; PE-10].

215. Data indicates that in 2019, the total annual fossil fuels extracted in Montana led to about 70 million tons of CO_2 being released into the atmosphere once the fuels were combusted, which is higher than many other countries, including Brazil, Japan, Mexico, Spain, or the United Kingdom. [PE 922:23-923:3, 928:18-929:11, 950:13-14; PE-17].

216. Data indicates that in 2019, total annual fossil fuels consumed in Montana led to about 32 million tons of CO_2 being released into the Atmosphere.

217. In 2019, total annual fossil fuels transported and processed in and through Montana led to at least 80 million tons of CO_2 being released into the atmosphere once those fuels were combusted. [PE 923:19-924:4, 950:14-15]. That is equivalent to all the GHG emissions from Columbia, which has 50 times the population of Montana. [PE 930:11-23; PE-17, PE-20].

218. Accounting for overlap among fossil fuels extracted, consumed, processed, and transported in Montana, the total CO_2 emissions due to Montana's fossil fuel-based economy is about 166 million tons CO_2. [PE 924:5-18, 950:16-18; PE-18]. This is a conservative estimate and does not include all the GHG emissions, including methane, for which Montana is responsible. [PE 928:5-9; PE-17].

219. The 166 million tons CO_2 due to Montana's fossil fuel-based economy is equivalent to the emissions from Argentina (with forty-seven million residents), the Netherlands (with eighteen million residents), or Pakistan (with 248 million residents). [PE 931:22-932:9; PE-22].

220. In terms of per capita emissions, Montana's consumption of fossil fuels is disproportionately large and only five states have greater per capita emissions. [PE 930:19-23, 938:23-25; PE-25].

221. The cumulative CO_2 emissions from all fossil fuels extracted in Montana since 1960 is 3.7 billion metric tons of CO_2. [PE 941:9-19; PE-26].

222. Montana is a major emitter of GHG emissions in the world in absolute terms, in per person terms, and historically. [PE 930:19-23].

223. Montana has six coal mines that Defendants authorize: Spring Creek Mine, Rosebud Mine, Decker Mine, Absaloka, Bull Mountain, and Savage Mine. [PE 942:16-943:5]. Montana also has the largest estimated recoverable coal reserves in the U.S., and Montana is a substantial exporter of coal. [AH 791:1-25; AH-7-AH-13; PE 946:1-3].

224. Montana's annual coal production is 34 million short tons of coal. [PE 946:5-22]. Montana's coal reserves, as of 2019, are 707 million short tons. [PE 945:21-25; PE-37].

225. Montana is a substantial producer of oil and gas in the U.S. Defendants authorize the drilling and production of oil and gas in Montana. [PE 932:18-933:5, 949:7-15].

226. Montana has approximately 4,000 oil producing wells with an annual oil production of twenty-three million barrels. As of 2019, Montana's oil reserves were 298 million barrels. [PE 946:23-947:8; PE-36, PE-37].

227. Montana has approximately 5,000 gas producing wells with an annual oil production of forty-three billion cubic feet. As of 2019, Montana's gas reserves were 613 billion cubic feet. [PE 947:14-19; PE-36, PE-37].

228. Between 1960 and 2019 the fastest growing category of fossil fuel consumption in Montana has been gas. [PE 942:11-12].

229. Montana is home to four state-authorized oil refineries. [PE 948:22-24, 949:10-15]. Montana's refineries process crude oil largely from Canada and Wyoming and distribute the refined product by railroad and pipeline throughout Montana and to nearby states. [PE 948:17-949:23; PE-38].

230. Montana's land contains a significant quantity of fossil fuels yet to be extracted. [Def. Answer, Doc. 54 ¶ 139; PE 945:21-946:4, 947:16-19, 945:1-25].

231. Montana's GHG emissions have grown significantly since the passage of the 1972 Montana Constitution. [AH 940:15-941:2; PE-27, PE-28].

232. Defendants continue to approve permits and licenses for new fossil fuel activities. [AH 862:1-5; SN 1354:12-16].

233. Defendants have authorized fossil fuel extraction, transportation, and combustion resulting in high levels of GHG emissions that contribute to climate change. [AH 831:22-832:1, 846:25-847:11, 845:14-846:3; AH-50-AH-61; PE 932:18-933:5].

234. In taking action to authorize fossil fuel extraction, since 2011 Defendants have not considered or disclosed GHG or climate change impacts in their environmental reviews because they were statutorily precluded from doing so. [AH 836:2-13, 845:14-846:3; AH-50-AH-61].

235. DEQ issues air quality permits to facilities that emit GHG emissions. [AH 788:13-23; Def. Answer, Doc. 11 ¶ 90].

236. DEQ has authorized fossil fuel extraction, transportation, and combustion, which generate GHG emissions, contribute to climate change, and harm Plaintiffs. [AH 845:14-846:24; AH-50-AH-61].

237. What happens in Montana has a real impact on fossil fuel energy systems, CO_2 emissions, and global warming. [PE 976:8-24; PE-40].

VII. THE MEPA LIMITATION AND ITS IMPLEMENTATION.

238. The 2011 MEPA Limitation provided in pertinent part:

> (2)(a) Except as provided in subsection (2)(b), an environmental review conducted pursuant to subsection (1) may not include a review of actual or potential impacts beyond Montana's borders. It may not include actual or potential impacts that are regional, national, or global in nature.

239. While this case has been pending, Judge Moses held in *MEIC v. DEQ*:

> Here, the plain language of MCA 75-1-201(2)(a) precludes agency MEPA review of environmental impacts that are 'beyond Montana's borders,' but it does not absolve DEQ of its MEPA obligation to evaluate a project's environmental impacts within Montana. DEQ misinterprets the statute. They must take a hard look at the greenhouse gas effects of this project as it relates to the impacts within the Montana borders.

Order on Summary Judgment at 29:3-9, *MEIC v. DEQ*, No. DV-56-2021-1307 (Thirteenth Dist. Ct., April 6, 2023).

240. Eight days after Judge Moses' ruling, on April 14, 2023, HB 971 was introduced in the Montana Legislature. HB 971 was passed, sent to enrolling

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on May 1 and signed by the Governor on May 10, 2023. HB 971 clarifies the MEPA Limitation to say:

> (2)(a) Except as provided in subsection (2)(b), an environmental review conducted pursuant to subsection (1) may not include an evaluation of greenhouse gas emissions and corresponding impacts to the climate in the state or beyond the state's borders.
> (b) An environmental review conducted pursuant to subsection (1) may include an evaluation if:
> (i) conducted jointly by a state agency and a federal agency to the extent the review is required by the federal agency; or
> (ii) the United States congress amends the federal Clean Air Act to include carbon dioxide emissions as a regulated pollutant.

Mont. Code Ann. § 75-1-201(2)(a) (enacted May 10, 2023) (new language underlined).

241. On May 19, 2023, various provisions of MEPA that pertain to legal challenges to MEPA environmental reviews were amended when the Governor signed SB 557 into law. SB 557 created Mont. Code Ann. § 75-1-201(6)(a)(ii), which states:

> (ii) An action alleging noncompliance or inadequate compliance with a requirement of parts 1 through 3, including a challenge to an agency's decision that an environmental review is not required or a claim that the environmental review was inadequate based in whole or in part upon greenhouse gas emissions and impacts to the climate in Montana or beyond Montana's borders, cannot vacate, void, or delay a lease, permit, license, certificate, authorization, or other entitlement or authority unless the review is required by a federal agency or the United States congress amends the federal Clean Air Act to include carbon dioxide as a regulated pollutant.

Mont. Code Ann. § 75-1-201(6)(a)(ii) (enacted by SB 557, 68th Legislature (2023)) (signed May 19, 2023).

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242. Other components of SB 557 limit who can challenge an agency's final decision, the scope of the challenge, and require challengers to pay a fee to compile and submit a certified record to the reviewing court. [AH 825:4-826:18; AH-45].

243. Both the 2011 and 2023 versions of the MEPA Limitation allowed Projects to be permitted without consideration of their impacts that increase emissions of greenhouse gases. [AH 851:9-852:23; AH-51-AH-60].

244. The State has known of the dangerous impacts of GHG emissions and climate change for at least the last thirty years. [CW 256:6-15; AH 802:13-18; AH-25, AH-26; P17, P19].

245. State government and scientists have known about the international scientific consensus of the dangers posed by climate change since at least the 1990s when the IPCC started issuing climate assessment reports. The State also had access to the congressionally mandated national climate assessments undertaken in 2000, 2009, 2014, and 2017. [SR 139:12-140:1; AH 797:5-798:6, 802:13-18; CW 256:9-24; AH-32, AH-33, AH-34; P28, P262, P263].

246. In 2007, Defendants DNRC, DEQ, and the Office of the Governor were made aware of the issues concerning the impacts of climate change in Montana, including rising temperatures, accelerating warming, and reduced snowpack, and the need for Montana to reduce its GHG emissions, as a result of the 2007 Montana Climate Change Action Plan and the 2007 Montana Greenhouse Gas Inventory and Reference Case Projections 1990-2020. [CW 243:14-244:3, 256:19-24; CW-12, CW-13, CW-14; AH 806:17-807:20; AH-35, AH-36, AH-37; P2, P18].

247. In 2017, Defendants DNRC, DEQ, and the Office of the Governor were again informed by the 2017 Montana Climate Assessment of the issues concerning the impacts of climate change in Montana. [CW 243:14-244:3; AH 832:12-24; AH-49; P6].

248. In 2019, when then Governor Steve Bullock promulgated Executive Order No. 8-2019 creating the Montana Climate Solutions Council, Defendants knew that "climate change poses a serious threat to Montana's natural resources, public health, communities, and economy," and "Montanans understand that climate change is occurring and are concerned about the impacts it will have on current and future generations." [AH 832:25-833:6; AH-49; P10].

249. In August 2020, when the Montana Climate Solutions Council released its final report, the Montana Climate Solutions Plan (Climate Solutions Plan), the State knew how climate change was already harming Montana and its residents, through rising temperatures, early snowmelt, earlier spring runoff, flooding, changes in water availability and stream temperatures, increase in forest mortality due to insects, and increasing wildfires. [CW 244: 7-22; AH 833:7-835:10; AH-49; P36].

250. The Climate Solutions Plan included thirty-seven recommendations and strategies to reduce Montana's GHG emissions. [AH 833:7-835:10; AH-49; P36]. Defendants have not implemented the recommendations. [AH 835:8-10].

251. In 2021, the report Climate Change and Human Health in Montana was distributed to State officials. [CW 245:2-246-1].

252. Prior to 2011, Defendants were quantifying and disclosing GHG emissions and climate impacts from fossil fuel projects, including, for

example, the Silver Bow Generation Project, the Roundup Power Project (Bull Mountain), and the Highwood Generating Station. [AH 808:10-19, 808:20-809:18, 809:19-810:24, 811:8-24, 813:6-23; AH-38, AH-39, AH-40; P231, P224, P232, P225, P226, P229, P237].

253. Since 2011, because of the MEPA Limitation, Defendants have been statutorily prevented from considering climate change impacts and GHG emissions when conducting environmental reviews. [AH 814:6-21, 816:17-817:14, 818:11-819:10; SN 1361:6-9; AH-42].

254. The MEPA Limitation explicitly prohibits state agencies from considering the impacts of climate change and GHG emissions in environmental reviews under MEPA. [AH 814:22-815:9, 816:17-817:14, 818:11-819:10; SN 1361:6-9; AH-42].

255. Pursuant to the MEPA Limitation, the State has ignored GHG emissions and climate impacts when authorizing fossil fuels activities. [AH 814:22-815:9, 816:17-817:14, 818:11-819:10; AH-51-AH-60].

256. The MEPA Limitation constrains Defendants from making fully informed decisions through their environmental analysis about the scope and scale of the impacts to the environment and Montana's children and youth when conducting environmental reviews. Mont. Code Ann. § 75-1-201(6)(a)(ii) attempts to constrain the authority of courts when reviewing agency permitting decisions and MEPA analyses.

257. If the MEPA Limitation is declared unconstitutional, state agencies will be capable of considering GHG emissions and the impacts of projects on climate change. [AH 807:23-808:19, 821:16-25; SN 1437:4-8; P231, P224, P232, P225, P226, P229, P237].

258. Montana's river and lake ecosystems are interconnected with each other, as well as aquatic and terrestrial ecosystems beyond Montana's borders. Because of this interconnectivity to ecosystems both within and beyond Montana's borders, any prohibition on the consideration of either impacts within Montana or regional impacts of climate change, is not scientifically supported. [JS 642:23-15, 646:2-647:2].

259. Defendants' application of the MEPA Limitation during environmental review of fossil fuel and GHG-emitting projects, prevents the availability of vital information that would allow Defendants to comply with the Montana Constitution and prevent the infringement of Plaintiffs' rights. [AH 810:13-24, 816:9-16, 820:16-821:11, 822:1-823:10; AH-51-AH-60].

260. The State authorizes energy projects and facilities within Montana that emit substantial levels of GHG pollution, including, but not limited to, projects that burn and promote the use of fossil fuels, but pursuant to the MEPA Limitation, Defendants do not consider climate change and GHG emissions and measure those individual and cumulative emissions against the standards the Montana Constitution imposes on the State to protect people's rights, before authorizing energy projects and facilities. [AH 818:25-819:10, 824:8-825:3; AH-51-AH-60].

261. The State issues permits, licenses, and leases that result in GHG emissions without considering how the additional GHG emissions will contribute to climate change or be consistent with the standards the Montana Constitution imposes on the State to protect people's rights. [AH 832:2-11, 841:23-844:9, 843:1-844:5, 844:19-846:3; AH-51-AH-60].

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262. The State authorizes four private coal power plants to operate in the State, which generate 30% of Montana's energy production, without considering how the additional GHG emissions will contribute to climate change or be consistent with the standards the Montana Constitution imposes on the State to protect people's rights. [AH 792:1-21].

263. The State continues to permit surface coal mining and reclamation in Montana, which results in substantial GHG emissions, without considering how the additional GHG emissions will contribute to climate change or be consistent with the standards the Montana Constitution imposes on the State to protect people's rights. [AH 836:16-846:3; PE 934:14-15].

264. The State authorizes, through licenses and leases, the exploration for and extraction of oil and gas in Montana, without considering how the additional GHG emissions will contribute to climate change or be consistent with the standards the Montana Constitution imposes on the State to protect people's rights. [AH 793:6-18, 845:20-846:9].

265. Defendants have and continue to authorize projects, activities, and plans that cause emissions of GHG pollution into the atmosphere, all while ignoring the impacts of climate change and GHG emissions due to the MEPA Limitation. [AH 836:16-846:3; AH-51-AH-60; PE 932:18-933:5]. For example:

a. Defendants authorize and certify energy projects and facilities within the State of Montana that emit substantial levels of GHG pollution, including, but not limited to, projects that burn and promote the use of fossil fuels. [AH 836:16-846:3; PE 932:18-933:5].

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b. DEQ approved the AM4 expansion of Rosebud Strip Mine in December 2015, a 12.1-million-ton coal mine expansion. Pursuant to the MEPA Limitation, DEQ refused to analyze how that decision would aggravate climate impacts. [AH 836:16-837:12; P259, P260, P277; AH-51].

c. DEQ issued a MSUMRA permit to Bull Mountain Mine in January 2016, authorizing Bull Mountain Mine to produce 176 million tons of coal per year. DEQ refused, pursuant to the MEPA Limitation, to analyze how the decision would aggravate climate impacts. [AH 837:14-838:16; P243, P264; AH-52].

d. Between 2002 and 2014, DEQ issued twelve different permits for Signal Peak Energy to operate the Bull Mountain Mine. Since 2011, pursuant to the MEPA Limitation, DEQ refused, in its environmental assessments to consider how those GHG emissions would contribute to climate change or adversely impact Montana's environment and natural resources. [P245, P247, P256].

e. DEQ approved the TR3 expansion of Decker Mine in 2018, allowing for strip-mining of twenty-three million tons of coal. DEQ refused, pursuant to the MEPA Limitation, to analyze how that decision would aggravate climate impacts. [P236, P238, P250, P252, P257-258].

f. In 2020, DEQ approved revision to Spring Creek Mine, the largest coal mine in the State, allowing for recovery of additional seventy-two million tons of coal. In August 2019, DEQ refused, pursuant to the MEPA Limitation, to analyze impacts on the social cost of carbon and economic impacts from climate change in its EIS. [AH 841:23-842:20; P227, P248, P253, P255; AH-56].

g. DEQ authorized the operation of Colstrip Steam Electric Station—which produced 13.2 million metric tons of carbon dioxide equivalent (CO_2e), 38,015 metric tons methane, and 65,919 metric tons nitrous oxide in 2018. CO_2e is a metric measure used to compare the emissions from various greenhouse gases based upon their global warming potential (GWP). [P281, P285, P286].

h. In 2019, when DEQ issued its Record of Decision approving Western Energy's permit application to expand coal mining at Rosebud Coal Mine Area F, where "[t]he proposed mine permit application would add 6,746 acres and approximately 70.8 million tons of recoverable coal reserves to the Rosebud Mine, extending the operational life of the mine by eight years (at the current rate of production)." DEQ, pursuant to the MEPA Limitation, did not consider how those GHG emissions would contribute to climate change or adversely impact Montana's environment and natural resources. [AH 830:25-840:16; SN 1322:21-1323:2; P254, P277, P297; AH-54].

i. DEQ issued the air quality permit to NorthWestern Energy for the Laurel Generating Station (now named the Yellowstone County Generating Station), a proposed gas-fired power plant. Pursuant to the MEPA Limitation, DEQ, in its environmental assessment, did not consider how the GHG emissions would contribute to climate change or adversely impact Montana's environment and natural resources. [AH 831:9-21, 844:19-845:13; P294; AH-57].

j. In May 2022, DEQ issued its Final EIS for Rosebud Mine Area B AM5, in Colstrip. Pursuant to the MEPA Limitation, the environmental assessment did not consider how GHG emissions would

contribute to climate change or adversely impact Montana's environment and natural resources. [AH 840:20-841:22; P228; AH-55].

k. DEQ continues to issue permits for fossil fuel energy projects, including oil and gas pipelines and associated compressor stations, coal mines and coal facilities, oil and gas facilities, oil and gas leases, oil and gas drilling, petroleum refineries, industrial facilities that burn fossil fuels, and fossil fuel power plants. Pursuant to the MEPA Limitation, DEQ does not consider how a proposed project would contribute to climate change or adversely impact Montana's environment and natural resources. [AH 845:14-846:24; PE 949:7-15, 954:2-9; P138, P224, P232, P239, P240, P241, P242, P246, P249, P251, P264, P276, P277, P278, P279, P280, P281, P282, P285-301; AH-58, AH-59, AH-60].

l. DNRC issues permits for fossil fuel projects, including coal mines and oil and gas extraction. DNRC does not consider how GHG emissions from projects will contribute to climate change or adversely impact Montana's environment and natural resources or violate the Constitution, because of the MEPA Limitation. [P217-217; P233, P234, P235, P265-P275, P283, P284].

266. Montana's annual, historical, and cumulative GHG emissions are increased by Defendants' actions to permit and approve fossil fuel activities with no environmental review of their impact on GHG levels in the atmosphere and climate change. [PE 932:18-933:5].

267. Defendants' actions cause emissions of substantial levels of GHG pollution into the atmosphere within Montana and outside its borders, contributing to climate change. [SR 164:18-166:16; PE 932:18-933:5].

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268. The State's actions exacerbate anthropogenic climate change and cause further harms to Montana's environment and its citizens, especially its youth. [AH 845:14-846:2; P150].

VIII. THE MEPA LIMITATION PREVENTS FULL REVIEW OF THE TECHNOLOGICALLY AND ECONOMICALLY AVAILABLE ALTERNATIVES TO FOSSIL FUEL ENERGY IN MONTANA.

269. Dr. Mark Jacobson obtained a M.S. in Environmental Engineering, from Stanford University. Dr. Jacobson also obtained both a M.S. and later a Ph.D. in Atmospheric Sciences from UCLA. In 1994, Dr. Jacobson became an Assistant Professor in the Department of Civil & Environmental Engineering at Stanford. Since 2007, he has been a full professor in that Department. Dr. Jacobson was a co-founder and is Director of Stanford's Atmosphere/Energy Program, as well as a Senior Fellow at Stanford's Precourt Institute for Energy, and Stanford's Woods Institute for the Environment. Since 2008, Dr. Jacobson has been Director and Co-founder of The Solutions Project, an organization that utilizes the combined efforts of individuals in the fields of science, business, and culture to accelerate the transition to 100% renewable energy use in the United States. Starting in 1999, Dr. Jacobson began examining clean, renewable energy solutions. In 2015, this research culminated in the development of roadmaps to transition the all-sector energy infrastructures of each of the fifty United States to 100% clean, renewable energy by 2050, which Dr. Jacobson updated in 2022. Dr. Jacobson has published six textbooks of two editions each and over 175 peer-reviewed journal articles. Dr. Jacobson's career has focused on understanding air pollution and global warming problems and developing large-scale clean, renewable energy solutions to those problems. In

this case, Dr Jacobson summarized his research related to Montana and the feasibility of transitioning Montana swiftly from fossil fuels to clean and renewable energy in all sectors by mid-century, where all energy sectors include electricity, transportation, heating/cooling, and industry. Dr. Jacobson is a well-qualified expert, and his testimony was informative and credible.

270. The MEPA Limitation causes the State to ignore renewable energy alternatives to fossil fuels. [MJ 1030:7-1032:24, 1035:9-23, 1069:18-1071:8, 1066:6-17, 1067:10-20; MJ-15, MJ-62, MJ-63; AH 823:15-825:3; P312].

271. Non-fossil fuel-based energy systems across all sectors, including electricity, transportation, heating/cooling, and industry, are currently economically feasible and technologically available to employ in Montana. Experts have already prepared a roadmap for the transition of Montana's all-purpose energy systems (for electricity, transportation, heating/cooling, and industry) to a 100% renewable portfolio by 2050, which, in addition to direct climate benefits, will create jobs, reduce air pollution, and save lives and costs associated with air pollution. [MJ 1030:7-1032:24, 1035:9-23, 1069:18-1071:8, 1066:6-17, 1067:10-20; P312; MJ-15, MJ-62, MJ-63].

272. It is technically and economically feasible for Montana to replace 80% of existing fossil fuel energy by 2030 and 100% by no later than 2050, but as early as 2035. [MJ 1072:4-23, 1100:9-1101:4; P312; MJ-62, MJ-63]. A number of countries around the world with populations far larger than Montana's relied on >95% wind, water, and sunlight (WWS) to power their electricity sectors in 2021. [MJ-44].

273. To replace fossil fuel energy, Montana would need to electrify all energy sectors with existing or near-existing appliances and

machines, and then generate the electricity for all sectors with 100% WWS, namely onshore wind, utility-scale photovoltaics (PV), rooftop PV, geothermal power, and hydroelectric power. [MJ 1043:9-1045:8, 1045:15-1047:10; P312; MJ-12, MJ-15, MJ-18, MJ-19, MJ-20, MJ-29].

274. All-purpose Montana energy in 2050 can be met, for example, in one scenario, with 4.5 gigawatts (GW) of onshore wind, 3 GW of rooftop PV, 2.9 GW of utility-scale PV, 0.17 GW of geothermal electricity, and 2.7 GW of hydropower (which already exists). [MJ 1057:2-1058:15; MJ-29].

275. Converting from fossil fuel energy to renewable energy would eliminate another $21 billion in climate costs in 2050 to Montana and the world. Most noticeable to those in Montana, converting to wind, water, and solar energy would reduce annual total energy costs for Montanans from $9.1 to $2.8 billion per year, or by $6.3 billion per year (69.6% savings). [MJ-39]. The total energy, health, plus climate cost savings, therefore, will be a combined $29 billion per year (decreasing from $32 to $2.8 billion per year), or by 91%. [MJ 1061:20-1063:24; MJ-15, MJ-39, MJ-40, MJ-41, MJ-42].

276. Wind, water, and solar are the cheapest and most efficient form of energy. Cost per unit of energy in a 100% WWS system in Montana would be about 15% lower than a business-as-usual case by 2050, even when including increased costs for energy storage. New wind and solar are the lowest cost new forms of electric power in the United States, on the order of about half the cost of natural gas and even cheaper compared to coal. [MJ 1045:9-1047:10, 1062:8-1063:24; MJ-20].

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277. According to a 2018 Montana DEQ report, Understanding Energy in Montana, Montana has significant solar energy potential, comparable to many other U.S. cities. [MJ 1086:21-1087:4; P9; MJ-50].

278. The new footprint over land required to implement a 100% renewable energy system in Montana would be only about 0.06% of Montana's land. Utility scale solar would occupy 0.01% of Montana's land (fourteen square miles), while new wind turbines, including the land around those turbines, which could be used for agriculture, open space, or more solar panels, would occupy about 0.05% (seventy-one square miles) of Montana's land. In comparison, Montana's oil and gas wells and associated infrastructure already occupy about 304 square miles of land (0.21% of Montana land area). [MJ 1079:25-1082:3; MJ-46].

279. There is an abundant supply of renewable energy and four ways to store renewable energy: heat storage (in water), cold storage (as ice), electricity storage (pumped hydropower, batteries, hydrogen fuel cells), and hydrogen as a form of storage (for use in long distance transportation and steel production). [MJ 1057:2-15, 1058:5-15, 1072:24-1073:7, 1076:9-1077:22, 1079:22-1082:8; MJ-15, MJ-19, MJ-45, MJ-62].

280. Montana's energy needs in 2050 under a 100% WWS roadmap would decline significantly (over fifty percent) as compared to a business-as-usual energy system due to a mix of gains in energy efficiency in vehicles and appliances, and through eliminating the significant amounts of energy required to extract, transport, and refine fossil fuels. [MJ 1045:9-1047:10; MJ-15, MJ-19, MJ-20, MJ-21, MJ-22, MJ-23, MJ-24, MJ-25, MJ-26, MJ-27, MJ-28, MJ-55].

281. Transitioning to WWS will keep Montana's lights on while saving money, lives, and cleaning up the air and the environment, and ultimately using less of Montana's land resources. [MJ 1061:4-1062:12, 1066:6-17, 1066:18-1067:20, 1079:22-1082:8; MJ-15, MJ-20-MJ-30, MJ-39, MJ-41, MJ-42, MJ-46, MJ-56, MJ-57, MJ-58, MJ-62].

282. The current barriers to implementing renewable energy systems are not technical or economic, but social and political. Such barriers primarily result from government policies that slow down and inhibit the transition to renewables, and laws that allow utilization of fossil fuel development and preclude a faster transition to a clean, renewable energy system. [MJ 1042:15-1043:2, 1059:9-1061:3, 1100:9-1101:4, 1103:11-1104:24; MJ-15, MJ-19, MJ-20, MJ-33, MJ-35, MJ-36, MJ-38, MJ-62, MJ-63].

283. Montana has abundant renewable energy resources that can provide enough energy to power Montana's energy needs for all purposes in 2050. [MJ 1058:2-15; MJ-15, MJ-19, MJ-29, MJ-30, MJ-46, MJ-47, MJ-48, MJ-50, MJ-61, MJ-62].

IX. THE 1972 MONTANA CONSTITUTION.

284. Mae Nan Ellingson was a delegate to the 1972 Montana Constitutional Convention. Ms. Ellingson's testimony was informative and provided useful context, including on the compilation of the records of the Constitutional Convention proceedings on which Montana courts regularly rely. Ms. Ellingson was elected to the Constitutional Convention as a delegate from Missoula County.

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285. The first "delegate proposal" advanced during the Constitutional Convention was for a constitutional provision on environmental quality.

286. Article IX, Section 1 of the Constitution states that "[t]he state and each person shall maintain and improve a clean and healthful environment in Montana for present and future generations." This provision came about after long debate to strengthen the environmental article recommended by the Natural Resources Committee by including the words "clean" and "healthful."

287. As reflected in the Constitutional Convention Transcripts (March 1, 1972, Vol. V 1230), Ms. Ellingson suggested the "legislature shall provide adequate remedies to prevent" language of Article IX, Section 1 to assure greater protections of the current environment. She believed that if you are trying to protect the environment, you need the ability to sue or seek injunctive relief before the environmental damage is done--paying someone monetary damages after the harm is done does little good. This position was complemented by including the right to a clean and healthful environment in the Declaration of Rights in Article II, Sec. 3 of the Montana Constitution. The decision to include the right to a clean and healthful environment as one of the unalienable rights included in the Bill of Rights passed by a large majority.

288. During the Constitutional Convention, there were concerns among the delegates over the constitutional rights for people under the age of eighteen, and Article II, Section 15 in the Declaration of Rights was included to ensure that Montana's youth have the same fundamental rights as adults. This section was adopted with broad support.

289. Delegates to the 1972 Constitutional Convention intended to adopt the strongest preventative and anticipatory constitutional environmental provisions possible to protect Montana's air, water, and lands for present and future generations.

CONCLUSIONS OF LAW

1. To the extent that any of the foregoing Findings of Fact incorporate Conclusions of Law or the application of law to fact, they are incorporated herein as Conclusions of Law.

2. This Court has jurisdiction over the parties and subject matter in this case.

3. The Conclusions of Law are conformed to the evidence presented at trial by both parties. Mont. R. Civ. P. 15(b)(2). The Court will address the constitutionality of Mont. Code Ann. § 75-1-201(6)(a)(ii), which was enacted by SB 557 and addressed by both parties during trial and in trial briefing. *See, e.g.,* Docs. 390, 402.

I. PLAINTIFFS HAVE PROVEN STANDING.

A. Plaintiffs Have Proven Injury.

4. As described in the Findings of Fact, Youth Plaintiffs have experienced past and ongoing injuries resulting from the State's failure to consider GHGs and climate change, including injuries to their physical and mental health, homes and property, recreational, spiritual, and aesthetic interests, tribal and cultural traditions, economic security, and happiness.

5. Plaintiffs' mental health injuries directly resulting from State inaction or counterproductive action on climate change, on their own, do not establish a cognizable injury. *Steel Co. v. Citizens for a Better Envt.*, 523 U.S. 83,

107 (1998). However, Plaintiffs' mental health injuries stemming from the effects of climate change on Montana's environment, feelings like loss, despair, and anxiety, are cognizable injuries.

6. Every additional ton of GHG emissions exacerbates Plaintiffs' injuries and risks locking in irreversible climate injuries.

7. Plaintiffs' injuries will grow increasingly severe and irreversible without science-based actions to address climate change.

8. Plaintiffs have proven that as children and youth, they are disproportionately harmed by fossil fuel pollution and climate impacts.

9. Plaintiffs have proven that they have suffered injuries that are concrete, particularized, and distinguishable from the public generally.

10. Plaintiffs suffer and will continue to suffer injuries due to the State's statutorily mandated disregard of climate change and GHG emissions in the MEPA Limitation, and due to SB 557's removal of MEPA's preventative equitable remedies with Mont. Code Ann. § 75-1-201(6)(a)(ii).

B. Plaintiffs Have Proven Causation at Trial.

11. The PSC is exempted from MEPA as a matter of law. Mont. Code Ann. § 75-1-201(3).[2]

12. There is a fairly traceable connection between the MEPA Limitation and the State's allowance of resulting fossil fuel GHG emissions, which contribute to and exacerbate Plaintiffs' injuries.

13. There is a fairly traceable connection between the State's disregard of GHG emissions and climate change, pursuant to the MEPA Limitation, GHG emissions over which the State has control, climate change impacts, and Plaintiffs' proven injuries. Unlike in *Bitterrooters Inc.*, the causal

[2] Hereinafter, when the Court refers to Defendants or the State, the PSC is excluded.

relationship between the permitted activities and the resulting environmental harms is reasonably close. *Bitterrooters for Planning, Inc. v. Mont. Dep't of Envtl.* Quality, 2017 MT 222, ¶ 25, 401 P.3d 712. The State authorizes fossil fuel activities without analyzing GHGs or climate impacts, which result in GHG emissions in Montana and abroad that have caused and continue to exacerbate anthropogenic climate change.

14. The Defendants have the authority under the statutes by which they operate to protect Montana's environment and natural resources, protect the health and safety of Montana's youth, and alleviate and avoid climate impacts by limiting fossil fuel activities that occur in Montana when the MEPA analysis shows that those activities are resulting in degradation or other harms which violate the Montana Constitution.

15. Montana's contributions to GHG emissions can be measured incrementally and cumulatively both in terms of immediate local effects and by mixing in the atmosphere and contributing to global climate change and an already destabilized climate system.

16. Montana's GHG contributions are not *de minimis* but are nationally and globally significant. Montana's GHG emissions cause and contribute to climate change and Plaintiffs' injuries and reduce the opportunity to alleviate Plaintiffs' injuries.

C. Plaintiffs Have Proven Redressability at Trial.

17. The psychological satisfaction of prevailing in this lawsuit does not establish redressability. *Steel Co.* at 107.

18. Defendants can alleviate the harmful environmental effects of Montana's fossil fuel activities through the lawful exercise of their authority if

they are allowed to consider GHG emissions and climate change during MEPA review, which would provide the clear information needed to conform their decision-making to the best science and their constitutional duties and constraints, and give them the necessary information to deny permits for fossil fuel activities when inconsistent with protecting Plaintiffs' constitutional rights.

19. Montana's land contains a significant quantity of fossil fuels yet to be extracted. The State and its agents could consider GHG emissions and climate impacts and reject projects that would lead to unreasonable degradation of Montana's environment.

20. A reduction in Montana's GHG emissions that results from a declaration that Montana's MEPA Limitation is unconstitutional would provide partial redress of Plaintiffs' injuries because the amount of additional GHG emissions emitted into the climate system today and in the coming decade will impact the long-term severity of the heating and the severity of Plaintiffs' injuries.

21. It is possible to affect future degradation to Montana's environment and natural resources and injuries to these Plaintiffs.

22. Permitting statutes give the State and its agents discretion to deny permits for fossil fuel activities. *See, e.g.,* Mont. Code Ann. §§ 75-2-203 and -204 (discretion under Clean Air Act of Montana to prohibit facilities that cause air pollution); § 75-2-211(2)(a) (DEQ to provide rules governing suspension or revocation of air quality permits); § 75-2-218(2) (DEQ has discretion to deny air quality permits); § 75-2-217(1) (DEQ to provide rules governing suspension or revocation of operating permits); 75-20-301 (DEQ can only approve permits for Major Facility Siting Act facilities after considering

numerous discretionary factors, including environmental impacts and public health, welfare, and safety); § 77-3-301 (state lands "may" be leased for coal if "in the best interests of the state"); § 77-3-401 (state lands "may" be leased for oil and gas if consistent with the Constitution); § 82-4-102(3)(a) (stating purpose of surface and underground mining and reclamation laws to vest DEQ with rulemaking authority to "either approve or disapprove" new strip mines or new underground mines); § 82-4-227 (DEQ has wide discretion to refuse mining permits).

23. The State must either: 1) have discretion to deny permits for fossil fuel activities when the activities would result in GHG emissions that cause unconstitutional degradation and depletion of Montana's environment and natural resources, or infringement of the constitutional rights of Montana's children and youth; or 2) the permitting statutes themselves must be unconstitutional.

24. "[C]ourts should avoid constitutional issues whenever possible." *Park Cnty. Envtl. Council v. Mont. Dep't of Envtl. Quality*, 2020 MT 303, ¶ 54, 477 P.3d 288 (citing *Sunburst Sch. Dist. No. 2 v. Texaco, Inc.*, 2007 MT 183, ¶ 62, 165 P.3d 1079). Under the doctrine of constitutional avoidance, this Court clarifies that Defendants do have discretion to deny permits for fossil fuel activities that would result in unconstitutional levels of GHG emissions, unconstitutional degradation and depletion of Montana's environment and natural resources, or infringement of the constitutional rights of Montanans and Youth Plaintiffs.

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II. MONT. CODE ANN. § 75-1-201(6)(a)(ii) IS NOT A BARRIER TO REDRESSABILITY BECAUSE IT IS FACIALLY UNCONSTITUTIONAL UNDER *PARK COUNTY.*

25. Mont. Code Ann. § 75-1-201(6)(a)(ii) eliminates the preventative remedies available to MEPA litigants: vacatur and injunction. The State raised Mont. Code Ann. § 75-1-201(6)(a)(ii) during trial as a barrier to redressability in this case, bringing it before the Court and making the issue unavoidable.

26. The Legislature is obligated under Article IX, Sec. 1(3) to provide "adequate remedies for the protection of the environmental life support system from degradation" and "to prevent unreasonable depletion and degradation of natural resources." Mont. Const. Art. IX, Sec. 1(3).

27. "MEPA is an essential aspect of the State's efforts to meet its constitutional obligations, as are the equitable remedies without which MEPA is rendered meaningless." *Park Cnty.* ¶ 89.

28. In *Park Cnty*, a unanimous Court reasoned:

> Montanans' right to a clean and healthful environment is complemented by an affirmative duty upon their government to take active steps to realize this right. Article IX, § 1, Subsections 1 and 2 of the Montana Constitution command that the Legislature 'shall provide for the administration and enforcement' of measures to meet the State's obligation to 'maintain and improve' the environment. Critically, Subsection 3 explicitly directs the Legislature to 'provide adequate remedies to prevent unreasonable depletion and degradation of natural resources ...
>
> Without a mechanism to prevent a project from going forward until a MEPA violation has been addressed, MEPA's role in meeting the State's 'anticipatory and preventative' constitutional obligations is

> negated. Whatever interest might be served by a statute that instructs an agency to forecast and consider the environmental implications of a project that is already underway—perhaps analogous to a mandatory aircraft inspection after takeoff—the constitutional obligation to prevent certain environmental harms from arising is certainly not one of them.

Id. ¶¶ 63, 72.

29. Pursuant to the Court's decision in *Park Cnty.*, Mont. Code Ann. § 75-1-201(6)(a)(ii) is facially unconstitutional because it eliminates MEPA litigants' remedies that prevent irreversible degradation of the environment, and it fails to further a compelling state interest. *Park Cnty.* ¶¶ 63, 69-72.

III. ALL PLAINTIFFS' CONSTITUTIONAL CLAIMS ARE PREDICATED ON DEGRADATION OF MONTANA'S CLEAN AND HEALTHFUL ENVIRONMENT.

30. All of Plaintiffs' claims hinge on whether the MEPA Limitation and Mont. Code Ann. § 75-1-201(6)(a)(ii) violate Mont. Const. Art. II, Sec. 3 and Art. IX, Sec. 1.

a. The Public Trust Doctrine is already codified in the Montana Constitution in Art. IX, Sec. 3. *Galt v. State*, 225 Mont. 142, 144, 146, 731 P.2d 912, 913, 914 (1987) (citing *Mont. Coal. for Stream Access v. Curran*, 210 Mont. 38, 682 P.2d 163 (1984) and Mont. Const. Art. IX, Sec. 3(3)).

b. Except for Plaintiffs' mental health injuries resulting from government inaction on climate change, the alleged equal protection, dignity, liberty, and health and safety violations all stem from harm to Montana's environment.

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c. Plaintiffs' mental health injuries resulting from government inaction alone do not establish a cognizable, redressable injury.

d. It would be impossible for the Court to find that the MEPA Limitation and Mont. Code Ann. § 75-1-201(6)(a)(ii) do not violate Art. II, Sec. 3 and Art. IX, Sec. 1, and then find that the statutes violate the Public Trust Doctrine or the rights to equal protection, dignity, liberty, or health and safety.

IV. DETERMINING WHETHER THE CONSTITUTIONAL PROVISIONS AT ISSUE ARE SELF-EXECUTING IS UNECESSARY TO RESOLVE THIS CONTROVERSY.

31. It is possible to resolve this case without determining whether Art. II, Sec. 3 and Art. IX, Sec. 1 are self-executing.

32. A determination that a right is non-self-executing "does not end the inquiry. As here, (1) once the Legislature has acted, or 'executed,' a provision (2) that implicates individual constitutional rights, courts can determine whether that enactment fulfills the Legislature's constitutional responsibility." *Columbia Falls Elem. Sch. Dist. No. 6 v. State*, 2005 MT 69, ¶ 17, 109 P.3d 257 (citing *City of Boerne v. Flores*, 521 U.S. 507 (1997)).

33.

> "Provisions that directly implicate rights guaranteed to individuals under our Constitution are in a category of their own. That is, although the provision may be non-self-executing, thus requiring initial legislative action, the courts, as final interpreters of the Constitution, have the final 'obligation to guard, enforce, and protect every right granted or secured by the Constitution . . ..'"

Brown v. Gianforte, 2021 MT 149, ¶ 23, 488 P.3d 548 (citing *Columbia Falls Elem. Sch. Dist.*, ¶ 18 (quoting *Robb v. Connolly*, 111 U.S. 624, 637 (1884))).

34. Like in *Park Cnty.*, the question presented to the Court by this case "is straightforward: has the Legislature met its obligation to provide adequate remedies with which to prevent potential future environmental harms when it removes what appears to be the *only* available legal relief positioned to do so?" *Park Cnty.* ¶ 78. The MEPA Limitation, especially in conjunction with Mont. Code Ann. § 75-1-201(6)(a)(ii), removes the only preventative equitable relief available to the public and MEPA litigants concerned about GHGs and climate change, which are degrading Montana's environment.

V. THE MEPA LIMITATION IS SUBJECT TO STRICT SCRUTINY.

35. Any statute, policy, or rule which implicates a fundamental right must be strictly scrutinized and can only survive scrutiny if the State establishes a compelling state interest and that the action is narrowly tailored to effectuate that interest. *Park Cnty.* ¶ 84.

36. The MEPA Limitation is subject to strict scrutiny because it implicates Plaintiffs' fundamental right to a clean and healthful environment.

VI. THE MEPA LIMITATION VIOLATES THE MONTANA CONSTITUTION.

A. MEPA Limitation violates Plaintiffs' Right to a Clean and Healthful Environment – Mont. Const. Art. II, Sec. 3, 15; Art. IX, Sec. 1.

37. Montana's Constitution provides: "All persons are born free and have certain inalienable rights. They include the right to a clean and healthful environment...." Mont. Const. Art. II, Sec. 3. Consistent with the provision of these rights and responsibilities, the Montana Constitution further provides: "The

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state and each person shall maintain and improve a clean and healthful environment in Montana for present and future generations." Mont. Const. Art. IX, Sec. 1(1).

38. Article II, Sec. 3 and Article IX, Sec. 1 are to be read together, along with the Preamble to Montana's Constitution. *MEIC I*, ¶¶ 65, 77.

39. The right to a clean and healthful environment is a fundamental right protected by Mont. Const. Art. II, Sec. 3 and Art. IX, Sec. 1(1). *MEIC I*, ¶ 64.

40. Montana's children under age eighteen, have a fundamental right to a clean and healthful environment. Mont. Const. Art. II, Sec. 15. The right to a clean and healthful environment is intended to protect Montana's children and future generations.

41. During Montana's 1972 Constitutional Convention, delegates placed significant emphasis on protecting natural resources and improving Montana's environment. The Montana Supreme Court has recognized that "it was agreed by both sides of the debate that it was the convention's intention to adopt whatever the convention could agree was the stronger language." *MEIC I*, ¶ 75 (citing Convention Transcripts, Vol. IV at 1209, Mar. 1, 1972). The Montana Supreme Court has repeatedly found that the Framers intended the state constitution contain "the strongest environmental protection provision found in any state constitution." *Park Cnty.*, ¶ 61.

42. The Constitutional Framers "did not intend to merely prohibit that degree of environmental degradation which can be conclusively linked to ill health or physical endangerment." *MEIC I*, ¶ 77. As Delegate Foster noted: "[I]f we put in the Constitution that the only line of defense is a healthful

environment and that I have to show, in fact, that my health is being damaged in order to find some relief, then we've lost the battle." *MEIC I*, ¶ 74 (citing Convention Transcripts, Vol. V at 1243-44, Mar. 1, 1972).

43. The right to a clean and healthful environment language in Montana's Constitution is "forward-looking and preventative language" which "clearly indicates that Montanans have a right not only to reactive measures after a constitutionally-proscribed environmental harm has occurred, but to be free of its occurrence in the first place." *Park Cnty.*, ¶ 62.

44. The right to a clean and healthful environment requires enhancement of Montana's environment. According to the Constitutional Delegates, "*our intention was to permit no degradation* from the present environment and affirmatively require enhancement of what we have now." *MEIC I,* ¶ 69 (quoting Convention Transcripts, Vol. IV at 1205, Mar. 1, 1972) (emphasis in original).

45. Montanans' right to a clean and healthful environment is complemented by an affirmative duty upon their government to take active steps to realize this right. Article IX, Sec. 1(1) and (2) of the Montana Constitution command that the Legislature "shall provide for the administration and enforcement" of measures to meet the State's obligation to "maintain and improve" the environment. Critically, Subsection 3 explicitly directs the Legislature to "provide adequate remedies to prevent unreasonable depletion and degradation of natural resources." Mont. Const. Art. IX, Sec. 1(3); *Park Cnty.*, ¶ 63.

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46. The obligations of the Legislature found in Article IX, Sec. 1 include providing "adequate remedies for the protection of the environmental life support system from degradation." Mont. Const. Art. IX, Sec. 1(3).

47. According to Delegate McNeil, "the term 'environmental life support system' is all-encompassing, including but not limited to air, water, and land; and whatever interpretation is afforded this phrase by the Legislature and courts, there is no question that it *cannot be degraded*." *MEIC I*, ¶ 67 (citing Convention Transcripts, Vol. IV at 1201, Mar. 1, 1972) (emphasis in original).

48. Montana's constitutional right to a clean and healthful environment prohibits environmental degradation that causes ill health or physical endangerment and unreasonable depletion or degradation of Montana' natural resources for this and future generations:

> Our conclusions in *MEIC I* are consistent with the constitutional text's unambiguous reliance on preventative measures to ensure that Montanans' inalienable right to a 'clean and healthful environment' is as evident in the air, water, and soil of Montana as in its law books. Article IX, Section 1, of the Montana Constitution describes the environmental rights of 'future generations,' while requiring 'protection' of the environmental life support system 'from degradation' and 'prevent[ion of] unreasonable depletion and degradation' of the state's natural resources. This forward-looking and preventative language clearly indicates that Montanans have a right not only to reactive measures after a constitutionally-proscribed environmental harm has occurred, but to be free of its occurrence in the first place.

Park Cnty., ¶ 62.

49. Based on the plain language of the implicated constitutional provisions, the intent of the Framers, and Montana Supreme Court precedent,

climate is included in the "clean and healthful environment" and "environmental life support system." Mont. Const. Art. II, Sec. 3; Art. IX, Sec. 1.

50. Montana's climate, environment, and natural resources are unconstitutionally degraded and depleted due to the current atmospheric concentration of GHGs and climate change.

51. The right to a clean and healthful environment allows plaintiffs to obtain equitable relief before harm occurs. According to the Supreme Court:

> When considering which remedies are 'adequate' in this context, we note that equitable relief, unlike monetary damages, can avert harms that would have otherwise arisen. It follows that equitable relief must play a role in the constitutional directive to ensure remedies that are adequate to prevent the potential degradation that could infringe upon the environmental rights of present and future generations. We are not alone in this conclusion. As Delegate Mae Nan Robinson pointed out during the 1972 Constitutional Convention: if you're really trying to protect the environment, you'd better have something whereby you can sue or seek injunctive relief before the environmental damage has been done; it does very little good to pay someone monetary damages because the air has been polluted or because the stream has been polluted if you can't change the condition of the environment once it has been destroyed.

Park Cnty. ¶ 64 (citing *MEIC I* ¶ 71).

52. "The essential purpose of MEPA is to aid in the agency decision-making process otherwise provided by law by informing the agency and the interested public of environmental impacts that will likely result from agency actions or decisions." *Bitterrooters Inc.* ¶ 18.

53. "MEPA is an essential aspect of the State's efforts to meet its constitutional obligations." *Park Cnty.*, ¶ 89; § 75-1-102, MCA.

54. The stated policy of MEPA makes clear that the State should use "all practicable means" "so that the state may: (a) fulfill the responsibilities of each generation as trustee of the environment for succeeding generations; (b) ensure for all Montanans safe, healthful, productive, and aesthetically and culturally pleasing surroundings; (c) attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences . . .." § 75-1-103, MCA.

55. By enacting and enforcing the MEPA Limitation, the State is failing to meet their affirmative duty to protect Plaintiffs' right to a clean and healthful environment, and to protect Montana's natural resources from unreasonable depletion.

56. The MEPA Limitation categorically limits what the agencies, officials, and agencies tasked with protecting Montana's clean and healthful environment can consider. The MEPA Limitation conflicts with the very purpose of MEPA, which is to aid the State in meeting its constitutional obligation to prevent degradation by "informing the agency and the interested public of environmental impacts that will likely result" from State actions. *Bitterrooters Inc.* ¶ 18; § 75-1-102(1), MCA ("The legislature, mindful of its constitutional obligations under Article II, section 3, and Article IX of the Montana constitution, has enacted the Montana Environmental Policy Act . . . [to] provide for the adequate review of state actions in order to ensure that: (a) environmental attributes are fully considered . . ..").

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57. The plain language of the MEPA Limitation bars agencies from considering GHG emissions and climate impacts for any project or proposal, even to assess whether the project complies with the Montana Constitution.

58. The MEPA Limitation is unconstitutionally contributing to the depletion and degradation of Montana's environment and natural resources and contributing to Plaintiffs' injuries. The MEPA Limitation deprives Plaintiffs of their constitutionally guaranteed rights under Mont. Const. Art. II, Sec. 3, and Art. IX, Sec. 1.

59. By prohibiting consideration of climate change, GHG emissions, and how additional GHG emissions will contribute to climate change or be consistent with the Montana Constitution, the MEPA Limitation violates Plaintiffs' right to a clean and healthful environment and is facially unconstitutional.

B. The MEPA Limitation Does Not Pass Strict Scrutiny.

60. The MEPA Limitation infringes on fundamental rights and must pass strict scrutiny. *Mont. Cannabis Indus. Ass'n v. Montana*, 2012 MT 201, ¶ 16, 366 Mont. 224, 286 P.3d 1161 ("*Mont. Cannabis Indus Ass'n* (2012)"); *see also Kloss v. Edward D. Jones & Co.*, 2002 MT 129, ¶ 52, 310 Mont. 123, 54 P.3d 1.

61. Under strict scrutiny, "the government must show that the law is narrowly tailored to serve a compelling government interest." *Mont. Cannabis Indus. Ass'n* (2012), ¶ 16.

62. The State failed to show that the MEPA Limitation serves a compelling governmental interest.

63. The State did not put forward any evidence of a compelling governmental interest for the MEPA Limitation.

64. Undisputed testimony established that Defendants could evaluate "greenhouse gas emissions and corresponding impacts to the climate in the state or beyond the state's borders" when evaluating fossil fuel activities. Indeed, Defendants have performed such evaluations in the past.

65. Undisputed testimony established that clean renewable energy is technically feasible and economically beneficial in Montana.

66. Even if the State had established a compelling interest for the statute, the MEPA Limitation is not narrowly tailored to serve any interest.

67. The MEPA Limitation neither serves a compelling state interest nor is narrowly tailored and fails strict scrutiny.

ORDER

1. Based upon the foregoing Findings of Fact and Conclusions of Law the Court determines and declares that:

2. The Youth Plaintiffs have standing to bring the claims addressed herein.

3. Montana's GHG emissions have been proven to be fairly traceable to the MEPA Limitation.

4. Montana's GHG emissions and climate change have been proven to be a substantial factor in causing climate impacts to Montana's environment and harm and injury to the Youth Plaintiffs.

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5. This judgment will influence the State's conduct by invalidating statutes prohibiting analysis and remedies based on GHG emissions and climate impacts, alleviating Youth Plaintiffs' injuries and preventing further injury.

6. By prohibiting analysis of GHG emissions and corresponding impacts to the climate, as well as how additional GHG emissions will contribute to climate change or be consistent with the Montana Constitution, the MEPA Limitation violates Youth Plaintiffs' right to a clean and healthful environment and is unconstitutional on its face.

7. Plaintiffs have a fundamental constitutional right to a clean and healthful environment, which includes climate as part of the environmental life-support system.

8. The 2023 version of the MEPA Limitation, Mont. Code Ann. § 75-1-201(2)(a), enacted into law by HB 971, is hereby declared unconstitutional and is permanently enjoined.

9. Mont. Code Ann. § 75-1-201(6)(a)(ii), enacted into law by SB 557 from the 2023 legislative session, is hereby declared unconstitutional and is permanently enjoined because it removes the only preventative, equitable relief available to the public and MEPA litigants.

10. In addition to the findings, conclusions, and declarations set forth above, injunctive relief is appropriate, prohibiting Defendants from acting in accordance with the statutes declared unconstitutional.

11. Judgment is hereby found in favor of the Plaintiffs as prevailing parties.

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12. The Youth Plaintiffs requested an award of reasonable attorneys' fees and costs. (Doc. 1 at 104.). Pursuant to Rule 54 (d), Mont. R. Civ. P., Youth Plaintiffs shall submit their motion for fees and costs and documentation in support of their request for fees and costs, within fourteen days of the date of this Order. Defendants shall have fourteen days thereafter to respond, and shall have the opportunity to request a hearing pursuant to the provisions of Rule 43 (c), Mont. R. Civ. P. The Court reserves jurisdiction to issue its final judgment to include the issue of attorneys' fees and costs.

DATED this 14 day of August 2023.

Kathy Seeley
District Court Judge

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KS/sm/CDV-2020-307 Held FCO

Exhibit 2

MONTANA CLIMATE SOLUTIONS PLAN

AUGUST 2020

A REPORT BY THE MONTANA CLIMATE SOLUTIONS COUNCIL

MONTANA CLIMATE SOLUTIONS PLAN
AUGUST 2020

A REPORT BY THE MONTANA CLIMATE SOLUTIONS COUNCIL

CONTENTS

Suggested Citation: State of Montana. (2020). *Montana Climate Solutions Plan.* Helena, MT.

Acknowledgements: We wish to acknowledge and appreciate the significant contributions of the members of Montana Climate Solutions Council for their time and dedication toward the creation of this plan. In addition, we are grateful to the many partners who contributed to the Council's work including the U.S. Climate Alliance, the Center for the New Energy Economy, the Clean Energy Transition Institute, Evolved Energy Research, and The Bridge Studio. We also wish to express our thanks to the state agency staff who provided invaluable support and the many members of the public who attended meetings, offered comments on draft products, and shared their expertise to inform the Council's deliberations.

Letter from Governor Bullock

Dear Friends and Colleagues:

It is my distinct pleasure to share with you the final recommendations of the Montana Climate Solutions Council. I want to thank the members of the Council for their dedication and thoughtful deliberations as well as the many staff who lent their time and talents to supporting the Council's work. I also want to acknowledge the contributions from Montanans across the state who participated in Council meetings and webinars and shared their perspectives through formal public comments – each of which helped to strengthen our partnerships and recommendations for moving forward.

Montanans across the state believe climate change is a significant problem posing risks to the future of Montana and to future generations. For too long our response to this issue has been curtailed out of a false pretense that dealing with climate will divide our state along east-west, rural-urban, and partisan divides. As the Council's work demonstrates, there is an impressive array of opportunities and recommendations that represent a broad-based consensus and can serve as a foundation for bipartisan climate action moving forward that responds to the many values Montanans share.

There is an immediate and urgent need for the state to plan for the future and confront the needs to prepare our communities and economy. Already Montana is three degrees warmer on average than we were just a few decades ago. Earlier spring runoffs are causing flooding, impacting our water availability, and contributing to the increasing size and severity of our wildfire seasons. 2017 saw our largest fire season on record since the Big Burn of 1910, spurring periodic waves of evacuations, curtailing visitation, and prompting twice the incidence of respiratory-related ER visits in affected counties.

But the risks facing Montana due to climate change are not just physical risks to our health and safety. The state's businesses and economy face a series of economic and financial risks as well. Shifting energy demands and policy changes are prompting a transition across our region and around the world, impacting the markets Montana traditionally serves. Institutional and private investors are increasingly signaling their concern over stranded assets of energy companies and financial performance tied to these changes. In small towns across the state, workers and communities are caught in the crosshairs, lacking the economic capacity to shift labor and capital to emerging opportunities. These transitions are also impacting our state's fiscal health, where declines in traditional revenue streams from energy production and increasing costs tied to unforeseen events, like the 2017 fire season, can impact our state's core services and programs. Planning for climate change helps us manage these risks and costs tied to transitions, but it also offers insights into how we can develop competitive advantages and local economic development strategies that put Montana at the forefront of new energy and technology solutions.

As I write, the state is in the midst of our ongoing response to the COVID-19 pandemic and associated economic recovery. The disruptive economic impacts of the pandemic place real capacity strains on our state's businesses, governments, nonprofits, and civic institutions. While the challenges of disruptions to our economy to protect lives and limit exposure are not immediately transferable to climate change, the ways in which our state, local, and tribal nation partners and businesses have come together to respond with a sense of urgency is indicative of the type of all-hands approach we need to prepare for and respond to the climate challenge before us.

As I plan to leave the Office of Governor, we must work together to implement this plan, regardless of who the next governor is in 2021. Montanans deserve a new energy policy to reduce greenhouse gas emissions and a new approach to build resilience in our communities and economy. No matter who takes office in 2021, it is imperative that a set of pragmatic and durable policies be advanced that address the needs of our state and offer leadership as we confront the issue of climate change.

The recommendations in this report span a mix of state programs and policy, utility regulatory policy, incentive programs, federal policies, and university and business partnerships. They build from the experiences of Montana's local and state government, tribal nations, and businesses. Lessons learned from others across our country and around the world complement our Montana-grown perspective. For the first time they introduce opportunities and challenges in workforce, economic development, and community-based initiatives that accompany the diverse and ongoing policy discussions involving the future of energy generation and consumption for our state and region. The recommendations reflect strong alignment in many areas across a diverse group of Council members, while also highlighting key points of disagreement that can inform future deliberations. Together, they comprise a set of Montana-based solutions that demand our collective efforts to advance with the same dedication and urgency that led to their development. I thank all Montanans for their partnership and support as we seek opportunities to work together to advance this plan.

Sincerely,

Steve Bullock
Governor

BACKGROUND

On July 1, 2019, Governor Bullock issued Executive Order 8-2019, creating the Montana Climate Solutions Council and joining the State of Montana to the U.S. Climate Alliance. The Council was tasked with developing a Climate Solutions Plan (this document) that provides recommendations and strategies aimed at preparing Montanans for climate impacts; reducing greenhouse gas (GHG) emissions – including achieving an interim goal of net GHG neutrality for average annual electric loads in the state by no later than 2035 and a goal of net GHG neutrality economy-wide at a date to be determined by the Council; advancing the research, development, and commercialization of new technologies necessary to meet these goals; and addressing the needs of communities and workers in transitions through economic and workforce development efforts.

Montana's climate is already changing. Our temperatures are 2–3° F warmer on average than in 1950. Historical observations demonstrate a shift to earlier snowmelt and earlier peak spring runoff, impacting flooding, water availability, and stream temperatures. Increased temperatures, insect and disease mortality, and fuel loads together are driving increases in the size and possibly the frequency and severity of wildfires. According to the *2017 Montana Climate Assessment* (MCA),[1] the state could experience an additional 3–7° F increase in average temperatures by mid-century, including more days of extreme heat that would dramatically increase many of these impacts moving forward.

Within our state borders, we have also begun to experience transitions in our economy and our energy sector that reflect changes that are happening across our nation and around the world. How the state responds to the shifting demands and needs of the global economy can help ensure our sustained economic growth and position us to continue to provide the food, energy, products, technology, tourism opportunities, and other goods and services to the nation and the world that drive our economy.

Planning for climate change can help the state prepare for anticipated risks amid these uncertainties. Not only does the state face a series of physical risks tied to a changing climate, the state also faces fiscal risks impacting state budgets and services, and economic risks implicating employment and income trends. The state's businesses must also confront financial risks as investors react to market transitions and anticipated policy changes.

1 http://montanaclimate.org

Planning for climate change not only helps us manage the costs tied to these risks through proactive efforts to manage uncertainty, it also offers opportunities for the state to capture and localize the market for innovation resulting from climate challenges, offering a chance for the state to simultaneously take advantage of and safeguard our traditional strengths while also diversifying and growing new opportunities for the future. While there are many benefits to climate planning and action, many members of the Council are cognizant that care must be taken to evaluate individual policies to determine the implications for issues such as direct and indirect costs, equity across communities, and reliability of our energy system. Implementation of this plan requires action by the state legislature, the public service commission, the executive branch, and numerous business and nonprofit partners – each of which must consider the capacity, costs, and benefits of the recommendations appropriately. Montana must act. The urgency for action is great, and the opportunities for benefits commensurately large.

The Montana Climate Solutions Council

The purpose of the Montana Climate Solutions Council was to provide recommendations to the governor, legislature, and citizens of Montana on strategies to reduce GHG emissions, prepare the state for climate impacts, foster innovation across Montana's economy, and address the needs of communities in transition through appropriate economic development and workforce strategies. The Council developed three committees to further its objectives between full meetings of the Council:

1. The Climate Adaptation, Information, and Decision Support Committee;

2. Greenhouse Gas Mitigation Strategies Committee; and

3. The Technology Innovation for Climate Solutions and Community Transitions Committee.

The Council and committees convened via in-person meetings, webinars, and conference calls to advance their deliberations. Meetings and calls were noticed to the public and – along with a draft report issued in February 2020 – offered members of the public substantial opportunity to track progress, provide input, and share information relevant to the Council's work.

Through a charter, the Council established a commitment to mutual respect, shared learning, and consensus decisions whenever possible. Consensus was defined as achieved when all Council members could live with or were in support of a proposal. The Council recognized that to meet the goals and objectives outlined in Executive Order 8-2019, it would need to advance some recommendations that did not achieve consensus. As such, the Council agreed to adopt recommendations that received support or neutral positions from at least a two-thirds majority of its members with two caveats: in the final report 1) those recommendations had to be clearly distinguished from consensus recommendations and 2) dissenting viewpoints and concerns had to be articulated.

Additional information on the Council's charter, meeting archives, and public comments received can be found at https://deq.mt.gov/Climate/.

LIST OF RECOMMENDATIONS

1. PREPARING MONTANANS FOR CLIMATE IMPACTS

Climate change-driven severe events (e.g., wildfires, drought, flooding) threaten people, communities, and businesses across Montana. The state must prioritize efforts that will prepare our communities, infrastructure, and economies for anticipated climate impacts. Such preparations include ensuring that our natural resources (e.g., farms, forests, rangelands, wildlife, water supplies) continue to sustain our livelihoods and quality of life. Building resilience will require addressing current climate variability and recent extreme events as well as preparing for future change and emergent threats. Given recent climate projections, there is an urgency to strengthen efforts across Montana.

The Council established the Climate Adaptation, Information, and Decision Support Committee to develop strategies to prepare the state for climate impacts. Adaptation knits together a range of activities from translating science into usable information to building the partnerships required to implement strategies that reduce risk. The practice of adaptation commonly includes five general stages: 1) awareness, 2) assessment, 3) planning, 4) implementation, and 5) monitoring.

A foundation of the best available science and locally relevant knowledge, experience, and information is critical to inform decision-making. However, sound science and information alone are insufficient to effectively manage climate-related risks. *Translation* of that science-based information into a form readily accessible to the public is required to best build capacity, outreach, and delivery mechanisms in response to the needs of government agencies, tribal nations, land managers, business owners, non-profits, and individuals. Planning exercises can help decision-makers assess vulnerabilities and identify appropriate strategies to minimize or eliminate risks. In the end, effective adaptation is an iterative process that requires a) taking action to reduce risks, b) a commitment to monitoring results and learning from successes and failures, and c) a willingness to try a different approach, if necessary, based on monitoring outcomes.

Montanans have diverse experiences planning for climate impacts, including efforts at municipal, county, watershed, and tribal nation scales. Committee members discussed their past experiences involving Climate Smart Missoula, the Blackfeet Nation, Montana Disaster and Emergency Services, the Montana Climate Office's work with state agencies to develop early warning systems for drought and flooding, research and community engagement from the Montana University System, and the Department of Natural Resources and Conservation's work with federal partners in the Upper Missouri River Headwaters through the

National Drought Resilience Partnership. Council members also reflected on the findings and process used to develop the *National Climate Assessment*[2] and the *2017 Montana Climate Assessment*,[3] including the state-based workshops, questionnaires, and listening sessions used to guide the MCA's development. Based on these experiences and best practices, Council members identified the following guiding principles for effective adaptation.

2 https://nca2018.globalchange.gov/
3 https://montanaclimate.org/

GUIDING PRINCIPLES FOR EFFECTIVE CLIMATE ADAPTATION

1. Montana agencies, communities, and stakeholders should approach climate change and its impacts with an understanding of the state's geography, culture, history, economy, and resources.

2. Addressing climate change impacts requires robust, community-driven, and bottom-up planning based on an understanding of recent climate trends and future climate projections and the specific vulnerabilities and risks that different sectors and communities will experience, including a focus on explicit goals and effective actions to build resilience.

3. A common framework using the best available science to develop adaptation plans can help highlight commonalities and differences across the approaches used by different jurisdictions and sectors, facilitating comparison and learning among users and identification of best practices.

4. Recommendations should build on and be integrated into existing programs wherever possible.

5. Adaptation efforts should be coordinated with related efforts – including outside of Montana – especially strategies to reduce emissions and foster innovation to achieve multiple benefits and synergies.

6. Communities cannot do adaptation planning individually and without support. The state needs to provide coordinated assistance to gather and share information; build and support networks and partnerships among communities, universities, non-profit, and philanthropic organizations; provide sustained funding for planning; and leverage federal dollars and capacity.

CASE STUDY

The Montana Climate Assessment:

Stakeholder Driven, Science Informed

The *2017 Montana Climate Assessment* (MCA)[4] was an effort to synthesize, evaluate, and share credible and relevant scientific information about climate change in Montana with the citizens of the state. The motivation for the MCA arose from Montanans and organizations across the state who expressed interest in receiving timely and pertinent information about climate change, including information about historical variability, past trends, and projections of future impacts.

The MCA was developed by the Montana University System's Institute on Ecosystems, in collaboration with the Montana Climate Office, Montana Water Center and Montana State University Extension. Montana State University scientists Cathy Whitlock and Bruce Maxwell, past and current co-directors of the Montana Institute on Ecosystems, worked on the report with a 30-member team over two years. The Assessment, the first in a planned series, focused on climate trends and their impacts for three key sectors of economic importance for the state: water, forests, and agriculture. The process to develop the MCA was guided by locally relevant science and driven by stakeholder input through questionnaires, conversations, and listening sessions across the state, helping to ensure the research was most relevant and useful to decision makers and end users.

"For years, stakeholders across the state have wondered how much Montana's climate has changed and how much will it change in the future," said Kelsey Jencso, director of the Montana Climate Office at the University of Montana and an MCA author. "The science to address this question has previously been discussed at global or national levels, whereas this assessment provides a first look at these trends and their impacts within Montana."

The report concluded that the number of days when temperatures exceed 90°F, and the number of frost-free days, is expected to increase. Montana's snowpack has declined since the 1930s in mountains east and west of the Continental Divide, a trend that has accelerated in the period since the 1980s. Warming temperatures over the next century are likely to reduce snowpack at middle and lower elevations, and earlier runoff will lead to decreased streamflow and less reliable irrigation capacity during the late growing season. The state's growing season is lengthening – now twelve days longer than it was in 1950, but year-to-year variability continues to pose significant threats to production. More frost-free days and longer growing seasons may enable greater crop diversity. However, more 90°F plus days will also increase water loss via evaporation and transpiration from plants. Hotter days will also increase water demand for most crops, limit grain development, and increase heat stress on livestock. Forest fires will be bigger, more frequent, and more severe over the coming decades.

The findings offer a common basis to evaluate potential impacts and develop responsive and smart resilience strategies to prepare Montanans for a changing climate. In early 2021, the Montana Institute on Ecosystems will release the next installment of the MCA entitled *Climate Change and Human Health in Montana*. The effort again draws from the experience of practitioners and the report will include recommendations for the state, communities, and individuals to better prepare for health-related climate impacts in the decades ahead.

Continuing to support sustained, timely, and relevant data and assessments of climate trends and projections impacting Montana is a core function of the proposed Montana Climate Solutions Network (see recommendation 1A).

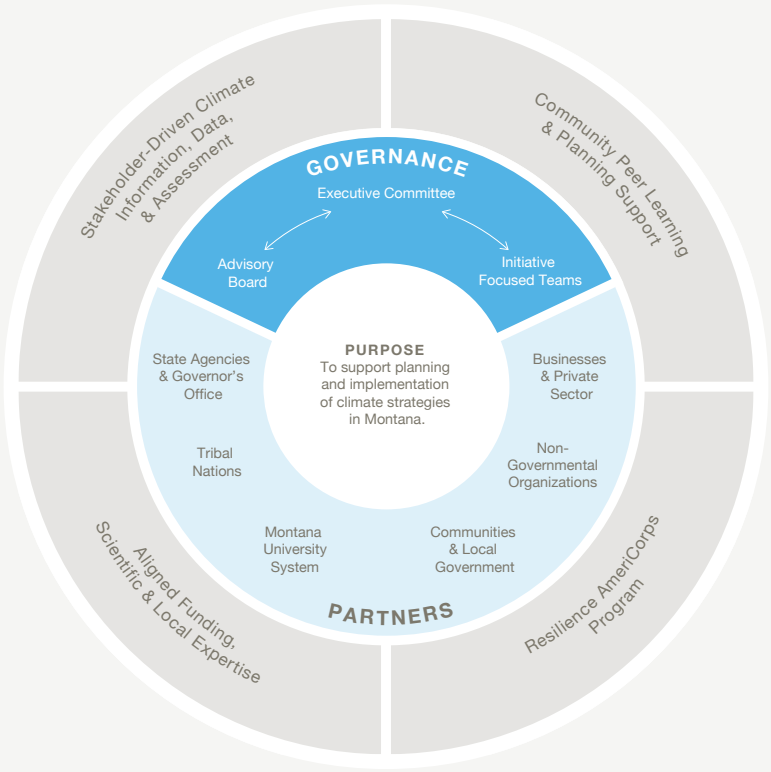
4 http://montanaclimate.org

RECOMMENDATIONS

1A: Establish the Montana Climate Solutions Network to Develop and Share Climate Information and Resources; Build Capacity in Communities; and Connect Climate Solutions at State, Local, Regional, and Tribal Nation Scales

The Montana Climate Solutions Network (MCSN) will bring together state, local, business, tribal nation, non-governmental organization, and university system partners to provide timely and relevant climate information and coordinate services to meet the needs of Montanans.

Figure 1: Montana Climate Solutions Network



The network will focus on the following core functions:

1. **Supporting community planning initiatives** by providing climate information and decision-support tools, planning resources, best practices guidelines, and peer-to-peer learning opportunities;
2. **Overseeing, coordinating, staffing, and funding a Resilience AmeriCorps program** that provides Montana communities with the expertise and capacity to tackle on-the-ground work for mitigating and adapting to climate change[5];
3. **Supporting production of regular climate assessment reports** that update existing assessments (e.g., water, agriculture, forests, human health) and tackle new ones. The Montana Institute on Ecosystems leads this effort in partnership with universities, tribal colleges, state and federal agencies, and non-governmental organizations;
4. **Engaging scientists and a broad range of stakeholders** (e.g., communities, agricultural producers, resource managers, businesses) to ensure that climate assessments and services meet the needs of a range of decision-makers and end-users across Montana;
5. **Supporting the Montana Climate Office** to develop stakeholder-informed climate information and tools, early warning systems for extreme events, the Montana Climate Data Layer,[6] and to assist with regular climate assessments; and
6. **Advancing resilience strategies** identified in this *Montana Climate Solutions Plan*.

1A: KEY STRATEGIES

- **Establish an MCSN executive committee consisting of representatives of relevant state agencies, the Montana Climate Office, the Montana Institute on Ecosystems, tribal communities, non-governmental organizations, and businesses.** The executive committee will have rotating co-chairs (from a state agency and from the universities) and will be charged with 1) charting the strategic direction of the MCSN; 2) convening regular advisory board meetings; 3) developing plans for robust stakeholder engagement and communication; 4) overseeing biennial climate assessment production; and 5) seeking and managing diverse sources of funding to support MCSN efforts.
- **Establish an MCSN advisory board to ensure that a range of communities, economic sectors, and decision-makers from across the state to inform the priority activities of the Network.** More specifically, the advisory board will 1) provide strategic guidance to the executive committee; 2) prioritize specific research and information needs; 3) prioritize decision-support needs and investments in capacity building; 4) provide direction regarding how to effectively engage with different groups; and 5) help identify funding opportunities for priority projects.

5 To read more about adaptation and mitigation principles for responding to climate change, visit: https://climate.nasa.gov/solutions/adaptation-mitigation/
6 http://geoinfo.msl.mt.gov/home/msdi/climate.aspx

- **Work with State agency officials and University System partners, including the Montana Institute on Ecosystems and the Montana Climate Office, to determine an initial administrative home for the network.** Administrative details will include staffing and funding to support network creation and startup needs. Committee members discussed housing the network in a new or current nonprofit organization, a state agency, or the governor's office, or through Montana's Agriculture Experiment Station and Montana Forest and Conservation Experiment Station.

1B: Build Community Resilience to Climate Change Through Coordinating with Existing Planning Efforts

1B: KEY STRATEGIES

- In connection with the MCSN, **support the Institute on Ecosystem's Climate Smart Montana program**[7] as a platform for communities to share ideas, processes, lessons learned, and resilience plans, so that no community needs to reinvent the wheel.
- Leverage the experiences of practitioners across the state to **develop a roadmap and toolkit for planning**, building from ongoing efforts of the Department of Commerce's Montana Ready Communities Initiative. Build off the Montana Resilience Framework developed by the Initiative as a guide for communities to create and implement a community resilience plan that incorporates climate adaptation, mitigation, and community engagement.[8]
- Develop strategies to **integrate climate adaptation with disaster mitigation plans, wildfire plans, drought and flood plans, and others** that can support resilience planning and facilitate implementation.
- **Incorporate strategies from the forthcoming special report of the MCA, *Climate Change and Human Health in Montana*,** to better monitor and plan for climate-related health concerns (to be released in early 2021). Engage local, regional, and tribal health providers in developing a response to extreme climate events that lead to heat exposure, vector-borne diseases, water-related illnesses, food safety and nutrition concerns, smoke-related cardio-respiratory problems, allergies, and mental health issues.
- Build on and **complement the climate adaptation work already happening on tribal lands** throughout the state, while recognizing the leadership that Montana's sovereign tribal nations provide and learning from traditional and indigenous knowledge.

7 https://montanaioe.org/resources-opportunities/climate-smart-montana
8 https://comdev.mt.gov/

- Explore opportunities to **integrate adaptation planning with planning to reduce GHG emissions**, especially when solutions strengthen local resilience to potential regional energy disruptions and further local economic development goals (*see recommendation 2AF*).
- As strategies are developed and implemented, **track the range of direct and indirect benefits. In addition, find inequalities, including systemic ones, that hurt the well-being of Montanans** by limiting their access to healthcare, clean water, and clean air. Those inequalities are likely to be exacerbated by climate change, especially in the most vulnerable communities.

1C: Adapt Montana's Built Environment to Climate Change

1C: KEY STRATEGIES

- **Integrate adaptation actions with the hazard mitigation programs of Montana Disaster and Emergency Services (MT DES)** by working with communities to identify their highest-priority risks and vulnerabilities and implement hazard mitigation plans that incorporate climate impacts. Evaluate vulnerabilities for Montana's critical infrastructure (e.g., roads, bridges, power lines, telecommunications) and develop coordinated federal, state, local, and tribal nation resilience strategies.
- **Ensure local governments have access to updated information concerning current and future high-risk floodplain and wildfire-prone wildland-urban interface zones.** Support state and local code updates to further reduce risks and impacts.
- **Implement active management across ownership boundaries to reduce wildfire risks and sustain watershed functions** as identified in the updated *Montana Forest Action Plan*.[9] Implement an engagement process to educate and inform stakeholders on the Montana Department of Environmental Quality (MT DEQ) Smoke Management Program and the ability to use prescribed fire for forest fuel reduction on a year-round basis and support funding to improve smoke management forecasting.
- **Support local governments to integrate flood, disaster, and wildfire protection planning with community land use planning and decisions** when requested by local officials.
- **Ensure local infrastructure such as schools, hospitals, community centers, and shelters incorporate adaptation strategies to address the needs of the young, sick, aging, and other vulnerable populations** related to climate impacts such as smoke and air quality, extreme heat, flooding, winter emergencies, and distributed energy needs.

9 https://www.montanaforestactionplan.org/

- **Expand the use of nature-based solutions that use natural systems, mimic natural processes, or work in tandem with traditional approaches to address natural hazards such as flooding, erosion, drought, and heat.** Incorporating these nature-based solutions in local planning, zoning, regulations, and built projects can help communities reduce their exposure to these climate impacts, resulting in reduced costs, economic enhancement, and safer, more-resilient communities. Examples include urban park development, beaver mimicry, and wetland and riparian restoration.
- **Increase urban forest cover** in communities large and small to provide cooling shade, sustain public health, and reduce energy consumption. Select native tree species that maximize water use efficiency, carbon sequestration, and shade quality.

1D: Protect Outdoor Recreation and Tourism Resources to Maintain a Diverse and Healthy Economy, Positive Mental and Physical Health Outcomes, and a Resilient, High Quality of Life for Residents As Well as Visitors

1D: KEY STRATEGIES

- **Develop and strengthen networks of outdoor recreation and tourism professionals** across agencies, jurisdictions, and the private sector to improve collaborative approaches to identifying risks and vulnerabilities and to facilitate adaptation planning.
- **Develop climate information and tools specific to the outdoor recreation and tourism sectors** and include climate adaptation strategies related to outdoor recreation and tourism in local plans and policies (e.g., parks and recreation plans, hazard mitigation plans).
- **Identify and support funding strategies to address local business recovery needs** – particularly in the travel and tourism sectors – from unplanned disasters associated with climate-related weather events.

1E Build the Resilience of Montana's Private Working Lands (Farms, Forests, and Rangelands) and Support Voluntary and Incentive-Driven Efforts for Climate-Smart Management that Reduces Risks, Improves Bottom Lines, and Enhances Carbon Storage in Soils, Forests, and Wood Products

Climate model projections show a warmer Montana in the future, with mixed changes in precipitation and more days of extreme temperature and unexpected weather events. Montana's farmers, ranchers, and forest landowners remain highly vulnerable to extreme weather events, such as flooding, wildfire, blizzards, hailstorms, and drought. Understanding climate impacts and solutions for working landowners and agriculture in particular is complex because of uncertainties inherent in the timing and manifestation of climate change. It is

also complex given the interactions of natural systems and human interventions that operate in agriculture (e.g., crop selection and rotation, livestock costs, pesticide and herbicide use, market revenues and costs, government policies, insurance markets). Agricultural decision support must focus on reducing uncertainty by building tools that explicitly consider the complex interactions between climate, market processes, and policy.

- To improve understanding of climate variability and related risk management decisions, producers need to incorporate new and expanded tools in their decision making that considers: 1) local monitoring of climate; 2) real-time weather; 3) weekly drought conditions including soil moisture, snow pack levels, and stream flows; 4) crop and livestock production; 5) input costs; and 6) price variability to create a local understanding of variability and risk in management decisions.
- Climate services need to supply decision-support tools that allow assessment of local management alternatives based on economic sustainability and resilience to drought, heat, floods, snowstorms, and more.
- Increased irrigation efficiency for crop and forage production must be incentivized and establishment of ground water-dependent systems disincentivized.
- Agricultural research must supply plant and livestock breeding programs that will sustain production in higher projected temperatures and subsequent extreme water shortage.
- Research must assess tradeoffs between input-intensive and low-input approaches to crop and livestock production under hotter and more-variable climate.
- Economists need to assess the tradeoffs between insurance-based versus management-system approaches for creating resilience to climate change.

1E: KEY STRATEGIES

- **Recognize Montana producers** for their high adoption rates of soil health practices including no/conservation tillage and cover crops, improved grazing systems, and efforts to maintain and restore native rangelands.
- **Explore partnerships with producers and their associations** to research conservation practice adoption factors, cost savings, and climate-related co-benefits, such as carbon storage, increased water-holding capacity in soils, and reductions in pest and disease risks.
- **Partner with United States Department of Agriculture (USDA) resources** such as the Climate Hubs,[10] Natural Resources Conservation Service (NRCS),[11] and Rural Development[12] to explore farm-scale and regional on-farm conservation and energy planning strategies and align state and federal funding programs to support producer-identified implementation priorities.

10 https://www.climatehubs.usda.gov/
11 https://www.nrcs.usda.gov/wps/portal/nrcs/site/national/home/
12 https://www.rd.usda.gov/

- **Explore opportunities for Montana farmers, ranchers, and forest landowners to diversify income streams through emerging GHG markets** by developing pilot projects or programs that aggregate and quantify enhanced GHG management. Consider other creative efforts that reward producers for climate resilience and GHG management, such as cost-share or insurance premium reduction payments, marketing and labeling tools, and others.
- **Target Farm Bill programs to private working lands** that support drought, watershed, and wildfire resilience needs.
- **Expand operator and manufacturing capacity and diversification of uses of long-lived wood products** (*see Chapter 3 for additional wood products innovation discussion*).

1F: Enhance Wildfire Resilience Across Ownership Boundaries in Response to Accelerating Climate Impacts

Over the past several decades, climate change has made summer conditions much more conducive to burning. Warmer springs and warmer, drier summers have dried fuels and led to longer fire seasons and an increased frequency of large wildfires across the western U.S. These changes have come with commensurate increases in acres burned, damages, and intensity. These trends are expected to worsen in the decades ahead. Climate change is estimated to have doubled the area of forest burned in the western United States during the period 1984–2015, above the effects of weather events, ignition, and fire management. For Montana (and the West), projected climatic changes consistently point to an increase in fire danger, and years of widespread wildfire activity in Montana are consistently associated with unusually warm, dry summer conditions (e.g., drought, sometimes starting in spring).

Montana's forests have evolved with wildfire, and many species have adaptations to survive and regenerate after fire. Our ability to make forests resilient to future climate-driven wildfires will be highly variable, given that our forests range from high-elevation wet forests to low-elevation dry forests. No single fire management strategy will be effective for all forest types, and fire-fighting efforts must target protecting communities and safety. As regional impacts become more prevalent, persistent wildfire smoke may pose increasing threats to human health and wildland firefighter safety.

1F: KEY STRATEGIES

- **Recognize that the occurrence, frequency, and severity of wildfires will increase in most parts of the state in response to climate change.** Research priorities include efforts to better characterize fire vulnerability in the context of climate change; identify and evaluate cascading consequences of wildfire across broad spatiotemporal scales, using natural, physical, and social sciences; and evaluate bottom-up and top-down approaches to predict fire trajectories and potential impacts on ecosystem goods and services.

- **Continue to address wildland fire risks** through coordinating interagency planning and response, supporting wildfire-adapted communities, and building resilient landscapes through active forest management to improve safety and protect communities across ownership boundaries.
- **Maintain fire-adapted landscapes in priority regions** using the updated *Montana Forest Action Plan*[13] for guidance. Enhance forest management and restoration across ownership boundaries, including the use of prescribed fire to maintain structure and composition to increase resilience to insects, disease, and uncharacteristic stand-replacing wildfires; protect municipal watersheds; and maintain the long-term capacity of forests to continue to buffer emissions as natural carbon sinks.
- **Facilitate fire-resilient communities** through planning efforts that include consideration of new fire-adapted landscape and building materials, active community participation, fire education, and reduced development in fire-prone areas.
- Collaborate with wildland firefighting agencies, MT DEQ, local public health agencies, and others to **enhance local air quality monitoring and support indoor air quality needs** for vulnerable communities during intense periods of wildfire smoke.

1G: Support Climate-Resilient Rangelands and Wildlife Using an All-Lands, All-Hands Approach Across Ownership Boundaries

1G: KEY STRATEGIES

- **Maintain a diverse rangeland ecosystem** that supports agriculture, recreation, wildlife, and native pollinators across all ownerships through coordination, flexible tools, and conservation incentives.
- **Promote best management practices for building resilience in rangelands** by increasing soil carbon and soil water-holding capacity
- **Support establishment or enhancement of infrastructure that improves grazing management on rangeland,** including technologies for monitoring range and stock water conditions, livestock behavior changes with climate changes, and livestock health.
- **Strengthen existing partnerships and build new collaborations across landowners and jurisdictions** to share knowledge and ensure that needs for landscape-scale conservation and adaptation are incorporated into relevant planning and management.

13 https://www.montanaforestactionplan.org/

- **Prioritize and conduct additional research and vulnerability assessments** for species, habitats, and ecosystems as part of periodic statewide climate assessments.
- **Provide end users and decision-makers with information about climate change effects** on fish, wildlife, habitats, and ecosystems; adaptation and mitigation options; training opportunities; case studies; recommended peer-reviewed research; and critical contacts in a user-friendly format. Encourage use of this information in adaptation planning and project environmental reviews. Monitor integration of wildlife adaptation efforts into state agency projects, environmental reviews, plans, and relevant communications and training.
- **Conserve, enhance, and restore rivers, streams, lakes, reservoirs, wetlands, and riparian areas** that are critical to fish, wildlife, and plant populations. Provide for aquatic organism passage, where appropriate.
- **Continue to prevent and minimize the spread of invasive species and insect and disease infestations** that can be exacerbated by climate change, including policies developing or continuing support of programs for monitoring, early detection, and rapid response.

1H: Safeguard Montana's Water Quality and Quantity from Climate Change

1H: KEY STRATEGIES

- **Promote wetland and stream function** through a) restoring and conserving river corridors, floodplains, and wetlands and b) supporting related education efforts.
- **Integrate local drought and water quality planning** into other climate and land-use planning efforts.
- **Invest in tools to improve statewide monitoring** and assessment of water resources.
- **Incorporate green infrastructure and adaptive water management** that combine flooding mitigation, water storage, and water quality improvement into stormwater infrastructure and natural storage utilizing ditches, floodplains, and irrigated lands.

2. Strategies to Reduce Greenhouse Gas Emissions

Executive Order 8-2019 requires the Council to develop a *Montana Climate Solutions Plan* that includes recommendations to achieve an interim goal of net GHG neutrality for average annual electric loads in the state by no later than 2035 and a goal of net GHG neutrality economy-wide at a date to be determined by the Council.

The Council formed the Greenhouse Gas Mitigation Strategies Committee to begin to formulate strategies that can achieve the goals outlined by the Governor. According to the Federal Government's *Fourth National Climate Assessment*[14] released in 2018, "In the absence of more significant global mitigation efforts, climate change is projected to impose substantial damages on the U.S. economy, human health, and the environment. Under scenarios with high emissions and limited or no adaptation, annual losses in some sectors are estimated to grow to hundreds of billions of dollars by the end of the century. It is very likely that some physical and ecological impacts will be irreversible for thousands of years, while others will be permanent." The urgency to respond to these threats is significant, and Montana has an opportunity to provide leadership and both prepare for and inform future federal policies in response to climate change.

Fossil fuel combustion is the largest contributor of greenhouse gas emissions in Montana. In 2020, fossil fuel combustion resulted in approximately 27.6 million metric tons of carbon dioxide (CO_2).[15] Economy-wide CO_2 emissions from fossil fuel combustion decreased approximately 21 percent between 2005 and 2020, driven largely by a 35 percent reduction in emissions from the electric power sector (Figure 2).[16] Montana's renewable portfolio standard, which requires 15 percent renewables[17], has helped shift power generation away from fossil fuels such as coal. Over the same time period, CO_2 emissions from industrial energy use fell approximately 15 percent, while CO_2 emissions from residential and commercial buildings increased by 15 percent. Transportation emissions dipped in 2009, likely due to the economic downturn, but have otherwise held constant since 2005 (-3 percent). This is likely due to increasing national fuel economy standards which have improved vehicle efficiency.

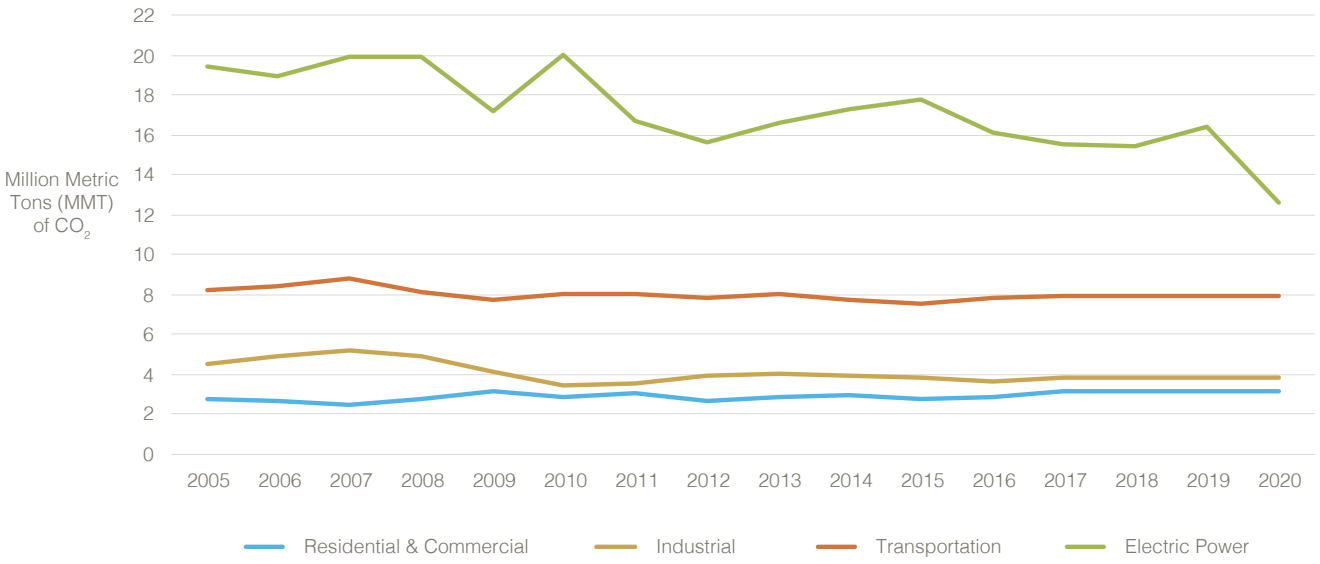
14 https://nca2018.globalchange.gov/

15 Energy-related CO_2 emissions estimates were based on data from the U.S. Energy Information Administration for 2005 through 2017, U.S. Environmental Protection Agency's (EPA) Emissions & Generation Resource Integrated Database (eGRID) for 2018, EPA's Air Markets Program Data for 2019, and knowledge of significant power plant closures to develop current estimates for the Power Sector.

16 Preliminary estimates for 2020 CO_2 emissions reflect the closure of Colstrip coal-fired units 1 & 2. All other sectoral emissions estimates were assumed to remain at 2019 levels, meaning that 2020 estimates do not account for any additional reductions that are likely to occur as a result of the economic downturn caused by the COVID-19 pandemic.

17 DSIRE database, https://programs.dsireusa.org/system/program/detail/384

Figure 2: Montana CO_2 Emissions from Fossil Fuel Consumption (2005-2020)



Source: EIA & EPA (million metric tons). Additional detail on data sourcing can be found in footnotes 14 and 15 on page 21.

The remaining coal-fired power plant units at Colstrip (Units 3 & 4) account for 38 percent of total emissions in 2020 (Figure 3), while transportation sources account for 29 percent. Residential and commercial buildings (11 percent), industrial sources (14 percent), and other fossil-fueled power generation (8 percent) comprise the remainder.

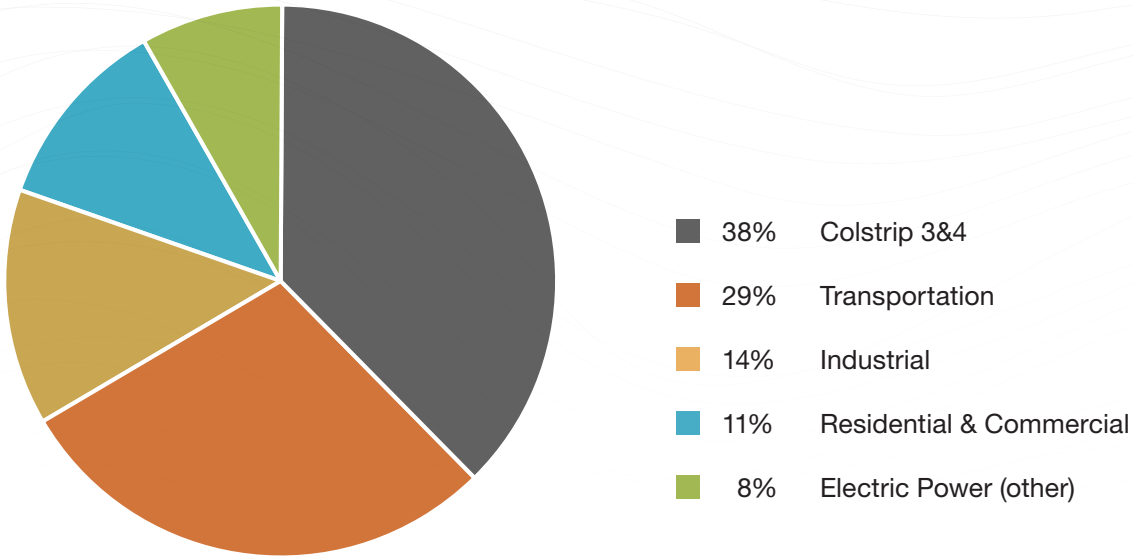
For the purpose of this report, emissions associated with the power sector were estimated using a generation-based approach, meaning emissions associated with generation of electricity by power plants operating within state boundaries. Because Montana continues to be a significant exporter of electricity,[18] the power sector's relative contribution to total CO_2 emissions would likely decrease if a consumption-based approach was used, meaning emissions associated with electricity retail sales.

It is important to note that this preliminary inventory does not include emissions from methane, nitrous oxide, and fluorinated gas emissions. A comprehensive inventory analysis requires gathering accurate GHG emissions data from the agriculture, mining, oil and gas, industry sectors and landfills, as well as net CO_2 sequestration data from the forestry, agriculture, and land use sectors.

Using available data and studies, the Greenhouse Gas Mitigation Strategies Committee began to wrestle with what at first appears to be a simple math problem derived from the executive order's goals, but upon closer inspection requires a dynamic understanding of the electric supply system, its regional context, and the role different sectors of the economy play in producing GHG emissions. To understand possible scenarios to achieve the governor's goals there are a number of variables at play, ranging from the known (e.g., future generation facility retirements, planned resource acquisitions) to the uncertain (e.g., future population growth, rate of electric vehicle adoption, the corresponding demand for more electricity) to the fully unknown (e.g., the emergence of novel technologies or widespread economic disruptions). To address common needs of policy and decision-makers, often these variables must be coupled with additional assumptions regarding cost and system integration, allowing for

18 U.S. Energy Information Administration, "Table 10. Supply and disposition of electricity, 1990 through 2018," https://www.eia.gov/electricity/state/montana/

Figure 3: Current Montana CO_2 Emissions by Sector



Source: EIA & EPA (million metric tons). Additional detail on data sourcing can be found in footnotes 11 and 12 on page 21.

evaluations of whether the mix of resources and infrastructure ultimately meets widely-held goals such as maintaining electric system reliability and affordability.

Several studies and models have been developed to help states, regions, and utilities understand least-cost alternatives and pathways toward achieving emissions-reduction goals or targets. These modeling efforts of future scenarios can help structure stakeholder conversations, better inform decision-makers regarding tradeoffs, and provide the context needed to design and implement policy packages that are consistent with long-term goals.

The Council believes the state would ultimately benefit from engaging a consultant to assist with modeling that can help define Montana-specific scenarios to reduce emissions. For the purposes of this report, given the limitations of time and funding, the Committee and Council members reviewed several regionally relevant studies and modeling efforts, including *Meeting the Challenge of Our Time: Pathways to a Clean Energy Future for the Northwest*[19] completed by the Clean Energy Transition Institute (CETI) and Evolved Energy Research (EER). That study was presented at the December 1, 2019 full meeting of the Council in Helena.[20]

Following is the set of recommendations the Greenhouse Gas Mitigation Strategies Committee presented to the full Council for consideration. They span key building blocks for decarbonization, including energy efficiency; beneficial electrification; renewable energy adoption and electric system integration; transportation; strategies for waste, methane, and industrial emissions; and a set of priority state, regional, and federal proposals. The Council ultimately adopted most of the recommendations through consensus. A limited number of recommendations received the two-thirds vote needed per the Council's charter to be adopted, but did not garner unanimous votes. In those cases, dissenting viewpoints are reflected in this report.

19 https://www.cleanenergytransition.org/meeting-the-challenge
20 A copy of the presentation and meeting notes are available at: https://deq.mt.gov/DEQAdmin/dir/Climate

CASE STUDY

Modeling Deep Carbonization Pathways

Decarbonization planning at the state and regional level can help develop a blueprint that outlines strategies to reduce carbon emissions in the energy sector efficiently and at least cost for the electricity grid, the built environment, the transportation sector, and industrial energy use.

The goal of a GHG-reduction modeling exercise is not to correctly determine a single solution or accurately predict the future – it is to inform decisions made under uncertainty, to offer a set of measuring sticks to evaluate the compatibility of policy options, and to test those options in terms of their feasibility, costs, and emissions-reduction potential.

Given the current level of dependence of the economy on carbon-based energy sources and the interactions among sectors, a modeling effort can help scope the timing of infrastructure changes, technology options, investment requirements, research, development, and commercialization needs, as well as other areas that help align public, private, and academic sector goals and expectations.

Numerous studies have been conducted at state, regional, and national scales to evaluate pathways to achieve GHG emissions-reduction goals. Many of these studies, consistent with findings of the Intergovernmental Panel on Climate Change, have analyzed deep decarbonization in recognition of the need to dramatically reduce emissions in the near term and manage global net emissions to zero by 2050 or later. A review of more than 30 of these studies showed

that despite their variation in scope and methodology, a set of clear and consistent insights can inform policy makers:

- Achieving mid-century climate goals to reduce or eliminate GHG emissions is lower-cost when the power sector cuts emissions nearly to zero, while expanding to electrify (and consequently decarbonize) portions of the transportation, heating, and industrial sectors.

- Achieving deep decarbonization primarily (or entirely) with renewable energy may be theoretically possible, but it would be significantly more challenging and costly than pathways employing a diverse portfolio of low-carbon resources.

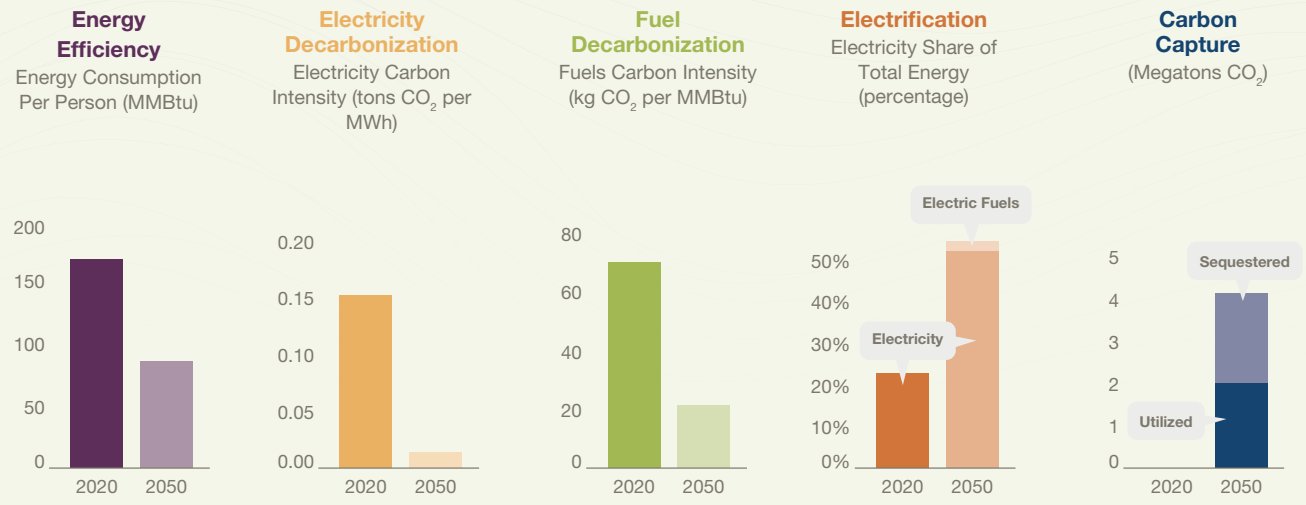
- Deep decarbonization of the power sector is significantly more difficult than more-modest emissions reductions. Taking the first steps to reduce emissions from electricity can be achieved by conventional means, such as fuel switching from coal to gas. The final emissions reductions to decarbonization require more-expensive and harder-to-achieve solutions.

- Absent long-term planning to consider these unique needs, many capital investments made in the near-term could lock in a suboptimal resource mix for the future.[21]

Notable studies for Montana and the Northwest region confirm similar findings. The four Northwest states (Idaho, Montana, Oregon, and Washington) have unique natural resources, power systems, energy consumption, and political conditions that must be represented in modeling decarbonization pathways.

21 J.D. Jenkins, S. Thernstrom, Deep decarbonization of the electric power sector insights from recent literature, Energy Innovation Reform Project, March 2017

Figure 4: Five Decarbonization Strategies



Source: *Meeting the Challenge of Our Time: Pathways to a Clean Energy Future in the Northwest*. June 2019. Eileen V. Quigley. Clean Energy Transition Institute. p. 54. Technical Citation.

Energy+Envrionmental Economics produced *Resource Adequacy in the Northwest*[22] in March 2019 for sponsors Puget Sound Energy, Avista, NorthWestern Energy, and the Public Generating Pool. The study finds that deep decarbonization of the Northwest electricity grid is feasible without sacrificing reliable electric load service, but that absent technology breakthroughs, achieving a 100 percent GHG reduction using only wind, solar, hydro, and energy storage is "both impractical and prohibitively expensive" due to the very large quantities of these resources that are required during periods of low renewable production once storage is depleted.

Sufficient firm capacity is required during periods of low wind, solar, and hydro production and the study finds that natural gas generation is the most economic source of firm capacity today. The study maintains that adding new gas does not conflict with deep decarbonization goals because the gas will only be used for reliability, and notes that new nuclear generation, fossil generation with carbon capture and sequestration, long-duration electricity storage, and replacing natural gas with carbon-neutral hydrogen or biogas are also firm capacity solutions. The study recommends investigating a formal mechanism to share planning reserves on a regional basis to ensure the region's resource adequacy needs are met in the coming decades as the Northwest transitions off of coal and aims to achieve deep decarbonization.

CETI and EER released *Meeting the Challenge of Our Time: Pathways to a Clean Energy Future for the Northwest* in June 2019. It was the first study to examine the technical and economic feasibility of achieving economy-wide deep decarbonization in Idaho, Montana, Oregon, and Washington. The study identified region-specific strategies that include the five strategies of energy efficiency, decarbonized electricity, decarbonized fuels, electrification, and carbon capture.

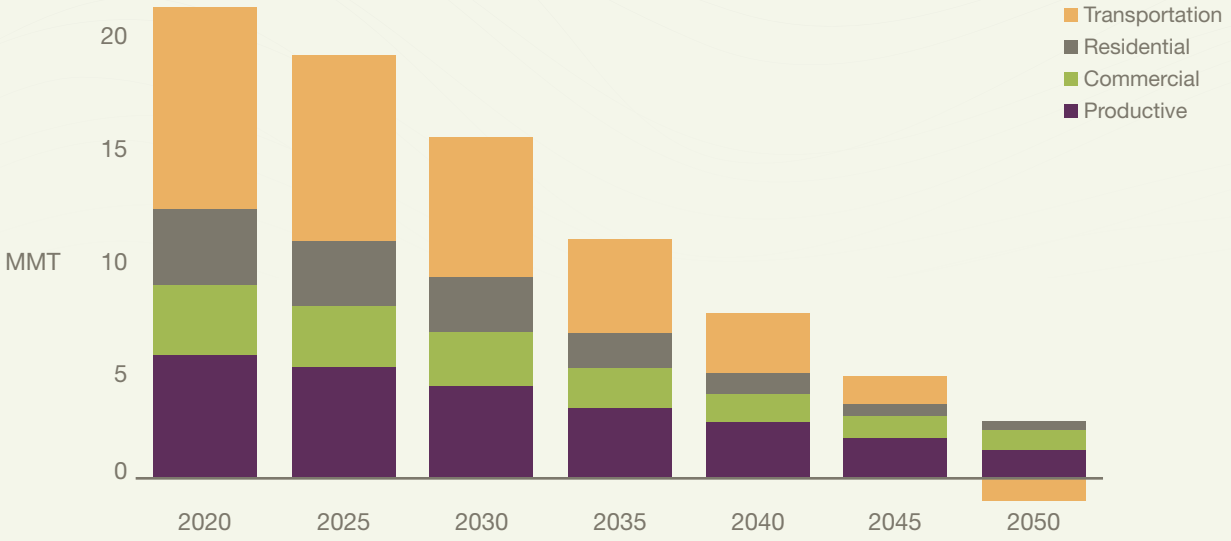
CETI and EER provided results from the June 2019 analysis specific to Montana. Those results can be explored at https://deq.mt.gov/Climate/. The study forecasts final energy demand to fall by 35 percent through greater efficiency, much of which comes from a transition to electrified transportation. As a result, electricity demand rises 71 percent.

In the study, Montana utilizes its geographic strengths on the supply side serving regional needs. A large wind sector is established,

22 https://www.ethree.com/wp-content/uploads/2019/03/E3_Resource_Adequacy_in_the_Pacific-Northwest_March_2019.pdf

Figure 5: Energy CO_2 Emissions by Sector

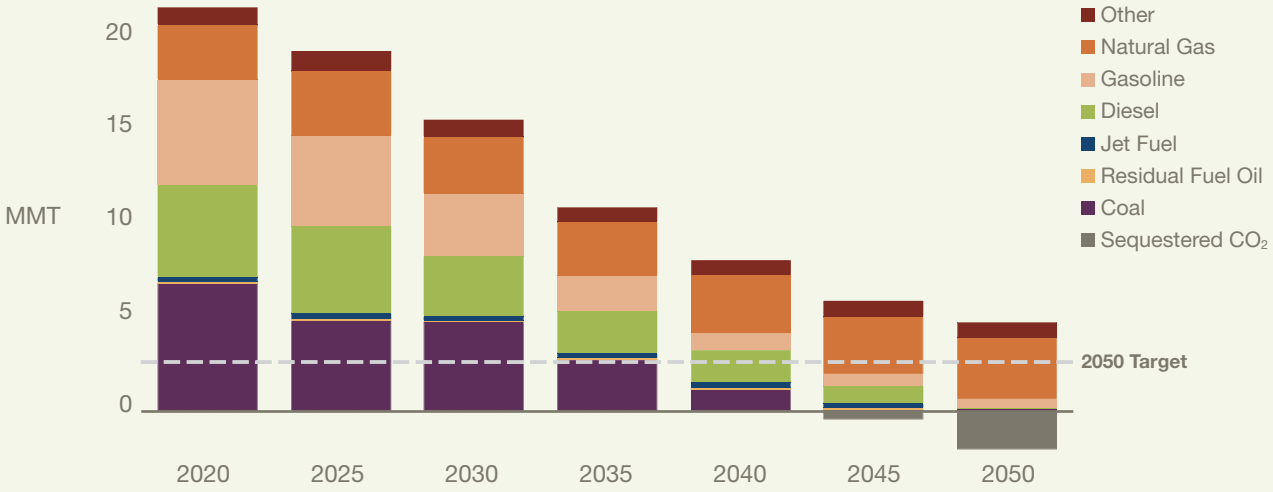
Overall emissions decrease across all sectors of the state's economy. Transportation emissions decline significantly as vehicles (Light-duty, Medium-duty, and Heavy duty vehicles) are electrified or use cleaner fuels. In 2050, biofuels with CCS are the dominant source of diesel and jet fuel, resulting in negative emissions. Building emissions are reduced to ~1MMT by 2050 as heating services are electrified.



Source: *Supporting Montana July 15th Climate Solutions Council Report.* June 2020. Jeremy Hargreaves. Evolved Energy Research. p. 29. Technical Citation.

Figure 6: Montana Energy CO_2 Emissions by Fossil Fuel Type 2020-2050

The five decarbonization strategies reduce Montana'a emissions over the next three decades. The largest remaining source of emissions is natural gas. Natural gas is the cheapest fossil fuel, therefore it is the last to be decarbonized. Montana offsets remaining emissions with carbon sequestration in saline aquifers to reach the 2050 target.



Source: *Supporting Montana July 15th Climate Solutions Council Report.* June 2020. Jeremy Hargreaves. Evolved Energy Research. p. 28. Technical Citation.

supplying clean energy to Montana and surrounding regions. Carbon is sequestered in saline aquifers in the production of liquid fuels from biomass, offsetting emissions from other sources.

Policy actions taken in the rest of the West could impact Montana's investments in significant ways, with opportunities to play a major export role in a decarbonized Western electricity system. Key opportunities for Montana include:

- **A low-cost and complementary wind resource:** Coastal states have less potential for high-quality wind resources and import significant quantities of wind from Montana and Wyoming as emissions caps tighten. Montana has the opportunity to build a valuable energy export market.

- **Decarbonized fuels:** Decarbonized fuels from biomass and hydrogen play a major role in Montana's transportation sector by 2050 in the study. Other Western states also rely on decarbonized fuels to reach their own targets. Montana has low-cost resources to produce fuels and could export fuels to other states.

- **Sequestration potential:** Montana has geological CO_2 sequestration potential, which allows for the capture of CO_2 and storage in saline aquifers.

The results offer a preliminary assessment of least-cost pathways to achieve decarbonization goals for Montana. They also highlight the need for a stakeholder process to support future study and investigation. Future studies will need to tailor assumptions to Montana's specific state objectives, and may wish to consider the implications of proposed projects and the timing of resource retirements.

Since the study was conducted, Western states including Washington, Colorado, and Nevada have set more-stringent emissions and clean energy standards that will drive more clean energy investment, and potentially greater demand for Montana resources. Forecasted prices have been lowered for many clean energy technologies. A recent study found that updated cost projections for wind, solar, and battery technologies could accelerate rapid decarbonization.[23] Potentially transformative energy projects, such as the Mitsubishi Hitachi Power Systems renewable hydrogen project discussed for Butte, could provide seasonal energy storage needs across the Northwest through generation that aims to operate on 25 percent hydrogen and 75 percent natural gas by 2025 and 100 percent hydrogen by 2045.

Through a stakeholder-driven and iterative planning process, Montana can better understand its regional competitive advantage and align policies that reduce emissions and foster economic opportunities.

23 https://www.2035report.com/

RECOMMENDATIONS

SECTION I. Energy Efficiency - Utility Practices, Standards, and Buildings

2A: Establish a Graduated Energy Efficiency Standard, a Demand Response Standard, and an Energy Storage Standard for the State's Investor-Owned Utilities (IOUs)

The rate of energy savings in Montana is quite low, around 0.5 percent annually. States that are high-performing acquire energy efficiency at over 2.0 percent annually. Investments in energy efficiency will reduce the need for electricity generation, thereby reducing GHG emissions. A graduated energy efficiency standard establishes specific targets for energy savings that utilities or non-utility program administrators must meet through customer energy efficiency programs. Demand response involves timing energy conservation measures at industrial sites, commercial buildings, homes, and other locations to save energy and meet utility peak demands. Energy storage can provide power that can be dispatched to better integrate variable resources like renewable energy, but it can also provide management of variable demand – helping to flatten demand requirements of the utility and allow the utility to implement voltage regulation and other efforts to improve system efficiency.

2A: KEY STRATEGIES

- **Adopt a statutory, or through administrative rule by the PSC, energy efficiency standard** at 1 percent energy savings annually within 3 years after program implementation, then increase the standard to 1.5 percent annually for the next 4 years, and to 2 percent annually thereafter for IOUs.
    - To ensure that the utilities are not disincentivized from adopting policies that promote beneficial electrification (e.g., converting from natural gas or propane to electric heat) load growth attributable to these activities would be excluded from total sale volumes and thus would not have any effect in the calculation of energy savings that must be acquired to meet the efficiency standard.

    - The proposal could consider specifying some amount of energy efficiency investments targeted at low-income Montanans. Energy efficiency significantly benefits low-income households, given those customers spend a disproportionately large amount of their income on meeting energy needs.
- **Adopt a statutory, or through administrative rule by the PSC, demand response standard** that would require the state's IOUs to acquire, within 5 years after implementation, a total of 35 megawatts (MW) of demand response resources, calculated based on each utility's overall system contribution to Montana load.
    - Efforts could focus on 1) Load control for residential and commercial customers (water heaters, air conditioning), where equipment is cycled for short periods of time; 2) Curtailable load for larger commercial/industrial operations, where operators nominate an amount of load to be curtailed when an event is called; and 3) Interruptible rate for commercial/industrial operations that can curtail most or all of their load.
- **Adopt a statutory, or through administrative rule by the PSC, energy storage standard** that would require the state's IOUs to acquire, within 2 years after implementation, a total of 35 MW of energy storage, calculated based on each utility's overall system contribution to Montana load.

2B: Promote Energy Efficiency Through Tools like On-Bill Financing

One of the largest barriers to energy efficiency acquisition is the upfront cost to individuals, households, and businesses. To help alleviate this issue, utilities should provide the opportunity for customers to apply for loans that are paid back in installments included in their monthly energy bills. On-bill financing is an energy efficiency uptake tool that utilities have used for decades, yet has failed to gain traction in Montana. Flathead Electric Cooperative is believed to be the only utility in the state providing an on-bill financing option, having alleviated the upfront cost burden for over 500 customers in just 8 years. Financing through the USDA's Energy Efficiency and Conservation Loan Program can assist cooperatives in developing/financing programs.

2B: KEY STRATEGY

- **Utilities and co-ops should provide an opportunity for customers throughout Montana to access energy efficiency measures by taking advantage of utility-administered on-bill financing programs.** Utilities and electric cooperatives should utilize lessons learned from experiences around the country and explore voluntary partnerships and legislative options to leverage funding and further incentivize adoption of energy efficiency financing opportunities. In addition to traditional on-bill financing, which utilizes a third-party intermediary such as a bank, utilities should also pursue on-bill repayment and tariffed on-bill financing in order to ensure renters and low-income customers are able to fully take advantage of these programs.

2C: Adopt Rate Strategies Like Decoupling, Time-of-Use Rates, Inclining Block Rates, and/or Performance Measures to Facilitate Energy Efficiency

Decoupling is an approach to better align utility profit incentives with customers' energy service needs. In simple terms, under a decoupling mechanism a utility is assured of being able to recover the revenue that the Commission has authorized it to recover, no more and no less. Should the utility recover less than the authorized amount, rates would increase in order to recover those revenues. On the other hand, should a utility sell more energy than was projected when rates were set and recover more than the authorized revenue, rates would decrease in order to refund the over collection. The mechanism removes the incentive to maximize energy sales in order to achieve recovery, and thus makes energy efficiency and distributed generation options more attractive to utilities.

Currently, most utility customers in Montana pay the same energy charge no matter when they use the energy (electricity or gas). Under this flat-rate design, the per-kilowatt-hour or per-therm charge is stagnant, meaning there is no price signal to use energy during non-peak times. In Montana, peak times usually mean that a utility's generation is fully operational, meaning GHG-emitting thermal units are emitting. Furthermore, increases in peak load prompt utilities to build additional natural gas "peaker" units, increasing emissions. Time-of-use (TOU) rates, on the other hand, send price signals to customers to shift load to non-peak times, such as at night or during the middle of the day.

Most Montana utility customers pay the same amount per unit (kWh or therm) regardless of the amount they use. For example, a customer that uses 600 kWh/month pays the same for each kWh as does a customer that uses 2,500 kWh per month. As such, there is no price signal to conserve energy or use the energy more efficiently. To address this issue and encourage energy efficiency and conservation, utilities and co-ops should consider adopting inclining block rates (IBR). Utilities with this rate structure encourage large users to reduce their energy usage through higher prices for energy consumed within the higher blocks.

Performance-based measures change the business model for investor-owned utilities (IOUs) operating in Montana, such that rate of return for the utility is calculated based on performance against certain pre-defined metrics rather than only spending or costs. For example, metrics could include environmental impact, mitigation of climate and environmental risks and investment risk, reliability and availability, safety, conditions for connection, social obligation, and ratepayer satisfaction. In the United Kingdom, regulated utilities receive a profit based on the RIIO Model, where Revenue = Incentives + Innovation + Outputs.

2C: KEY STRATEGIES

- Work with the PSC, IOUs, rural electric cooperatives, and other stakeholders to **advance proposals for decoupling, TOU rates, inclining block rates, and/or performance measures**.

- **Consider implementing a three-tiered TOU pricing rate design,** being sensitive to the specific needs and circumstances of low-income customers. The first and cheapest tier (i.e., the low-usage times) should be priced below the "flat rate" charge (e.g., $0.06/kWh) to encourage customers to shift load to these times. The second tier (i.e., average-usage times) should be priced somewhere near the "flat rate" charge (e.g., $0.11/kWh). Finally, the third tier (i.e., peak times) should be appropriately priced to send a proper signal that customers should only use energy essential to home/business operation (e.g., $0.16/kWh). Committee members wish to emphasize that TOU rates will not be applicable to large industrial, agriculture, or large irrigators who already operate under demand charges.

2D: Support Programs to Advance Commercial Energy Audits

In-depth energy audits are necessary for businesses, schools, government agencies, and communities to discern the appropriate energy conservation and renewable energy measures available to them. Previous Montana programs of this scope include the Montana Resource Efficiency Program[24] and the Energy Efficiency Program. The Montana Resource Efficiency Program has a proven track record of success assisting 188 businesses and governments and authoring 48 in-depth audit reports. Customers saved more than $10 million on their energy bills, thanks to more than 131 million kWh and more than 6 billion Btu in energy savings.

2D: KEY STRATEGY

- **Explore budget resources through the legislature to support commercial energy audits.**

2E: The Legislature Should Evaluate the Universal System Benefits Program Funding Mechanism for Electric Customers

In 1997, Montana's energy utilities were restructured, which deregulated the supply of electricity and natural gas. At the time, it was acknowledged that deregulation could negatively affect several activities of the state's utilities that provided societal benefits. To ensure these activities continued in the future, the legislature established a universal system benefits (USB) program and approved a USB charge to be added to natural gas and electric utility bills of all utility customers. These spending activities are annually reported and many utilities consistently exceed minimum USB spending requirements.

There are differences between natural gas and electric USB programs, but both programs provide funding support for three common activities: 1) cost-effective local energy conservation, 2) low-income energy bill discounts, and 3) weatherization activities. Electric USB charges

24 https://www.mtefficiency.org/

also fund energy research and development, renewable energy development, and market transformation programs. Natural gas USB funding is based on 1.12 percent of the utility's annual natural gas revenues from the previous year. Electric USB collections are based on 2.4 percent of the utilities' 1995 revenues. Over the past 20 years, there has been a decline in the effective value of electric USB funds. This is a narrowly focused recommendation pertaining to the electric USB funding formula and not the allocation of funding among programs, particularly the low- income energy programs that are so critical for low-income electric customers.

2E: KEY STRATEGY

- **The Council recommends the Legislature evaluate the electric USB funding mechanism** that determines overall annual contributions to the USB program.

2F: Develop Mobile-Home Replacement Program

Many Montanans still occupy pre-1976 mobile homes, considered to be among the least-energy-efficient housing stocks in the country. Low-income Montanans who are least able to afford energy services reside in these units. Accordingly, replacing pre-1976 mobile homes with newer mobile homes would not only reduce GHG emissions but would reduce low-income Montanans' energy bills and improve their lives.

2F: KEY STRATEGY

- The executive branch of state government should convene a stakeholder group charged with taking an inventory of older, energy-inefficient, and unhealthy mobile homes and **developing a mobile-home replacement program** to meet both energy efficiency and environmental justice goals.

2G: Address the Non-Energy Benefits of Energy Efficiency when Assessing Cost-Effectiveness

Congress recognized non-energy benefits, which are often difficult to quantify, in the Northwest Power Act of 1980, requiring the Northwest Power and Conservation Council and Bonneville Power Administration (BPA) to include a 10 percent adder in cost-effectiveness calculations. As a result, western Montana co-ops, as customers of BPA, benefit from the adder. The law applies to all utilities in the Pacific Northwest. Montana-Dakota Utilities Company has a 15 percent adder included in PSC administrative rule. NorthWestern Energy utilized a 10 percent adder, citing the Northwest Power Act, but abruptly stopped several years ago, at the same time that the utility slashed its energy efficiency acquisition goals.

Cost-effectiveness calculations are a crucial part of procuring energy efficiency as a resource. Utilities must demonstrate that efficiency is cheaper than the cheapest alternative resource in order to receive cost-recovery and/or a rate of return on their investments. Theoretically, both costs and benefits are included in the cost-effectiveness calculation; however, many benefits are not included, leading to skewed outcomes that limit energy-efficiency acquisition. The missing benefits include those related to good health, clean water, environmental protection, compounded economic benefits, etc.

2G: KEY STRATEGY

- In an effort to more-accurately calculate the full benefits of energy efficiency, **all utilities and co-ops should include a non-energy benefit adder in cost-effectiveness calculations**. The specific number should be left up to individual utilities, but should be no less than 10 percent as described in the Northwest Power Act. The result would mean that any measure or program achieving a 0.9 or above (for 10 percent adder) cost-effectiveness ratio would be deemed to be cost effective.

2H: Identify Energy Efficiency Solutions for Rental Units

Installing energy efficiency at rental units is challenging because of the split in incentives that exists between the owner and occupant of the rental unit. Specifically, the owner incurs the cost of capital improvements that yield energy savings but benefits in the form of lower costs of energy and unit comfort and livability advantage the occupant. Consequently, owners have no incentive to invest in energy efficiency, meaning that the benefits are not realized – to the owner, in terms of marketing the unit; to the tenant, in terms of reduced cost of living in the unit and comfort; and to society, in terms of reduced emissions.

2H: KEY STRATEGY

- The governor shall **establish a task force examining existing energy efficiency efforts specific to rental units** and ways to improve energy efficiency acquisition at rental units. The task force shall comprise stakeholders, including investor-owned electric and natural gas utilities, electric cooperatives, local government, energy efficiency providers, and owners of rental units and tenants.

2I: Adopt State Appliance Efficiency Standards

Many states have adopted appliance efficiency standards. Standards require products, such as refrigerators or air conditioners, to meet specific minimum efficiency requirements thereby

reducing energy use, which reduces emissions and also saves consumers money. Equally important, the existence of standards drives manufacturers to focus on incorporating energy-efficient technologies into their products at the least cost and hastening the development of innovations that bring improved performance. While Montana's relatively low population will not drive the market, Montana consumers should not be deprived of the advantages that will be produced as a result of ensuring their appliances meet a minimum level of efficiency performance.

2I: KEY STRATEGY

- The State should **enact legislation that adopts minimum energy and water efficiency standards for a variety of products sold in the state.** The legislation should use as a template the "Model Act for Establishing State Appliance and Equipment Energy and Water Efficiency Standards" issued by the Appliance Standards Awareness Project and the American Council for an Energy-Efficient Economy.[25]

2J: The Montana Department of Labor and Industry (DLI) Should Modernize Montana Building Energy Codes and Administrative Processes to Promote Energy Efficiency and Other Climate Benefits in New Buildings *[ADVANCED WITH DISSENT]*

Building energy codes are an effective way to save energy over the long term. The value of energy efficiency in properly implemented construction standards is universally recognized as the easiest and most cost-effective way to help consumers and businesses save energy and money, make housing and businesses more affordable, and reduce GHG emissions.

2J: KEY STRATEGIES

- **Support regular adoption of updated International Energy Conservation Code codes every three years, with amendments appropriate to Montana.** The adoption process must be accelerated to occur within 12 months of a new code being issued by the International Code Council. Consider capacity building support to meet accelerated adoption objectives.
- **Require that the energy code be considered at the same time as the other codes** to avoid the current situation where the energy code lags adoption of other codes.
- **Require that all builders operating in the self-certification areas of the state be required to submit, to the Building Codes Bureau, a written statement that a house complies with the state energy code** and/or have the appropriate state agency enforce building codes outside of local jurisdictions.

25 https://appliance-standards.org/sites/default/files/2019_Model_Bill_ASAP_Jan_24_2018.pdf

- Modify language regarding energy stretch codes to **allow a jurisdiction to require compliance with that local stretch code** in their jurisdiction. Explore the possibility of developing a stretch code for the entire state that would be optional for local jurisdiction adoption.
- **Investigate the feasibility of requiring energy rating labeling for new home sales and new commercial buildings.**

DISSENTING VIEW: One Council member opposed this recommendation citing concerns over the potential for a local governing body to apply rules and regulations to people or companies outside of their jurisdiction. DISSENTING VOTE: Olson.

2K: Allow for Local Governments to Establish Building Performance Standards

Building performance standards are utilized by local governmental bodies to, over time, improve the energy performance of commercial buildings. In Montana, the building sector is responsible for approximately 11 percent of CO_2 emissions. By setting an overall target along with interim targets that ramp up gradually, a building performance standard allows owners of commercial buildings the ability to choose a package of technologies and actions that improve the performance of their buildings best suited to their circumstances. A combination of short- and long-term goals enables building performance to gradually improve and will discourage building improvements that lock in place economically and environmentally inefficient investment.

2K: KEY STRATEGY

- **The State, through legislation, should explicitly allow Montana local governments to adopt building performance standards and Montana cities should adopt such standards tailored for their individual circumstances.**

2L: Implement Net-Zero-Energy Building Strategies

Net-zero-energy (NZE) buildings tackle climate change mitigation and adaption simultaneously. NZE strategies and goals overlap with those of other committees of this Council. In Montana, heating and cooling account for most of the energy used in most buildings. NZE buildings are designed to significantly reduce a building's energy use and produce enough on-site renewable energy to fully address GHG emissions associated with annual energy consumption. Many above-code building programs provide best practices, strategies, and require third-party certification. The State of Montana can adopt one of the existing programs for all state-owned new construction or existing building retrofits.

NZE adoption has several barriers. There is a lack of awareness of the concept and its benefits. Further, there is a lack of educated customers and trained professionals. There exists a

chicken-and-egg issue: customers building new buildings need to know that NZE and NZE-ready is an option and ask for it. And, Montana's architects and builders need to know how to design and build NZE so they can be hired. There are numerous architects and builders across the U.S. with the knowledge, expertise, and experience required, but Montana will need to assess knowledge gaps and educate and train most of its building-related professionals. A third issue is the emphasis on capital/first costs versus equal consideration of the "second price tag" of continuous operation and maintenance costs paid over a building's lifetime. Lastly, there is a persistence of outdated myths about off-the-shelf and proven technologies used in NZE buildings. For example, companies that install traditional HVAC systems may say that air-source heat pumps do not work well in cold climates like Montana's.

2L: KEY STRATEGIES

- The Montana Energy Office[26] should **conduct an audit of existing state-owned and -leased buildings to rank them by which are most energy- and water-efficient and retrofit to achieve NZE.**
- The State of Montana should seek to **ensure all new construction for state-owned buildings has a NZE or NZE-ready goal**.
- The Montana legislature should **provide tax incentives for developers designing and building to NZE standards**.
- The Montana Energy Office should **work with national experts and professionals to develop educational materials, guidelines, and learning opportunities** (e.g., seminars, trainings) on NZE design for various stakeholder audiences, including developers, building owners/operators, local code officials, and the general public.

SECTION II. Beneficial Electrification

26 https://deq.mt.gov/Energy

2M: Support an Electric Cooperative Beneficial Electrification Initiative

Beneficial electrification means to substitute electricity as an energy source in place of applications that traditionally rely on fossil fuels, such as switching to electric vehicles instead of internal combustion engine vehicles that utilize petroleum products or utilizing electric space heat instead of natural gas or propane. This approach limits uncontrolled GHG emissions from many sources. Instead, by using electricity from clean energy sources, beneficial electrification allows for these various applications to lower and potentially to zero-out their associated GHG emissions. The electric cooperatives serve a significant number of customers in Montana and thus will be critical if Montana is to achieve emission reductions. In order for electrification initiatives to qualify as 'beneficial,' typically the efforts should contribute toward the goals of saving consumers money over the long run, enabling better grid management, and reducing negative environmental impacts.

2M: KEY STRATEGY

- The Montana's Electric Cooperatives Association and its member cooperatives should **consider establishing a beneficial electrification initiative** to save customers money and improve their and their communities' way of life, enhance grid stability and reliability, and reduce environmental impacts.

2N: Study the Challenges and Opportunities of Heat Pump Technology Adoption in Montana

Heat pump technology is used widely across various parts of the country for both heating and cooling needs (air and water). Powered by electricity, heat pumps take energy in the form of heat and by a mechanical process move it from one place to another. Cold-climate heat pump technology for residential and commercial heating is relatively new, but as the technology advances the cost of the technology continues to decline. As such, deploying heat pumps is another way to reduce reliance on fossil fuels for heating, such as natural gas. Additional analysis on the performance of cold-climate heat pump technology is needed to assess the efficacy of the technology in Montana, the emissions reduction potential, and consumer costs and benefits.

2N: KEY STRATEGY

- **The State should commission a study, to be prepared by an entity familiar with the subject, examining the efficacy of air-source and ground-source (i.e., geothermal) heat pumps in Montana.** Working with electric utilities, the study should field-test applications of heat pump technology in a variety of climatic regimes and undertake an economic analysis. The study should also make recommendations as to deployment of the technology and funding – including, for example, state financial grant, loan, or tax incentives for purchase and/or installation – if the report determines the technology has potential value in the state.

2O: Encourage Expanded Community Solar Development and Enact Policy to Enable Community Solar for Investor-Owned Utilities

Community solar programs allow households, businesses, and other energy customers the opportunity to subscribe to one or multiple small portions of a large solar array, typically owned by an energy provider. Community solar can benefit many Montanans by making it possible for them to afford investments in renewable energy without having to pay the high up-front cost of owning a renewable energy generator. Maintenance costs are also reduced because these costs are shared by participating individual consumers. Under current property tax law, after expiration of the five-year tax holiday, these community solar arrays are treated as utility property for tax purposes.

Community solar provides access for individuals, households, and businesses that may not otherwise be able to install an on-site distributed generation system (e.g., renters, buildings with shaded roofs, multi-story apartment buildings and condos). Community solar allows the utility to control the siting of the array, which can provide more-efficient solar production and more-efficient grid interconnection. Community solar subscribers can help finance projects, lessening burden on the developer.

2O: KEY STRATEGIES

- The legislature should **enact policy to extend or make permanent the current five-year property tax holiday for community solar energy development by electric utilities** (MCA 15-6-225 "Small Electrical Generation Equipment Exemption").[27]
- The legislature should **enact policy to enable community solar for investor-owned utilities**.

27 https://leg.mt.gov/bills/mca/15/6/15-6-225.htm

2P: Provide Incentives for Solar-Ready and Solar-Integrated Design and Building

In its report *Solar Ready: An Overview of Implementation Practices,*[28] the National Renewable Energy Laboratory defines a solar-ready building as one that is engineered and designed for solar installation, even if the solar installation does not happen at the time of construction. The report states that creating a solar-ready structure improves the cost effectiveness of solar when pursued later, which eliminates barriers to future solar applications and facilitates market growth.

Examples provided in the report demonstrate significant savings if solar-ready measures are implemented during design and construction versus if those measures must be taken during solar installation. In Montana, solar-ready design incentives should focus on two types of buildings: 1) residential (single- or multi-family structures) and 2) small buildings designed for multi-family housing, commercial use, or mixed-use applications. This second group of buildings typically have flat roofs and are excellent candidates for solar.

2P: KEY STRATEGIES

- The legislature should **enact legislation that provides incentives to encourage solar-ready design for new buildings** in Montana.
- The Montana Energy Office and the Montana Department of Labor & Industry should collaborate to **provide solar-ready design guidance for residential and commercial building developers**.
- The Montana Department of Labor & Industry's Building Codes Program[29] should **adopt the most-recent IECC energy code and specifically include Appendix RB, "Solar-Ready Provisions – Detached One- and Two-family Dwellings, Multiple Single-family Dwellings (Townhouses)."**[30]

2Q: Study the Feasibility of Encouraging Greater Utility-Scale Renewable Energy Development by Reducing Property Taxes on New Renewable Energy in Montana

Montana currently has by far the highest taxes on renewable energy in the region compared to North Dakota, South Dakota, and Minnesota. North Dakota's taxes on a 150 MW generator, for example, are only one-quarter the amount of taxes on the same-sized generator developed in Montana. Taxes in South Dakota and Minnesota are only slightly higher than those in North Dakota (and therefore also much lower than in Montana).

28 https://www.nrel.gov/docs/fy12osti/51296.pdf
29 http://bsd.dli.mt.gov/building-codes-permits
30 https://codes.iccsafe.org/content/IECC2015/appendix-rb-solar-ready-provisions-detached-one-and-two-family-dwellings-multiple-single-family-dwellings-townhouses-

2Q: KEY STRATEGY

- The legislature's Revenue Interim Committee[31] should **conduct independent research to compare taxation across states and renewable energy projects** to determine if rates should be adjusted for new projects. Committee members emphasize that any proposed adjustments must fully consider revenue impacts.

2R: Advance the Deployment of Energy Storage Projects in Montana

Nationally, energy storage is increasingly being utilized by utilities, other energy suppliers, and customers. Energy storage has many applications and roles, including addressing utility peak needs requirements, enhancing system reliability, and renewable resource integration. Presently, however, energy storage development in Montana is hampered by, among other things, a lack of acceptance and awareness of its potential uses and value.

2R: KEY STRATEGY

- MT DEQ should, together with other executive branch agencies, the Montana Public Service Commission, and electric utilities, **host a symposium on energy storage** to explore new storage technologies and their potential application in Montana and identify possible recommendations and next steps.

2S: Deploy and Test Grid-Integrated Water Heaters

Grid-interactive electric water heaters can assist with load control. By shifting water heating load from morning and evening to mid-day and overnight, water heat energy requirements can be served more economically while still meeting customer needs during peak use times. Water heaters can also be controlled on a minute-to-minute basis to provide voltage support and frequency regulation service to the grid at a much lower cost than generating units or batteries.

2S: KEY STRATEGY

- MT DEQ, working with regional entities, such as the national laboratories, the Bonneville Power Administration, and the Northwest Energy Efficiency Alliance,[32] should **develop pilot programs in the service territories of Montana utilities to deploy and test grid-interactive water heaters to evaluate performance, energy savings, and their role in system stability and reliability**.

31 https://leg.mt.gov/committees/interim/2019rvic/
32 https://neea.org/

2T: Increase the Allowable Size for Distributed Generation Systems

[ADVANCED WITH DISSENT]

The current system size cap for small-scale generation interconnecting to the grid is restrictive for entities like commercial buildings, schools, libraries, and private businesses. The cap involves what is known as net metering – a billing mechanism that credits solar energy system owners for the electricity they add to the grid. The current cap of 50 kilowatts (kW) was passed in 1999 and has not been updated since. Meanwhile, solar technology has become more efficient and less costly. Increasing the allowable system size will allow users to meet more of their energy needs with solar, wind, micro-hydro, and other eligible technologies.

2T: KEY STRATEGY

- The legislature should **evaluate and institute a new cap for distributed energy systems.**

DISSENTING VIEWS: Four members did not support the advancement of this recommendation citing concerns over potential increased costs for utility customers who do not take part in net metering and the need to consider the potential for stranded transmission/distribution costs. Members also cited concerns over cost and complexity of ratemaking for a potential new class of generators. DISSENTING VOTES: Hoffman, Wiens, Olson, and O'Hair.

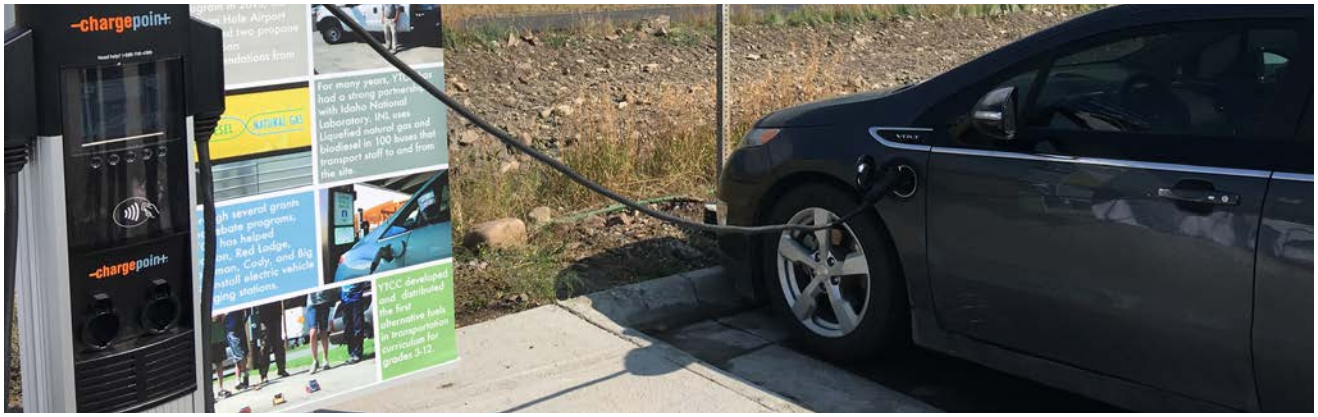
2U: Investigate the Use of Microgrids in Montana

The U.S. Department of Energy (DOE) defines microgrids as "localized grids that can disconnect from the traditional grid to operate autonomously." DOE goes on to note that "because they are able to operate while the main grid is down, microgrids can strengthen grid resilience and help mitigate grid disturbances as well as function as a grid resource for faster system response and recovery." These resilience benefits may be particularly valuable in Montana, where uncharacteristic wildfire and other severe weather can disrupt service and potentially pose liability risks in circumstances where transmission infrastructure is the source of ignitions. Microgrids can also provide an opportunity to deploy more distributed generation, especially with storage technology, and can more efficiently use those technologies. The development of microgrids is still relatively new. As of January 2020, Wood Mackenzie was tracking just over 2,400 operational microgrid projects across the United States. However, Montana itself is home to NorthWestern Energy's Beck Hill Rural Microgrid Project. A group of energy stakeholders should be convened in order to further investigate the increased use of microgrids in Montana.

2U: KEY STRATEGY

- The Montana Energy Office should **establish a microgrid stakeholder advisory group** to investigate the increased use of microgrids in Montana to identify impacts to energy consumers and energy providers, as well as technical barriers impacting development, and report its findings to the Energy and Telecommunications Interim Committee.[33]

SECTION IV: Transportation



2V: Adopt Low-Emission Vehicle (LEV) and Zero-Emission Vehicle (ZEV) Standards *[ADVANCED WITH DISSENT]*

Fourteen states have adopted LEV standards and twelve states have adopted ZEV standards. Three other states – Minnesota, Nevada, and New Mexico – are in the process of adopting these standards, which the auto industry broadly supports. California adopted the first LEV regulations in 1990, requiring automobile manufacturers to introduce progressively cleaner light- and medium-duty vehicles with more-durable emission controls. The ZEV regulation requires automakers to invest in clean vehicle technologies such as plug-in hybrid, battery electric, and hydrogen fuel cell by maintaining zero-emission credits equal to a set percentage of non-electric sales. The credit requirement increases over time, much like a renewable portfolio standard.

2V: KEY STRATEGY

- MT DEQ should **undertake a rule-making process (or pursue legislation as appropriate) to adopt low-emission vehicle and zero-emission vehicle standards** by the fall of 2020.

33 https://leg.mt.gov/committees/interim/etic/

DISSENTING VIEWS: Four Council members did not support the advancement of this recommendation. Concerns were raised regarding pending litigation of clean vehicle standards, and the necessity for standards to drive market adoption as opposed to market and consumer preferences. Some members questioned whether Montana should serve as a leader in the development of this marketplace in light of adoption and cost challenges associated with a low population and low population density across the state. Others raised concern that the standards might lead to additional regulations and taxes on existing vehicles. DISSENTING VOTES: Hoffman, Wiens, Olson, and O'Hair.

2W: Advance Comprehensive Strategies to Develop and Expand Electric Vehicle Use and Infrastructure *[ADVANCED WITH DISSENT]*

The states of Colorado, Idaho, Montana, Nevada, New Mexico, Utah, and Wyoming have entered into a memorandum of understanding (MOU) to establish a Regional Electric Vehicle Plan for the West (REV West Plan).[34] The MOU acknowledges the value of taking coordinated action to deploy EV charging stations across the region. The buildout of an "Intermountain West EV Corridor" will increase access to each state's highways, promote tourism and recreation in rural communities, and support economic development. While private-sector roles for advancing infrastructure will be critical, partnerships will also be needed to overcome initial hurdles to EV adoption attributed to a lack of infrastructure.

2W: KEY STRATEGIES

- The State should **provide tax incentives for the purchase of low- and zero-emission vehicles** at a level sufficient to evoke a robust consumer response.
- The governor should **issue an executive order establishing a goal for the deployment of EV charging infrastructure in the state** and establish a task force charged with creating a plan and action items leading to the implementation of that goal.
- To ensure that transportation electrification occurs as expeditiously as possible, based on sound utility regulatory principles the State should **enact legislation requiring investor-owned electric utilities to file plans every two years with the Montana Public Service Commission**. Likewise, every two years the Montana Electric Cooperatives Association, on behalf of its member cooperatives, would be required to file a report with MT DEQ. The regulated utilities' plans should include such things as: an analysis of existing market opportunities, existing policies, barriers to EV growth, and the impact of rates and rate design on EV adoption. These plans, through an open, public process, would be subject to Commission approval, disapproval, or modification. The electric cooperative report should include a discussion of EV charging in the service territories of member cooperatives.

34 https://afdc.energy.gov/laws/11875

- The Montana Department of Transportation (MDT),[35] working with stakeholders (including the Federal Highway Administration[36]), should **evaluate the feasibility and advisability of installing fast-charging (direct current) EV charging stations at rest areas administered by the Department**. The process should endeavor to identify the specific rest areas suitable for the development of EV infrastructure, establish target dates, and determine funding requirements and sources. MDT should, within existing authority, deploy uniform signage on routes under its jurisdiction indicating the location of public charging stations.
- **The imposition of taxes on low- and zero-emission vehicles should be equitable and should not create disincentives for the ownership of LEVs and ZEVs.**
- Enact **legislation exempting electric vehicle charging stations from property taxes**, installed for use by employees, patrons, and visitors by the owners of commercial property.
- **The Montana Department of Labor should by rule exclude the cost of installing electric vehicle charging infrastructure when calculating the cost. of an electrical inspection for new construction.**

DISSENTING VIEW: One Council member did not support the advancement of this recommendation. That member voiced concern over mandatory reporting requirements for electric cooperatives, which were viewed as unnecessary. The member offered that electric cooperatives would be willing to provide this reporting on a voluntary basis if requested by the legislature. DISSENTING VOTE: Wiens.

2X: Improve Statewide Transportation Management to Foster Alternatives and Support the Needs of Communities

Transportation-related GHG emissions occur not just because our fleet uses fossil fuels, but also because of the nature of our overall transportation system. Montanans have the tenth-highest reliance on personal vehicles of any state in the nation, partly reflecting our geographic range and low population density, but also limited integrated transportation and growth planning and transportation alternatives.

2X: KEY STRATEGIES

- MDT should assemble a broad-based stakeholder group, including transportation consultants and experts from outside of Montana, to **consider and evaluate the Department's transportation planning and operational practices.** This evaluation should include a focus on the state's need and commitment to reduce GHG emissions and the importance of and benefits from developing transportation-efficient communities.

35 https://www.mdt.mt.gov/
36 https://cms8.fhwa.dot.gov/

- MDT should build, or arrange to have built, and **host a ride-sharing mobile app.** The app will enable drivers and riders to connect with each other to reduce vehicle miles travelled and costs for Montanans, while also lessening the burden on existing transportation infrastructure.
- MDT, working with local governments, should **direct additional resources towards planning for and the development of expanded bike infrastructure both within and between communities**. Such development will help decrease miles driven, while helping increase tourism revenue (including, potentially, to more rural Montana communities).
- The Department of Labor should **prepare and make available a manual on remote working practices** and should assist employers that wish to institute remote work opportunities for their employees.

2Y: Explore Opportunities for Passenger Rail

Public transportation across Montana is limited, with few affordable options for intercity travel throughout the state. During the 20th century, southern Montana saw passenger rail service by way of Northern Pacific's North Coast Limited and the Chicago, Milwaukee, St. Paul and Pacific's Hiawatha trains. With the cessation of private rail service in 1971 and the creation of Amtrak, the North Coast Hiawatha was established and ran until 1979 when, during a period of retrenchment, Montana lost the southern route and only retained the Empire Builder along the Hi-Line. Unfortunately, the majority of the state, and the major population centers of the state, are not connected by rail or even by regular bus routes. Transportation accounts for a significant percentage of harmful air pollutants in urban areas, and there is tremendous opportunity to reduce those emissions by reducing single-occupant vehicle trips. A cohesive intercity public transportation system would both reduce air pollution by decreasing the necessity of car travel across the state and would increase equitable access to travel options for those not able to afford car ownership or with other barriers to driving. More regional rail connectivity can help reduce the need for air travel as well (more about GHG reduction benefits here and here). Passenger rail cars could further reduce Montana's GHG emissions if electrified or powered by hydrogen.

The last study on the feasibility of reinstating passenger rail in Montana was conducted in 2010. It is likely that many of the estimates of cost and even the state of the current infrastructure need to be reevaluated. Additionally, the previous study did not account for the social cost of emitting carbon and the need to reduce GHG emissions. Another barrier to reinstating passenger rail is the lack of a governance structure, like a rail authority, to lobby for and actively pursue restoration/expansion of passenger rail service. Rail authorities provide the governance structure and institutional framework for engaging state, federal, and private-sector partners to plan and implement restored passenger rail service throughout the region.

2Y: KEY STRATEGIES

- The State should **develop a passenger rail authority modeled after passenger rail authorities in other states.** To start, the governor could direct MDT to coordinate with and support the county officials developing a multi-county Big Sky Passenger Rail Authority.[37]
- The governor and Montana's Congressional delegation should **advocate for the creation of a regional, multi-state passenger rail commission** (like the Southern Rail Commission) that allows Montana to create connectivity with other states and tap into federal resources.
- MDT should **conduct an updated feasibility study of restored passenger rail service through southern Montana** and conduct an impact analysis that accounts for anticipated reductions in GHG emissions.
- The governor should **establish a committee to examine the issue and investigate how Montana can prioritize passenger rail and expanded public bus service** as a part of the state's multi-modal approach to mitigating climate change.

SECTION V. Quantifying and Reducing Industrial, Agricultural and Methane Emissions and Including Carbon Sequestration

2Z: Improve Greenhouse Gas Emissions and Carbon Sequestration Inventory and Accounting Spanning Non-Electric and Transportation Sectors Across Montana's Economy

Presently, the state lacks a comprehensive inventory or estimates of GHG sources and sinks spanning other critical sectors of the economy, including industrial sources, methane emissions, and agriculture, forestry, and wood products. These estimates and inventories are critical to understanding economy-wide strategies to reduce emissions and boost the capacity of carbon storage in healthy soils, forests, and in wood products.

37 https://montanapassengerrailsummit.org/big-sky-passenger-rail-authority

2Z: KEY STRATEGIES

- MT DEQ, in consultation with other appropriate agencies, should **develop GHG emissions and sink estimates for key sectors of Montana's economy and land use.**
- The GHG emissions reporting program should be developed through DEQ rulemaking to **encourage facilities and other industrial, institutional, and commercial operations that produce more than 25,000 metric tons of CO_2e to annually report GHG emissions.** This recommendation would allow for developing a summary report of existing facilities currently reporting to the U.S. EPA's Greenhouse Gas Reporting Program (GHGRP)[38] and also incorporate other facilities subject to 40 CFR 63 Part 98 who are not reporting.
- **In forestry and agriculture, integrate strategies with voluntary and incentive-driven approaches, including potential carbon markets,** as outlined in Chapter 1. Consider use of widely available tools from the USDA for estimating GHG emissions and sinks, including tools like COMET-FARM[39] and COMET PLANNER[40] that allow for farm-scale and regional estimations of the benefits of conservation practices for carbon management and reduced emissions.

2AA: Assess and Reduce Sources of Methane Emissions

Reducing methane emissions is an important component of strategies to address GHG emissions. Key sources include landfills, agricultural emissions from livestock production, and oil and gas operations.

2AA: KEY STRATEGIES

- MT DEQ, working with industry and other appropriate agencies, should develop a study plan and then **conduct a study to identify and quantify sources of methane emissions in Montana**.
- The Montana Board of Oil and Gas Conservation (MBOGC),[41] working with MT DEQ, should **institute a program, directed at well and pipeline operators, that has as its objective the promotion of best management practices** such as leak detection and repair, the use of no-bleed or low-bleed control devices and pneumatic controllers, and to discourage the use of manual liquids unloading processes.

38 https://www.epa.gov/ghgreporting
39 http://comet-farm.com/
40 http://comet-planner.com/
41 http://dnrc.mt.gov/divisions/board-of-oil-and-gas-conservation

- The governor should propose and the legislature should **adopt a budget that provides sufficient funding to address orphan well remediation and closure** in accordance with a plan, developed by MBOGC, taking into account a well's potential to emit methane, that enables the existing orphan well inventory to be remediated and closed by the end of 2023.
- **If the next round of Covid-19 disaster relief and economic stimulus funding directs monies to orphan well remediation and closure, the state should advocate to ensure that Montana receives its fair share of those funds** – through its Congressional delegation, the governor, and the legislature.
- MT DEQ should **assess the extent to which methane emissions are occurring as a result of the use of continuous or intermittent control devices on oil and gas pipeline infrastructure** and shall, if appropriate and working with industry, develop a program to replace continuous or high-bleed control devices with no-bleed or low-bleed control devices on oil and gas infrastructure.
- To the extent not already regulated by MT DEQ's facility registration program, MBOGC – using existing authorities – should **require operators to submit a plan, providing information to be required by the Board, minimizing or eliminating methane emissions,** to be submitted no later than three months after the commencement of production.
- MT DEQ should **review its standards and requirements related to methane production and releases at the municipal solid waste landfills it regulates** and revise those standards and requirements, if necessary, to ensure that methane produced by the facility is captured and diverted for beneficial use.
- The Montana Department of Agriculture (MDA)[42] should undertake a comprehensive review and inventory of methane emissions as a result of livestock production and agricultural practices and, should, working with Montana producers, create a program to reduce or eliminate those emissions.

2AB: Address Food Waste and Food Systems Emissions

Local food systems can reduce "food miles" and transportation costs, offering significant energy savings by reducing fossil fuel energy use and GHG emissions. Although local food systems can reduce transportation distances for food, studies of food transportation energy use and GHG emissions do not always agree on whether local food systems are more energy-efficient, primarily because of the great variability among local foods markets. In some cases, local and regional food systems are more efficient and distance food travels to the consumer is an important factor in determining environmental impacts. Others have found that distance is not an adequate measure of impact because transportation accounts for a relatively small share of energy use and emissions in the food system. The vast majority of energy used in the U.S. food system goes above and beyond transportation, including processing, packaging, storing, and preparing food.

42 https://agr.mt.gov/

Local food systems bring other benefits supporting community nutrition and rural economic development goals and complementary market revenues for producers. Spending money in the local community rather than sending it far away can be economically valuable, and having a vibrant local-food system creates community resilience in the event of unexpected occurrences such as what we are experiencing with the COVID-19 pandemic. For example, many meat-packing facilities across the country are currently shut down because of the pandemic leaving some producers with few options for processing their beef, hogs, and lamb. If Montana had more regional meat processing plants, producers would have more options and Montana would have more jobs. However, although bringing in more feeding and processing capacity could reduce transportation emissions and have some economic or social benefits, doing so could increase GHG emissions as well.

Food waste is a serious problem in the United States. An estimated 30–40 percent of the nation's food supply is wasted.[43] When food is wasted, resources like the energy and water it takes to grow, harvest, transport, and package it are also wasted. Breakdown of food in landfills also produces methane, a potent GHG. About an 11 percent reduction of all the GHG emissions that come from the food system could be achieved if food waste was mitigated. Reducing the impacts of food waste could be achieved through composting programs and programs that funnel unused food to people in need.

2AB: KEY STRATEGIES

- MDA should **establish a food policy council that will establish goals, strategies, and policy recommendations to address opportunities and barriers to reducing GHG emissions related to our food systems and to address food waste generated within the state**. The food policy council should include stakeholder representatives from Montana producers, farmers market managers, farm-to-school programs, food hubs, retail grocers, food banks, and on-the-ground experts in the areas of energy efficiencies, composting, and solid waste disposal.
- MDA should set a goal of beginning to implement recommendations from the food policy council within 12 months of receiving the food policy council's report, including pilot projects as appropriate.

2AC: Manage Solid Waste Emissions and Support Recycling and Composting

There are direct and substantial links between GHG emissions and solid waste management, recycling, and composting. Waste reduction, recycling, and composting are a critical part of reducing emissions in several ways:

- **Energy consumption:** Recycling saves energy. Producing goods from recycled materials typically requires far less energy than making goods from virgin materials. Waste prevention is even more effective. Less energy is needed to extract, transport, and

43 https://www.usda.gov/foodwaste/faqs#:~:text=In%20the%20United%20States%2C%20food,worth%20of%20food%20in%202010.

process raw materials and to manufacture products when a product's life is extended, people reuse things, or when less material is used to make and package the product.

- **Incinerators:** Diverting certain materials from incinerators through waste prevention and recycling reduces GHG emissions in addition to other pollutants. Using certain agricultural, forestry, and yard waste products to instead produce biochar, a natural form of charcoal sometimes used as a soil amendment, would further reduce emissions that would otherwise result from incinerating waste streams or allowing natural decomposition.

- **Methane emissions from landfills:** Waste prevention and recycling, including composting to divert organic waste from landfills, reduces the methane released when these materials decompose. (Note: Depending on the sophistication and funding of a given landfill, methane emissions can also be captured and used as an alternative power source with the net output, as with aerobic composting, of CO_2 emission.)

- **Increased carbon storage in trees and long-lived wood products:** Forests take large amounts of CO_2 out of the atmosphere and store it in wood, in a process called carbon sequestration. Waste prevention and recycling of paper products and building materials can leave more trees standing in the forest, continuing to absorb carbon dioxide from the atmosphere and can prevent methane emissions by maintaining carbon stored in long-lived wood products.

The U.S. EPA estimates that increasing our national recycling rate from its current level of 27 percent to 35 percent would reduce GHG emissions by 11.4 million metric tons of carbon equivalent (MTCE, the basic unit of measure for GHGs) over landfilling the same material. Waste prevention also makes an important difference. By cutting the amount of waste we generate by just 5 percent, we could reduce GHG emissions by another 10.2 million MTCE. Together, these levels of recycling and waste prevention slash emissions by more than 20 million MTCE – an amount equal to the average annual emissions from the electricity consumption of roughly 12 million households.

In addition, landfilling food waste rather than composting it results in the loss of nutrients, a critical aspect for Montana's agriculture. Burying food waste and other organics, such as wood and paper waste, contributes to the production of leachate that must be treated for methane, one of the most-potent GHGs. Food waste is a significant portion of the waste stream nationally. According to an informal survey of licensed solid waste management facilities in Montana, food waste constituted 20% of our state's waste stream in 2017.[44] Composting represents tangible, local action to reduce GHGs. Substantial reductions in GHGs can be further gained by diverting methane-emitting feedstocks derived from municipal treatment centers, lagoons, and agriculture from landfills to composting operations.

44 Survey from the Montana DEQ Materials Management Program, Waste Management and Remediation Division.

2AC: KEY STRATEGIES

- MT DEQ should **establish an advisory group that will make recommendations for setting goals and establishing strategies to address GHG emissions related to municipal solid waste generated within the state, through increased recycling and composting, and by diverting the amount of solid waste going to landfills.** The advisory group should include representative from the Montana League of Cities & Towns,[45] the Montana Association of Counties,[46] Montana Chamber of Commerce,[47] and on-the-ground experts in the areas of solid waste, recycling, and composting.
- MT DEQ should **set a goal of beginning to implement recommendations from the advisory group within 12 months of receiving the advisory group's report,** including pilot projects as appropriate.

2AD: Advance Efforts to Develop and Deploy Carbon Capture and Storage Technologies (CCS) *[ADVANCED WITH DISSENT]*

Even as Montana diversifies its energy portfolio, fossil fuels are expected to meet a portion of energy demand. The deployment of carbon capture and storage (CCS) technology can accelerate efforts to reduce emissions from power plants and industrial processes, and support other needs such as renewable fuel production central to meeting the net-neutral goal. As the Center for Climate and Energy Solutions notes, more than half of the models cited in the Intergovernmental Panel on Climate Change's *Fifth Assessment Report*[48] required carbon capture for a goal of staying within 2° C of warming from the pre-industrial period. For models without carbon capture, emissions-reduction costs rose 138 percent.[49]

Governor Bullock co-founded multiple regional and national initiatives supporting carbon capture, including the State Carbon Capture Work Group, the Governors' Partnership for Carbon Capture, and the Regional Carbon Capture Deployment Initiative. Governor Bullock also entered a carbon capture memorandum of understanding (MOU) in 2018 along with North Dakota, Wyoming, and Canadian province Saskatchewan.[50]

2AD: KEY STRATEGIES

- MT DEQ should **consider seeking primacy for Class VI deep injection wells**. Class VI wells are used to inject CO_2 into deep rock formations. This long-term underground storage is called geologic sequestration (GS). Geologic sequestration refers to technologies to reduce CO_2 emissions to the atmosphere and mitigate climate change. The U.S. EPA has finalized requirements for GS, including

45 https://mtleague.org/
46 https://www.mtcounties.org/
47 https://www.montanachamber.com/
48 https://www.ipcc.ch/report/ar5/syr/
49 https://www.c2es.org/content/carbon-capture/
50 https://www.saskatchewan.ca/government/news-and-media/2017/december/01/mou-with-montana

the development of a new class of wells, Class VI, under the authority of the *Safe Drinking Water Act's* Underground Injection Control provisions. These requirements, also known as the Class VI rule, are designed to protect underground sources of drinking water. North Dakota is the only state with primary enforcement authority for UIC Class VI wells. EPA directly implements the Class VI program in all other states, territories, and tribes. State management of the program could expedite permitting while maintaining appropriate safeguards to water supplies. MTBOGC already has statutory authority to regulate class VI disposal wells. No application for primacy currently exists.

- **Identify federal and private-sector partners and funding to advance carbon capture and storage in Montana.**

DISSENTING VIEWS: Four Council members did not support the advancement of this recommendation. While most Council members agreed that carbon capture and storage technology may play a role in meeting long-term climate targets and objectives, particularly with regard to industrial activities that often have hard-to-eliminate emissions footprints, Council members expressed concern that relying on the development of expensive, unproven CCS technologies in lieu of strong commitments to reduce emissions could inappropriately prolong the transition from fossil fuel technologies to renewable energy sources. Several members also raised concern over unknown water quality impacts associated with sequestration. DISSENTING VOTES: Piserchia, Rivas, Magraw, and Jencso.

SECTION VI: Tribal Nation and Community Efforts

2AE: Support and Learn from Tribal Nations *[ADVANCED WITH DISSENT]*

Despite a comparatively small contribution to the state's overall greenhouse gas emissions, Tribal nations in Montana face unique challenges from climate change impacts that threaten their diverse ecosystems, communities, health, livelihoods, and cultural resources. Energy affordability issues are an additional concern for many members of Montana's tribal nations. Many of Montana's

tribal nations also have long histories and traditions of inter-relationship with particular ecosystems, as well as practices of monitoring and planning for climatic changes spanning generations. Montana's tribal nations have much to offer in developing and assessing climate solutions.

The scale of climate impacts facing tribal nations far outweighs the funding and support that the federal and state governments devote to addressing these impacts. In addition to new challenges, climate impacts also have the potential to magnify unaddressed long-standing systemic inequities and discrimination affecting tribal nations.

A number of tribal nations, including the Confederated Salish and Kootenai Tribes (CSKT) and the Blackfeet Nation, are currently leading on the state and national levels, with exemplary climate planning efforts. Initiatives to address GHG emissions reductions and climate resilience and adaptation – developed with and in support of tribal nations – would ensure that the unique circumstances and needs of all the tribes are recognized and addressed and that tribal needs are prioritized and not overlooked, especially given the numerous and competing demands for climate efforts in all Montana communities. The State of Montana should help resource this work, in addition to working closely with and incorporating the input of tribal nations in ongoing reassessment of the state's climate targets and mitigation efforts, as well as the state's policy efforts to meet adaptation needs and concerns.

2AE: KEY STRATEGIES

- The State of Montana should **collaborate with tribal nations in full recognition of tribal sovereignty to devise programs and structures that are specifically designed to support tribal nations as they develop climate change mitigation and resilience plans.**
- Specifically, the State of Montana (i.e., the Governor's office and appropriate agencies) and Montana's tribal governments should **convene a process working with other entities (e.g., federal agencies, energy suppliers, community action agencies) to support tribal nations** to 1) assess GHG emissions-reduction opportunities and develop plans to achieve emissions reductions on reservations where appropriate, 2) develop adaptation and resilience plans, and 3) work in partnership to address emerging climate adaptation and mitigation concerns and challenges.

DISSENTING VIEW: One Council member did not support the advancement of this recommendation. The member felt this recommendation should either be incorporated into the state's broader support for community-based initiatives or left out of this report in recognition of tribal sovereignty over planning and implementation. DISSENTING VOTE: Olson.

2AF: Support Community Mitigation Planning *[ADVANCED WITH DISSENT]*

Local governments should develop GHG mitigation plans and processes that tackle community-wide emissions where possible. Different communities in Montana will proceed and prioritize in ways that respond to local strengths and needs, recognizing their unique opportunities and challenges. Local climate action planning processes will vary depending on the size of the community and jurisdiction. Effective mitigation planning requires meaningful involvement and buy-in from a diverse group of relevant decision-makers, stakeholders, and community members.

Planning efforts should start by bringing community leaders, including local government staff or elected officials, and interested parties together to determine the scope and basic path forward. Efforts should focus on actions that fit with local needs and opportunities and can either be implemented locally or by working with other communities and the State. In turn, communities can inform state policies that reduce GHG emissions. The State of Montana should support these efforts.

2AF: KEY STRATEGIES

- **Outline and support a process for community mitigation planning and to engage and connect communities.** Every community in Montana is unique and will need to address climate mitigation in ways that recognize its own opportunities and limitations. While there are some similarities, community climate action processes and plans will vary depending on community size and resources, whether they are municipalities, tribal nations, or counties and whether they are primarily served by rural electric cooperatives or an investor-owned utility. Mitigation processes should secure buy-in from key community members, build on existing programs, and be data-driven wherever possible. Recommendations should follow best practices for effective GHG emissions-reduction strategies, with strong consideration for equity and co-benefits, including strategies that also build resilience and help prepare for future climate impacts
- **Communities and tribes engaged in local mitigation processes should set quantitative goals and timelines** for GHG reductions and develop mitigation strategies within a local climate action plan, determine mitigation targets with goals and clear timelines informed by climate science, conduct a community-wide GHG inventory, and determine actionable goals and prioritized strategies to reduce emissions.
- **Connect mitigation strategies and actions across Montana.** Montana State University hosts an online map of existing community and tribal nation mitigation and adaptation plans.[51] As more communities assess mitigation strategies, limitations, and challenges, the State of Montana should reassess statewide strategies in support of locally identified goals.

51 http://www.msucommunitydevelopment.org/plans.html

DISSENTING VIEW: One Council member did not support the advancement of this recommendation. The member cited concern with the potential for an unelected or self-appointed group to inappropriately assert leadership in planning on behalf of a community. DISSENTING VOTE: O'Hair.

SECTION VII: Priority State, Regional, and Federal Measures

2AG: Advocate for Greenhouse Gas Mitigation in Upcoming Federal Stimulus Packages

The COVID-19 pandemic has created economic disruption across the United States. Congress has addressed the near-term effects of the pandemic but is also discussing measures to help ensure long-term recovery and economic vitality for the country. The recovery effort presents an opportunity to invest in rebuilding our infrastructure, social, and economic systems to reduce emissions with intention.

2AG: KEY STRATEGIES

- **The Governor and Montana's Congressional delegation should advocate for stimulus measures to include programs that are called upon throughout this report, especially those supportive of needs facing low-income groups, disadvantaged communities, and tribal nations.** Examples include:
    - Clean physical infrastructure investment: renewable energy, energy storage (including hydrogen), and grid modernization.
    - Building efficiency spending for retrofits, including improved insulation, heating, and domestic energy storage systems.
    - Revitalizing coal country through the cleanup and restoration of abandoned coal mines on federal, state, tribal, and private lands.
    - Reclaiming and plugging orphaned oil and gas wells, prioritizing those that emit methane.

- Support for sustainable agriculture and ecosystem regeneration and resilience.
- R&D spending on clean energy technology and sequestration technologies.

2AH: Engage in National and Regional Dialogues Regarding Carbon Pricing

[ADVANCED WITH DISSENT]

The Council acknowledges that a carbon pricing mechanism – if structured thoughtfully and with appropriate stakeholder input – has the ability to both lower emissions (through either a cap on emissions or through a price on carbon) as well as generate revenues that can be invested back into the economy to expand Montana business and/or further reduce Montana GHG emissions. The most effective and equitable approach on carbon pricing would be for Congress to enact national legislation with input from impacted groups. To that end, Montana should track and influence the development of federal legislation through its Congressional delegation and through its membership in the U.S. Climate Alliance (and other association memberships, such as the National Governors Association,[52] the Western Governors' Association,[53] and Environmental Council of the States[54]). The Council further acknowledges that a federal carbon pricing mechanism should consider potential fiscal impacts to states (both positive and negative), workforce transition needs, and any disproportionate impacts to low-income and vulnerable communities.

2AH: KEY STRATEGIES

- In the absence of a federal approach to pricing carbon, the Council encourages the Governor to **direct the appropriate state agencies – including MT DEQ, Department of Revenue, Department of Natural Resources and Conservation, MDT, Department of Commerce, Department of Labor, and the Department of Agriculture – to explore the options, costs and benefits, and feasibility for Montana to join other states in an existing or future regional carbon market**. As a starting point, Montana should conduct research and analysis of existing regional markets and should also identify which other states may be interested in working together on some form of a carbon pricing policy. This will inform the decision of whether, and with whom, Montana should collaborate on the development of such policies.
- With either a federal or regional approach, Montana should **consider both the mechanism for pricing carbon (e.g., fee vs. cap), the efficacy of reducing carbon emissions, *and* how revenues generated from carbon pricing will be invested back into the economy** (e.g., through investments such as innovative

52 https://www.nga.org/
53 https://westgov.org/
54 https://www.ecos.org/

energy technology, energy efficiency, job training, and building community climate resilience) and used to mitigate the economic impacts on low-income residents.

DISSENTING VIEWS: Four Council members did not support the advancement of this recommendation. Concerns were raised regarding the implementation of carbon pricing, its potential disproportionate impacts on Montana businesses and low-income communities, and potential for carbon pricing to compound known challenges facing the state's fiscal health. Concerns were also expressed regarding impacts to the price of energy in all sectors by setting an artificial price floor. One member also noted that increased prices on energy and other goods would cause impacts to low-income populations and that use of revenues to offset costs to low-income individuals has proven challenging in other states. DISSENTING VOTES: Wiens, Hoffman, Olson, and O'Hair.

2AI: Advance Efforts to Take Advantage of a Coordinated Western Electricity Market

The western United States electric grid comprises 38 balancing areas resulting in a level of jurisdictional fragmentation and complexity that contributes to economic, contractual, and practical obstacles to buying and selling electricity – creating extensive market inefficiencies. A more-integrated electricity market in the West would allow load-serving entities to better manage their loads and optimize production, delivery, and use of the low-cost renewable energy that the western U.S. has in abundance, resulting in cost savings for consumers. Development of a regional electricity market has special salience in Montana, which has significant renewable resource potential, the development of which is presently hampered as a result of the present balkanized system.

2AI: KEY STRATEGY

- **The governor and legislature, along with the state's electric utilities, should express their support for a western regional electricity market** designed, among other things, to provide transparency and equitable treatment and opportunities for cost savings for all market participants, and should actively work with other states and regional utilities to develop such a market.

2AJ: Adopt a Clean Energy Standard (CES) *[ADVANCED WITH DISSENT]*

A clean energy standard is a technology-neutral mechanism that requires that a certain percentage of utility sales be met through "clean" zero- or low-carbon resources, such as renewables including existing hydroelectric generation, nuclear energy, coal or natural gas generation with carbon capture technology, and other forms of generation.

2AJ: KEY STRATEGY

- The State should adopt a clean energy standard, taking into account customer affordability concerns. Specifically, by 2025, 60 percent of a utility's total sales would come from "clean energy;" by 2035, 80 percent; and by 2050, 100 percent. Compliance with the standard by electric cooperatives would not apply on an individual cooperative basis but rather by aggregating total sales and generation of all the state's electric cooperatives. NorthWestern Energy and the state's electric co-ops already meet the 60 percent clean energy by 2025 standard.

Note: There are many design features of a clean energy standard. Design features frequently considered in the development of clean energy standards include more-precisely defining what constitutes "clean" generation (for example, Washington limits biomass fuel to certain kinds); and if certain clean energy approaches should be favored or disfavored based on type and timing (for example, Nevada affords a ten percent credit for energy efficiency measures achieved by 2024). In order to maximize economic efficiency and compliance flexibility, some clean energy standards establish a credit system based on emission rates. Another design element considered is to provide for cost-containment provisions, either in the form of an alternative compliance payment or cost off-ramps. Both of which keep the cost of compliance within a certain range and, thus, seek to balance concern over impacts to customers with the goals of the standard.

DISSENTING VIEWS: Five Council members did not support the advancement of this recommendation with four members citing the need to address cost considerations and availability of technology in the development of such a standard and questions regarding the achievability of the timelines for adoption. One council member expressed concern over the inclusion of certain technologies including large new hydropower, nuclear, and carbon capture and storage technologies and felt any standard should be set to incentivize early actions. DISSENTING VOTES: Hoffman, Wiens, Olson, O'Hair, and Piserchia.

2AK: Recommendation on Achieving Economy-Wide Greenhouse Gas Neutrality

[ADVANCED WITH DISSENT]

In accordance with Executive Order 8-2019, the Council is charged with adopting a target date by which the Council believes the state should adopt GHG neutrality across the economy. The Council considered IPCC guidance and the objectives identified by a number of states. In accordance with those objectives and guidance, the Council identified an option of a goal of 2050 or a range targeting 2045–2050. Upon vote of the Council, this range was adopted with the intent to address the need for flexibility in achieving a specific goal, while also acknowledging the urgent action that is needed to address the increasing threats and impacts of climate change. Ultimately the goal provides a benchmark to evaluate policy options and pathways and align near-term programs and policies with potential emissions trajectories as part of ongoing climate planning.

DISSENTING VIEWS: Four Council members did not support the advancement of this recommendation citing uncertainty associated with mitigation pathways, costs, and technology advancement. Members voiced concern that the establishment of such a goal could foster uncertainty rather than lead to additional planning efforts. DISSENTING VOTES: Hoffman, Wiens, Olson, and O'Hair.

3. Accelerating Decarbonization and Innovation in Montana's Economy, and Addressing the Needs of Workers and Communities in Transitions

A goal of the Council is to move Montana's economy to net GHG neutrality for average annual electric loads in the state by 2035 and economy-wide by 2050. To achieve these goals, Montana must accelerate the development and deployment of innovative technologies and practices in the energy, industrial, manufacturing, and agricultural sectors. The Council thus recommends establishing an innovation cluster initiative to assess, define, and support the needed environment, culture, workforce, and resource allocation to sustain statewide efforts to achieve these goals. An innovation cluster initiative will help enable new, or nurture and grow existing, low- and zero-GHG industries across Montana.

Montanans live by an inherently innovative culture. According to the Kauffman Index of Entrepreneurship,[55] Montana consistently ranks at or near the top for entrepreneurship and startup activity per capita. Building on a mindset that is inherent to who we are, an innovation cluster initiative will work to identify regional and statewide capacity strengths, leverage lessons-learned and best practices from successes in sectors where Montana exhibits comparative and competitive advantages, and *grow* what works.

Regional innovation clusters (discussed below) succeed when industry efforts align with existing capacity and focus among state agencies, the education system, industry associations, labor unions, economic development associations, and community leaders. The Council's recommendations on regional innovation clusters focus on the role the state can play in forging new partnerships, sharing information, and prioritizing strategic public investments in research and business formation.

Finally, efforts to understand innovation potential and cluster formation around net-zero emissions technologies and industries should be networked across Montana and supported by the broader intention of fueling Montana's "innovation landscape" and fostering culture, leadership, and environment that motivates and incentivizes public- and private-sector innovation.

Regional Innovation Clusters and Cluster Initiatives Defined

To define clusters, the Council drew on the work of the Brookings Institution and the writings of Harvard economist Michael E. Porter.[56] Regional innovation clusters are "concentrations of interconnected businesses, supply chains, and service providers located in the same geographic area with

55 https://indicators.kauffman.org/
56 https://www.brookings.edu/wp-content/uploads/2016/06/0921_clusters_muro_katz.pdf

coordinating intermediaries, and public institutions like universities or community colleges in a particular field." Clusters create synergies and drive growth by leveraging advantages of a specialized labor pool, suppliers that can serve special needs of multiple businesses, and "knowledge spillovers" among companies, business associations, and university faculty. The synergies associated with clusters often result in faster commercialization and growth of innovative technologies and services, driving growth in employment, wages, and revenue for the region.

To support industry clusters, several states have launched cluster initiatives. Cluster initiatives are coordinated efforts – motivated by state leadership, policy, and funding – to accelerate and sustain growth of industry clusters. Cluster initiatives seek to build networks and dialogue among industry partners, universities, labor, philanthropy, and other stakeholders to identify areas where strategic investments or shared information and resources will support private-sector growth that achieves public goals, including economic development and climate goals. Cluster initiatives may sponsor education and training activities, encourage relationship building, or facilitate market development through joint market assessment and marketing, among many others.

Net-Zero Greenhouse Gas Innovation Clusters

The Council recommends that Montana launch cluster initiatives to decarbonize the state's economy built around existing industries in the state and capacity among the state's universities, community colleges, tribal colleges, and state agencies. Declaring decarbonization as a state goal provides a competitive advantage for Montana's workers, businesses, and communities. Net-zero GHG innovation clusters will protect Montana's economy, revenue, and jobs against future climate regulations. Decarbonization as an organizing goal will attract and retain business in our state, including entrepreneurs, investors, and industries that see innovation and decarbonization as a market, investment, and regulatory benefit. Montana also stands to benefit from a continuing national trend of advanced manufacturing and knowledge-based innovation sectors locating in smaller cities that have access to global markets, an educated and skilled labor force, and the quality of life and amenities business leaders and workers are seeking.

The Council's proposed Montana innovation initiative will draw on lessons learned among states and in Montana. The photonics cluster in Bozeman[57] is an example of an industry cluster focused around

57 https://www.montanaphotonics.org/

technology developed jointly between Montana State University and local entrepreneurs. From small beginnings, this innovation cluster supported the creation of many private photonics businesses, collectively having substantial economic presence on our state and positive outlook for continued success and growth. The cluster arose organically because of synergies among basic research at the university and businesses. Strategic partnerships, shared material resources, a skilled locally trained workforce, and sustained research funding facilitated rapid growth.

Montana's proposed innovation initiative would first explore how the state can apply lessons from established industry clusters and assess opportunities to nurture, expand, and grow emerging innovation clusters and secure the associated economic and climate benefits. An innovation cluster initiative would a) convene key partnerships and networks, b) make strategic public investments in basic research and early commercialization efforts that are often too risky or diffuse for the private sector, and c) support the institutions that can sustain efforts over the years and decades sometimes required to achieve success.

Properties that should be present before public investments are committed include a critical mass of companies in a defined geographic region that interact synergistically. The synergies may be based on product and supply chains, occupations and skills, technology and specialized knowledge, or other traits. The Brookings report *Rethinking Cluster Initiatives*[58] identifies five common traits of successful cluster initiatives: 1) they focus on a robust ecosystem to produce talent, innovation, and economic opportunities, not just quick job gains 2) they are typically industry-driven, but with university involvement and government funding 3) the initiative is willing to target resources at specific opportunities based on unique and legitimate strengths 4) they have dedicated leadership and 5) they have a physical center allowing significant interaction.

Montana's cluster initiative must be designed to overcome the limits of distance. Clusters benefit from proximity: industries, capital, and research institutions are most-often located in the same city or region. Bozeman's photonics cluster is an example of how synergies develop from proximity and the easy flow of information, resources, and people between public and private sectors. Montana's precision agriculture, basic and applied research, and commercialization are occurring across wide distances and require new approaches to networking and leveraging shared assets. Montana's innovation initiative can build capacity in unique ways that could become the standard for uniting the state with growing research and technology innovation centers with rural areas where natural resources, skilled labor, and business innovation are located.

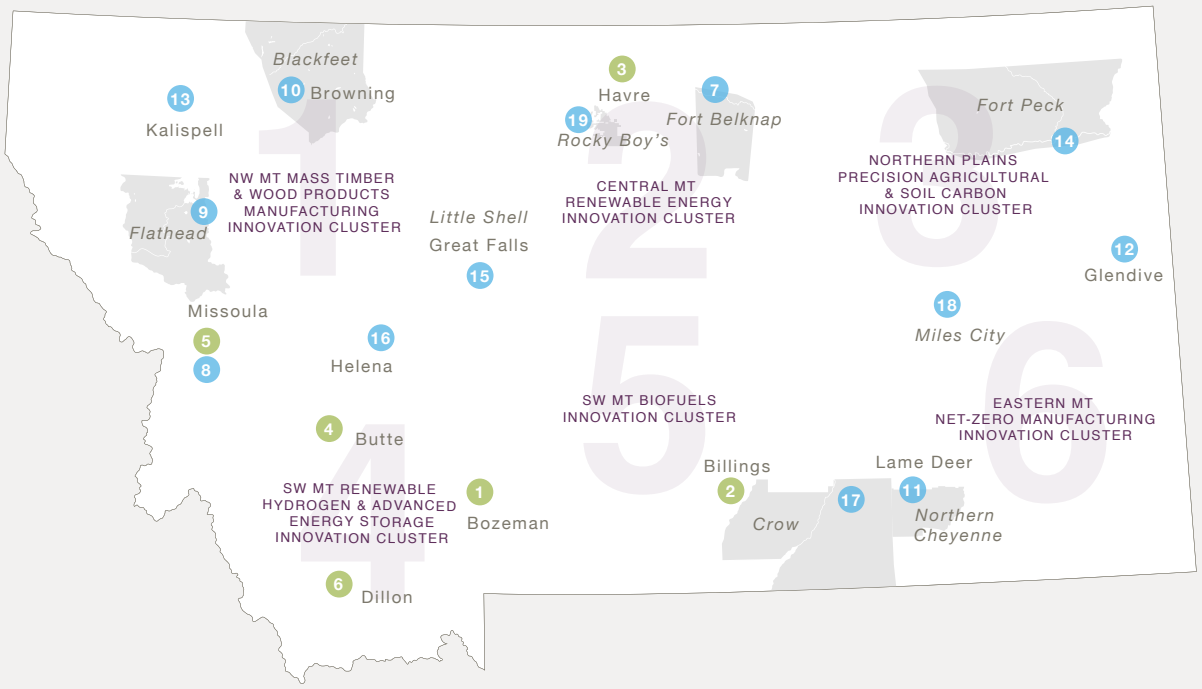
Montana's competitiveness will stem from continued assessment and assembly of a statewide "innovation landscape" that engenders a culture among community and state leaders that motivates and incentivizes innovation. A robust innovation landscape provides the institutional framework that would coordinate the partnerships and relationships, funding and investment capital, and place-based roundtables identifying and driving forward industry clusters when they get started.

The Council recommends learning from the success of existing innovation clusters and applying these lessons to accelerate growth and deployment of nascent clusters that will help achieve the state's climate goals. Further, the Council recommends six possible regional industry technology development efforts that could be nurtured to form innovation clusters. These efforts build on existing strengths in our state's energy, academic, industry, technology, and agricultural sectors (see Figure 7).

1. **Northwest Montana Mass Timber and Wood Products Manufacturing Innovation.** This region has an existing industrial cluster that includes SmartLam North America, FH Stoltze Land & Lumber Co., and Idaho Forest Group. The University of Montana has research capacity to support innovation in mass timber construction, wood fiber insulation, and other low- and negative-carbon technologies. State and

58 https://www.brookings.edu/research/rethinking-cluster-initiatives/

Figure 7: Montana's Regional Innovation Clusters Initiative



INNOVATION CLUSTERS
Cities
Native American Reservations

UNIVERSITIES
1 - Montana State University (MSU)
2 - MSU Billings
3 - MSU Northern
4 - Montana Tech
5 - University of Montana (UM)

COLLEGES
6 - University of Montana Western
7 - Aaniiih Nakoda College
8 - Bitteroot College - UM
9 - Salish Kootenai College
10 - Blackfeet Community College
11 - Chief Dull Knife College
12 - Dawson Community College
13 - Flathead Valley Community College
14 - Fort Peck Community College
15 - Great Falls College - MSU
16 - Helena College - UM
17 - Little Big Horn College
18 - Miles City Community College
19 - Stone Child College

tribal community colleges – including University of Montana-Western, Bitterroot College, Blackfeet Community College, and Salish Kootenai College – add capacity in workforce, skills training, and apprenticeship as well as institutional capacity to convene college, community, tribal, and industry leaders.

Advanced wood products manufacturing aligns with adaptation efforts to thin small-diameter trees to manage wildfire risk around communities in Montana. Wood building materials also sequester carbon in buildings, reducing emissions from concrete construction. These efforts would grow the state's industrial capacity and workforce in the timber and manufacturing sectors and generate income and revenue in rural communities.

2. **Central Montana Renewable Energy Innovation.** Montana has substantial renewable energy generation and storage potential of wind, solar, pumped-storage, and renewable hydrogen. Locating an innovation cluster around existing institutional and industry capacity in Great Falls, Havre, and Harlowton can accelerate the technology, infrastructure, and projects that will be needed to decarbonize Montana's electricity system and maintain and expand the state's position as an energy exporter.

3. **Northern Plains Precision Agricultural and Soil Carbon Innovation.** A Northern Plains precision agriculture and soil carbon innovation cluster would build on and expand research capacity at MSU Northern and MSU. Agriculture is an important sector in Montana's economy and culture and is a key sector with opportunities to reduce emissions from operations, sequester carbon in soils, and meet regional and global market demands

   Building on successful research and technology integration efforts at Montana State University, new technology innovation can be developed that focuses on decarbonizing agricultural processes and sequestering carbon in soils. By working with industry, technology providers, and agricultural producers, MSU can better understand technology improvements and opportunities for research demonstrations that highlight economic and carbon-reduction opportunities. Those demonstrations will then serve as the springboard for the new innovation cluster, centered at least in part on the Hi-Line.

4. **Southwest Montana Renewable Hydrogen and Advanced Energy Storage Innovation.** A significant proposal from Mitsubishi Hitachi Power Systems to establish an electrolysis plant in Butte creates opportunities to establish research capacity to deploy a new, world-leading method for energy storage and electricity generation. The electrolysis process planned would use excess renewable electricity capacity seasonally to split water into hydrogen and oxygen. The hydrogen could be stored seasonally and used to generate electricity when demand exceeds renewable energy capacity. Montana already has a nascent cluster around REC Silicon Inc., the nation's sole supplier of silane gas critical in the manufacture of next-generation lithium-ion batteries and anodes, and research capacity located in Butte. Aligning research capacity at Montana Tech and Montana State University with the industry-led novel technology innovation could help advance and accelerate growth in battery technology and expand industrial applications of hydrogen – including heavy-duty vehicles, rail and equipment, home heating, and manufacturing processes.

   Electrifying Montana's economy and eliminating emissions from the electricity sector requires continual advancement in short-term and seasonal energy storage at both distributed and utility scales. By some estimates, the global market for energy storage systems is expected to grow 13-fold from current levels by 2024.[59] Designing and deploying these technologies in Montana will help meet the state's climate goals and offers significant opportunity to grow and establish new businesses. The large industrial proposal from Mitsubishi Hitachi also represents a significant opportunity to develop new skills and job markets for Montana labor.

5. **Southwest Montana Biofuels Innovation.** This cluster will target creating the technologies and scale-up capabilities required for large-scale biofuels manufacture. A key goal is to minimize or eliminate the use of diesel fuel derived from non-renewable sources, a major source of carbon emissions for our state. Diesel is used to fuel large vehicles (e.g., for trucking, agriculture, and construction) and, most importantly, to fuel jet travel. Electrifying such vehicles, an especially positive move if it could be done with solar- or wind-derived energy, is hindered by energy needs and current battery capacity. Thus, development of biodiesel and biojet fuel manufacturing will be a key focus of the biofuels innovation cluster. The cluster will include existing capacity at UM Missoula, MSU and MSU Northern (e.g., Energy Research Institute,

59 https://www.woodmac.com/reports/power-markets-global-energy-storage-outlook-2019-295618

Chemical Engineering, Plant Sciences, Forestry, others), the Northwest Advanced Renewables Alliance,[60] private industry, agricultural producers, and labor. The emphasis will be on the creation of diesel and biojet fuel from Montana-sourced feedstocks, including wood products waste, ag production waste, and crops grown specifically as biofuels sources such as safflower, camelina, and algae.

6. **Eastern Montana Net-Zero Manufacturing Innovation.** The long-standing industrial cluster in Billings provides an opportunity to decarbonize existing industries through innovation and a networked approach to industrial processes, carbon capture and storage, and renewable energy innovation and deployment. Large-scale industrial processes will continue to need utility-scale power generation, but innovation in industrial and manufacturing processes to decarbonize the regional industrial cluster could expand capacity to attract new, low-carbon industrial development.

   Co-locating industrial processes can utilize waste heat and make carbon capture and storage economic, reducing or eliminating GHG emissions from large-scale industrial processes. Decarbonizing Montana's industrial cluster in Billings will reduce GHG emissions, protect the state's economy from potential carbon regulations, and attract new investment and industry that see decarbonization as a market, financial, and regulatory benefit.

The Council acknowledges that these recommended innovation initiatives will not all lead to successful, sustained industry clusters. On the other hand, several steps can be taken to support the growth, development, and success of nascent clusters, whether existing or formative. Any new policy direction related to innovation clusters must also be flexible and responsive to identify and support new clusters not identified by the Council's work to date.

The following recommendations include steps the state can take to assess the viability of regional innovation clusters and to build capacity to coordinate innovation initiatives across Montana. The recommendations draw on lessons learned from existing industry clusters in Montana and from existing work and capacity in state agencies and the university system to coordinate and advance research and business development in innovation sectors. Additionally, some aspects of the innovation landscape are influenced by policy, particularly the *innovation environment* and the *culture*. The state should investigate best practices in jurisdictions with strong innovation landscapes to develop policies that: a) create competitive business and regulatory environments; b) foster effective fiscal incentives; and c) provide financial and infrastructure incentives to promote business growth. The design of the policy environment can support innovation in market formation (for example, energy balancing markets). Strategies should focus on actions the state can take to create, coordinate, and support innovation initiatives, including roundtables organized around new partnerships, collecting and sharing information, and prioritizing research and public investments.

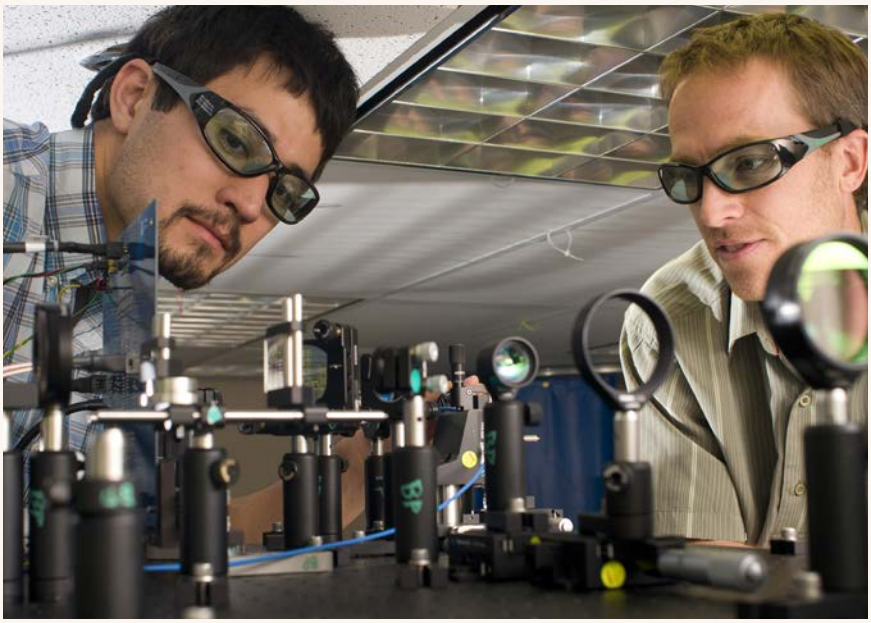
60 https://nararenewables.org/

CASE STUDY

What's in a Cluster?

Montana's Photonics Industry

Early in the Montana Climate Solutions Council's deliberations, the Council had the opportunity to hear from Trent Berg, president of the Montana Photonics Industry Alliance, co-founder of Blackmore Sensors and Analytics (now Aurora Innovations), and program director of Photonics and Laser Technology at Gallatin College. Berg was active from the beginning during the emergence and ultimate success of the photonics industry cluster in the Gallatin Valley. Photonics is the science and technology of generating, detecting, and controlling light. Photonics technology is key to many of the things we rely on every day including smartphones, DVD players, cameras, medical instruments, and lighting products. Photonics will power many of the most important innovations of the 21st century, including applications in energy, precision agriculture, manufacturing, and transportation that will drive the transformation required to achieve climate solutions.



From modest beginnings in the 1980s, Montana's photonics cluster is now comprised of over 30 organizations, one of the highest per capita concentration of optics and photonics companies and research institutions in the United States. The cluster supports high-wage jobs in private and university research, development, and commercialization. What fueled that success and how can be it be replicated?

Berg credits much of the success to Montana's strong fundamentals: world-class outdoor amenities, an academic infrastructure that fosters original applied research, and a focus on attracting and developing a skilled and innovative workforce. Once started, the companies and university partners nurtured and grew the material capacity (labs, equipment, etc.), workforce, specialized suppliers, revenue and research funding, and a cluster's leadership characteristic that reinforces and accelerates development of ideas, products, and profits.

Around the world, countries like the United Kingdom are beginning to study and apply the logic and power of cluster economic development strategies to the challenges of confronting global climate change. With backing from the *UK Industrial Strategy Challenge Fund*, the effort aims to recruit global investment and demand for low-carbon products and technologies by harnessing the power of markets, the public sector, universities, and local communities. The Fund aims to have at least one cluster with the low-carbon infrastructure needed to support industrial decarbonization in place by 2030, and at least one cluster that has achieved net-zero GHG emissions by 2040.

The Montana Climate Solutions Council recommends launching a Montana regional innovation cluster initiative. The initiative would support applied research and business innovation partnerships to create hubs for economic growth in support of the transition to a net-zero economy. The Council recognizes the importance of sparking innovation through collaboration and creating intersections where companies and university partners can share ideas and research developments. Additionally, the initiative would leverage existing research and business innovation with attention and focus on leadership and workforce development efforts that train Montana's workers for emerging job opportunities tied to new growth.

RECOMMENDATIONS

Section I. Moving Montana's Economy to Net Greenhouse Gas Neutrality Through Innovation and Advanced Manufacturing

3A: Montana, Led by the Montana Science and Technology Committee and the Office of the Commissioner of Higher Education, Should Identify Key Opportunities for Technology-Led Economic Development, Prioritizing Areas that Assist with Climate Change Transitions and Mitigation

3A: KEY STRATEGIES

- **Revise and update *Montana's Science & Technology Plan*[61]** with a focus on industry linkage opportunities and opportunities to foster and sustain competitive industry/university collaborations in basic and applied research.
- Within identified areas of strength, **charge and fund key networking organizations** (e.g., industry organizations, university research centers, state agencies) with regularly convening key university/industry/society players.
- Within the Montana University System, **institute seed-granting opportunities and research capacity building** efforts to grow the state's university expertise and competitiveness in each identified area of strength

3B: The Montana Legislature Should Invest in Initiatives that Build University/Industry/Society Innovation Linkages to Address Key Montana Challenges, Including Climate Change

61 https://www.mus.edu/research/MUS_STPlan_2015.pdf

3B: KEY STRATEGIES

- **Institute a state-funded grant program to further develop research capabilities and user facilities at Montana's public universities,** with a goal of leveraging these facilities to grow innovative Montana-based technology development companies and clusters.
- **Develop a recruitment and retention funding pool for strategic growth in research capabilities** in key areas of state need.
- **Appropriate further rounds of funding for the Montana Research and Economic Development Initiative[62] to encourage applied research** addressing Montana needs.
- **Set aside a match-funding pool to increase Montana researcher's competitiveness** when pursuing federal grant dollars and capitalize on existing federal and state tax incentives and work to create new incentives where deemed appropriate.
- Develop, identify, and appropriately **fund a research center or institute charged with networking and organizing university research and university/industry linkages statewide in the area of energy innovation**. Key areas of focus based on Montana's industry and existing research expertise may include biofuels, energy storage, transportation, grid electrification, and energy-related agricultural practices.
- **Utilize and bolster existing apprenticeship programs at state agencies in Montana to transition and prepare Montana's workforce for innovation sectors.**

3C: Work to Establish Multiple Regional Innovation Clusters in Montana Focused on Decarbonization of Montana's Industries by 2035

3C: KEY STRATEGIES

- **Resource and convene statewide innovation initiatives with university, state agency, private industry, labor, finance, and non-profit sector leaders to assess the viability of innovation clusters.** These initiatives should begin with regional roundtables focused on assessing the viability of six emerging regional innovation clusters listed below. Other regional clusters may well emerge as the roundtables convene. However, the six listed have been identified through the work of this Council as areas where, to some extent, private and public research, development, and commercialization of innovations that will help decarbonize Montana's industries is already occurring or has good potential for success:

62 https://www.mus.edu/research/research_initiative.html

- Northwest Montana Mass Timber and Wood Products Manufacturing Innovation Cluster
- Southwest Montana Renewable Hydrogen and Advanced Energy Storage Innovation Cluster
- Eastern Montana Net-Zero Manufacturing Innovation Cluster
- Northern Plains Precision Agricultural and Soil Carbon Innovation Cluster
- Central Montana Renewable Energy Innovation Cluster
- Southwest Montana Biofuels Innovation Cluster

- **Over time, identify a cross-sector team, emerging either directly from government or as a public/private partnership or non-profit, charged with and resourced to support nascent cluster initiatives.**

Section II. Building Resilience to Prepare Montana's Communities, Economy, and Workers for Transitions

Economic transitions often occur without consistent or coherent policy to address displaced workers and community impacts. Unions secured wages, benefits, workplace safety, and jobs security that transformed employment in the manufacturing sector into respected and desired jobs. As these jobs have declined, no significant replacement for similar skills has emerged and other sectors have lacked the same wages, benefits, or security.

An industrial transition required to meet ambitious decarbonization goals will require innovation and investment in technology and infrastructure. These investments must be matched with clear and consistent support for the role of unions, fossil fuel communities, disadvantaged communities, tribal communities, and displaced workers in shaping industrial policy and spending. That includes discussions around workforce training and apprenticeship, wages and benefits, and community impacts related to the closure and replacement of energy infrastructure.

The Council calls for engagement with labor, the fossil fuel industry, state agencies, and the university system to ensure a just transition for communities and workers. The workforce recommendations here are aligned with recommendations related to innovation, commercialization, and deployment of technologies that are required to meet decarbonization goals, recommendations to network and build capacity to prepare Montana's communities for climate and economic transitions, and recommendations to align fiscal policy with economic development and transition strategies.

3D: Prepare Montana's Workforce for Opportunities in a Changing Economy and in Sectors Important to Climate Mitigation and Adaptation

Montana's climate, transition, and industrial policies should benefit the state's workforce and ensure justice for displaced workers, including through the key strategies listed below.

3D: KEY STRATEGIES

- **Focus on apprenticeship.** Apprenticeship ensures that training is targeted to actual needs and opportunities. It reduces risk by keeping existing workers in the workforce instead of removing them for months or years of education and re-training. Montana should expand existing, approved apprenticeship programs registered with the Montana Department of Labor and Industry and develop and provide new registered apprenticeship programs, if required, specifically to transition fossil fuel extraction, transmission, and power generation workers to renewable energy infrastructure and generation sectors.
- **Establish career training centers in public school systems** that deliver basic and advanced skills-based training to middle and high school students throughout the state. These can be coordinated with proposed innovation initiatives and networked with community and tribal colleges. (For example, Billings Career Center in the Eastern Montana Net-Zero Manufacturing Innovation Cluster).
- **Secure prevailing wages in industrial, energy, transportation, and building sectors,** including renewable energy, efficiency, and infrastructure required to meet decarbonization goals.
- **Allow for neutrality agreements** for the purpose of collective bargaining for any new major generation facility or site.
- The state should **develop funding and regulatory proposals to advance these efforts**.

3E: Reform Montana Fiscal Policy to Address Economic Transitions

Montana's economy is transitioning away from natural resource extraction sectors and toward services. The economic transition will have fiscal implications because of the state's existing tax structure that taxes natural resource sectors more highly than other economic activities (such as health care, the fastest-growing employment sector in the state).[63] The state also faces rising costs associated with extreme flood, drought, and wildfire events as well as healthcare impacts on an aging population, particularly in rural areas.

Recommendations to accelerate decarbonization of Montana's electric power sector and the state's economy will have fiscal implications. The exact revenue impact is unknown, but the Council discussed the economic, workforce, and fiscal implications of proposed recommendations. The Council acknowledges the broader structural transition in revenues already under way in response to changing market, economic, and policy conditions affecting our region and further recognizes the key challenges that energy transitions pose for Montana and neighboring states in light of current tax structures.

3E: KEY STRATEGIES

Currently, two legislative interim committees in the Montana legislature are studying and making recommendations for possible reforms to the state's tax structure. These reforms should include revenue and budget policies that ensure local governments have fiscal tools and revenue to continue to provide services and infrastructure as the economy transitions. For example, reforms should consider greater autonomy for local governments to manage volatile revenue and save for transition and adaptation needs; dedicated state and local resources to bolster and sustain adaptation and transition planning over time; and new revenue policies that broaden the tax base, address inequities among communities and economic sectors, and generate more sustainable and predictable revenue as the economy continues to restructure and grow.

The Council makes no specific fiscal policy recommendations. The Council recognizes the need to address revenue impacts and spending needs associated with decarbonization. Better alignment between Council recommendations and the interim committees could help the state understand the types of revenue impacts that may occur and to develop evidence-based solutions using actual revenue and budget data.

63 https://leg.mt.gov/content/Committees/Interim/2017-2018/Revenue-and-Transportation/Taxes-Changing-Economy/Meetings/Mar-2018/Exhibits/MontanaEconomyandTaxRevenue.pdf

LIST OF COUNCIL MEMBERS

Montana Climate Solutions Council

Tom Armstrong, Bozeman. Armstrong is president of the Madison River Group.

Scott Bischke, Bozeman. Bischke is a consulting chemical and environmental engineer and co-principal for MountainWorks Software, Inc.

Bill Bryan, Bozeman. Bryan is the co-founder of One Montana.

Amy Cilimburg, Missoula. Cilimburg is the executive director of Climate Smart Missoula.

Al Ekblad, Helena. Ekblad is the executive secretary of the Montana AFL-CIO.

Sally Ericsson, Whitefish. Ericsson is a strategic consultant for non-profit organizations and foundations.

Kathy Hadley, Deer Lodge. Hadley is the former executive director of the National Center for Appropriate Technology.

Mark Haggerty, Bozeman. Haggerty is a research director at Headwaters Economics.

David Hoffman, Helena. Hoffman is the director of government affairs for NorthWestern Energy.

Kelsey Jencso, Missoula. Jencso is the state climatologist for the Montana Climate Office at the University of Montana.

Chuck Magraw, Helena. Magraw is with the Natural Resources Defense Council.

Jayne Morrow, Chinook. Morrow is the assistant vice president of research and economic development at Montana State University.

Bruce Maxwell, Bozeman. Maxwell is the co-director of the Montana Institute on Ecosystems and professor of agroecology and applied plant ecology at Montana State University.

Todd O'Hair, Helena. O'Hair is the president and CEO of the Montana Chamber of Commerce.

Alan Olson, Helena. Olson is the executive director of the Montana Petroleum Association.

Caitlin Piserchia, Missoula. Piserchia is a climate organizer who works for the Montana chapter of the Sierra Club.

Diego Rivas, Helena. Rivas is senior policy associate for the NW Energy Coalition.

Eric Somerfeld, Power. Somerfeld is a family farmer.

Lee Spangler, Bozeman. Spangler is the director of the Big Sky Carbon Sequestration Partnership at the Montana State University.

Tracy Stone-Manning, Missoula. Stone-Manning is associate vice president of public lands at the National Wildlife Federation.

Joe Thiel, Helena. Thiel is the director of academic policy and research for the Montana University System.

Steve Thompson, Butte. Thompson is the executive director of the National Center for Appropriate Technology.

Paul Tuss, Havre. Tuss is the executive director of the Bear Paw Development Corporation.

Andrew Valainis, Missoula. Valainis is the executive director of Montana Renewable Energy Association.

Gerald Wagner, Browning. Wagner is the director of the Blackfeet Environmental Office for the Blackfeet Nation.

Charlene Waters Alden, Lame Deer. Alden is the director of the Environmental Protection Department for the Northern Cheyenne Nation.

Cathy Whitlock, Bozeman. Whitlock is a regents professor in earth sciences and fellow of the Montana Institute on Ecosystems at Montana State University.

Gary Wiens, Great Falls. Wiens is the CEO of the Montana Electric Cooperatives' Association.

Laura Wood-Peterson, Billings. Wood-Peterson is the senior director of government affairs for Indio Agriculture.

ExOfficio Members

* denotes voting members

Jennifer Anders, Anaconda. Qualification: Northwest Power Planning Council representative and ex-officio member.

Commissioner Galen Hollenbaugh, Helena. Qualification: Director of the Department of Labor and Industry or designee and ex-officio member.

Patrick Holmes*, Helena. Qualification: Governor's Office representative and ex-officio.

Director John Lewis, Helena. Qualification: Director of the Department of Administration or designee and ex-officio member.

Director Shaun McGrath*, Helena. Qualification: Director of the Department of Environmental Quality or designee and ex-officio member.

General Matthew Quinn, Fort Harrison. Qualification: Director of the Department of Military Affairs or designee and ex-officio member.

Amy Barnes*, Helena. Qualification: Representative of the director of the Department of Commerce and ex-officio member.

Director Ben Thomas, Helena. Qualification: Director of the Department of Agriculture or designee and ex-officio member.

Director Mike Tooley, Helena. Qualification: Director of the Department of Transportation or designee and ex-officio member and is an addition to this new Council.

Director John Tubbs*, Helena. Qualification: Director of the Department of Natural Resources and Conservation or designee and ex-officio member.

Director Martha Williams, Helena. Qualification: Director of the Department of Fish, Wildlife and Parks or designee and ex-officio member.

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Montana Climate Solutions Council

A REPORT BY THE MONTANA CLIMATE SOLUTIONS COUNCIL

https://deq.mt.gov/climate/

Exhibit 3

August 1, 2025

Dear Stakeholder:

The Montana Department of Environmental Quality (DEQ) has prepared the attached final supplemental environmental assessment (Final EA) in response to the Montana Supreme Court's Decision (DA-23-0225), issued on January 3, 2025. This court-ordered Final EA analyzes impacts from Montana's approval of Montana Air Quality Permit Application Number 5261-00 for the NorthWestern Energy-Laurel Generating Station, now the Yellowstone County Generating Station, and includes information subject to the Court's decision: requiring a lighting analysis and a greenhouse gas (GHG) assessment.

NorthWestern Energy has completed construction of the Yellowstone County Generating Station, which began operations on March 7, 2024. Potential impacts typically described for a "proposed" project continue to be described within this document in the future tense. For this project, construction impacts have already occurred, and potential impacts from facility operations are presently occurring and expected to continue to occur.

Public Comment: DEQ accepted public comment on the draft supplemental environmental assessment (Draft EA) beginning March 28, 2025, thru April 28, 2025. DEQ received comments from 77 commenters including one comment received after the April 28, 2025, deadline.

Department Action:
DEQ has made its Decision on the Final EA. DEQ's Decision includes updates to several sections of the Final EA in response to comments received on the Draft EA and includes a *Response to Comment* section providing a summary of comments received and DEQ's responses. A cross-reference tool for similar and related comments is also provided to help navigate the Final EA package.

Procedures for Appeal:
This Final EA is effective on August 1, 2025. Any challenge to DEQ's Decision may only be brought in district or federal court, whichever is appropriate, and may only be brought by a person who submitted formal comments on the Draft EA, prior to DEQ's Decision. Further, any challenge must be limited to those issues addressed in those comments. Any challenge must be brought within 60 days of DEQ's Decision, or September 30, 2025.

For DEQ,

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SUPPLEMENTAL FINAL ENVIRONMENTAL ASSESSMENT

YELLOWSTONE COUNTY GENERATING STATION – MAQP #5261-00

August 1, 2025

Air Quality Bureau

Air, Energy, and Mining Division

Montana Department of Environmental Quality

Table of Contents

Project Overview

COMPANY NAME:	NorthWestern Energy
EA DATE:	March 28, 2025
SITE NAME:	Laurel Generating Station (Yellowstone County Generating Station)
MAQP#:	5261-00
Application Received Date:	June 9, 2021

Location

County: Yellowstone
The facility location is for 45.659706°N, latitude and -108.745954°W, longitude.

PROPERTY OWNERSHIP: FEDERAL STATE PRIVATE X

Compliance with the Montana Environmental Policy Act

Under the Montana Environmental Policy Act (MEPA), Montana agencies are required to prepare an environmental review for state actions that may have an impact on the Montana environment. The proposed action is a state action that may have an impact on the Montana environment and, therefore, the Department of Environmental Quality (DEQ) must prepare an environmental review. This Environmental Assessment (EA) will examine the proposed action and alternatives to the proposed action and disclose potential impacts that may result from the proposed and alternative actions. DEQ will determine the need for additional environmental review based on consideration of the criteria set forth in Administrative Rules of Montana (ARM) 17.4.608. DEQ may not withhold, deny, or impose conditions on the Permit based on the information contained in this EA (§ 75-1- 201(4), MCA).

EA Chronology

Draft EA associated with permit Preliminary Determination: July 9, 2021.
Final EA associated with permit Department Decision: August 23, 2021.
Supplemental Draft EA out for public comment; June 1, 2023, thru July 3, 2023.
This court-ordered supplemental EA on lighting and GHG assessment out for public comment; March 28, 2025, thru April 28, 2025.
Final EA issued August 1, 2025

This supplemental EA incorporates the previously identified EAs and has been prepared for Montana Air Quality Permit Application Number 5261-00 for the NorthWestern Energy-Yellowstone County Generating Station (YCGS). This supplemental Final EA includes information subject to the Court's decision requiring a lighting analysis and a Greenhouse Gas (GHG) Assessment.

Proposed Action

NWE applied for a Montana Air Quality Permit under the Clean Air Act of Montana for eighteen (18) 9.7-megawatt-electrical (MWe) reciprocating internal combustion engines (RICE), one 2,682 brake horsepower (bhp) emergency diesel-fired engine generator set. Other emitting units of the action include a 315-bhp diesel-fired fire pump engine, a 1.11 MMBtu/hr natural gas line heater, and fugitive road dust from a new road. The proposed action would be located on private land, 1.5 miles southeast of Laurel, Montana. All information included in this EA is derived from the permit application, discussions with NWE, analysis of aerial photography, topographic maps, a lighting analysis prepared by NWE and other research tools.

Potential Mitigation

A number of processes are known to mitigate and off-set release of CO_2e from the YCGS. Geological sequestration, and a similar process known as mineralization, capture CO_2 underground. Geologic storage of CO_2, also known as geological carbon sequestration, involves storing CO_2 deep underground in porous rock formations. There, CO_2 is compressed to the supercritical phase, where it behaves like a liquid. Geologic carbon sequestration permanently removes CO_2 from the atmosphere. A related concept is carbon mineralization, where CO_2 reacts with silicate rocks to precipitate carbonate minerals (Department of Energy).

Another means of carbon mitigation is biological sequestration. Biologic carbon sequestration involves storing CO_2 naturally in places where it becomes part of the carbon cycle. The carbon cycle is the natural process by which carbon moves between the atmosphere, oceans, land, and living things. Some carbon is stored in plants—especially woody plants and grasslands—as a result of the biological, photosynthesis process. Photosynthesis removes CO_2 from the atmosphere and transforms it into living plant tissues. (https://www.energy.gov/science/doe-explainscarbon-sequestration). The 695,000 metrics tons/year of CO_2e would be equivalent to the amount of carbon sequestered by 698,063 acres of U.S forests (EPA Greenhouse Gas Equivalency Calculator).

A third option for mitigation is industrial carbon capture and sequestration (CCS). Industrial CCS processes have been installed on electrical generating units, usually as demonstration projects, but some continue to capture CO_2. An example of successful ongoing industrial CCS technology is the Sask Power facility in Saskatchewan. Industrial CCS is possible but severely limited by high operational costs and technical challenges.

DEQ dismisses these three mitigations due to lack of authority to require mitigations by the Clean Air Act of Montana. Under MEPA, DEQ may not require mitigation for Proposed Actions, and NWE must voluntarily elect to implement mitigation measures.

Purpose and Need

Under MEPA, Montana agencies are required to prepare an environmental review for state actions that may have an impact on the Montana environment. The proposed action may have

an impact on the Montana environment; therefore, DEQ must prepare an environmental review. This supplemental EA will examine the proposed action and alternatives to the proposed action and disclose potential impacts that may result from the proposed and alternative actions. DEQ will determine the need for additional environmental review based on consideration of the criteria set forth in ARM 17.4.608.

Table 1. Summary of activities proposed in application

Summary of Proposed Action	
General Overview	NWE's air quality permit application consists of the following equipment: • Eighteen (18) 9.7-megawatt-electrical (MWe) reciprocating internal combustion engines (RICE), • One 2,682 -bhp emergency diesel-fired generator, • One 315-bhp diesel-fired fire pump engine, • 1.11 MMBtu/hr natural gas line heater. • Fugitive road dust. The facility would be permitted to emit air pollutants from this equipment until NWE requested permit revocation or if the permit were revoked by DEQ due to gross non-compliance with the permit conditions.
Proposed Action Estimated Disturbance	
Disturbance	Operational disturbance would be approximately 10.4 acres including the access road. Construction disturbance would be approximately 20.4 to 25.4 acres.
Proposed Action	
Duration	**Construction:** Construction or commencement would start within three years of issuance of the final air quality permit. **Construction Period:** The construction period is expected to last approximately 12 months. Startup and commissioning would run for approximately six months. As the result of litigation, this duration could possibly extend beyond the original timeframe estimates. **Operation Life:** The project specification used by NWE for bids for this project were stated as a minimum of a 30-year life.
Construction Equipment	Cranes, backhoes, graders/dozers, passenger trucks, delivery trucks, cement trucks, various other types of smaller equipment
Personnel Onsite	**Construction:** Approximately 150 Contract Personnel **Operations:** Twelve to fifteen permanent staff during operation

Location and Analysis Area	**Location**: Lat/Long 45.659706, -108.745954 **Analysis Area**: The area being analyzed as part of this environmental review includes the immediate project area (Figure 1), as well as neighboring lands surrounding the analysis area, as reasonably appropriate for the impacts being considered.
Air Quality	This EA will be attached to the Air Quality Permit which would include all enforceable conditions for operation of the emitting units
Conditions incorporated into the Proposed Action	The conditions developed in the Preliminary Determination of the Montana Air Quality Permit dated July 9, 2021, set forth in Sections II.A-D and updated in the Decision Air Quality Permit dated August 20, 2021. Conditions included in the remanded Preliminary Determination dated 6/1/2023.
Cumulative Impact Considerations	
Past Actions	This is a new air quality permit for an electrical generating station which utilizes natural gas-fired engines to produce electricity. Combustion related emissions will be released from each of the eighteen engines when they are in operation.
Present Actions	This is a new air quality permit for an electrical generating station which utilizes natural gas-fired engines to produce electricity. Combustion related emissions will be released from each of the eighteen engines when they are in operation. This facility has since begun operation but the EA addresses both a lighting analysis and greenhouse gas assessment.
Related Future Actions	No information is available regarding future actions.

Evaluation of Affected Environment and Impact by Resource

The impact analysis will identify and evaluate whether the impacts are direct or secondary impacts to the physical environment and human population in the area to be affected by the proposed project. Direct impacts occur at the same time and place as the action that causes the impact. Secondary impacts are a further impact to the Montana environment that may be stimulated, or induced by, or otherwise result from a direct impact of the action (ARM 17.4.603(18)). Where impacts would occur, the impacts will be described.

Cumulative impacts are the collective impacts on the Montana environment within the borders of Montana that could result from the Proposed Action when considered in conjunction with other past and present actions related to the Proposed Action by location and generic type. Related future impacts must also be considered when these actions are under concurrent consideration by any state agency through pre-impact statement studies, separate impact statement evaluation, or permit processing procedures. The activities identified in Table 1 were analyzed as part of the cumulative impacts assessment for each resource.

The duration is quantified as follows:

- Construction Impacts (short-term): These are impacts to the environment during the construction period. When analyzing duration, please include a specific range of time.

- Operation Impacts (long-term): These are impacts to the environment during the operational period. When analyzing duration, please include a specific range of time.

The intensity of the impacts is measured using the following:

- No impact: There would be no change from current conditions.

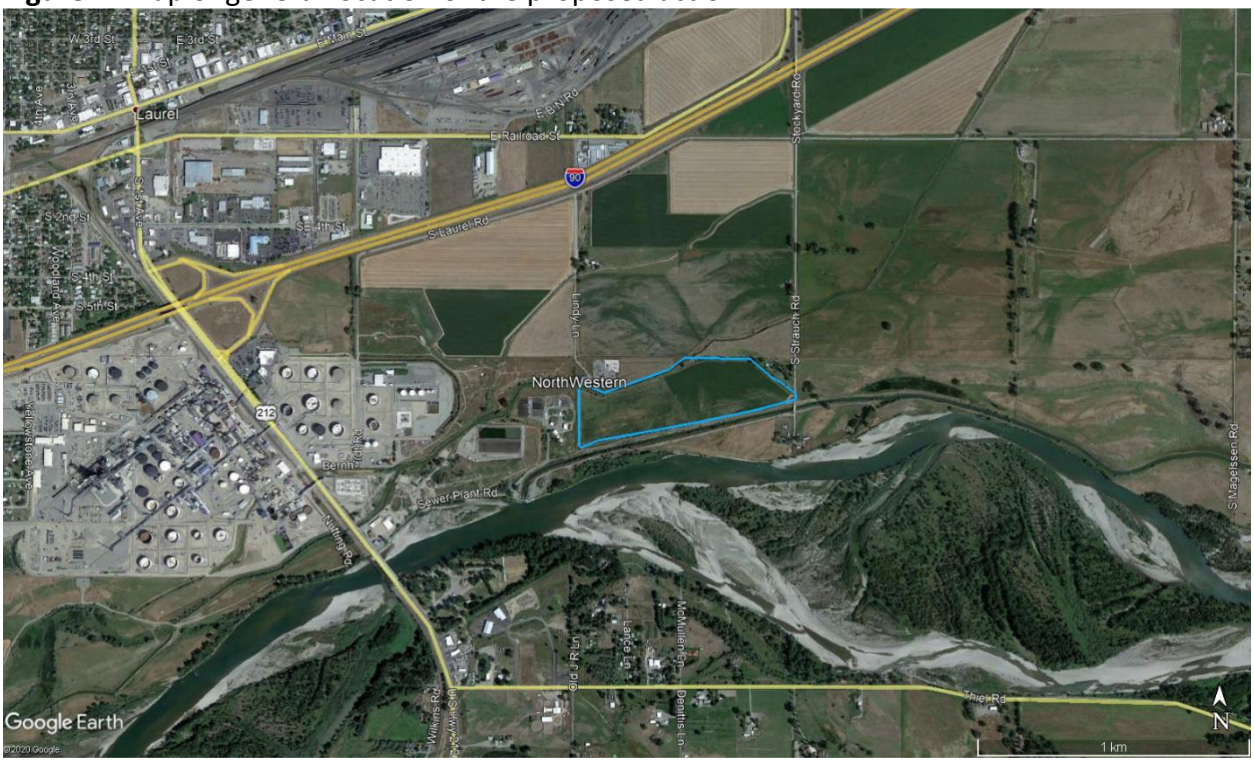
- Negligible: An adverse or beneficial effect would occur but would be at the lowest levels of detection.

- Minor: The effect would be noticeable but would be relatively small and would not affect the function or integrity of the resource.

- Moderate: The effect would be easily identifiable and would change the function or integrity of the resource.

- Major: The effect would alter the resource.

Figure 1. Map of general location of the proposed action.



Aesthetic Impacts from Lighting

This facility has since completed construction and began operation on March 7, 2024. Potential impacts normally described for a "proposed" project continue to be described within this document in the future tense. For this project, construction impacts have already occurred, and potential impacts from facility operation are presently occurring and expected to continue to occur.

At DEQ's request, NWE has provided additional information regarding the potential lighting impacts from the proposed action to assist in preparing this supplemental EA. Information and text provided by NWE has been incorporated into this section to support DEQ's conclusions on potential aesthetic impacts from lighting. DEQ has made available the full NWE Lighting Analysis (NWE Yellowstone County Generating Station Lighting Design, dated May 19, 2023, Ref. NWE #1 and NWE Laurel Nighttime Rendering Design Follow-Up Submittal, May 26, 2023, Ref. Thompson2) and posted those materials as separate documents to DEQ's AQB permit website.

The proposed action is located in an area mostly surrounded by agricultural and industrial private property. The proposed action is located exclusively on private land.

The immediate receptors surrounding the project are industrial neighbors, agricultural properties, recreationalists on the river, and intermittent residences surrounding the property. The nearest two residences are located approximately 1,030 feet and 1,230 feet away from the east side of the proposed action's engine hall, respectively. The exhaust stacks are on the west side of the engine hall and are further away from these two residences.

The analysis area for lighting is the immediate project area (Figure 1), as well as neighboring lands surrounding the analysis area, as reasonably appropriate for the impacts being considered. There are no other zoning or regulatory requirements at a local, county, state level for lighting requirements in the analysis area of the proposed action. The area adjacent to the proposed action is zoned for HI-heavy industrial and A1-Agricultural Open and there are no lighting restrictions in these zoning requirements.

Light can travel, and be visible, up to several miles from a single light source, depending on atmospheric conditions. Factors influencing travel distance are numerous and include:

- The intensity of the source,
- Distribution and orientation of the source,
- Color temperature of the source,
- Shielding of the source,
- Air quality (particulates, ppm)
- Humidity,
- Temperature,
- Time of day,
- Man-made or natural obstructions including buildings and trees,

- Elevation changes,
- Existing ambient sky glow in any given area,
- Age of observer.

The luminous flux of a particular light source is measured in lumens. Lighting fixtures are typically specified and categorized based on lumen output. The higher the lumen output, the 'brighter' the light source; the lower the lumen output, the less bright the light source. Fixtures are specified based on lumens, not watts. Watts are a unit for the measure of energy consumption. Each of the external lights that are planned for the proposed action are specified in lumen output and part of the analysis to determine the overall lighting impact. Illuminance is the amount of light (lumens) falling on a defined surface area. Illuminance is quantified as lumens per square foot (footcandles) or lumens per square meter (lux). Measuring (or calculating) the illuminance allows for determining how much light is needed to perform specific tasks.

The Illuminating Engineering Society (IES) recommends a typical classroom, to have a light level of 30-50 footcandles or 300-500 lux. Compared to a professional laboratory which recommends a light level of 75-120 footcandles or 750-1200 lux. The IES recommendations are evidence-based to determine how much light is needed for different tasks varying levels of detail.

Typical examples of lighting are noted as follows:

- Clear Summer Day: 100,000 Lux (~10,000 footcandles)
- Full Indirect Sunlight: 10,000 Lux (~1,000 footcandles)
- Overcast Day: 1,000 Lux (~100 footcandles)
- Traditional Office Lighting: 300-500 Lux (30-50 footcandles)
- Common Stairway: 50-100 Lux (5-10 footcandles)
- Twilight: 10 Lux (1 footcandle)
- Full Moon: <1 Lux (<0.1 footcandle)

Direct Impacts

Proposed Action: Consistent with the original project phases of the proposed action, there are lighting needs during construction and lighting needs that would occur with the operation of the facility. During construction, outdoor lighting would be used to provide safe, secure operations after project completion. Typical construction working hours would be weekdays 6 a.m. to 6 p.m. Occasional construction work could occur during nighttime hours and weekends. Outside of working hours lighting would be reduced to that sufficient for security purposes with the majority being turned off. The project design demonstrates the planned lighting system design and installation reasonably minimizes the lighting while also providing necessary lighting consistent with the need to provide a safe working environment for personnel during construction, as well as a safe, secure environment for operating and maintaining the project. The desired average illuminance for this project would be approximately 1 footcandle for roadway and circulation around buildings.

Photographs from the site at its current construction phase, are shown below.

Figure 2. Construction lighting from the east looking west during 5 progressing phases of construction.

At dusk from east edge of site looking west

From construction trailers looking west

From construction trailers looking west

From construction trailers looking west

From construction trailers looking west

During operations, the proposed action would have a total of five buildings including the engine hall, a control room, an electrical and battery room, a warehouse building, and a maintenance building. The largest building would be the engine hall where the 18 engines would reside. The second largest building would the maintenance building. There are approximately 176 external lighting fixtures expected across these five buildings, but almost half of these lights are dedicated for equipment areas and would normally be turned off on a nightly basis and only turned on as required during periods of operations or maintenance. Outdoor nighttime maintenance activities are not anticipated but may occur occasionally.

The tallest external lighting fixtures noted in the building plan are those mounted on poles, generally lighting the road access area to the facility and surrounding the project site. These fixtures are designed for an elevation of 30 feet and also have the highest rated lumens of all the fixtures at 22,400. These fixtures are controlled through a light sensing cell and therefore do not operate during the day but would operate continuously during the night. These lights are for safety and security purposes. These lights are also fitted with shielding to make these lights Dark Sky compliant which directs light downward to the intended lighting area and avoiding excess upward lighting. Dimmers are also planned to offer additional control to turn the lighting levels down as warranted. There are two 30 feet pole fixtures which have lumen ratings of 44,800 lumens located south of the plant, but these are not planned for continuous night operation and have wall switches. These poles are designed with two fixtures each rated at 22,400 lumens for occasional use when additional lighting is needed at these locations.

Other external fixtures are mounted on the five buildings including the engine hall and the exhaust silencers. These lighting fixtures are designed for installation elevations between 6.5 and 15 feet. These lights are generally Dark Sky compliant to minimize unintended upward and outward lighting. These lights only operate during the nighttime as they also utilize a light sensing cell to operate, and these lights are designed with ratings between 2671 and 7373 lumens. The exhaust stacks are 78 feet above final grade. There would be no permanent lights installed on the stacks, which are the tallest and most prominent structures in the proposed action.

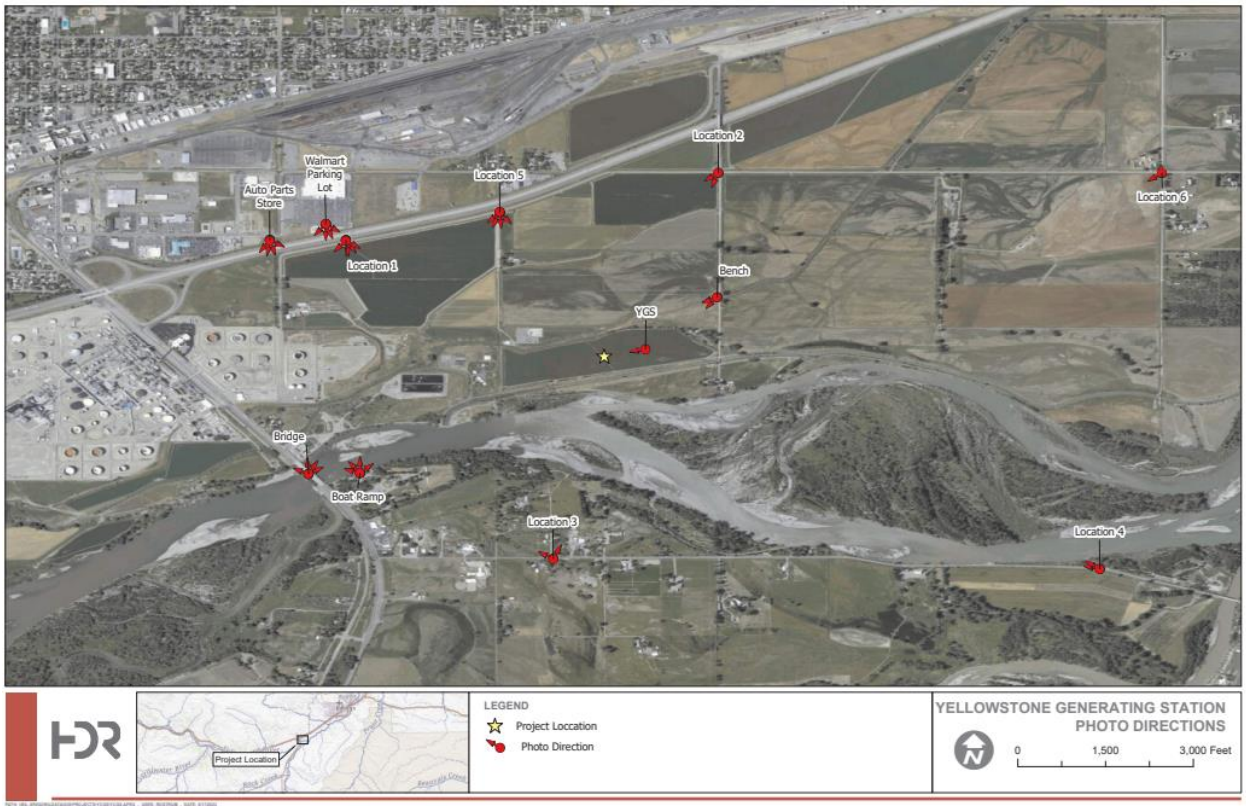
The electrical transformers also have lighting fixtures which are not intended to operate at night and “wall switches” are planned so the area could be lit on an as needed basis. This operation would be expected to be intermittent, and these fixtures are located at approximately 20 feet each with a 12, 278 lumen rating.

The external fixtures that would most often be used are either Dark Sky Compliant thru shielding or have actual fixtures which are Dark Sky Approved. Lights that are not continuously on at night, are designed with the shielding to mitigate unintended lighting.

Because internal lighting would not be visible externally, the impacts from internal lighting would not be present off the site. The internal building lighting, additionally, would be based on occupational lighting requirements.

To compare the proposed action's impact to the no action alternative, photographs were taken around the existing site with no external lighting from the existing project site, and then modelling performed to show the likely lighting levels with all external lighting on, and with the normal nighttime lighting. This comparison should explain what—if any—new lighting impacts would occur with the proposed action. These nighttime photographs were taken from six labeled locations surrounding the project site. Photographs were taken at 11 locations, but a few of these locations were in such close proximity to one another that the report identifies a total of six locations. At each location, photographs from multiple directions were taken to show which lights are visible in the background. The locations are generally northwest, north, northeast, southwest, south, and southeast of the proposed action site. These locations cover the range of views similar to what most observers currently see around the proposed site. Several of the photographs from submittal NWE#1 are included below. The location key is shown here but only specific detail is summarized for some of the photograph locations. The proposed action is in the middle of the map provided in Figure 3, shown by the yellow star.

Figure 3. Proposed action location and key observation points location with directions of photographs.



Comments on the Final EA for the proposed action dated August 23, 2021, generally concerned impacts to locations to the south, southeast and east of the proposed action site. Key pictures from locations from those directions from the site are included on the following pages.

The pictures below were taken from the Boat Ramp at the park location west southwest of the proposed action. The four pictures taken from that location are pointing west northwest, northwest, north, and northeast.

Figure 4. Current views from boat ramp without the proposed action.

The views are identified as pictures 1, 2, 3, and 4. Pictures 1 and 2 clearly show the tall lights from the CHS refinery, while picture 3 shows lights located near the Walmart parking lot and along the Interstate in the background. Picture 4 would be looking directly over the proposed site to the northeast. The Boat ramp location currently has light pollution from many of the industrial and commercial neighbors visible from this location. The brightest lights are near the Walmart parking lot shown in pictures 2 and 3.

Another location where several pictures were taken documenting the current lighting pollution near the proposed action is the Bridge crossing the Yellowstone River just west of the Boat Ramp.

Figure 5. Current views from bridge without the proposed action.

In the existing view from the Bridge location, pictures 1 and 2 clearly show the CHS refinery and tank farm being illuminated. Picture 3 looks directly toward the wastewater treatment plant, electrical substation, and toward the north portion of the project site with picture 4 looking across the project parcel primarily to the east. Existing lights are shown in all four views.

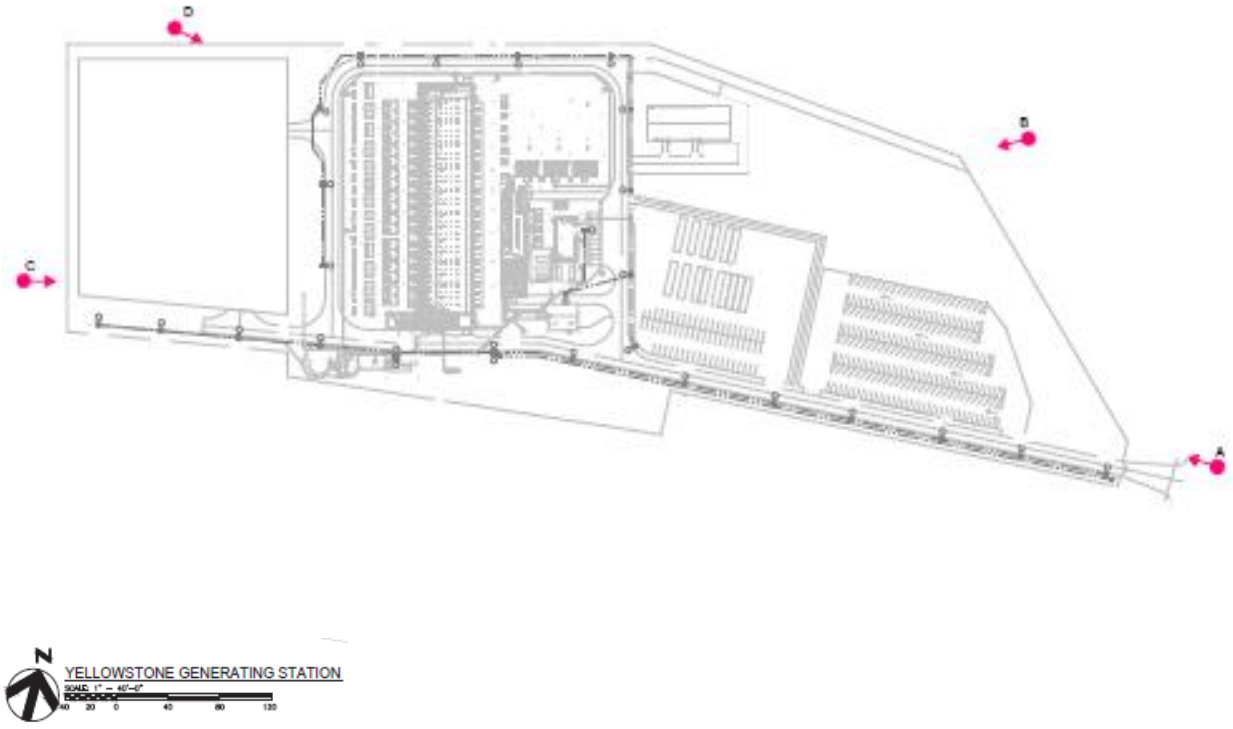
To see how the existing light pollution in the area impacts locations southeast of the proposed action, Location 4 (Figure 6) shows two photographs pointing directly toward the CHS refinery and toward the Walmart location. These two pictures are approximately 0.87 mile from the proposed site (near the engine hall).

Figure 6. Current views from the existing public highway without the proposed action.

At Location 4, light pollution is currently visible from the CHS refinery, which is located approximately 1.79 miles from this vantage point, demonstrating light pollution is already present from numerous locations surrounding the project site.

DEQ, requested modelling be conducted to show the expected light emitted by the proposed action from several locations near the site. This modelling is based on the ratings of the external fixtures, locations of those fixtures including the Dark Sky compliant fixtures using shielding and the Dark Sky approved fixtures. The four locations (A, B, C, and D) are shown in the modelling overview map Figure 7.

Figure 7. Modelled location key.



Locations B and D are two positions where a viewer would be able to see the proposed action. Modeling was conducted demonstrating the impact with all the lights on at the proposed action. Modeling was also conducted demonstrating normal expected operations when only lights on light sensing cells would be in operation. Location B shows the following results.

Figure 8. Location B modelling.

LIGHTING SIMULATION LOCATION **B**

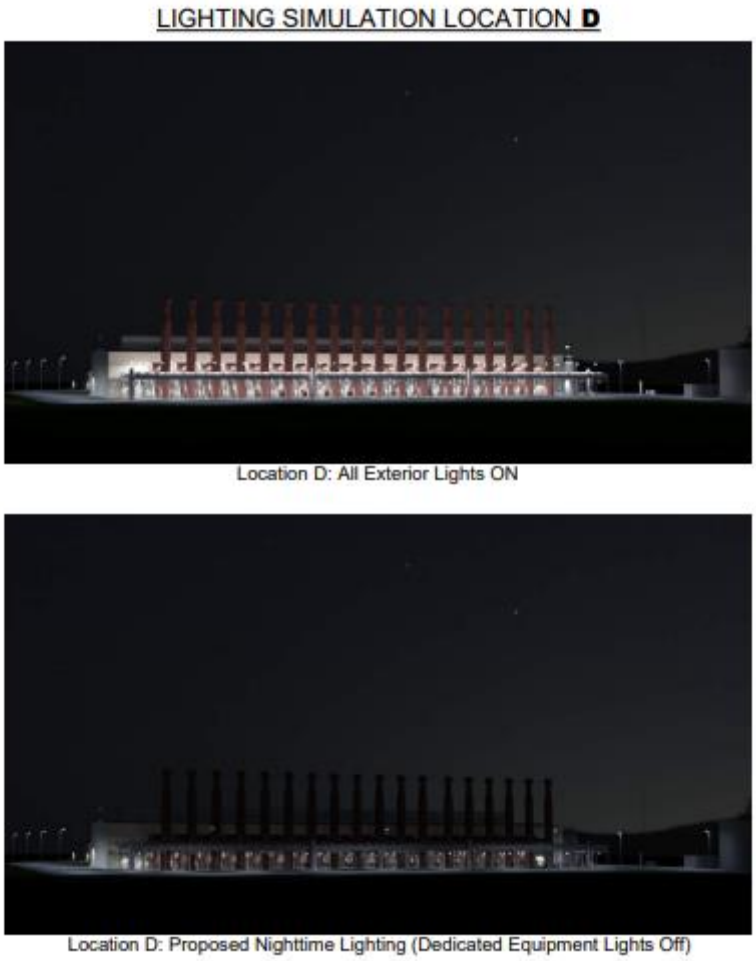
Location B: All Exterior Lights ON

Location B: Proposed Nighttime Lighting (Dedicated Equipment Lights Off)

Stacks appear in the model using a color to simulate the Corten steel which develop a corrosion resistant rust-colored coating. The stack color is likely over-exaggerated in the model. The downward direction of lights is clearly visible with little unintended lighting occurring.

Location D in Figure 7 is shown in the following two pictures.

Figure 9. Location D modelling.



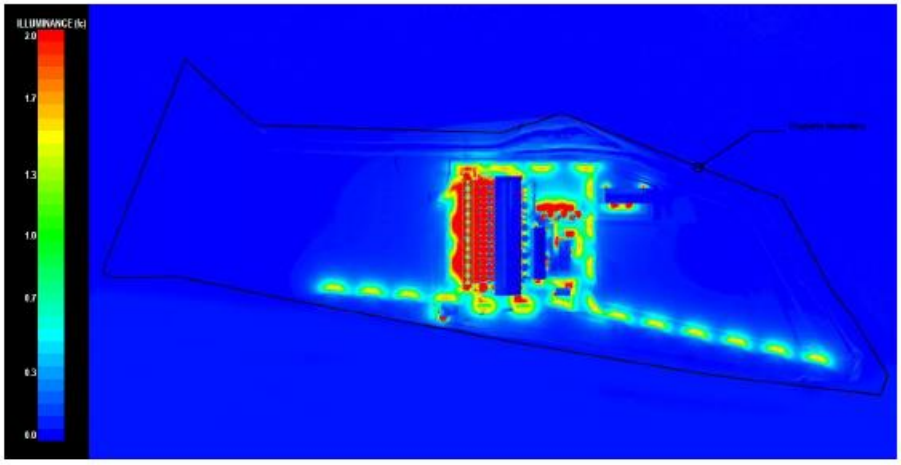
With all lights on, the engine hall becomes more visible, but during normal operation (*i.e.*, when only lights on light sensing cells would be in operation) the lighting impacts are comparatively lower. Locations A and C also show similar results with a minor increase in lighting in the area.

The current baseline pictures indicate there is light pollution surrounding the site. Regardless, of location and distance, lights are visible especially when looking toward the CHS refinery and Interstate Interchange area near Laurel. The modeled renderings of the proposed lighting demonstrate measures are in place to mitigate light pollution. This design includes Dark Sky approved external fixtures, Dark Sky compliant fixtures using shielding and selecting fixture ratings appropriate for the needed lighting. Additionally, dimmers are also planned to further aid in limiting light pollution.

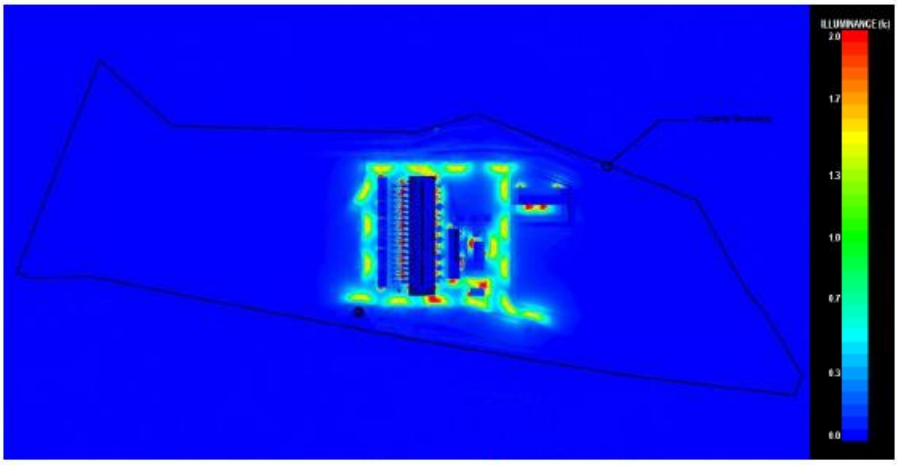
NWE also provided DEQ a lighting illuminance diagram of the proposed action.

NWE's lighting illuminance diagram, provided below, depicts the illuminance levels throughout the site. The property boundary is illustrated by the black line. The illuminance scale is shown on both sides where blue indicates zero footcandles and red indicates areas that have at least 2 footcandles.

Figure 10. Illuminance levels



Lighting Calculation: All Exterior Lights ON



Lighting Calculation: Proposed Nighttime Lighting
(Dedicated Equipment Lights Off + Entrance Roadway Lights Off)

This illuminance map further shows that lighting impacts detectable and measurable in the footcandles metric are local and well within the boundaries of the proposed action parcel.

In addition to the materials discussed above, NWE provided a follow-up submittal on May 26, 2023 (Thompson2), which contained additional renderings of nighttime operation of the facility both with all external lighting on and with typical nighttime lighting levels (*i.e.*, when only lights associated with the light sensing cells would be in operation). These renderings include actual nighttime photographs of existing area lights with the proposed facility also incorporated. Locations for the renderings are shown in the map provided in Figure 9.

Locations and renderings on Figure 11 are identified as follows with their respective Figure reference.

- Entrance 01- All External Lighting On- Figure 12
- Entrance 01 – Typical Nighttime Lighting- Figure 13
- Entrance 02- All External Lighting On -Figure 14
- Entrance 02 - Typical Nighttime Lighting-Figure 15
- Entrance at Channel- All External Lighting On- Figure 16
- Entrance at Channel – Typical Nighttime Lighting-Figure 17
- Walmart Parking Lot- All External Lighting On-Figure 18
- Walmart Parking Lot - Typical Nighttime Lighting-Figure 19
- Bridge – All External Lighting On-Figure 20
- Bridge- Typical Nighttime Lighting- Figure 21

Figure 11. Yellowstone County Generating Station – Nighttime rendering locations.
Note: Materials and colors used for the YCGS equipment/buildings in the lighting simulations is an approximation, actual colors may vary. Stacks are weathered Steel.

Figure 12. Entrance 01 – All lighting on.

Figure 13. Entrance 01 – Typical nighttime lighting.

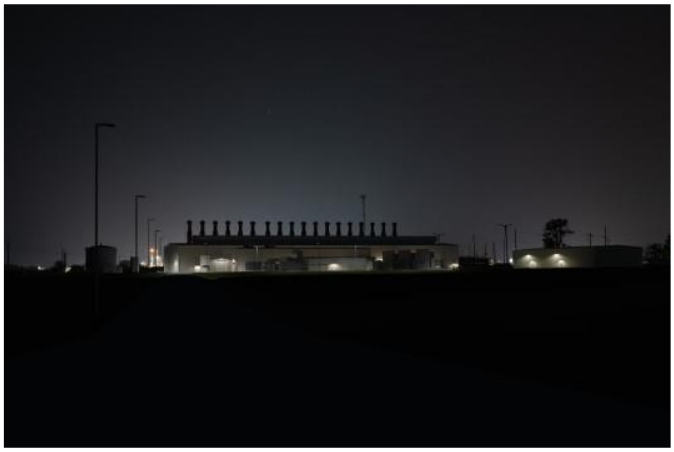


Figure 14. Entrance 02 – All lighting on.

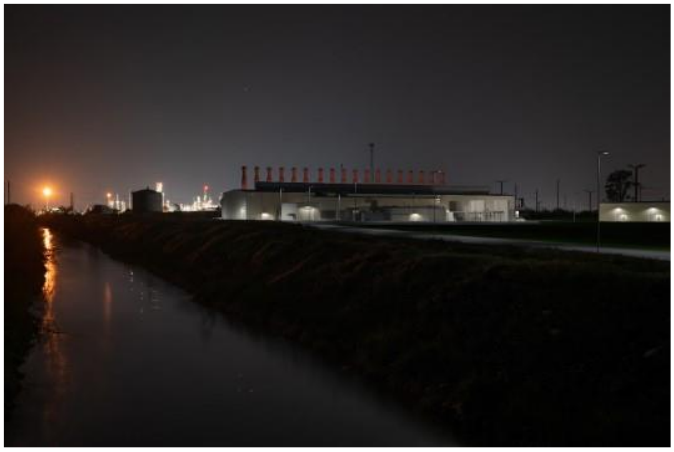


Figure 15. Entrance 02 – Typical nighttime lighting.

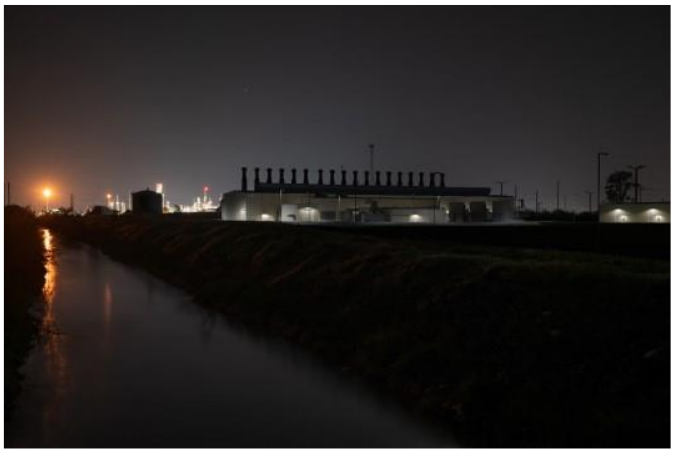


Figure 16. Roadside at channel – All lighting on.

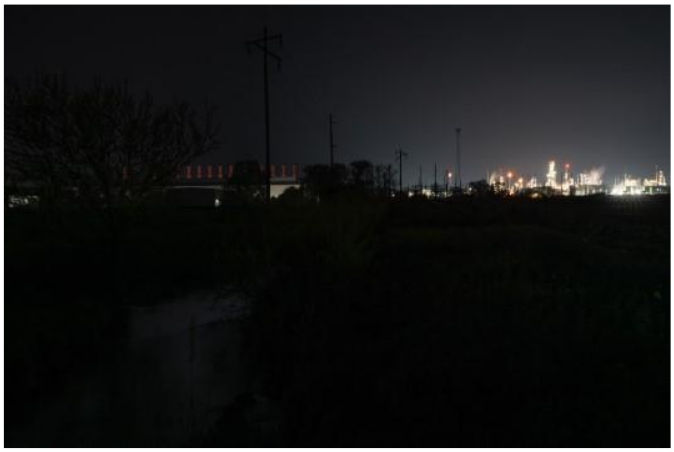


Figure 17. Roadside at channel – Typical nighttime lighting.

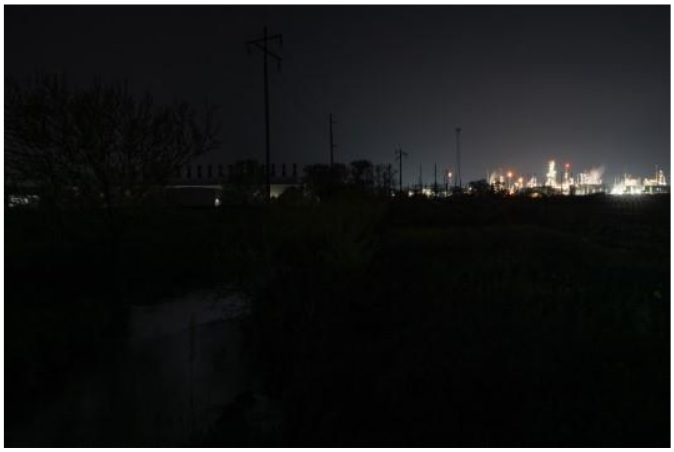


Figure 18. Walmart parking lot – All lighting on.

Figure 19. Walmart parking lot – Typical nighttime lighting.

Figure 20. Bridge – All lighting on.

Figure 21. Bridge – Typical nighttime lighting.

Secondary Impacts

Proposed Action: There would be secondary impacts to places with previously unobstructed views toward the facility. Farther away receptor locations which previously saw the lighting pollution from the direction of the CHS refinery, may now have some of that lighting pollution blocked by the proposed facility. No other secondary impacts to aesthetics including lighting are anticipated.

Cumulative Impacts

Proposed Action: The project location constitutes an area previously used for agricultural purposes that over time have been developed into industrial-use properties. This is evidenced by the continuing operation of the CHS Refinery, water treatment and wastewater treatment plants, and existing NWE electrical substation (all on the north side of the Yellowstone River) in addition to the commercial and retail businesses along the Interstate 90 Corridor.

These existing facilities currently have external lighting common to industrial and commercial facilities, and the Yellowstone County Generating Station also requires external lighting for the safety, security, operation and maintenance of the equipment. The lighting design details submitted for this supplemental analysis include design specifications intended to limit outward and upward light pollution by focusing light downward and with the right intensity for the required purpose of the lighting. The design includes Dark Sky approved and Dark Sky compliant (fixtures with shielding) which are not regulated by DEQ or any other regulation. As noted, the proposed action, incorporates many design features intended to mitigate light pollution.

Impacts from operation of the construction lighting and nighttime lighting at the facility would be negligible or minor. Construction lighting would be necessary until that phase is complete. Continuing facility operation with a lighting design as described in this supplemental analysis brings infrastructure necessary for grid reliability and the minimal lighting with this proposed facility is designed to be less noticeable than other existing facilities. An earthen berm would

also be constructed between the project and the nearest residence. The berm would be planted with trees selected in cooperation with the occupants of the residence. The visual screening could reduce light impacts to receptors at this location. The lighting impacts of the proposed action in combination with the construction stormwater permit, and septic permit would not have any cumulative impacts for the proposed action.

Greenhouse Gas Assessment

This facility has since completed construction and began operation on March 7, 2024. Potential impacts normally described for a "proposed" project continue to be described within this document in the future tense. For this project, construction impacts have already occurred, and potential impacts from facility operation are presently occurring and expected to continue to occur.

Issuance of this permit would authorize the use of up to eighteen (18) engines for the purpose of producing electricity for electrical supply. Emissions from each natural gas fired engine associated with the proposed project is included in the Greenhouse Gas Assessment.

The analysis area for this resource is limited to the activities regulated by the issuance of MAQP #5261, which is for the construction and operation of up to 18 natural gas-fired generator engines. The amount of natural gas utilized at this site may be impacted by several factors including seasonal weather impediments, equipment malfunctions and grid demand. However, DEQ has calculated the maximum fuel usage based on continuous operation of all 18 engines, one 2,682 brake horsepower (bhp) emergency diesel-fired engine generator set, a 315-bhp diesel-fired fire pump engine and a 1.11 MMBtu/hr natural gas line heater. The 18 engines and the line heater are assumed operational for 365 days per year while the emergency generator engine and fire pump engine are assumed operational for 300 hours per year due to their intended service function.

DEQ also confirmed that heating ventilation and air conditioning (HVAC) units would be in service for this facility. There are five units planned for operation with a total of 465.8 lbs of refrigerant 410A (R-410A). Some losses of refrigerant would occur from these units during normal operation and maintenance.

For the purposes of this analysis, DEQ defined greenhouse gas (GHG) emissions as the following gas species: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and many species of fluorinated compounds. The range of fluorinated compounds includes numerous chemicals which are used in many household and industrial products. Other pollutants have certain properties similar to those GHG pollutants mentioned above, but the EPA has clearly identified the species above as the primary GHGs. Water vapor is also technically a GHG, but its properties are controlled by the temperature and pressure within the atmosphere, and it is not considered an anthropogenic gas species.

Direct Impacts
The combustion of natural gas and diesel fuel at the site would release GHGs to the atmosphere, primarily CO_2, N_2O and much smaller concentrations of un-combusted fuel components including methane (CH_4) and other volatile organic compounds (VOCs).

DEQ has calculated GHG emissions using the EPA Simplified GHG Calculator, version May 2023, for the purpose of totaling GHG emissions. This tool totals CO_2, N_2O, and CH_4 and reports the total as CO_2 equivalent (CO_2e) in metric tons of CO_2e. The calculations in this tool are widely accepted and represent reliable calculation approaches for developing a GHG inventory. Pursuant to MEPA, DEQ determined Scope 1 GHG emissions, as defined by EPA's Inventory Guidance for Greenhouse Gas Emissions, represents an appropriate level of analysis for the proposed action. Scope 1 GHG emissions are defined as direct GHG emissions that occur from sources that are controlled or owned by the affected organization (EPA Center for Corporate Climate Leadership).

Construction of this facility has already occurred, and the facility has been operating since early 2024. Equipment used for construction included cranes, backhoes, graders/dozers, passenger trucks, delivery trucks, cement trucks and various other types of generally smaller equipment.

Construction related GHGs were tabulated based on contractor estimated fuel usage during actual construction (Ref.Thompson3). Emissions from gasoline, diesel fuel and propane usage on the site were estimated to be equivalent to be 3,792.5 metric tons of CO_2e for all construction-related vehicles.

Operational annual GHG emissions were estimated for natural gas combustion by the 18 engines and the dew point heater. Each of these units were assumed to operate 8,760 hours per year. The fire pump engine and emergency backup generator each combust diesel fuel and are assumed to only be used to check their operational readiness and in actual emergency situations. They are each assumed to operate up to 300 hours per year. The annual emissions total from all engines at the facility using the GHG Calculator tool predicts 695,195 metric tons of CO_2e.

DEQ also confirmed the affected heating ventilation and air conditioning (HVAC) units would be in service for a total charge of 465.8 lbs of refrigerant R-410A, which is considered a GHG. DEQ estimated the leak/release rate for these five units at no more than 5 percent of system capacity on an annual basis. R-410 has a global warming potential in the EPA GHG Calculator tool of 2,088. A five percent R-410 loss would annually result in 22 metric tons of CO_2e.

DEQ has calculated the potential GHG emissions and provided a narrative description of GHG impacts. This approach is consistent with Montana Supreme Court caselaw and the agency's discussion of other impacts in this Final EA. See Belk v. Mont. DEQ, 2022 MT 38, ¶ 29.

Secondary Impacts
GHG emissions contribute to changes in atmospheric radiative forcing, resulting in climate change impacts. GHGs act to contain solar energy loss by trapping longer wave radiation emitted from the Earth's surface and act as a positive radiative forcing component (BLM 2023).

Per EPA's website "Climate Change Indicators", the lifetime of CO_2 cannot be represented with a single value because the gas is not destroyed over time. The gas instead moves between air, ocean, and land mediums with atmospheric CO_2 remaining in the atmosphere for thousands of years, due in part to the very slow process by which carbon is transferred to ocean sediments. CH_4 remains in the atmosphere for approximately 12 years. N_2O has the potential to remain in the atmosphere for about 109 years (EPA, Climate Change Indicators). The impacts of climate change throughout the specified region of the state of Montana include changes in flooding and drought, rising temperatures, and the spread of invasive species (BLM 2023).

Cumulative Impacts

Montana recently used the EPA State Inventory Tool (SIT) to develop a GHG inventory in conjunction with preparation of a possible grant application for the Community Planning Reduction Grant (CPRG) program. This tool was developed by EPA to help states develop their own GHG emission inventories and relies upon data already collected by the federal government through various agencies. The inventory specifically deals with CO_2, CH_4, and N_2O, reported as total CO_2e. The SIT consists of eleven Microsoft Excel based modules with pre-populated data that can be used with default settings or in some cases, allows states to input their own data when the state believes their own data provides a higher level of quality and accuracy. Once each of the eleven modules is filled out, the data from each module is exported into a final "synthesis" module which summarizes all the data into a single file. Within the synthesis file, several worksheets display the output data in a number of formats such as GHG emissions by sector and GHG emissions by type of GHG.

DEQ determined use of the default data provided by EPA provides a reasonable representation of the GHG emissions generated by the various sectors of the state, and the estimated total annual GHG inventory for the state, by year. The SIT data from EPA is currently only updated through the year 2021, as it takes several years to validate and make new data available within revised modules. DEQ maintains a copy of the output results of the SIT.

At present, annually, Montana accounts for approximately 47.77 million metric tons of CO_2e based on the EPA SIT for the year 2021. This project may contribute up to 695,217 metric tons per year of CO_2e. The estimated annual emissions of 695,217 metric tons of CO_2e from this project would contribute 1.38% of Montana's total annual CO_2e emissions. Construction related GHG emissions would be less than 3,800 metric tons of CO_2e.

Proposed Action Alternatives

No Action Alternative: In addition to the analysis above for the proposed action, DEQ considered the "no action" alternative. The "no action" alternative would deny the approval of the proposed permitting action and NWE would then lack the authority to conduct the proposed activity. Any potential impacts that would result from the proposed action would not

occur. The no action alternative forms the baseline from which the impacts of the proposed action can be measured and compared to.

Other Ways to Accomplish the Action: The No Action Alternative would not allow for the construction and operation of the facility. Demand for electricity would likely be met from other sources providing electricity to the electrical grid, if the proposed activity is not approved.

If NWE demonstrates compliance with all applicable rules and regulations as required for approval, the "no action" alternative would not be appropriate. Pursuant to, § 75-1-201(4)(a), MCA DEQ "may not withhold, deny, or impose conditions on any permit or other authority to act based on" an environmental assessment.

Consultation

DEQ engaged in internal and external efforts to identify substantive issues and/or concerns related to the proposed project. Internal scoping consisted of internal review of the environmental assessment document by DEQ staff. External scoping efforts also included queries to the following websites/databases/personnel:

Application for MAQP #5261, EPA State Inventory Tool, the EPA GHG Calculator Tool, the Montana Natural Heritage Program Website, the Montana Cadastral Mapping Program, the DEQ GIS Mapping Portal, the Yellowstone County website, and the State Historical Preservation Office.

Public Involvement

The public comment period for this permit action occurred from March 28, 2025, through April 28, 2025.

Other Governmental Agencies with Jurisdiction

The proposed project would be located on private land. All applicable state and federal rules must be adhered to, which, at some level, may also include other state, or federal agency jurisdiction.

This environmental review analyzes the proposed project submitted by NWE.

Need for Further Analysis and Significance of Potential Impacts

When determining whether the preparation of an environmental impact statement is needed, DEQ is required to consider the seven significance criteria set forth in ARM 17.4.608, which are as follows:

- The severity, duration, geographic extent, and frequency of the occurrence of the impact;
- The probability that the impact will occur if the proposed action occurs; or conversely, reasonable assurance in keeping with the potential severity of an impact that the impact will not occur;

- Growth-inducing or growth-inhibiting aspects of the impact, including the relationship or contribution of the impact to cumulative impacts – identify the parameters of the proposed action;
- The quantity and quality of each environmental resource or value that would be affected, including the uniqueness and fragility of those resources and values;
- The importance to the state and to society of each environmental resource or value that would be affected.
- Any precedent that would be set as a result of an impact of the proposed action that would commit the department to future actions with significant impacts or a decision in principle about such future actions; and
- Potential conflict with local, state, or federal laws, requirements, or formal plans.

Conclusions and Findings

The severity, duration, geographic extent and frequency of the occurrence of the impacts associated with the proposed action would be limited. NWE proposes to construct and operate the proposed action on a 36-acre site located on private land, two miles southeast of Laurel, Montana. The estimated construction disturbance would be about 20.4 to 25.4 acres. Once operational, the disturbed acreage is estimated at 10.4 acres.

DEQ has not identified any significant impacts associated with the proposed action from any lighting resources. The lighting impact analysis for the proposed action demonstrates the level of change would not be significant as set forth in ARM 17.4.608. The lighting impacts of the proposed action, with consideration for impacts from the construction stormwater permit, and septic permit would not have cumulative impacts.

DEQ has not identified any significant impacts associated with the proposed action relative to the GHG Assessment. The assessment of GHG emissions from the proposed action demonstrates the level of change would not be significant as set forth in ARM 17.4.608.

Approving the proposed action would not set precedent that commits DEQ to future actions with significant impacts or a decision in principle about such future actions. If NWE submits another permit application, DEQ is neither committed to approve that application nor any other future application. DEQ would conduct a new environmental review for any subsequent air quality permit action sought by NWE. DEQ would make a decision on any subsequent application based on the criteria set forth in the Clean Air Act of Montana.

DEQ's issuance of an Air Quality Permit to NWE for this proposed operation does not set a precedent for DEQ's review of other applications, including the level of environmental review. The decision regarding the appropriate level of environmental review is made based on a case-specific consideration of the criteria set forth in ARM 17.4.608.

DEQ does not believe the proposed action has any growth-inducing or growth-inhibiting aspects or that it conflicts with any local, state, or federal laws, requirements, or formal plans. Based on

consideration of the criteria set forth in ARM 17.4.608, the proposed state action is not predicted to significantly impact the quality of the Montana environment. Therefore, preparation of an environmental assessment is deemed the appropriate level of environmental review for the proposed action pursuant to MEPA.

As discussed in this Final EA, DEQ has not identified any significant impacts on any environmental resource associated with the proposed activities.

Issuance of a Montana Air Quality Permit to NWE does not set any precedent that commits DEQ to future actions with significant impacts or a decision in principle about such future actions. If NWE submits another modification or amendment, DEQ is not committed to issuing those revisions. DEQ would conduct an environmental review for any subsequent permit actions sought by NWE that require environmental review. DEQ would make permitting decisions based on the criteria set forth in the Clean Air Act of Montana.

Issuance of the permit to NWE does not set a precedent for DEQ's review of other applications for permits, including the level of environmental review. The level of environmental review decision is made based on case-specific consideration of the criteria set forth in ARM 17.4.608.

Finally, DEQ does not believe the proposed air quality permitting action would have any growth-inducing or growth inhibiting impacts that would conflict with any local, state, or federal laws, requirements, or formal plans.

Based on consideration of the criteria set forth in ARM 17.4.608, the proposed action is not predicted to significantly impact the quality of the Montana environment. Therefore, preparation of an EA is the appropriate level of environmental review pursuant to MEPA.

Environmental Assessment and Significance Determination Prepared By:

Craig Henrikson, Environmental Engineer, P.E.
Air Quality Permitting Services Section
Air Quality Bureau

Environmental Assessment Reviewed By:

Eric Merchant, Supervisor
Air Quality Permitting Services Section
Air Quality Bureau

Environmental Assessment Approved By:

Bo Wilkins, Chief
Air Quality Bureau

Date: August 1, 2025

References

NWE lighting design submittal to DEQ (NWE #1) for external lighting fixtures dated May 19, 2023, and received by DEQ on May 21, 2023.

Thompson. 2023. Email communications about lighting submittal, B. Thompson, NorthWestern Energy to C. Henrikson, May 17, through June 1, 2023.

Thompson2. 2023. Email submittal with additional nighttime renderings of proposed facility, B Thompson, NorthWestern Energy to C Henrikson, May 26, 2023.

Thompson3. 2025. Email communications about fuel usage during construction, and HVAC units in operation at the site, NorthWestern Energy to C. Henrikson, February 2025.

BLM 2023
2023 BLM Specialist Report:
2023 BLM Specialist Report on Annual Greenhouse Gas Emissions and Climate Trends

Abbreviations and Acronyms

AQB – Air Quality Bureau
ARM - Administrative Rules of Montana
BACT – Best Available Control Technology
BMP - Best Management Practices
CAA – Clean Air Act of Montana
CFR - Code of Federal Regulations
CO - Carbon Monoxide
DEQ – Department of Environmental Quality
DNRC – Department of Natural Recourses and Conservation
EA – Environmental Assessment
EIS – Environmental Impact Statement
EPA - U.S. Environmental Protection Agency
FCAA- Federal Clean Air Act
MAQP – Montana Air Quality Permit
MCA – Montana Code Annotated
MEPA – Montana Environmental Policy Act
MTNHP - Montana Natural Heritage Program
NO_X - Oxides of Nitrogen
PM - Particulate Matter
PM_{10} - Particulate Matter with an Aerodynamic Diameter of 10 Microns and Less
$PM_{2.5}$ - Particulate Matter with an Aerodynamic Diameter of 2.5 Microns and Less
PPAA - Private Property Assessment Act
Program - Sage Grouse Habitat Conservation Program
PSD - Prevention of Significant Deterioration
SHPO - Montana State Historic Preservation Office
SOC - Species of Concern
SO_2 - Sulfur Dioxide
TPY – Tons Per Year
U.S.C. - United States Code
VOC - Volatile Organic Compound

Public Comments from Draft Supplemental EA Issued on March 28, 2025

DEQ received public comment from March 28, 2025, thru April 28, 2025. DEQ received comments from 77 commenters including one comment received after the April 28, 2025, deadline.

Comments received have been assigned reference abbreviations to help the reader understand how to navigate from the comment to DEQ's response.

The first table provides either the full public comment or a summary of the comment along with the assigned reference abbreviation to locate DEQ's response.

Logged Comment ID Number	Comment	GHG, carbon, Climate, Held, Clean and Healthful, or Analysis. One or more topics.	Comment References
Note: DEQ has purposely emphasized comments #39 and #41 as those comments each have multiple substantive topics in each letter. DEQ has presented individual responses for comments #39 and #41, and most of the other public comments will reference DEQ responses prepared for comments #39 and #41.			
39	MEIC et al. Total of 298 Megabytes, 18 attachments. The main cover page is an executive summary six pages long identified as 39.1. The main comment page is 44 pages long and is identified as 39.3. 39.2 represents the technical references associated with the comments. Comments are parsed into the bullets below for response tracking purposes.	Yes	See Section below titled DEQ Response to Comments, 39. Responses are found at 39.1a thru 39.1k, and in 39.3a thru 39.3be.
39.1a	DEQ's GHG Review; DEQ must adequately analyze and disclose GHG emissions and their impacts for this project and any others that implicate these fundamental rights.	Yes	Responses for 39.1a thru 39.1f have been combined into a single response, 39.1a-39.1f.
39.1b	Each additional ton of GHGs emitted into the atmosphere exacerbates the impacts to the climate	Yes	Responses for 39.1a thru 39.1f have been combined into a single response, 39.1a-39.1f.
39.1c	DEQ's obligation to conduct the required climate analysis exits independently of specific	Yes	Responses for 39.1a thru 39.1f

	regulatory standards for GHGs under the Montana Clear Air Act		have been combined into a single response, 39.1a-39.1f.
39.1d	DEQ must analyze the direct, secondary and cumulative impacts of GHS emissions in permitting processes, taking a "hard look" at these impacts, even in the absence of established ambient air quality standards or specific regulations.	Yes	Responses for 39.1a thru 39.1f have been combined into a single response, 39.1a-39.1f.
39.1e	The substantial public concern regarding GHG emissions further underscores the necessity of evaluating these impacts under MEPA.	Yes	Responses for 39.1a thru 39.1f have been combined into a single response, 39.1a-39.1f.
39.1f	The cumulative and secondary impacts of Montana's GHG emissions are significant in local, regional, national and global context	Yes	Responses for 39.1a thru 39.1f have been combined into a single response, 39.1a-39.1f.
39.1g	Review and include in its analysis the significant body of scientific research documenting the impacts of climate change in structuring GHG analysis	Yes	See Response to comment 39.1g
39.1h	Explicitly evaluate the projected direct GHG emissions from projects.	Yes	See Response to comment 39.1h
39.1i	Adopt methodologies including the Social Cost of Carbon	Yes	See Response to comment 39.1i
39.1j	Analyze how the GHG emissions from projects contribute to local and state vulnerability	Yes	See Response to comment 39.1j
39.1k	Include an assessment of upstream and downstream emissions.	Yes	See Response to comment 39.3a. Also 39.3jj.
39.2	This document was the technical references submitted with comment #39	Yes	Technical Reference Document
39.3a	DEQ's review of this project must consider both the direct emissions from the Laurel Generating Station itself and the indirect emissions from the extraction and transportation of the methane gas used to fuel the plant.	Yes	See Response to comment 39.3a. Also 39.3jj.
39.3b	In addition, the environmental review should include a cumulative impacts analysis that discloses and analyzes the past, present, and related future actions that have and will continue	Yes	See Response to comment 39.3b

	to contribute to GHG emissions and climate impacts.		
39.3c	The Supplemental Draft EA's analysis of GHG emissions is crucial because, as established by numerous scientific studies, the cumulative impact of even seemingly small contributions to atmospheric GHG concentrations plays a significant role in the broader context of climate change.	Yes	See Response to comment 39.3c
39.3d	Reference to 166 million tons of CO_2	Yes	See Response to comment 39.3d
39.3e	Therefore, to dismiss the importance of thoroughly analyzing the GHG contributions and impacts of individual projects is to ignore the very mechanism by which the climate crisis has reached its current critical state.	Yes	See Response to comment 39.3e and 39.3e.
39.3f	Other major sources in the Laurel/Billings/Lockwood area	Yes	See Response to comment 39.3f
39.3g	Application quoted CO2e comparison	Yes	See Response to comment 39.3g
39.3h	Supreme Court reference for DEQ's analysis	Yes	See Response to comment 39.3h.
39.3i	Environmental Attribute consideration	Yes	See Response to comment 39.3i
39.3j	Public Comment consideration in action by state agencies	Yes	See Response to comment 39.3j
39.3k	Scientific consideration in documenting impacts	Yes	See Response to comment 39.3k-p
39.3l	Incorporation of scientific information in climate analysis	Yes	See Response to comment 39.3k-p
39.3m	Impacts analyzed against MEPA and Constitution	Yes	See Response to comment 39.3k-p
39.3n	Climate Change causes environmental and societal harm globally and in Montana	Yes	See Response to comment 39.3k-p
39.3o	Climate Change Impacts in the Northern Great Plains Region	Yes	See Response to comment 39.3k-p
39.3p	Climate Change Harms Montanan's Health	Yes	See Response to comment 39.3k-p
39.3q	Montan's Fossil Fuel Energy Sources and Gas Infrastructure Spur Climate Change and Its Harmful Impacts in Montana	Yes	See Response to comment 39.3q.

39.3r	Burning Fossil Fuels in Montana Has Significant Environmental and Societal Costs	Yes	See Response to comment 39.3r, and to 39.1i.
39.3s	Appropriate Methodologies/Scientific literature for Review of GHG Emissions under MEPA	Yes	See Response to comment 39.3s-t. Also see 39.3k-p
39.3t	Direct Effects	Yes	See Response to comment 39.3s-t. Also see 39.3k-p
39.3u	Fractional Comparisons to Domestic or Global Comparisons	Yes	See Response to comment 39.3u and 39.3k-p
39.3v	Analysis should describe harms relative to GHGs	Yes	See Response to comment 39.3v-w
39.3w	Alternatives and Mitigation The supplemental EA's Alternatives Analysis is Insufficient and Appropriate Framework for Analysis of Alternatives	Yes	See Response to comment 39.3v-w
39.3x	Executive Order 8-2019 to reduce emission from electrical generation	Yes	See Response to comment 39.3x.
39.3y	Montana Climate Solutions Plan	Yes	See response to comment 39.3y.
39.3z	CO2e Comparison to passenger cars	Yes	See Response to comment 39.3z and 39.3d and 39.3k-p
39.3aa	Secondary Impacts must be analyzed	Yes	See Response to comment 39.3aa-cc, and 39.3k-p and 39.3s-t
39.3bb	LGS Emissions contribute to global impacts	Yes	See Response to comment 39.3aa-cc, and 39.3k-p and 39.3s-t
39.3cc	LGS Emissions increase local and state vulnerability	Yes	See Response to comment 39.3aa-cc, and 39.3k-p and 39.3s-t
39.3dd	DEQ should adopt social cost of carbon framework	Yes	See Response to comment 39.3dd and 39.1i

39.3ee	DEQ must disclose impacts of no-action alternative	Yes	See Response to comment 39.3ee-ff and 39.3ar
39.3ff	DEQ no-action analysis	Yes	See Response to comment 39.3ee-ff and 39.3ar
39.3gg	DEQs cumulative analysis must include upstream and downstream impacts	Yes	See Response to comment 39.3gg, and 39.3a.
39.3hh	Held necessitates reasonably foreseeable emissions	Yes	See Response to comment 39.3hh, and 39.3a and 39.3z
39.3ii	Foreseeable emissions aligns with past, present and future actions	Yes	See Response to comment 39.3ii
39.3jj	Upstream and Downstream beyond permitting authority	Yes	See Response to comment 39.3jj
39.3kk	Describe appropriate and feasible mitigation measures	Yes	See Response to comment 39.3kk
39.3ll	More analysis than GHG quantification required	Yes	See Response to comment 39.3ll, and 39.1a-f
39.3mm	GHG emissions evaluated versus Montana's Climate Goals	Yes	See Response to comment 39.3mm, and 39.3x and 39.3y.
39.3nn	EA should articulate how the LGS's emissions align with Montana's Climate Goals	Yes	See Response to comment 39.3nn and 39.3y.
39.3oo	Analysis of LGS emissions to state GHG emissions	Yes	See Response to comment 39.3oo and 39.3k-p and 39.3s-t.
39.3pp	Compare LGS emissions to other similar projects	Yes	See Response to comment 39.1a-f and 39.3f
39.3qq	Lifetime comparison of LGS emissions to global with long term costs and benefits.	Yes	See Response to comment 39.3qq
39.3rr	Secondary impacts must be analyzed which are caused by action	Yes	See Response to comment 39.3rr and 39.3k-p and 39.3s-t.
39.3ss	BLM reference study does not represent a "hard look" required by MEPA	Yes	See Response to comment 39.3ss

			and 39.3k-p and 39.3s-t.
39.3tt	Adopt Social Cost of Carbon Methodology	Yes	See Response to comment 39.3tt and 39.1i.
39.3uu	Describe Health Effects in Montana	Yes	See Response to comment 39.3uu.
39.3vv	Analyze Local and State Vulnerability Increases	Yes	See Response to comment 39.3vv
39.3ww	Federal law can be set as a floor for MEPA	Yes	See Response to comment 39.3ww.
39.3xx	Failure to analyze secondary impacts	Yes	See Response to comment 39.3xx-yy and 39.1i, 39.3k-p, and 39.3s-t
39.3yy	Thoroughly analyze social cost of carbon, increased vulnerability and health effects in Montana	Yes	See Response to comment 39.3xx-yy and 39.1i, 39.3k-p, and 39.3s-t
39.3zz	DEQ must analyze cumulative impacts	Yes	See Response to comment 39.3zz
39.3ab	Cumulative analysis is insufficient considering regional analysis and lifecycle of the project	Yes	See Response to comment 39.3ab and 39.3k-p
39.3ac	Include existing sources cumulative emissions	Yes	See Response to comment 39.3ac
39.3ad	Comparison of LGS emissions to Montana's total is insufficient	Yes	See Response to comment 39.3ad. Also 39.3d and 39.3k-p
39.3ae	Other areas sources of GHG emissions should be included	Yes	See Response to comment in 39.3ae and 39.1a-f
39.3af	Must evaluate whether community will experience disproportionate effects	Yes	See Response to comment 39.3af and 39.3a-k and 39.3ac
39.3ag	Analysis of Upstream and Downstream Emissions	Yes	See Response to comment 39.3ag and 39.3a.

39.3ah	Regional inventory of GHG emissions included in cumulative analysis	Yes	See Response to comment 39.3ag and 39.3a.
39.3ai	No action alternative analysis must include projected beneficial and adverse impacts	Yes	See Response to 39.3ai.Update to EA?
39.3aj	No action alternative must be more thorough	Yes	See Response to comment 39.3aj-ak
39.3ak	No action alternative analysis is insufficient	Yes	See Response to comment 39.3aj-ak
39.3al	Compared to lighting analysis, no-action alternative is insufficient	Yes	See Response to comment 39.3al
39.3am	Meaningful baseline must be established for no-action alternative	Yes	See Response to comment 39.3am and 39.3ai, 39.3aj-ak and 39.3al
39.3an	Tools referenced should be used for meaningful baseline determination	Yes	See Response to comment 39.3an, 39.3ai, 39.3aj-ak and 39.3al
39.3ao	National and Montana Climate Assessment references should be used	Yes	See Response to comment 39.3ao-ap, 39.1l, 39.3uu, 39.3ai, 39.3aj-ak and 39.3al
39.3ap	To uphold constitutional obligation Montana must conduct meaningful no-action alternative analysis	Yes	See Response to comment 39.3ao-ap, 39.1l, 39.3uu, 39.3ai, 39.3aj-ak and 39.3al
39.3aq	Without meaningful baseline, LGS impact on climate goals is not possible	Yes	See Response to comment 39.3aq and 39.1l, 39.3uu, 39.3ai, 39.3aj-ak and 39.3al
39.3ar	Reference to demand being met by other sources is unsupported	Yes	See Response to comment 39.3ar
39.3as	DEQ should acknowledge other sources may include lower carbon intensive options	Yes	See Response to comment 39.3ar

39.3at	Programmatic environmental review	Yes	See Response to comment 39.3at-au
39.3au	Held decision provides pathway for DEQ to better uphold constitutional obligations	Yes	See Response to comment 39.3at-au
39.3av	Mitigation analysis is insufficient	Yes	See Response to comment 39.3av-be
39.3aw	Mitigation analysis should follow that done in Lighting Analysis	Yes	See Response to comment 39.3av-be
39.3ax	Mitigation analysis for GHGs doesn't use the word mitigate	Yes	See Response to comment 39.3av-be
39.3ay	Prevention measures not identified in the EA	Yes	See Response to comment 39.3av-be
39.3az	Analysis should include a dedicated section on GHG mitigation measures	Yes	See Response to comment 39.3av-be
39.3ba	DEQ should have required NWE to adopt mitigation measures	Yes	See Response to comment 39.3av-be
39.3bc	Even though operating, mitigation measures could limit climate harm going forward	Yes	See Response to comment 39.3av-be
39.3bd	Mitigation measures are available for operating power plants	Yes	See Response to comment 39.3av-be
39.3be	Final EA should include a more detailed analysis of mitigation measures	Yes	See Response to comment 39.3av-be
41	Commenter: Our Children's Trust, seven page submittal. This comment is broken out into the below topics, 41.a thru 41.d.	Yes	See Section below titled DEQ Response to Comments, 41. Responses are found at 41.a thru 41.d.
41.a	Conclusion Statement: For the reasons outlined herein, DEQ must substantially revise its Draft Supplemental Environmental Assessment to comply with the District Court and Supreme Court Orders in Held v. State of Montana. In the meantime, DEQ should immediately suspend or revoke the air quality permit for Laurel Generating Station.	Yes	See Response to comment 41.a. Also refer to all comments in 39.1, 39.3 and comment "1" below.

41.b	DEQ Admits the Laurel Generating Station will Allow for the Burning of Fossil Fuels and Release GHG Emissions, but Largely Ignores the Harms from the Project's Fossil Fuel Pollution and Contribution to Climate Change.	Yes	See Response to comment 41.b. Also refer to all 39.3ar
41.c	DEQ's Supplemental Draft EA Fails to Consider Alternative Sources of Energy, such as Renewable Energy, to Meet Montanans' Current and Future Energy Needs	Yes	See Response to comment 41.c
41.d	The Supplemental Draft EA Fails to Present Evidence of a Compelling Government Need in the Laurel Generating Station	Yes	See Response to comment 41.d
1	The YCGS permit should be revoked	Yes	The current evaluation is addressing the Lighting and GHG impacts related to the EA. Under an earlier court action, the permit for LGS was reinstated and on-going actions are only related to an impacts analysis in the EA.
2	There are many detailed reports of how the climate crisis will impact Montanans. In 2023, Montana Wildlife Federation released a detailed report of the economic impacts of the climate crisis on Montana outdoor recreation [meic.us20.listmanage. com]. In 2024, Farm Connect Montana released a detailed report of the economic impact of the climate crisis on Montana Agriculture [meic.us20.listmanage.com]. Both of these reports have extensive detail that DEQ should take into account. DEQ should undertake a meaningful analysis of the impacts of the plant's greenhouse gas emissions in its final EA	Yes	See Response to comments for 39 and 41
3	Embarrassing DEQ report excluding everything about the impacts on our Climate, on our Montanan's health, on our natural resources of wildlife, forests, streams and rivers, habitat; and more. It was outrageous that the plant even got built. We already have huge pollution from the coal plants in Colstrip that are also ruining our health and climate, along	Yes	See Response to comments for 39 and 41

	with NWE's insistence on fossil fuels, including coal and methane. I've been a NWE customer for 48 years and they have no brains, nor does the DEQ that we all need to convert to wind, solar, battery which is cheaper and using natural assets of Montana. Other States like Texas are expanding in these nonfossil fuels. NWE is heading to bankruptcy with their terrible planning just like Montana Power did and we had to buy back our dam energy. Outrageous impacts on us citizens of Montana. Our Montana Supreme Court agreed with our young people's Climate case and DEQ, PSC, NWE are living in the dark ages and not with the people's support. Outrageous!! Hire some scientists who know something about energy, climate, the EARTH, atmosphere and do your job that we pay you to do and comply with the Montana Supreme Court's ruling.		
4	The Environmental Impact Statement on NorthWestern Energy's Yellowstone County Generating Station says nothing about the amount of damage to be expected from the Station's carbon emissions. The DEQ only stated that "The impacts of climate change throughout the specified region of the state of Montana include changes in flooding and drought, rising temperatures, and the spread of invasive species (BLM 2021)." What is the expected mass of carbon expected to be emitted from the station, on a time-weighted average basis? What impact on neighboring residents could be expected due to the station's operation? Please add whatever detail is appropriate to describe the impact that this new greenhouse gas source will have on the immediate and regional environment, as required by the state Supreme Court.	Yes	See Response to comments for 39 and 41
5	NWE IS A RECALCITRANT NON-SUPPORTER OF OUR RIGHT TO a CLEAN AND HEALTHFUL ENVIRONMENT AND AS SUCH MUST BE HELD ACCOUNTABLE FOR THE CURRENT and FUTUTE DAMAGE THEY WILL Do! Come on and do the right thing for our children and the citizens of Montana!	Yes	See Response to comments for 39 and 41
6	I'm commenting on the draft environmental analysis for the Yellowstone County Generating Station. One vague sentence is inadequate and isn't useful to anyone. Montanans deserve a thorough analysis of	Yes	See Response to comments for 39 and 41

	this plant so we can all make informed policy decisions going forward. Please provide a meaningful analysis on the impacts of the plant's greenhouse emissions in the final draft.		
7	I am writing out of concern that you are not adhering to the MT Supreme Court's order to evaluate the impacts of NW Energy's YCGS. There is no analysis showing how the increase in emissions may result in actual harm to Montanans. There are many detailed reports of how the climate crisis will impact Montanans. In 2023, Montana Wildlife Federation released a detailed report of the economic impacts of the climate crisis on Montana outdoor recreation. In 2024, Farm Connect Montana released a detailed report of the economic impact of the climate crisis on Montana Agriculture. Both of these reports have extensive detail that DEQ should take into account. DEQ should undertake a meaningful analysis of the impacts of the plant's greenhouse gas emissions in its final EA. Please protect us MT citizens from harmful greenhouse gases and other chemicals.	Yes	See Response to comments for 39 and 41
8	In the January 2025, the ruling by the Montana Supreme Court directed the Montana Department of Environmental Quality to evaluate the impacts of the greenhouse gas emissions of this proposal. To date the EA only contains one sentence that addresses this. I don't think this is what the Montana Supreme Court had in mind.	Yes	See Response to comments for 39 and 41
9	Here's a picture of what is coming out of the stacks of the Yellowstone County Generating Station in Laurel (picture attached). This plant is stated as being a major source of hazardous air pollution, yet your greenhouse gas impact evaluation is horribly short-sighted and dangerous for Montanans. You basically are giving the green light to spew this additional pollution on top of the most populated county in Montana. I definitely don't agree with your analysis and would like to see a more thorough job with consideration to the population of the surrounding area. Redo your analysis.	Yes	See Response to comments for 39 and 41
10	To Montana DEQ --The Montana Supreme Court recently ruled that DEQ must evaluate the impacts of NWW's YCGS under the Montana Environment Protection Act (MEPA) in its Environment Analysis (EA). Instead of an analysis there is a one sentence generic statement, apparently taken from a 6th grade textbook, that would apply to all 50 states. Please	Yes	See Response to comments for 39 and 41

	rethink this shallow, dismissive approach to the Supreme Court's decision. Failure to do so will not only be a disservice to the citizenry. it will result in entirely justified additional litigation.		
11	Your analysis of the climate effects caused by operation of the Laurel Generating Station is woefully inadequate. You must include consideration of these impacts of greenhouse gas emissions upon Montana's climate, in as much detail as is feasible and practicable, and over the lifetime of the plant's operations: 1. The amount of CO2 emissions 2. The specific impacts upon agriculture and their monetary cost 3. The specific impacts upon outdoor recreation and their monetary cost 4. An accurate assessment of the increased frequency and severity of wildfires and the associated monetary costs 5. A citation of the estimated Social Cost of Carbon, e.g. estimated by the year 2030 to be from $140/ton of CO2 emitted to $380/ton.	Yes	See Response to comments for 39 and 41
12	Your one sentence comment on the global warming significance of the plant is inadequate. It makes no real effort to delineate the scope of the methane addition this plant will make to global warming. It fails to meet the requirement of the Montana constitution. It is nothing more than an attempt to avoid the global warming consequences of this fossil fuel plant.	Yes	See Response to comments for 39 and 41
13	I'm writing to implore you to do more thorough job of analyzing the Yellowstone County Generating Station's (YCGS) greenhouse gas emissions. Your actions (as always) will have long term implications for all Montana's. Please do what is right and what is also your legal obligation. I know you value rules and laws and this wonderful state. Please more thoroughly analyze the YCGS. We need the information if we are to understand and make informed decisions.	Yes	See Response to comments for 39 and 41
14	Despite the Laurel plant being a major emitter of greenhouse gas emissions in Montana, only one sentence in the EA addresses the plant's impact on the climate: "The impacts of climate change throughout the specified region of the state of Montana include changes in flooding and drought, rising temperatures, and the spread of invasive species (BLM 2021)." DEQ provided no analysis of how this increase in emissions may result in actual harm to Montanans. This pathetic excuse for MEPA	Yes	See Response to comments for 39 and 41

	review undermines all Montanans' right to a clean and healthful environment. There are many detailed reports of how the climate crisis will impact Montanans. In 2023, Montana Wildlife Federation released a detailed report of the economic impacts of the climate crisis on Montana outdoor recreation. In 2024, Farm Connect Montana released a detailed report of the economic impact of the climate crisis on Montana Agriculture. Both of these reports have extensive detail that DEQ should take into account. DEQ should undertake a meaningful analysis of the impacts of the plant's greenhouse gas emissions in its final EA, which is expected within a month or so.		
15	I am submitting public comment on the EIS on the Laurel Gas Plant. The statement is woefully inadequate and does not address the impact of climate change and how this plant exacerbates the situation. I strongly urge a THOUROUGH and COMPLETE Impact statement to be done, per the court's order.	Yes	See Response to comments for 39 and 41
16	I am disturbed by your inadequate draft environmental analysis of the methane gas plant near Laurel Montana. The draft has no analysis of the plant's impact on the climate. You need to do better. Please, climate change is real and looming large. It's already causing devastation not just to our environment, but to humans in the form of fires, storms, degradation to our land, air and water. We can't survive on a dead planet, and I don't see any other options for us humans.	Yes	See Response to comments for 39 and 41
17	To Montana DEQ, I am very concerned about the permitting of the Laurel Gas Plant, to make sure in the analysis that you are reviewing is complete. I am convinced NWE will do all it can to hide the negative impacts of this plant, both to the local community, who I know is opposed to it, to the possible effects it will have on our climate. Science has proven the continued release of CO2 into our atmosphere is changing our climate. For 20 years, I have been farming wheat, alfalfa, and grass hay in the Musselshell Valley. I have water rights from 1887, which in early years were sufficient to water my fields thru July. Recently, I have not had water available to me in the river, even in early to mid-June. Also, the high temperatures have started early in the summer and lasted well into September. Please	Yes	See Response to comments for 39 and 41

	be sure to require a full analysis of all impacts a large gas plant will have on all of us who live on and work the land.		
18	Good grief, the DEQ must give a detailed review and report of the greenhouse gas emissions in your environmental analysis! Please use your expertise and inform the public.	Yes	See Response to comments for 39 and 41
19	In January, the Montana Supreme Court ruled that the Montana Dept. of Environmental Quality (DEQ) must evaluate the impacts of NorthWestern Energy's Yellowstone County Generating Station's (YCGS) greenhouse gas emissions under the Montana Environmental Policy Act (MEPA) in its EA. DEQ has published a draft EA with not even a shred of analysis on the plant's impacts on the climate. Despite YGCS being a major emitter of greenhouse gas emissions in Montana, only one sentence in the EA addresses the plant's impact on the climate: "The impacts of climate change throughout the specified region of the state of Montana include changes in flooding and drought, rising temperatures, and the spread of invasive species (BLM 2021)."That's it. Nothing more. DEQ provided no analysis of how this increase in emissions may result in actual harm to Montanans. This pathetic excuse for MEPA review undermines all Montanans' right to a clean and healthful environment.	Yes	See Response to comments for 39 and 41
20	The Environmental Analysis (EA) performed by the Montana Dept. of Environmental Quality (DEQ) for NorthWestern Energy's Yellowstone County Generating Station(YCGS) greenhouse gas emissions is laughable. Even as a high-school paper it would receive an "F" grade. The EA is required to evaluate climate impacts, yet it contains NO material evaluation other than a vague statement that essentially says "stuff happens." It makes no attempt to evaluate what impact the project will have on the "stuff that happens." There is no analysis of how the project will affect the health of Montana citizens, the air they breathe, and the water they drink. DEQ doesn't even have to do all of the work -- other organizations have already done research and written reports detailing how climate will affect our agriculture and our outdoor economies and	Yes	See Response to comments for 39 and 41

	health. DEQ simply needs to be able to read and evaluate those consequences, consider what might be missing, and only fill in the missing parts. The EA is a pathetic example of agency neglect. DEQ is supposed to be looking out for the people of Montana, not national and international zillionaire corporations. Do your job, and do it right.		
21	In January, the Montana Supreme Court ruled that the Montana Dept. of Environmental Quality (DEQ) must evaluate the impacts of NorthWestern Energy's Yellowstone County Generating Station's (YCGS) greenhouse gas emissions under the Montana Environmental Policy Act (MEPA) in its EA. DEQ has published a draft EA with not even a shred of analysis on the plant's impacts on the climate. YGCS is a major emitter of greenhouse gas emissions in Montana. In the EA there is only one sentence about the plant's impact on the climate: "The impacts of climate change throughout the specified region of the state of Montana include changes in flooding and drought, rising temperatures, and the spread of invasive species (BLM 2021)." THIS IS UNACCEPTABLE AND IS NOT A FULL SCIENTIFIC AND WELL REEARCHED ANALYSIS!! I urge you – I remind you - of this court ordered responsibility that DEQ must evaluate impacts. This is crucial as we all know that to continue with more greenhouse gas emissions will have dire consequences for human life. Please review the research and advice of the United Nations Intergovernmental Panel on Climate Change (IPCC).	Yes	See Response to comments for 39 and 41
22	The MEPA analysis for NorthWestern Energy and the Yellowstone County Generating Station is not adequate given the amount of greenhouse gases the plant will produce. Climate change involves every aspect of our lives in Montana, and we need to go deeper with the assessment.	Yes, actual comment submitted is from MEIC etal, #39	See Response to comments for 39 and 41
23	We are planning on submitting comments regarding the DEQ's Supplemental Draft EA for Montana Air Quality Permit #5261-00. Our comment letter references a list of exhibits, which I was planning on uploading to Montana's File Transfer Service, using DEQAir@mt.gov as the recipient email address. Can	Yes	See Response to comments for 39 and 41

	someone confirm that this will work for the reviewers?		
24	In January, the Montana Supreme Court ruled that the Montana Dept. of Environmental Quality (DEQ) must evaluate the impacts of NorthWestern Energy's Yellowstone County Generating Station's (YCGS) greenhouse gas emissions under the Montana Environmental Policy Act MEPA) in its EA. Despite YGCS being a major emitter of greenhouse gas emissions in Montana, only one sentence in the EA addresses the plant's impact on the climate: "The impacts of climate change throughout the specified region of the state of Montana include changes in flooding and drought,rising temperatures, and the spread of invasive species (BLM 2021)." DEQ should please undertake a meaningful analysis of the impacts of the plant's greenhouse gas emissions in its final EA, which is expected within a month or so. I ask that DEQ conduct a thorough analysis of this.	Yes	See Response to comments for 39 and 41
25	I urge you to take a harder look at the predictions regarding the mid century consequences of climate change in Montana, which will be exacerbated by NorthWestern's methane plant near Laurel. According to a report released by the Montana wildlife Federation, climate change would lead to the loss of 8,800 outdoor recreation jobs, with $263 million in labor earnings. An economic report about climate change impacts on agriculture predicts the loss of more than 9,500 jobs and more than $181 million in labor earnings in the crop and livestock sectors. Such losses include a 20% drop in grain crop yield, leading to a 5000 loss in labor jobs, totalling$95 million in earnings. A decline in the cattle sector, including 4,500 jobs and $86 million in labor earnings is predicted. Rural areas and small towns, especially in eastern Montana will be hit the hardest by the ensuing population drain.	Yes	See Response to comments for 39 and 41
26	The Montana Supreme Court ruled that DEQ must evaluate the impacts of Northwestern's YCGS greenhouse gas emissions. The evaluation was one sentence long. In my opinion, this is like a teacher assigning a three page report on the Civil War and getting one sentence: "A lot of people were killed". I hope that the Montana Supreme Court will rightfully	Yes	See Response to comments for 39 and 41

	regard this "evaluation" as completely inadequate and an affront to the jurisdiction of the Court.		
27	Northwestern Energy should not be allowed to burn gas at Laurel and by ignoring global warming your EA is totally deficient. It boggles the mind to think you ignored the biggest environmental issue there is, right after a District court ruled that the state must consider greenhouse gases as pollutants. On top of that, the plant isn't even economical. Solar, wind, and geothermal mixed with conservation and smart billing— known as Ckean Energy Portfolios— are cheaper than gas fired generation. Which is why several states including even conservative states like Idaho Indians and Colorado have committed to and well on their way to carbon free electrical generation exclusively. So, be responsible, stop pandering to the frackers and drillers, and get serious about working for badly needed change. Even brand new gas plants will be underwater—- cheaper to tear down than to operate—- by 3035 according to Rocky Mountain Institute. This plant will go down in history as the biggest most fraudulent boondoggle in Montana history. Please do your job and protect our environment by cancelling this plant	Yes	See Response to comments for 39 and 41
28	I am a concerned citizen of Montana who lives in Gallatin Gateway. I worked in Billings for 36 years. I am concerned about the draft environmental analysis for Northwestern's methane gas plant near Laurel. It is very inadequate. In January the Montana Supreme Court charged DEQ to evaluate the impacts of the proposed plant's greenhouse gas emission in its environmental analysis. Despite the plant being a major emitter of greenhouse gas emissions in Montana only one sentence in the analysis addresses the plant's impact on the climate. This is not inadequate evaluation. DEQ should undertake a meaningful analysis of the impacts of the plant's greenhouse emissions in its final environmental analysis. Montanans have a right to a clean and healthful environment.	Yes	See Response to comments for 39 and 41
29	Once, again the MT DEQ is pandering to industry at the expense of Montanan's health and natural environment. The NorthWestern Energy's Yellowstone County Generating Station's (YCGS) will be a significant emitter of greenhouse gases. MT DEQ has published a draft EA with not even a shred of analysis on the plant's impacts on the	Yes	See Response to comments for 39 and 41

	climate. There is only one sentence in EA that addresses the plant's impact on the climate. The impacts of climate change throughout the specified region of the state of Montana include changes in flooding and drought, rising temperatures, and the spread of invasive species (BLM 2021). A single sentence. That's it. There's no assessment about how climate change will impact Montana's recreation economy, agriculture economy, the health of vulnerable populations, or how detrimental it is rivers and aquatic ecosystems. Nothing. MT DEQ is abdicating it's constitutional responsibility to ensure Montanans have a clean and healthy environment. This is absolutely unacceptable. An entirely new EA is required for the YCGS and needs to include a comprehensive assessment of climate change impacts associated with this horrible project. It is time for the MT DEQ to do it's job.		
30	Please consider the genesis of our DEQ and take action to actually undertake an in-depth analysis of the operation of Northwestern Methane Plant in Laurel's immediate, physical affects on its' surrounding environment. Then exercise your mandated duties and analyze the potential changes that the Plant will bring to local and regional climate and how it will affect the health of the flora and fauna in our beautiful and fragile Montana. We owe our grandchildren a legacy of responsible development of energy sources. There is legitimate concern that to date, you folks are not giving adequate attention to negative consequences that will endure longer than any of those of us now alive.	Yes	See Response to comments for 39 and 41
31	I'm writing about the draft MT DEQ environmental analysis concerning the impact that methane use in electricity generation might have on Montanans. I am a retired science teacher, from Grass Range, and I had my HS students study the 2017 Montana Climate Assessment so they would be familiar with the impacts on climate change to their ranches (most were from ranching families). Here is the link in case the DEA needs to use that information to create a more thorough EA. https://montanaclimate.org/chapter/executivesummary [montanaclimate.org] Despite the fact that the YGCS will be a major emitter of greenhouse gases in Montana, only 1 sentence in the EA addresses the	Yes	See Response to comments for 39 and 41

	plant's impact on climate. More analysis needs to be done to prevent undermining Montanans' right to a clean and healthy environment, as guaranteed by our Constitution.		
32	I am writing to comment on the completely inadequate Draft Environmental analysis for NW Energy's methane gas plant in Laurel Montana. With only one sentence referring to climate change and no analysis of the climate change impacts on Montana this document is incomplete. The YCGS is a major emitter of greenhouse gases. Climate change is impacting Montana and those impacts will increase in the future if we do not take action to reduce greenhouse gas emissions. How can citizens and legislators make good decisions for our future without complete analysis of Greenhouse gas emissions and their impacts on our state? This analysis is possible and available with current data. In our own state in 2023 the Montana Wildlife Federation did a detailed report on the economic impacts of Climate Change on outdoor recreation. The second largest part of our economy in Montana. In 2024 Farm Connect Montana did a report on the economic impacts of Climate Change on Montana agriculture. The largest part of our economy in Montana.	Yes	See Response to comments for 39 and 41
33	In January, the Montana Supreme Court ruled that the Montana Dept. of Environmental Quality (DEQ) must evaluate the impacts of NorthWestern Energy's Yellowstone County Generating Station's (YCGS) greenhouse gas emissions under the Montana Environmental Policy Act (MEPA) in its EA. DEQ has published a draft EA with not even a shred of analysis on the plant's impacts on the climate.	Yes	See Response to comments for 39 and 41
34	Despite YGCS being a major emitter of greenhouse gas emissions in Montana, only one sentence in the EA addresses the plant's impact on the climate: "The impacts of climate change throughout the specified region of the state of Montana include changes in flooding and drought, rising temperatures, and the spread of invasive species (BLM 2021)." That's it. Nothing more. DEQ provided no analysis of how this increase in emissions may result in actual harm to Montanans. This pathetic excuse for MEPA review undermines all Montanans' right to a	Yes	See Response to comments for 39 and 41

	clean and healthful environment. There are many detailed reports of how the climate crisis will impact Montanans. In 2023, Montana Wildlife Federation released a detailed report of the economic impacts of the climate crisis on Montana outdoor recreation [montanawildlife.org]. In 2024, Farm Connect Montana released a detailed report of the economic impact of the climate crisis on Montana Agriculture [farmconnectmontana.org]. Both of these reports have extensive detail that DEQ should take into account. DEQ should undertake a meaningful analysis of the impacts of the plant's greenhouse gas emissions in its final EA which accurately reflects its actual harm to the people of Montana.		
35	I am writing to request a full and complete Environmental Analysis be completed prior to any actions on the Laurel Northwestern methane gas plant. The current "1 sentence" document is absolutely inadequate for any State of Montana project. Pease follow the law and the Montana Constitution and complete a full EA. This plant will/is a major emitter of greenhouse gas.	Yes	See Response to comments for 39 and 41
36	Responsible use and care of Montana's environment is your job.Yet you have failed to do an adequate job of providing a detailed and specific analysis of the impact of North Western's Yellowstone County generating station greenhouse gas emissions. This is extremely short-sighted. Because once the air has been polluted, the damage is done. It is also basically saying that the health and lives of Montanans don't matter, and that we are expendable. Please do a proper job of evaluating and reporting the risks we face -- and how those risks might be mitigated.	Yes	See Response to comments for 39 and 41
37	Relative to climate change considerations, this Draft EA is woefully inadequate, to the point of being contemptuous of the District Court and Supreme Court decisions (Held v. Montana) on climate considerations being necessary in air quality discharge permitting. No analytical supporting analysis is provided to conclude that that discharges from this facility will be insignificant. In fact, we know that greenhouse emissions are already impacting the clean and healthy environment to which Montanans	Yes	See Response to comments for 39 and 41

	are entitled. Please send this report back to those responsible and do an analysis commensurate with and fully compliant with the court's decisions in this matter.		
38	I write with concern about the completely inadequate draft environmental assessment that DEQ recently released regarding the Laurel/Yellowstone County Generating Station. This EA almost completely ignores the significant impacts this plant will have on climate pollution levels. DEQ must undertake a comprehensive review of the greenhouse gas emissions of this facility on nearby areas and our entire state. Anything less is a dereliction of DEQ's duty to uphold our constitutional right to a clean and healthful environment. Montanans are entitled to the full picture of the climate and environmental impacts of such a massive project	Yes	See Response to comments for 39 and 41
40	The Department of Environmental Quality (DEQ) assessment of Northwestern Energy's Laurel Plant doesn't have a single bit analysis on the plant's impact on the climate. The EA is artificially limited to annual emissions, but over the expected lifetime of the plant it will emit more than 25 million tons of CO2e. DEQ should undertake a meaningful, honest assessment of the plant's greenhouse gas emissions in its final analysis..	Yes	See Response to comments for 39 and 41
42	I am writing to indicate my great concern about the DEQ's disregard of basic requirements in their environmental assessment of the Yellowstone County Generating Station (YCGS) (also known as the Laurel Generating Station - LGS). The plant's greenhouse gas emissions must be taken into account when providing an environmental assessment, as the air we breathe in Montana is critically affected by the emissions of this plant. The environmental impact of this plant is excessive, and places a burden on the people of Montana that should be eliminated by pursuing green technology (hydro, wind, solar, storage technology) instead. Without a solid and trustworthy environmental impact statement, based on objective science, the plant should not be permitted to operate. I demand a thorough analysis of environmental impacts and allow every Montana resident to provide feedback on the complete assessment.	Yes	See Response to comments for 39 and 41

43	The Montana Supreme Court ordered the Montana DEQ to include an analysis of climate change impacts in your Environmental Assessment of Northwestern's new methane plant near Laurel, and yet you have not done this. How could this be!? How could a power plant which will, over the coming years, spew more than 25 million tons of CO_2 NOT have a massive negative impact on our climate!? The answer is: it will have a huge negative impact on the climate crisis. Specifically in Montana the Laurel/Yellowstone County Generating Station will contribute to worsening drought in our state resulting in more and more intense wildfires. This NWE power plant, which will bring great financial returns to NWE's CEOs and shareholders will inevitably result in major flooding as it contributes to and worsens climate change. This plant's climate toll will have severe negative impacts on Montana farmers and on Montana's tourism economy. And the Yellowstone/Laurel generating plant will cause severe risks to human health and threaten both animal and plant species. How can you not have done the impact assessments on climate change that you are required to?! DEQ needs to get back to work on your draft EA and do it responsibly this time!	Yes	See Response to comments for 39 and 41
44	In January, the Montana Supreme Court ruled that the Montana Dept. of Environmental Quality (DEQ) must evaluate the impacts of NorthWestern Energy's Laurel methane gas plant's greenhouse gas emissions under the Montana Environmental Policy Act (MEPA). DEQ has issued a draft environmental assessment (EA) with not even a shred of analysis on the plant's impacts on the climate. DEQ provided no analysis of how this significant increase in emissions may result in actual harm to Montanans. This EA is also artificially limited to looking at annual emissions, but over the proposed lifetime of the plant, it will emit more than 25 million tons of CO2e – that's equivalent to 5,831,382 gasoline-powered passenger vehicles driven for one year. As a MT citizen, I am asking you to do a thorough job of following the MT Supreme Court's ruling. It is the least you can do for the health and welfare of all Montanan's.	Yes	See Response to comments for 39 and 41

45	To the DEQ officials responsible for permitting the Yellowstone County Generating Station (also known as the Laurel Generating Station): I am extremely concerned that virtually no analysis was conducted to evaluate the potential harms to Montanans from the massive greenhouse gas emissions that will be emitted from the Yellowstone County Generating Station. Estimated emissions over the lifetime of the plant amount to approximately 25 million tons of CO2e. MEPA requires DEQ to thoroughly analyze pollution impacts of major sources and to inform the public of potential harms. The current EA for the YCGS has only one sentence dealing with impacts from greenhouse gas emissions, and it is so broad and vague that it is meaningless. The Montana DEQ has an obligation to conduct a legitimate MEPA review for this project, and as a Montanan who is very concerned about climate change, I strongly urge you to do so.	Yes	See Response to comments for 39 and 41
46	DEQ's MEPA analysis in its Draft EA of the Yellowstone County Generating Station (YCGS) and Laurel Generating Station (LGS) was so incomplete it is pathetic. I and all Montana citizens now and in the future deserve better from this agency. I call on DEQ to do its job in preparing the final EA and perform a thorough, scientific and meaningful analysis of the impacts of the greenhouse gas emissions from the YCGS/LGS over the plant's lifetime.	Yes	See Response to comments for 39 and 41
47	The MT DEQ draft EA for the Laurel Generating Station does not adequately address the methane gas plant's effects on climate as required under MEPA. The greenhouse gas emissions from this facility will undoubtedly have negative economic and human health effects, yet the EA does not attempt to assess or even acknowledge these effects. It also fails to analyze these impacts utilizing relevant baseline studies and reports relating to Montana's changing climate that could be incorporated into a more meaningful environmental analysis. It is critically important to include a summary of how the cumulative impact of methane emissions over the life of the plant will affect thenlives and livelihoods of future generations of Montanans.	Yes	See Response to comments for 39 and 41

48	I am very concerned about the proposed methane facility. MEPA's impact statement is inadequate, failing to even address climate change. Please do not support this project until MEPA does its job.	Yes	See Response to comments for 39 and 41
49	I am writing to express my dismay at the lack of a thorough environmental impact analysis of the proposed Yellowstone County Generating Station (YCGS) and Laurel Generating Station (LGS). Only one sentence, "The impacts of climate change throughout the specified region of the state of Montana include changes in flooding and drought, rising temperatures, and the spread of invasive species (BLM 2021)," does not begin to assess the impact on the health of Montanans. I am a grandmother of two young boys. I am urging you to assess with due diligence the impact of these proposed generating stations because they will have a huge impact on the lives of my grandsons and all children in Montana.	Yes	See Response to comments for 39 and 41
50	For the sake of the longterm impacts on Montanans' health and wellbeing DEQ must provide more detailed information about how the cumulative impacts of the Laurel Gas Plant's emissions over its projected lifetime to address the droughts and floods climate change can cause that will have potentially huge impacts on Montana's farmers, food supply and Montana's agricultural production, a primary driver of Montana's economy. Please anticipate Montana's potential future climate impacts on all of us who live here by providing relevant information in the ESA for Northwestern Energy's Laurel Gas Plant as ordered by the Montana Supreme Court.	Yes	See Response to comments for 39 and 41
51	The DEQ review under MEPA for the Laurel Generation Station is woefully inadequate and can hardly be called an analysis. The major emissions produced by the plant will significantly harm Montanans and jeopardize our right to a clean and healthy environment. It is not sufficient to limit review to only annual emissions and ignore the lifetime impact. Numerous legitimate studies have been done on the harms to Montana from carbon emissions.	Yes	See Response to comments for 39 and 41

	These should have been utilized in a fair analysis. Please reject this sham analysis and do it right.		
52	Do your job and protect our environment. Over the course of its lifetime the Laura Generating Station will emit more than 25,000,000 tons of CO2e into the atmosphere. In January, the Montana Supreme Court ruled that the Montana Dept. of Environmental Quality (DEQ) must evaluate the impacts of NorthWestern Energy's Laurel methane gas plant's greenhouse gas emissions under the Montana Environmental Policy Act (MEPA).	Yes	See Response to comments for 39 and 41
53	I am outraged at how incomplete the EA for the Laurel Generating Station / Yellowstone County Generating Station is. There is only one sentence addressing Climate Change due to greenhouse gas emissions. You must not make a decision based on this incomplete report. I urge you to reject this application. DO YOUR JOB	Yes	See Response to comments for 39 and 41
54	I am outraged at how incomplete the EA for the Laurel Generating Station / Yellowstone County Generating Station is. There is only one sentence addressing Climate Change due to greenhouse gas emissions. Please don't make a decision based on this report. I would like you to please reject this application. Could you do YOUR JOB?	Yes	See Response to comments for 39 and 41
55	I would like you to please conduct thorough analyses of the greenhouse emissions in the final EAs for YCGS and LGS. Please hold these plants to high standards to protect our air and water! We have a right to a clean and healthful environment, and I expect you to do your job and protect it against polluters. Thank you very much for listening to the people, not just the big companies!	Yes	See Response to comments for 39 and 41
56	The MT DEQ should undertake a meaningful analysis of the impacts of the (YCGS) & ((LGS) generating stations on greenhouse gas emissions in its final EA. These are highly polluting generating sources (YCGS) & (LGS) and all the impacts on the climate should be examined.	Yes	See Response to comments for 39 and 41
57	This comment is for DEQ's draft environmental impact statement for Yellowstone County Generating Station (YCGS) and Laurel Generating Station (LGS). It does not adequately evaluate the impacts of NorthWestern Energy's Laurel	Yes	See Response to comments for 39 and 41

	methane gas plant's greenhouse gas emissions under the Montana Environmental Policy Act (MEPA). There is no analysis on the plant's impacts on the climate. DEQ should undertake a meaningful analysis of the impacts of the plant's greenhouse gas emissions in its final EA		
58	The draft EA fails to adequately consider the impacts of the greenhouse gas emissions from the YCGS. The plan does not evaluate the economic impacts on Montanans, nor human health impacts, nor impacts on human mortality, nor impacts on food security (global and local), nor biodiversity nor environmental health. There are a variety of available studies which report the impacts of all these issues on Montanans specifically, as well as across the planet. While the plan acknowledges that the plant will create an increase in GGE of up to 1.38 %, the plan does not consider the plant's life-time emissions. This is an oversight given that CO2 (the plant's primary GGE) persists in the atmosphere for centuries, and that the cumulative impacts of these emissions will impact life on this planet (and in this state) for many generations. A large part of Montana's overall GGE are composed of gases with much shorter lifespans (eg methane lasts 10 years, and N20 lasts about 100). Additionally, while the 1.38% number sounds small, the plan does not address that Montana's per capita GGE are already several times that of the US average, and 4 times that of the global average. This makes the increase, in relative terms, 5.5%. Furthermore, we are at a point in time when we should be rapidly decreasing GGE (NWE's own Net-Zero Plan acknowledges this fact). Any increase is in the wrong direction, especially when renewable alternatives are cost effective and reliable. It is inaccurate to assume that if this plant were not created that we would need another fossil fuel plant to generate an equivalent amount of power. Please update this EA to include the broad, deleterious impacts of climate change, including the impacts on human and ecological health, and economics. It is clear that humans will die from unmitigated climate change. This plan ought to make a good attempt to estimate how many Montanans lives, and how many dollars, will be lost due to YCGS's	Yes	See Response to comments for 39 and 41

	emissions. Anything less is grotesquely inadequate.		
59	I believe that it would be appropriate for the DEQ to complete a thorough analysis of the YCGS. The implications of the potential negative impact on the environment and the health of our citizens is too grave to overlook.	Yes	See Response to comments for 39 and 41
60	Asking DEQ to undertake a meaningful analysis of the impacts of the YCGS & LGS plant's greenhouse gas emissions in its final EA, which is expected within a month or so. I demand that DEQ conduct a thorough analysis of this mega-polluter.	Yes	See Response to comments for 39 and 41
61	The draft EA for NorthWestern Energy's methane gas plant near Laurel is woefully inadequate as to the effects of the plant's greenhouse gas emissions on climate and the health of Montanna citizens – both annually and over the life of the plant. DEQ must conduct a thorough and meaningful analysis of the plant's greenhouse gas emissions in its final EA as the Montana Supreme Court has ordered!	Yes	See Response to comments for 39 and 41
62	It appears that DEQ has not taken seriously its responsibilities to disclose greenhouse gas impacts to the public and decisionmakers. I believe there is only 1 sentence in the analysis that addreses climate change, and that it is extremely summary & conclusory. It does not take the requisite hard look required under MEPA & the MT Supreme Court's decisions. Please conduct an adequate environmental review that meaningfully discloses & evaluates the environmental impact of this project.	Yes	See Response to comments for 39 and 41
63	The DEQ needs to conduct a thorough analysis of the Yellowstone County Generating Station and Laurel Generating Station! The people of Montana need that work done.	Yes	See Response to comments for 39 and 41
64	The entire climate assessment in the current EA of the Laurel Generating Station (LGS)'s impact is summed up by 28 words with no calculations. As an engineer, who makes stuff work by doing calculations to inform designs and their impacts, this is simply unacceptable. Lack of proper calculations, and understanding of the calculations, for environmental issues can be summed up by this famous visual https://www.youtube.com/watch?v=KRutAt0FlG	Yes	See Response to comments for 39 and 41

	A[youtube.com] episode where proper environmental engineering analysis was not included as necessary. If the DEQ is technically incapable of, or politically prevented from, doing the required environmental analysis of the Yellowstone County Generating Station (YCGS) then the state through the DEQ should be required to fund an independent 3rd party analysis.		
65	The Montana Supreme Court has ruled that Montana DEQ must evaluate the impacts of NorthWestern Energy's Laurel Generating Station's greenhouse gas emissions under the Montana Environmental Policy Act (MEPA). However, the draft environmental assessment (EA) issued by DEQ does not adequately address the plant's impacts on the climate. The EA only looks at one year of emissions—it should look at emissions over the full expected lifetime of the plant. While briefly acknowledging that the plant's emissions will contribute to climate change which is likely to increase flooding and drought, the frequency of higher temperatures and the spread of invasive species, there is no quantitative analysis of impacts on Montana recreation industry, agriculture, and human health. Analytical reports on these have been provided by Montana Wildlife Federation, Farm Connect Montana and in the report Climate Change and Human Health in Montana. The final EA should provide this more detailed analysis. Frankly it seems to me that an EIS would be more appropriate	Yes	See Response to comments for 39 and 41
66	The recent environmental assessment that was done by the DEQ I was informed is artificially limited to looking at annual emissions. I learned over the proposed lifetime of the plant, it will emit more than 25 million tons of CO2e – that's equivalent to 5,831,382 gasoline-powered passenger vehicles driven for one year. The state of Montana should be protected from these emissions this plant will produce. Our planet is already in a dire situation with global warming threatening our planet on a daily basis. Why would we want to allow this plant to emit this amount of CO2e into Montana's environment? This amount of greenhouse gas emissions will cripple our state and once it is done, we won't be	Yes	See Response to comments for 39 and 41

	able to get it back. I am asking DEQ to protect my right and the right of all Montanans to a clean and healthy environment I am imploring the DEQ to undertake a meaningful thorough analysis of the impacts of this plant's greenhouse gas emissions in your final environmental assessment.		
67	The Montana Supreme Court, January 2025, ruled that DEQ evaluate NWE's methane gas plant's greenhouse gas emissions in the EA. DEQ wrote one sentence addressing this issue. Does DEQ think this is what the Montana Supreme Court had in mind when they issued their ruling?	Yes	See Response to comments for 39 and 41
68	You must be kidding! The Montana Supreme Court ordered your agency to evaluate the impacts of NorthWestern Energy's Laurel methane gas plant and its greenhouse gas (GHG) emissions under the Montana Environmental Policy Act (MEPA). You failed ... and then some. There is absolutely no doubt that the Laurel Generating Station will create a huge volume of GHG emissions. Over its lifetime, the plant will generate more than 25 million tons of CO2. This will make the station one of the largest CO2 emitters in all of Montana, with huge impacts on our state's ecology and economy. Yet all you could muster in your draft EA was one sentence: "The impacts of climate change throughout the specified region of the state of Montana include changes in flooding and drought, rising temperatures, and the spread of invasive species (BLM 2021)." If this were a high school paper assignment, to truly evaluate the GHG and climate impacts of the Laurel plant, you would get an F. To respond to the Supreme Court in this way means you and the plant will get yanked back into court, until you can get your act together and deliver a thorough, science-based evaluation of how the Laurel Plant will have an enormous and deleterious impact on Montana's climate and future. Get with it, DEQ, do your job! Take your ridiculously inadequate EA back to the drawing board and come back with a real analysis of the Laurel Plant.	Yes	See Response to comments for 39 and 41
69	I am writing as a concerned citizen about the superficial nature of the environmental assessment done for the impact of the Laurel	Yes	See Response to comments for 39 and 41

	Generating Plant, aka Yellowstone County Generating Station. I am particularly concerned that the assessment done did not address the cumulative impact over the lifetime of the plant. Please consider a more comprehensive assessment; including all the impacts of this development including human health, increased impacts on agriculture, potential increased wildfires, economic impacts throughout Montana		
70	Your environmental analysis of these gas plants has NOT been a thorough one! Our Montana Constitution guarantees us a clean and healthy environment, but you appear to have no concern about releasing MILLIONS of tons of methane into earth's atmosphere. The arctic permafrost is rapidly melting, it's methane release probably can't be controlled, but YOU can prevent YCGS and LGS from such a disaster! Montanans are demanding a full MEPA review. JUST DO IT!	No	Thank You for your comment.
71	You cannot believe anything that Northwestern Energy says: the deplorable shape they maintain the once emerald of the Missouri, Ryan Island Park Picnic Area is shot – no one in Great Falls talks about this park anymore and we don't take visitors there it is such an embarrassment AND is symbolic of how NWenergy maintains all of their operating capital. Their attitude is: "Frankly, my dear, I don't give a damn" a line from the 1939 film Gone with the Wind starring Clark Gable and Vivien Leigh "We the people of Montana, grateful to God for the quiet beauty of our state, the grandeur of our mountains, the vastness of our rolling plains, and desiring to improve the quality of life, equality of opportunity and to secure the blessings of liberty for this and future generations do ordain and establish this constitution. June 6, 1972	Yes	See Response to comments for 39 and 41
72	By Montana law, DEQ's assessment must evaluate the impacts of this power plant, and specifically the greenhouse gas emissions of the power plant. But the draft plan does not do that. It contains one sentence that basically acknowledges the general idea of climate change. It doesn't mention the cause of climate change, the sources of greenhouse gases, or provide any analysis of greenhouse gas	Yes	See Response to comments for 39 and 41

	emissions from the Laurel Generating Station. This draft EA fails to meet the legal requirements. Honestly, it's also an embarrassment to your department and to the state of Montana. Montana's Supreme Court has made it perfectly clear that you are required to analyze the impacts of greenhouse gases. In fact, your own web page shows an intention to do just that: "The Draft Environmental Assessment analyzes potential lighting and greenhouse gas impacts of the proposed permit action on the affected human environment." Except there's one important thing missing - an actual analysis! The DEQ has blatantly disregarded their legal requirements. You are not above the law. People fought hard to make sound public policy in our state. You don't get to choose which parts of it you feel like following. I expect to see an actual analysis in the revised version of the environmental assessment		
73	Please do not allow the gas plant to get a pass ! The environment that you are to protect as a part of our rights in our constitution do not allow you to cut corners and rubber stamp this carbon producing development! Do you part to help address the climate crisis that is caused 80% by burning Carbon fuels! WE need strong and effective regulation and must hold MWE to the legal standards we the people have set by our legislators in Helena! Do not let them sway you to short cut the standards	Yes	See Response to comments for 39 and 41
74	It is shocking to me that there is not a meaningful climate impact analysis on this generating station! I respectfully request that the DEQ do a thorough climate impact analysis and the potential harmful effects of this mega polluter. It is imperative that we protect our beautiful state and our citizens. Montana has many instances of large corporations harming our state and causing a multitude of health problems. We can't assume that this will not happen again and we do not want to go backwards. Thank you in advance for doing the right thing which is to do a meaningful climate impact analysis	Yes	See Response to comments for 39 and 41
75	DEQ's draft EA on NW Energy's YCGS & LGS is hideously inadequate! As ruled by our Montana Supreme Court, DEQ is to provide a	Yes	See Response to comments for 39 and 41

	comprehensive evaluation and analysis per MEPA that clarifies the negative impacts on us Montanans from this plant's ongoing pollution of methane greenhouse gas emissions and the proliferating effect the pollution has on our warming climate. NW Energy has run amok with this project & DEQ needs to get things right this time - anything less is irresponsible and unacceptable		
76	The Montana Supreme Court ruled that the Montana Dept. of Environmental Quality (DEQ) must evaluate the impacts of NorthWestern Energy's Laurel methane gas plant's greenhouse gas emissions under the Montana Environmental Policy Act (MEPA). Where is the detailed evaluation of the impacts? This plant is a major emitter of new greenhouse gas emissions in Montana. This plant is 2 miles from downtown Laurel, on the banks of the Yellowstone River and upwind and upstream from the largest city in Montana; Billings. The emissions from this plant, which Montanans did not need, (Solar and Wind with batteries would have had NO greenhouse and other polluting emissions), are significant. Northwestern Energy admitted in its June 2021 revised air quality permit application that it must be designated a "MAJOR SOURCE OF HAZARDOUS AIR POLLUTANTS (HAPs). Pollutants from its MT air quality permit #5261-00., and their risks per EPA and National Cancer Institute: Greenhouse gases - 25 million tons over the life of the plant. That's equivalent to 5,831,382 gasoline-powered passenger vehicles driven for one year Formaldehyde=49.4 tons / year. (Formaldehyde exposure may cause multiple types of cancer including leukemia and cancers of the paranasal sinuses and nasal cavity) This level of Formaldehyde pollution is 5 times over the amount, 10 tons per year , causing the designation of MAJOR SOURCE OF HAZARDOUS AIR POLLUTANTS. Particulate Matter - 103.8 tons/year - Microscopic solids or liquid droplets that are so small that they can be inhaled and cause serious health problems. Some can get deep into your lungs and bloodstream. Cross the placental fetal barrier. Sulfur Dioxide - 14.1 tons/year. - Human exposure to SO2 can harm the human	Yes	See Response to comments for 39 and 41

	respiratory system and make breathing difficult. Volatile Organic Compounds (VOCs) 165.4 tons/year. VOCs can cause damage to the liver, kidney, and CNS. Some are suspected or known to cause cancer in humans. There are many detailed reports of how the climate crisis will impact Montanans. In 2023, Montana Wildlife Federation released a detailed report of the economic impacts of the climate crisis on Montana outdoor recreation [meic.us20.list-manage.com]. In 2024, Farm Connect Montana released a detailed report of the economic impact of the climate crisis on Montana Agriculture [meic.us20.list-manage.com]. And of course, there is the comprehensive Montana Climate Assessment [meic.us20.listmanage.com]and the report on Climate Change and Human Health in Montana [meic.us20.list-manage.com]. All of these reports have extensive detail that DEQ should take into account. DEQ should undertake a meaningful analysis of the impacts of the plant's greenhouse gas emissions in its final EA		
77	Received late. DEQ should please undertake a meaningful analysis of the impacts of the plant's greenhouse gas emissions in its final EA, which is expected within a month or so. I ask that DEQ conduct a thorough analysis of this mega-polluter.		See Response to comments for 39 and 41

The comments below provide DEQ's responses to public comments received.

DEQ Responses to Comments Received on the Supplemental EA

DEQ has provided detailed responses to comments #39 and #41, and all other comments received are directed to DEQ responses for specific elements of #39 and #41.

Comment #39

Response to comment identified as #39 (MEIC et al). This comment letter is addressed first by DEQ as it contains numerous topics that will be referenced by most of the other public comments received. These DEQ responses are numbered based on the order of the over-arching topics within this specific comment letter. This section is specific to the file saved into the Air Quality Bureau (AQB) project file as 39.1. Comments below are identified for 39.1a thru 39.1k.

39.1a–f These comments collectively state that DEQ has to comply with the Montana Supreme Court's opinions in Held and the Laurel (Yellowstone County Generating Station) case.

DEQ has complied with the Montana Supreme Court findings in *Held v. State*, 2024 MT 312, 419 Mont. 403, 560 P.3d 1235, and *Mont. Env't Info. Ctr. v. Mont. DEQ*, 2025 MT 3, 420 Mont. 150, 561

P.3d 1033 (*MEIC*, 2025 MT 3) by conducting a MEPA assessment for greenhouse gas (GHG) emissions and climate change impacts related to the proposed action. Of note, the Montana Supreme Court's holding in Held was "not limited to any particular set of facts as Plaintiffs facially challenge the constitutionality of the MEPA Limitation."[1] The Montana Supreme Court, accordingly, did not opine on the particular methodology that DEQ must use in considering GHG impacts under MEPA. Instead, by declaring the prohibition on an agency's consideration of climate change and GHGs that previously existed in § 75-1-201(2)(a), MCA (2023), the Montana Supreme Court only requires "that DEQ follow its MEPA obligations to conduct an adequate analysis in an environmental assessment or environmental impact statement—which in this case, includes evaluating GHGs in its analysis of the YCGS air quality permit."[2] Thus, the ordinary obligations that DEQ must adhere to in evaluating any impact—including GHG and climate impacts—apply to this EA.

39.1g Regarding comment titled, Review and include in its analysis the significant body of scientific research documenting the impacts of climate change in structuring GHG analysis.

DEQ acknowledges that global GHG impacts are occurring and that increasing global GHG concentrations influence climate trends in Montana. DEQ has previously affirmed that climate change is happening by adopting and referencing technical documents, such as the BLM 2023 report. DEQ does not dispute the common themes of climate impacts, including more extreme weather events, rising sea levels, and shorter winters.

These types of events are identified in the BLM reports that DEQ has referenced in recent GHG assessments. They are also well referenced in many exhibits submitted by commenter #39, specifically those prepared by the Intergovernmental Panel on Climate Change (IPCC) under the auspices of the United Nations. While DEQ recognizes that multiple IPCC exhibits present potential climate change impacts, sometimes with confidence levels and general timelines for occurrence, these reports do not specify localized events. Instead, these reports identify potential impacts and trends based on developed models.

DEQ maintains that its review of scientific documentation on climate change, particularly concerning GHG levels, is comprehensive. DEQ has more confidence in preparing annual GHG estimates that continue for the facility's operational life. Further, models from sources such as the IPCC are typically based on annual emissions. While it is certainly possible to develop models that account for the project's full lifecycle GHG emissions, those models are prone to obsolescence if they don't match the actual lifespan of equipment. For the purposes of this Final EA, NWE has stated the operational life of the facility would be 30 years.

1 *Held*, ¶ 54; *see also id.*, n.9 ("Plaintiffs here demonstrated standing not by alleging facts that the MEPA Limitation was unconstitutional because of how the State applied it to a particular permit but because they sufficiently alleged that the MEPA Limitation unconstitutionally infringes on their right to a clean and healthful environment.").
2 *MEIC*, 2025 MT 3, ¶ 59.

39.1h Regarding comment titled, Explicitly evaluate the projected direct GHG emissions from projects.

DEQ finds that comparing the project's annual GHG inventory to Montana's annual reported GHG inventory is the most appropriate measure for contextualizing this impact. DEQ, as fundamental to its GHG methodology, utilizes the EPA-developed State Inventory Tool (SIT). The SIT represents the best available publicly available information for Montana's GHG inventory. DEQ currently uses the 2021 inventory run, which estimates a total of 47.77 million metric tons of CO_2e. By comparing projects to this total, DEQ can assess whether projects would increase the annual GHG emissions, or, in cases involving carbon sinks, contribute to a reduction through CO_2 sequestration. Although a 2022 version of the SIT total is available, it has not yet been adopted by the State of Montana. This is in part due to ongoing modifications by the EPA to the SIT's underlying assumptions, which results in slightly shifting baselines. Therefore, the 2021 total of 47.77 million metric tons remains a reliable benchmark as DEQ continues to refine its efforts to quantity GHG emissions from proposed projects.

39.1i Regarding comment titled, Adopt methodologies including the Social Cost of Carbon

Specifically addressing the reference to social cost of carbon (SCC), SCC is one metric that can illustrate the potential economic impacts of a given project. However, no federal requirements mandate the use of any specific SCC model. Similarly, Montana does not have a state-specific requirement for DEQ or other agencies to select a SCC model. Over the past 15 years, federal administrations have been inconsistent in their approach to implementing the SCC, ranging from proposing a carbon tax on projects to evaluating project feasibility based on potential economic impacts. Assigning a dollar value, typically somewhere between $1 and $200 per ton of carbon, provides only a theoretical estimate of potential economic impacts. DEQ finds that a comparison between a project GHG inventory and the State's current and historical baseline more meaningful, as it directly assesses proposed changes against existing GHG levels.

SCC compares a project's costs and benefits under various assumptions, including a discount rate for future damages related to GHG emissions. (EPA, Report on the Social Cost of Greenhouse Gases: Estimates Incorporating Recent Scientific Advances, November 2023.) However, DEQ finds that evaluating a single impact in such quantitative economic terms, as the SCC does, would be inconsistent with the remainder of the EA, which does not evaluate impacts through quantitative economic measures.

Instead, the EA discusses the project's benefits alongside its environmental impacts. Beyond maintaining methodological consistency within the EA, declining to adopt the SCC is warranted because MEPA does not require the precise quantitative cost-benefit analysis inherent in that methodology.[3]

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3 *See State ex rel. Montana Wilderness Ass'n v. Board of Natural Resources & Conservation*, 200 Mont. 11, 33, 648 P.2d 734, 746 (1982); *Belk v. Mont. DEQ*, 2022 MT 38, ¶ 29, 408 Mont.1, 504 P.3d 1090 (MEPA "'require[s] assessments of impacts on human populations—including health, agriculture, tax bases, and culture—but they do not require quantitative economic forecasts.'").

39.1j Regarding comment titled, Analyze how the GHG emissions from projects contribute to local and state vulnerability.

DEQ in this EA has discussed the secondary impacts of GHG impacts, which discussed the climatological effects of increased emissions, and furthermore has discussed cumulative impacts which is an inventory of existing GHG emissions that contextualize the addition of GHG emissions from the proposed action.

39.1k Regarding comment titled, Include an assessment of upstream and downstream emissions associated with fossil fuel projects.

See DEQ response 39.3a

This section is specific to the file identified as 39.3. Comments below are identified for 39.3a thru 39.3be.

39:3a: DEQ emphasizes that MEPA requires an examination of "Secondary Impacts", as defined in ARM 17.4.603(18), not "indirect" impacts. Per ARM 17.4.603(18), secondary impacts "means a further impact to the Montana environment that may be stimulated or induced by or otherwise result from a direct impact of the action." While "indirect" impacts share some common meaning similarities to "secondary impacts", the term itself is not defined in Montana statute or rule.

The Proposed Action in this EA is the issuance of a Montana Air Quality Permit (MAQP) under 75-2-211, et seq., MCA, not the extraction or transportation of a fuel source. Under MEPA (75-1-220(10)(a)(i), MCA), a Proposed Action "means a project, program, or activity to be directly implemented by an agency." The MEPA definition specifically excludes "upstream, downstream, or other indirect action that occurs independently [...] or exclusively by the proposed action; or an action that occurs regardless of the proposed action" (75-1-220(10)(b)(i-ii), MCA). The extraction and transportation of the gas would continue regardless of this Proposed action.

See also DEQ response 39.3jj.

39.3b: Please see the Cumulative and Secondary sections of the EA regarding GHG impacts, which explain how DEQ used the EPA State Inventory Tool (SIT) to develop GHG emission inventories for the State of Montana from past, present, and related future actions. These sections also address how DEQ utilized the BLM Specialist Report on Annual Greenhouse Gas Emissions and Climate Trends to identify impacts.

39.3c: In the Cumulative Impact Section of the EA specifically assessing GHG, DEQ has identified and disclosed the Proposed Action's contribution to atmospheric GHG emissions, and how those emissions would impact the Montana environment.

39.3d: DEQ is unclear how the commenter attributed 166 million tons of CO_2 emissions in 2019 to Montana. If this were the case, 166 million tons of CO_2 emissions would equate to about 150,594,212 metric tons of CO_2e.

Montana utilizes the EPA State Inventory Tool (SIT) for its GHG emission inventory. The SIT, specifically developed by EPA to aid states in developing their own GHG emission inventories, relies on comprehensive data collected by various federal agencies. DEQ's experts have thoroughly

reviewed the SIT and determined that its default data provides a robust and reasonable representation of Montana's GHG emissions across various sectors, yielding reliable annual state totals.

DEQ maintains complete output results from the SIT. Given EPA's established methods and the rigorous review by DEQ experts, DEQ affirms the 2021 SIT output of 47.77 million metric tons of CO_2e (47,770,000 metric tons as CO2e) as Montana's official GHG inventory. This figure stands in contrast to the commentor's suggested 150,594,212 metric tons of CO_2e, which is not supported by DEQ's validated methodology.

DEQ, accordingly, finds the figures supported by EPA's SIT are a more reliable measure of existing GHG emissions in Montana than the figure provided by the commentator.

39.3e: DEQ has not dismissed the importance of GHG assessment in the EA. Please see the "Greenhouse Gas Assessment" section of the EA, and other comments including 39.3d directly above.

39.3f: Please see "Table 1. Summary of activities proposed in application" under the "Location and Analysis Area" header in the EA, which clarifies that the EA's analysis area extends beyond an area of merely 10.4 acres. While page 31 of the EA, referenced in the commentor's footnote 3, states the Proposed Action's operational footprint would be 10.4 acres, the "Direct Impacts" and "Secondary Impacts" sections specifically frame GHG and climate impacts within the context of "atmosphere" and "atmospheric" considerations, a scope far exceeding the mentioned 10.4 acres.

DEQ's GHG Assessment in the EA examines the Proposed Action's contribution to this global resource. Furthermore, the Cumulative Impacts section of EA already includes the total CO_2e output of the Montana environment, including emissions from other major stationary sources in the state, along with the Proposed Action's contribution.

Regarding the commenter's reference to projects "soon-to-be operating in the Laurel/Billings/Lockwood area", DEQ 's analysis of related future actions is governed by ARM 17.4.603(7). This rule states, "related future actions must also be considered when these actions are under concurrent consideration by any state agency through preimpact statement studies, separate impact statement evaluation, or permit processing procedures." Because none of the projects referenced by the commentor meet the criteria in ARM 17.4.603(7), DEQ's analysis is appropriately limited and cannot incorporate projects not yet certain to occur.

39.3g: DEQ reports CO_2e in metric tons rather than in U.S standard tons. Metric tons are used globally as the standard reporting measure for GHG emissions. The EPA simplified calculator also uses metric tons when reporting CO_2e.

39.3h: DEQ's EA includes an entire section dedicated to GHG Assessment.

39.3i: Thank you for your comment.

39.3j: Thank you for your comment.

39.3k - p: In the EA, DEQ referenced and reviewed two federal reports that include documented research relevant to Montana: the "2023 BLM Specialist Report on Annual Greenhouse Gas

Emissions and Climate Trends from Coal, Oil and Gas Exploration and Development on the Federal Mineral Estate" and its counterpart from previous year.

These reports comprehensively inform the reader about GHG impacts by providing:

- explanations of GHG components;
- climate change science and trends;
- global, national, and state GHG emissions data;
- methods and assumptions used in analysis;
- projected climate change scenarios;
- emission analysis and mitigation strategies; and,
- references to numerous other scientific, peer reviewed reports and studies, including those found in the commenter's exhibits.

DEQ's experts reviewed these referenced reports and determined that their findings on potential GHG impacts are applicable not only to BLM oil and gas projects but also to this Proposed Action.

39.3q: The Proposed Action in this EA pertains specifically to a gas plant near Laurel, Montana. Consequently, the commenter's discussion of untapped fossil fuel reserves and other infrastructure is outside the scope of this EA. However, DEQ has included the existing infrastructure and other GHG emissions in the Cumulative Impacts section of the GHG Assessment within the EA. Since GHGs are a global issue, a Montana-only solution is not available to address global climate change impacts on Montana.

39.3r: Please see response to Comment 39.1i.

39.3s-t: DEQ acknowledges the commentor's concerns regarding impacts by referencing the BLM link provided in the YCGS EA's GHG section. (Please see response # 39.3k-p). For a more detailed and exhaustive analysis of GHG impacts, DEQ recommends reviewing the cited research: the "2023 BLM Specialist Report on Annual Greenhouse Gas Emissions and Climate Trends from Coal, Oil and Gas Exploration and Development on the Federal Mineral Estate". Instead of reproducing this extensive 100 page document within the EA, DEQ has provided it as a readily accessible reference for readers seeking in-depth information.

39.3u: The commenter's reference relies on Federal NEPA guidance that has been withdrawn by the current administration. Given this withdrawal, DEQ refrains from relying on such guidance. Please see response # 39.3k-p and the research cited there, which provides a reader with information about potential impacts of GHGs.

39.3v-w: MEPA does not direct DEQ to describe impacts in the terms of "harms . . . in the context of goals and commitments." Instead, ARM 17.4.608(1) provides guidance to DEQ on how the significance of impacts should be analyzed within an EA.

39.3x: Governor Bullock's Executive Order 8-2019 did not aim to reduce emissions from traditional electricity generation. Instead, it created a Council tasked with developing a Plan for recommendations. This Council suggested an interim goal of net greenhouse gas neutrality for average annual electric loads in Montana by no later than 2035, and an economy-wide net GHG

neutrality goal at a date to be determined by the Council. However, the Plan itself provides no actionable items related to this Proposed Action.

Further, Executive Order 8-2019 expired on August 1, 2020. Therefore, the Executive Order itself no longer holds legal authority. While information derived from it may continue to inform discussions about climate change, none of its mandates remain binding on the State. Accordingly, the directive to establish a Council to create a climate Plan ceased in 2020.

39.3y: DEQ reviewed the Montana Climate Solutions Plan and the commentor's quoted text. DEQ identified "Recommendation 2AK: Recommendation on Achieving Economy-Wide Greenhouse Gas Neutrality," which proposes achieving GHG neutrality by 2050, or between 2045-2050. However, the Plan provides no actionable items related to this Proposed Action.

39.3z: The EA has been updated to include the equivalency of 695,195 metric tons of CO_2e for gasoline-powered passenger vehicles driven for one year, as calculated by the EPA Greenhouse Gas Equivalencies Calculator. This figure equates to about 162,158 passenger vehicles. Please see response to comments 39.3d and 39.3k-p for the analysis of the Proposed Action's direct GHG impacts. DEQ further emphasizes that MEPA does not mandate the analysis of impacts for "reasonably foreseeable consequences[.]" Instead, MEPA requires the reviewing agency to provide a detailed statement on " the proximate environmental impacts of the proposed action."[4]

39.3aa - cc: For the purpose of secondary impacts, DEQ maintains that these impacts (or cumulative impacts) may be stimulated as a result of the direct release of GHGs (direct impacts) from natural gas combustion at the YCGS. Due to the homogeneous nature of GHGs in the atmosphere, these secondary impacts are global. They result from the additional CO_2 released by the YCGS. However, specific events such as floods and wildfires cannot be predicted for individual times or places with available science. Please also refer to comments 39.3k-p and 39.3s-t.

39.3dd: Please see comment 39.1i regarding SC-GHG impacts.

In addition to this response, please see response to comment 39.1i. DEQ has considered various methodologies to quantify GHG emission impacts on the environment. After careful internal review, community engagement and review of relevant literature, DEQ does not adopt social cost of carbon (SCC) as an appropriate measure of GHG impacts. DEQ's reasoning for not adopting the SCC model is twofold: there is no scientific consensus that SCC accurately captures carbon impacts on society, and there is no legal precedent suggesting DEQ should or could adopt the framework.

First, Montana does not have a state-specific requirement for DEQ or other agencies to select a SCC model. Over the past 15 years, federal administrations have been inconsistent in their approach to implementing the SCC, ranging from proposing a carbon tax on projects to evaluating project feasibility based on potential economic impacts. Assigning a dollar value, typically somewhere between $1 and $200 per ton of carbon, provides only a theoretical estimate of potential economic impacts.,

4 Section 75-1-201(1)(b)(iv)(A).

Second, a significant legal challenge to the adoption of the SCC model is the absence of a clear legal mandate for agencies to quantify environmental impacts in monetary terms. In *Belk,* the Montana Supreme Court squarely addressed this issue and stated, "[the Petitioners] point to no authority for the notion that such impacts must be assessed in quantitative economic terms. In fact, while doing so may be helpful in some circumstances, DEQ's MEPA implementing regulations contain no such directive."[5] SCC similarly examines GHG impacts of a proposed action in economic terms, standing in contrast to the ruling in *Belk*. The Courts' emphasis has consistently been on full and transparent disclosure, rather than mandating a specific economic valuation method that might mask underlying uncertainties. A "hard look" is accomplished by a robust analysis and disclosure, without the added and often speculative step of economic valuation. Therefore, with no legal authority from the legislature or judiciary, DEQ does not adopt a framework for quantifying GHG impacts in monetary terms.

The Miles City Field Office's decision to adopt a SCC framework in its Supplemental EIS represents one way in which a separate agency might use its discretion to quantify GHG emissions in economic terms. The Miles City Field Office's decision conforms with former President Biden's policy initiative to "capture the full costs of GHG emissions as accurately as possible, including by taking global damages into account". However, DEQ does not adopt an agency policy of analyzing SCC for proposed actions for scientific and legal reasons provided above and in DEQ Response 39.1i.

39.3ee – ff: DEQ did disclose the impacts of the no-action alternative and concluded that no impacts would result, but NWE would not generate electricity at the project. The Commentor's suggestion that DEQ should examine "the potential for different energy development pathways that could avoid the environmental harm of fossil-fuel development and the possibility of reduced energy demand or increased energy efficiency" exceeds the scope of a no-alternative (*i.e.*, what would occur if the agency denied the application).[6] The Commentor, instead, seeks an analysis of "an alternative facility or an alternative to the proposed project itself[,]"[7] which is beyond the required alternatives analysis under MEPA. *See* DEQ Response 39.3ar.

Further, DEQ is legally unable to select the no-action alternative given that NWE submitted a substantive, administrative, and technically complete application. The proposed YCGS project sought a Montana Air Quality Permit (MAQP) to emit air pollutants from the source. DEQ lacks the authority under MAQP to dictate the facility's fuel type. If NWE is determined to satisfy the requirements of an air quality permit without contributing to or causing an ambient air quality standard violation, DEQ issues the MAQP as proposed by NWE (ARM 17.8.749(3)).

39.3gg: Please see response to comment 39.3a regarding the MEPA definition of Proposed Action.

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5 *Belk*, ¶ 29 (the Court declined to require agencies to evaluate property value impacts of a proposed action in economic terms).
6 *Park Cty. Envtl. Council v. Mont. DEQ*, 2020 MT 303, ¶ 51, 402 Mont. 168, 477 P.3d 288 ("*Park County*").
7 Section 75-1-220(1), MCA.

39.3hh: Please see response to comment 39.3a regarding indirect impacts under MEPA and response to 39.3z regarding reasonably foreseeable impacts under MEPA.

39.3ii: The Proposed Action is being analyzed under MEPA and not the National Environmental Policy Act (NEPA). NEPA is MEPA's federal counterpart and contains several critical distinctions. Cumulative impacts under MEPA are stated in ARM 17.4.608. The approach suggested by the commenter would apply to a federal NEPA review process, while this Proposed Action is only subject to MEPA.

39.3jj: "Upstream and Downstream Beyond Permitting Authority"

Under MEPA, DEQ is not required analyze upstream or downstream impacts beyond its permitting authority. Both the Montana Supreme Court and the United States Supreme Court have weighed in on the issue and clarified how "far" an agency must look in its MEPA review.

The Montana Supreme Court in *Bitterrooters for Planning, Inc. v. Mont. DEQ* asserted that DEQ is required to look at the impacts of a project that is contemplated by a particular application and not impacts from other projects that might eventually result from DEQ granting the permit that is currently before the agency. Put simply, DEQ is only required to assess those impacts that it could prevent using its regulatory authority, and not those impacts that are anticipated but not actually in front of the agency (e.g. as a pending application).

The Montana Legislature further clarified through the passage of SB 221 that agency's analysis under MEPA is limited to evaluating "proximate environmental impacts of the proposed action"[8] In defining the scope of a proposed action, this bill also clarifies that agencies are not required to evaluating downstream and upstream impacts under MEPA.[9] Under this statutory text, DEQ is limited to evaluating the impacts of the project that is within its regulatory authority.

NEPA and MEPA contain different language regarding causation analysis of impacts. NEPA requires agencies to evaluate "reasonably foreseeable" impacts whereas MEPA requires an analysis of "proximate" impacts. NEPA is only instructive to MEPA to the extent the two laws contain parallel language.[10] The Montana Legislature's use of the modifier "proximate" shows an intent to have a less extensive causal analysis than the federal standard. But even under the more expansive causal standard, the U.S Supreme Court held in *Seven County Infrastructure Coalition v. Eagle County* in May 2025, that federal agencies are generally not required to analyze the environmental impacts of "upstream" or "downstream" projects that are separate in time or place from the specific action under review, particularly if the agency lacks statutory authority over those separate projects. This decision enforces the concept of "substantial deference" to agency decisions on the scope of their environmental impact statements, limiting analysis of highly indirect or speculative impacts that are not directly connected to the proposed federal action.

Even in the preceding district court case concerning this project (prior to the passage of SB 221 and the *Seven County Infrastructure Coalition*) the district court denied plaintiffs' claim that DEQ was required to evaluate the impacts of the pipeline that would deliver natural gas to the project

8 Section 75-1-201(a)(b)(iv)(A), MCA.
9 Section 75-1-220(10), MCA.
10 *Bitterrooters*, ¶ 18.

because that action was insufficiently caused by the proposed action.[11] It cannot be the case that DEQ is required to evaluate upstream impacts—like oil and gas projection[12]—which are even more attenuated from the proposed action than the pipeline and are also subject to independent regulatory approvals.

The Commentor is also incorrect to categorize "the emissions resulting from the combustion of [natural] gas to generate electricity" as a downstream impact.[13] Those GHG emissions are encapsulated by direct GHG emissions in this EA because they are the direct result of the proposed action and therefore, they should not be categorized as a downstream impact.

39.3kk: **Mitigations**. A response regarding mitigation has been included in the EA, and also supplied here for reference. A number of processes are known to mitigate and off-set release of CO_2e from the YCGS. Geological sequestration, and a similar process known as mineralization, capture CO_2 underground. Geologic storage of CO_2, also known as geological carbon sequestration, involves storing CO_2 deep underground in porous rock formations. There, CO_2 is compressed to the supercritical phase, where it behaves like a liquid. Geologic carbon sequestration permanently removes CO_2 from the atmosphere. A related concept is carbon mineralization, where CO_2 reacts with silicate rocks to precipitate carbonate minerals (Department of Energy). Another means of carbon mitigation is biological sequestration. Biologic carbon sequestration involves storing CO_2 naturally in places where it becomes part of the carbon cycle. The carbon cycle is the natural process by which carbon moves between the atmosphere, oceans, land, and living things. Some carbon is stored in plants—especially woody plants and grasslands—as a result of the biological, photosynthesis process. Photosynthesis removes CO_2 from the atmosphere and transforms it into living plant tissues. (https://www.energy.gov/science/doe-explainscarbon-sequestration) A third option for mitigation is industrial carbon capture and sequestration (CCS). Industrial CCS processes have been installed on electrical generating units, usually as demonstration projects, but some continue to capture CO_2. An example of successful ongoing industrial CCS technology is the Sask Power facility in Saskatchewan. Industrial CCS is possible but severely limited by high operational costs and technical challenges. Finally, as discussed in response 39.3z, removing an equivalent of approximately 162,000 gasoline powered cars for one year would also mitigate the increase of GHG emissions from the YCGS. (EPA Greenhouse Gas Equivalency Calculator https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator)

Under MEPA, DEQ may not require mitigation for Proposed Actions, and NWE must voluntarily elect to implement mitigation measures.[14]

39.3ll See response to comment 39.1a.

39.3mm: Please see response to comment 39.3x regarding Governor Bullock's Executive Order 8-2019 and response to comment 39.3y regarding the Montana Climate Solutions Plan.

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11 *MEIC v. Mont. DEQ*, Cause No. DV 21-1307, Order, *17-19 (Mont. 13th Dist. Ct. Apr. 6, 2023) (citing *Bitterrooters*, ¶ 33).
12 See Comment 39.ag.
13 *See* Comment 39.3 ag.
14 Section 75-1-201(4)(a), MCA.

39.3nn: Please see response to comment 39.3y regarding the goals.

39.3oo: Please see the EA section titled Greenhouse Gas Assessment and response to comment 39.3k-p and 39.3s-t**.**

39.3pp: Please see response to comment 39.3f regarding comparative impacts of CO2e.

39.3qq: In the EA, the facility's operational life was identified as 30 years. Accordingly, to calculate GHG emissions over a facility's operational life, a reader would perform the following multiplication: 695,195 metric tons of CO2e by 30 years, to equal 20,855,850 metric tons of CO2e.

39.3rr: Please see response to comments 39.3k-p and 39.3s-t.

39.3ss: Please see response to comments 39.3k-p and 39.3s-t. The 2023 BLM report cited by DEQ reviews the life cycle of carbon under different global emissions scenarios, discusses socioeconomic scenarios, and public health and safety effects. If readers are interested in these more detailed GHG impacts, please refer to the EA for this BLM report. DEQ experts have thoroughly reviewed the BLM report and concur with its findings regarding GHG impacts that may occur because of this Proposed Action.

39.3tt: Please see responses to comments 39.1i and 39.3dd regarding SCC and GHG impacts.

39.3uu: DEQ reviewed the Montana Climate Assessment 2021 Special Report. The 2023 BLM Specialist Report on Annual Greenhouse Gas Emissions and Climate Trends, dated August 22, 2024, provides a reputable resource for public health and safety effects of GHG.

39.3vv: DEQ suggests reviewing the 2023 BLM Specialist Report on Annual Greenhouse Gas Emissions and Climate Trends, dated August 22, 2024, regarding local and state vulnerability increases.

39.3ww: NEPA is only informative to MEPA to the extent that the relevant provisions are similar.[15] The Montana Supreme Court's holding in Held, additionally, eliminates the prohibition on agencies considering GHG and climate impacts, requiring agencies to follow their existing MEPA obligations.[16] DEQ, accordingly, disagrees with Commentor's unsupported assertion that "Federal caselaw can at best set a floor for MEPA analysis, not a ceiling."

39.3xx-yy: Please see response to comments 39.1i, 39.3k-p, and 39.3s-t regarding secondary impacts and SC-GHG for the EA.

39.3zz: Please see the EA's Cumulative Impacts Section of the Greenhouse Gas Assessment for DEQ's analysis of cumulative impacts for this resource area. Included there is a discussion of how DEQ handled the incremental GHG contribution of the Proposed Action and how other past and present actions were accounted for in the EA.

39.3ab: Please see response to comment 39.3k-p regarding the GHG emissions in the region and throughout the lifecycle of the project.

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15 *Bitterrooters*, ¶ 18.
16 MEIC, 2025 MT 3, ¶ 59.

39.3ac: Contrary to the Commentor's suggestion, there is no scientific basis to conclude that GHG emissions have a localized direct impact in the Billings/Laurel/Lockwood area. Indeed, there is a reason that the resulting phenomenon from increased GHG emissions is referred to as *global* climate change. The impact of GHG emissions is their contribution to earth's temperature by increasing atmospheric concentrations of GHGs, which in turn traps a larger amount of longwave radiation. This greenhouse effect from GHGs is a global phenomenon and not a localized impact comparable to the localized impacts of pollutants for which National Ambient Air Quality Standards (NAAQS) exist.

Exemplifying this point, GHGs are not currently regulated under the Clean Air Act in Montana or the United States because GHGs are not considered air pollutants with direct effects on public health and the environment. Therefore, there are no associated direct or secondary air quality standards have been set to protect public health or the environment, including climate, at the local or national scale. By comparison, NAAQS exist for pollutants like ozone, sulfur dioxide, nitrogen dioxide, carbon monoxide, lead, and particulate matter, which do have a localized impact on human health.

DEQ has previously responded to similar GHG comments on other air quality permitting actions. Specifically, reference MAQP #1564-38 on Direct Impacts (See page 22 of MAQP #1564-38 permit analysis). DEQ believes the GHG assessment prepared for YCGS accurately describes the direct release of GHG emissions from the YCGS. However, the direct impacts from GHG emissions are better characterized as secondary and/or cumulative impacts due to the nature of GHGs in the environment. GHGs mix uniformly with other worldwide sources of GHG emissions, leading to a consistent global concentration of GHG gases. Therefore, only a minimal direct impact from GHG releases would be expected at the project site.

To the extent there are any localized impacts, those occur through climate change which is reflected in DEQ's secondary and cumulative impacts assessment as defined by MEPA. DEQ has referenced the Department of the Interior's Bureau of Land Management (BLM) 2023 report, which provide anticipated impacts in Montana from increased GHG emissions and climate change.

DEQ has provided a "hard look" at GHGs by specifically quantifying the maximum amount of emissions from the YCGS at 695,217 metric tons. This figure then provides a comparison to the existing level of Montana GHG emissions, providing context for the project's potential contribution to atmospheric concentrations.

Additionally, the commenter's footnote regarding guidance on how to complete a GHG analysis was withdrawn by the Federal government on May 28, 2025.[17]

39.3ad: The EA has been updated to include the equivalent of 695,195 metric tons of CO2e compared to gasoline-powered passenger vehicles driven for one year (per the EPA Greenhouse Gas Equivalencies Calculator). Please see response to comments 39.3d and 39.3k-p regarding the analysis of direct impacts of the Proposed action for GHG impacts.

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17 Withdrawal of National Environmental Policy Act Guidance on Consideration of Greenhouse Gas Emissions and Climate Change published 5/28/25. (https://www.federalregister.gov/documents/2025/05/28/2025-09569/withdrawal-of-national-environmental-policy-act-guidance-on-consideration-of-greenhouse-gas).

39.3ae: Under MEPA, DEQ analyses a proposed project's direct, secondary and cumulative impacts. For context, DEQ compares the direct GHG emissions to a statewide GHG inventory as described in the EA and further detailed in response to comment 39.1a. Other sources in the vicinity of the YCGS are accounted for in a statewide inventory. Because GHG emissions are global in nature. a comparison to other sources of GHG emissions in the nearby vicinity to YCGS fails to take into account the global nature of GHG emissions.

39.3af: Please see response to comments 39.3a-k and 39.3ac.

39.3ag - ah: Please see response to comment 39.3a regarding upstream and downstream impacts.

39.3ai: The EA has been updated under the No Action Alternative. Under the no-action alternative, DEQ would deny the project resulting in no construction and operation of the YCGS.

39.3aj – 39.3ak: The commenter is requesting a meaningful analysis of the No Action Alternative which the EA provides for the reader. If the No Action Alternative was selected there would be no changes to the Montana environment as stated in EA.[18] MEPA analyzes the amount of change. If there are no changes, there are no impacts to analyze. An example of this is in the Visual Section of the EA. If the Proposed action was not built there would be no visual impact to this viewshed. If the Proposed Action were not to take place in the environment, there would not be an additional 695,195 CO2e released to the atmosphere. The level of change in the No Action Alternative is zero and would not have any impacts.

39.3al: DEQ has taken several analysis steps to identify the baseline or the No Action Alternative impacts regarding greenhouse gas assessment in the EA. The Cumulative Impacts to Greenhouse Gas Assessment Section of the EA has the detailed explanation for the reader. DEQ explains to the reader the EPA State Inventory Tool (SIT) and the source of the dataset for this inventory. The EA section describes the parameters used to create the industry standard measurement of CO2e. The EA section goes on to explain to the reader DEQ's determination of using the SIT data, the modules used, and the outcomes of SIT. The SIT establishes the baseline of the Montana environment for GHG, or the No Action Alternative. By establishing the baseline, it allows the EA reader to understand the level of change in the Montana environment by the Proposed action. In the Secondary Impact section of the Greenhouse Gas Assessment, the EA explains the life span or duration of the different parameters that make up CO2e as well.

39.3am: Please see response to comments 39.3ai, 39.3aj-ak, and 39.3al.

39.3an: Please see response to comments 39.3ai, 39.3aj-ak, and 39.3al. Thank you for the compliment on the lighting impact analysis in the EA.

39.3ao – ap: Please see response to comments 39.1l, 39.3uu, 39.3ai, 39.3aj-ak, and 39.3al.

39.3aq: Please see response to comments 39.1l, 39.3uu, 39.3ai, 39.3aj-ak, and 39.3al.

39.3ar: Under MEPA, alternative analysis means "means an evaluation of different parameters, mitigation measures, or control measures that would accomplish the same objectives as those included in the proposed action by the NWE. For a project that is not a state-sponsored project, *it*

18 *Park County*, ¶ 51.

does not include an alternative facility or an alternative to the proposed project itself."[19] The commentor's suggestion that DEQ ought to evaluate different types of non-thermally generated energy resources exceeds this definition. NWE's operational justification for building this project is provided by, among other things, its iterative integrated resources plans.[20] DEQ declines to put "put itself in the shoes of [the] applicant" to determine if alternative projects would satisfy its resource needs.[21]

39.3as: See DEQ response 39.3ar.

39.3at - au: Thank you for the suggestion regarding programmatic environmental reviews. A programmatic environmental review would not be appropriate for this EA since the EA is done in response to the Montana Supreme Court's Decision (DA-23-0225), issued on January 3, 2025.

39.3av-be:Mitigation has been addressed in 39.3kk, and also added to the EA beginning on page 4.

Response to Comment identified as #41 – Our Children's Trust

41 These DEQ responses are numbered based on the order of the over-arching topics within this specific comment letter.

41.a. Regarding comment titled, DEQ Admits the Yellowstone County Generating Station will Allow for the Burning of Fossil Fuels and Release GHG Emissions, but Largely Ignores the Harms from the Project's Fossil Fuel Pollution and Contribution to Climate Change.

This comment is similar to comments raised in comment #39. See DEQ responses in 39.1, and 39.3

41.b. Regarding comment titled, DEQ's Supplemental Draft EA Fails to Consider Alternative Sources of Energy, such as Renewable Energy, to Meet Montanans' Current and Future Energy Needs

See DEQ response 39.3ar.

41.c. Regarding comment titled, The Supplemental Draft EA Fails to Present Evidence of a Compelling Government Need in the Yellowstone County Generating Station

DEQ is charged with processing air quality applications which are submitted under 75-2, MCA, Clean Air Act of Montana. Air Quality Applications are processed per the authorities granted under 75-2, MCA, and environmental reviews are prepared subject to MEPA under 75-1-201, MCA. The YCGS project has been processed under those authorities.

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19 Section 75-1-220(1), MCA (emphasis added).
20 See, e.g., NorthWestern Energy, Montana Integrated Resources Plan, 5-7 (2023).
21 *Park County*, ¶ 50("MEPA does not require DEQ to attempt to define an applicant's objectives and raise alternatives to the applicant's proposed . . . project.").

To the extent the commentor is suggesting that DEQ must apply a constitutionally based strict scrutiny analysis to this project (or any other type of constitutional analysis), Montana agencies are precluded from applying Montana's Constitution in a manner that would nullify the plain requirements of their statutory obligations.[22]

41.d. Regarding comment titled, The YCGS permit should be revoked.

DEQ issued the YCGS permit as the application met the requirements for a substantive, administrative, and technically complete application. Further, it was determined that the issuance of the YCGS permit would not cause or contribute to an ambient air quality violation. Compliance with the air quality permit will be monitored going forward.

Additionally, DEQ "may not withhold, deny, or impose conditions on any permit or other authority to act based" on its MEPA assessment.[23]

For all other comments received 1-38, 40, and 42-77, refer to the excel Response to Comment Summary table to locate a DEQ response for the specific comment.

Full comments submitted by commenters #39 and #41 are located below along with DEQ's highlights and assigned reference abbreviations to further inform the reader of specific comment tracking.

22 *Merlin Myers Revocable Trust v. Yellowstone County*, 2002 MT 201, ¶¶ 22–25, 311 Mont. 194, 200, 53 P.3d 1268; *see also Held v. State*, 2024 MT 312, ¶ 48, 419 Mont. 403, 430, 560 P.3d 1235 ("Here, Plaintiffs brought a challenge to specific statutes—namely the MEPA Limitation and the State Energy Policy."); *Mont. Env't Info. Ctr. v. Mont. DEQ*, 2025 MT 3, ¶ 75, 420 Mont. 150, 561 P.3d 1033 (declining to hear plaintiffs' constitutional arguments because they did not "directly challenge the remedy provisions as unconstitutional.").
23 Section 75-1-201(4)(a), MCA.

WESTERN ENVIRONMENTAL LAW CENTER

EARTHJUSTICE

April 28, 2025

DEQ Air Quality Bureau
PO Box 200901
Helena MT 59620-0901

Sent via email: DEQAIR@mt.gov

Re: Supplemental Draft Environmental Assessment for MAQP # 5261-00

To the DEQ Air Quality Bureau:

We submit the following Executive Summary to the full comments filed on behalf of Comments on Behalf of Montana Environmental Information Center, Helena Interfaith Climate Advocates, Bridger Bowl, Montana Health Professionals for a Healthy Climate, Park County Environmental Council, Northern Plains Resource Council, Climate Smart Missoula, Forward Montana, MontPIRG, Families for a Livable Climate, Environmental Defense Fund, League of Women Voters, Protect Our Winters, and Sierra Club Montana Chapter (collectively, Commenters), in response to the Montana Department of Environmental Quality's (DEQ) Draft Supplemental Environmental Assessment (Draft EA) for NorthWestern Energy's (NorthWestern) proposed Montana Air Quality Permit # 5261-00 for the Laurel Generating Station (LGS) in Yellowstone County, Montana.

Executive Summary

The LGS, a 175-megawatt gas-fired power plant, is of significant concern to the Commenters and their Montana members. Among other harms, it would generate hundreds of thousands of tons of climate-harming greenhouse gas emissions, which would be the equivalent of the annual emissions of 167,327

passenger vehicles.[1] While the Laurel Generating Station is a major emitter of greenhouse gas (GHG) emissions in Montana, DEQ's GHG analysis—which simply quantifies the plant's emissions without contextualizing them, cites to minimal scientific literature, and minimizes the significance of these emissions by inappropriately comparing them to total Montana emissions—does not fully disclose or analyze the impacts of these emissions. As described more fully below, the Commenters implore DEQ to undertake a thorough analysis and disclose the true harms of the LGS to the public.

I. The requirements of Montana's Constitution and MEPA

The Commenters—each of which has members that live, work, and recreate in Montana—submit these comments in support of their constitutional rights, among others, to a clean and healthful environment and to participate in agency decision-making.[2] These rights are accompanied by obligations on the State of Montana to "maintain and improve a clean and healthful environment in Montana for present and future generations" and on the Legislature to "provide for the administration and enforcement of this duty" as well as to "provide adequate remedies for the protection of the environmental life support system from degradation and provide adequate remedies to prevent unreasonable depletion and degradation of natural resources."[3]

The Montana Environmental Policy Act (MEPA) helps realize these lofty constitutional purposes. MEPA review exists to ensure informed decision-making by state agencies to actualize the right to a clean and healthful environment; facilitate public participation in agency decisions; and to assist the legislature in determining whether environmental laws are adequate to address impacts to Montana's environment.[4] While the Legislature has on several occasions, including in the 2025

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[1] NorthWestern App. for Mont. Air Quality Permit, Air Emissions Inventory, at 7 (May 10, 2021) (predicting that the LGS would emit 769,706 tons per year of climate-harming greenhouse gases); EPA, Greenhouse Gas Equivalencies Calculator, available at: https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator#results.

[2] Mont. Const. art. II. § 3; *id.* art. II. § 8.

[3] *Id.* art. IX, § 1(1)-(2).

[4] *Park Cnty. Env't. Council v. DEQ*, 2020 MT 303, ¶¶ 67, 69–70, 402 Mont. 168, 477 P.3d 288, 304.; *MEIC v. DEQ*, 2025 MT 3, ¶¶ 57, 62, 420 Mont. 150, 561 P.3d 1033 (citing MCA § 75-1-201 (3)(a)); ARM 17.4.607 (2)(d)).

Legislative session, amended MEPA, the Montana Supreme Court has warned that "the Legislature cannot fulfill its constitutional obligation to prevent proscribed environmental harms without some legal framework in place that mirrors the uniquely 'anticipatory and preventative' mechanisms found in the original MEPA."[5]

II. DEQ's GHG Review

To meet its statutory and constitutional obligations, DEQ must adequately analyze and disclose GHG emissions and their impacts for this project and any others that implicate these fundamental rights. In holding that "Montana's right to a clean and healthful environment and environmental life support system includes a stable climate system," the Montana Supreme Court found it undisputed that: Comment 39.1a

> GHG emissions are drastically altering and degrading Montana's climate, rivers, lakes, groundwater, atmospheric waters, forests, glaciers, fish, wildlife, air quality, and ecosystem: 'Anthropogenic climate change is impacting, degrading, and depleting Montana's environment and natural resources, including through increasing temperatures, changing precipitation patterns, increasing droughts and aridification, increasing extreme weather events, increasing severity and intensity of wildfires, and increasing glacial melt and loss.'[6]

Adequate analysis of GHG emissions is crucial because the cumulative impact of even seemingly small contributions to atmospheric GHG concentrations plays a significant role in the broader context of climate change.[7] Each new project, while individually difficult to quantify as having a transformative impact on Montana's environment, contributes to a larger, demonstrably significant problem. This creeping normalcy, where each individual project is rationalized as

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[5] *Park Cnty. Env't. Council*, ¶ 70.

[6] *Held v. State*, 2024 MT 312, ¶ 29, 419 Mont. 403, 560 P.3d 1235 (restating undisputed Findings of Fact *Held v. Montana*, No. CDV-2020-307 (1st Dist. Ct. Mont., Aug. 14, 2023)).

[7] *See* CEQ, Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews (Aug. 2016) available at https://obamawhitehouse.archives.gov/sites/whitehouse.gov/files/documents/nepa_final_ghg_guidance.pdf (while withdrawn, the underlying scientific principles about the cumulative nature of climate change contained in this guidance remain sound).

inconsequential, has collectively resulted in Montana bearing responsibility for 166 million tons of carbon dioxide emissions in 2019, which is the equivalent to emissions from the countries of Argentina, the Netherlands, and Pakistan.[8] Therefore, to dismiss the importance of thoroughly analyzing and disclosing the GHG contributions and impacts of individual projects is to ignore the very mechanism by which the climate crisis has reached its current critical state.

To fulfill its MEPA obligations to adequately analyze GHG emissions, DEQ should look to the Montana Supreme Court's recent decisions in *Held* and *MEIC*, which establish the following principles (among others) to guide DEQ in its analysis:

- "Each additional ton of GHGs emitted into the atmosphere exacerbates the impacts to the climate."[9] Comment 39.1b

- DEQ's obligation to conduct the required climate analysis exists independently of specific regulatory standards for GHGs under the Montana Clean Air Act.[10] Comment 39.1c

- DEQ must analyze the direct, secondary, and cumulative impacts of GHG emissions in permitting processes, taking a "hard look" at these impacts, even in the absence of established ambient air quality standards or specific regulations.[11] Comment 39.1d

- The substantial public concern regarding GHG emissions further underscores the necessity of evaluating these impacts under MEPA.[12] Comment 39.1e

- The cumulative and secondary impacts of Montana's GHG emissions are significant in a local, regional, national, and global context. Montana cannot

[8] *Held v. Montana*, No. CDV-2020-307 (1st Dist. Ct. Mont., Aug. 14, 2023) at ¶¶ 218–19 (Compared to the population of Montana, with just over 1 million people, Argentina has 47 million residents, the Netherlands has 18 million, and Pakistan has 248 million residents.)

[9] *Id.* at ¶ 91, *aff'd* 2024 MT 312.

[10] *MEIC*, ¶¶ 55–59.

[11] *Id.*

[12] *Id.* at ¶ 57.

disregard its contributions to environmental degradation within its borders simply because the impacts extend beyond them.[13] Comment 39.1f

In addition to the guidance provided by the Montana Supreme Court in its recent decisions, DEQ should:

- Review and include in its analysis the significant body of scientific research documenting the impacts of climate change in structuring its GHG analysis. Comment 39.1g

- Explicitly evaluate the projected direct GHG emissions from projects, including the LGS, over the operational lifetime of the plant, in relation to Montana's established climate goals and compare these emissions to the projected emissions of other similar-sized projects within Montana or the region. Comment 39.1h

- Adopt methodologies, including the Social Cost of Greenhouse Gas framework, that incorporate and account for established scientific information about greenhouse gas emissions' impact on climate change, including climate change effects in Montana. Comment 39.1i

- Analyze how the GHG emissions from projects, including the LGS, will contribute to increased local and state vulnerability to the impacts of climate change. Comment 39.1j

- Include an assessment of the upstream and downstream GHG emissions associated with fossil fuel projects, including the LGS, provide a comprehensive inventory of regional GHG sources, and complete a programmatic environmental review evaluating the cumulative impacts of the greenhouse gas emissions of these various sources. Comment 39.1k

Unless DEQ chooses to heed the science and apply scientifically-sound methodologies, such as those referenced above, it risks failing to comply with its statutory obligations and undermining the constitutional directives underpinning those obligations.

[13] *Id.* at ¶ 62; *Held,* ¶ 66.

Thank you for considering our comments.

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On behalf of:
Montana Environmental Information Center, Helena Interfaith Climate Advocates, Bridger Bowl, Montana Health Professionals for a Healthy Climate, Park County Environmental Council, Northern Plains Resource Council, Climate Smart Missoula, Forward Montana, MontPIRG, Families for a Livable Climate, Environmental Defense Fund, League of Women Voters, Protect Our Winters, and Sierra Club Montana Chapter

WESTERN ENVIRONMENTAL LAW CENTER

EARTHJUSTICE

April 28, 2025

DEQ Air Quality Bureau
PO Box 200901
Helena MT 59620-0901

Sent via email: DEQAIR@mt.gov

Re: Supplemental Draft Environmental Assessment for MAQP # 5261-00

To the DEQ Air Quality Bureau:

We submit the following comments on behalf of Montana Environmental Information Center, Helena Interfaith Climate Advocates, Bridger Bowl, Montana Health Professionals for a Healthy Climate, Park County Environmental Council, Northern Plains Resource Council, Climate Smart Missoula, Forward Montana, MontPIRG, Families for a Livable Climate, Environmental Defense Fund, League of Women Voters, Protect Our Winters, and Sierra Club Montana Chapter (collectively, Commenters) in response to the Montana Department of Environmental Quality's (DEQ) Draft Supplemental Environmental Assessment (Draft EA) for proposed Montana Air Quality Permit # 5261-00 for the LGS in Yellowstone County, Montana.

Commenting Organizations

Montana Environmental Information Center (MEIC) is a nonprofit organization founded in 1973 with approximately 10,000 members and supporters. MEIC is dedicated to the preservation and enhancement of the natural resources and environment of Montana, particularly the protection of water quality, air quality, and the climate. MEIC is committed to ensuring that state and federal officials comply with and uphold environmental protection laws and protect the environment and Montanans from pollution. MEIC and its members have intensive, long-standing recreational, aesthetic, scientific, professional, and spiritual interests in the responsible production and use of energy, and the land, air, and waters across

the state. MEIC members live, work, and recreate on public lands that are adversely impacted by fossil-fuel-based energy development and associated greenhouse gas (GHG) emissions.

Helena Interfaith Climate Advocates (HICA) is a citizen advocacy group committed to increasing awareness of and strengthening action against threats to our Climate and Environment. HICA's actions rise from our many faith traditions and love for our planet, humanity, and all beings. HICA was formed in 2023 and currently has 60 members representing 14 congregations and faith communities. HICA has been an active participant in lobbying the Legislature and Public Service Commission. HICA has held several community events, including a Vigil for the Earth and participation in the Season of Creation.

Bridger Bowl proudly celebrated 70 years of delivering high-quality outdoor recreation to the community this winter**.** Since 1955, Bridger Bowl's nonprofit ski area has welcomed millions of guests, and this season alone, Bridger Bowl recorded over 350,000 skier visits. As a treasured Montana nonprofit, Bridger Bowl works hard to provide access to healthy, restorative winter recreation at a fraction of the cost of most ski areas, ensuring that families across Montana can enjoy the physical and mental health benefits of time spent outdoors during our long winters. Bridger Bowl's mission is to "remain a locally focused recreation area that balances quality, affordability, and sustainability in a way that best serves our community." Today, that mission is under threat. The National Ski Areas Association has identified climate change as the single most significant risk to the future of the ski industry. Bridger Bowl is already feeling the impacts of surging insurance premiums linked to climate-fueled wildfires and the trend toward less reliable winter snowfall. Bridger Bowl believes we must accelerate the transition to cleaner, more affordable energy sources to protect Montanans' future and the outdoor spaces that define life in Montana.

Montana Health Professionals for a Healthy Climate (HPHC) is a Montana non-profit of healthcare professionals concerned about the effects of air pollution and climate change on human health. MontanaHPHC leverages their 1,500 supporters to educate, advocate, and lead on climate action, working with students of all ages and collaborating with many Montana non-profits.

The **Park County Environmental Council (PCEC)**, founded in 1988, is a grassroots organization based in Livingston, Montana, with over 1,000 members and a wide bench of over 3,500 supporters dedicated to protecting the lands, water, wildlife, and people of Park County. PCEC focuses on building local solutions that

help rural communities adapt to and mitigate the impacts of climate change. Montanans' livelihoods—rooted in agriculture, outdoor recreation, and healthy ecosystems—are increasingly threatened by climate-driven disasters. In 2022, PCEC mobilized community support and resources in response to the historic flood that devastated parts of Park County, and are actively preparing for the growing risk of wildfires like those that have recently impacted communities across the region. PCEC works closely with youth and future generations, who are among the most concerned and most affected by climate disruption, ensuring their voices are heard in the decisions shaping their future. PCEC is committed to responsible, community-centered climate action across Montana.

Founded in 1972 by Montana ranchers, **Northern Plains Resource Council** works to organize Montanans to protect our water, land, air, and working landscapes. Northern Plains Resource Council supports a healthy, localized, and sustainable economy in farm and ranch country and in our towns, and builds strong grassroots leaders, always considering the next generation. Today Northern Plains unites roughly 3,500 dues-paying members across Montana linking economic justice to climate action, strengthening the livelihoods and self-determination of Montana's rural and working families.

Climate Smart Missoula is a local Montana nonprofit with over 1,000 supporters. Their mission is to build and accelerate climate solutions for Missoula and beyond, through collaborative programs, advocacy, and catalyzing diverse climate leadership. Since their inception in 2015, Climate Smart Missoula has worked to reduce carbon pollution and is especially concerned with the human health impacts from greenhouse gas emissions including from methane gas.

Forward Montana is a non-partisan nonprofit organization founded in 2004. Forward Montana builds political power with and for young Montanans representing approximately 10,000 young people across the state. Forward Montana has engaged in thousands of conversations with young people over the years. Forward Montana's members care deeply about protecting our environment for future generations as guaranteed by the Montana Constitution's right to a clean and healthful environment.

MontPIRG (Montana Public Interest Research Group) is a student-led and organized nonpartisan organization created to empower the next generation of civic leaders and make Montana healthier, more inclusive, just, and resilient. They serve and represent more than 27,000 students across the state. MontPIRG students

work to protect our air, water, and soil. And, they advocate for policies that mitigate the negative effects of climate change in our communities.

Families for a Livable Climate is a Montana-based nonprofit established in 2020 to create community for climate action. They welcome families of all kinds into the climate space and provide the tools, skills, and support needed to take bold action on the climate crisis. With a growing network of over 2,000 climate-concerned parents, caregivers, and community members across the state, Families for a Livable Climate's work focuses on climate communications, grassroots leadership development, and movement-building. They directly address greenhouse gas emissions through public education, advocacy for clean energy, and community engagement campaigns such as divestment and electrification. At the heart of their work is the belief that when families speak up for our kids and communities, we can build a livable, thriving future for all.

Environmental Defense Fund (EDF) is a non-profit, non-governmental and non-partisan environmental organization with millions of members and offices and staff across the U.S. who are carrying out the organization's mission to build a vital earth for everyone. EDF's key priorities are to stabilize the climate and strengthen people's ability to thrive in a changing climate. EDF does this by using science, economics, law, and uncommon partnerships to find practical and lasting solutions to the most serious environmental problems.

The **League of Women Voters**, a nonpartisan political organization, encourages informed and active participation in government, seeks to defend and improve our democracy, works to increase understanding of major public policy issues, and influences public policy through education and advocacy. The League was founded at the national level in 1920 and the Montana League has been active since the 1950's. The League currently has 400 members in Montana. The League believes that climate change is a crisis facing our nation and our planet and that government action is needed to address the issue. The Montana League is working to encourage our state government to regulate greenhouse gas emissions.

Protect Our Winters (POW) helps passionate outdoor people protect the places they love from climate change. Founded in 2007 by professional snowboarder Jeremy Jones, Protect Our Winters, the first climate advocacy organization in the outdoor community. POW brought together other concerned athletes, creatives and brand partners to tackle the issue head on, a network that has since grown to 77,000 Team POW members. POW advocates for the 175 million passionate outdoor people who recreate outside to advancing non-partisan policies that protect our

world today and for future generations. POW believes that it's not just our powder days and clean air that's at risk; it's our livelihoods, our environment, our economy.

The **Sierra Club Montana Chapter** has thousands of members and supporters across the state of Montana. Founded in 1983 the chapter works to protect our air, land, water, and wildlife, advance climate solutions, act for justice, and get outdoors to explore and learn.

DEQ's Supplemental Draft EA

DEQ's environmental review of fossil-fuel projects must thoroughly analyze and disclose GHG emissions and their impacts. For the Supplemental Draft EA at issue here, the Laurel Generating Station is of significant concern to the Commenters, and their thousands of Montana members because, among other harms, it would generate climate-harming greenhouse gas emissions even while clean and affordable alternatives to fossil-fuel generation exist. DEQ's review of this project must consider both the direct emissions from the Laurel Generating Station itself and the indirect emissions from the extraction and transportation of the methane gas used to fuel the plant. In addition, the environmental review should include a cumulative impacts analysis that discloses and analyzes the past, present, and related future actions that have and will continue to contribute to GHG emissions and climate impacts. The Supplemental Draft EA's analysis of GHG emissions is crucial because, as established by numerous scientific studies, the cumulative impact of even seemingly small contributions to atmospheric GHG concentrations plays a significant role in the broader context of climate change.[1] Each new project, while individually difficult to quantify as having a transformative impact to Montana's environment, contributes to a larger, demonstrably significant problem. This creeping normalcy, where each individual project is rationalized as inconsequential, has collectively resulted in Montana bearing responsibility for 166 million tons of carbon dioxide emissions in 2019, which is the equivalent to emissions from the countries of Argentina, the Netherlands, and Pakistan.[2]

Comment 39.3a

Comment 39.3b

Comment 39.3c

Comment 39.3d

[1] *See* National Environmental Policy Act Guidance on Consideration of Greenhouse Gas Emissions and Climate Change (2023), 88 Fed. Reg. 1196 (while withdrawn, the underlying scientific principles about the nature of climate change contained in this guidance remain sound); *See also* Appendix A.

[2] *Held v. Montana*, No. CDV-2020-307 (1st Dist. Ct. Mont., Aug. 14, 2023) at ¶¶ 218–219, *aff'd* 2024 MT 312 (Compared to the population of Montana, with just over 1 million people, Argentina has 47 million residents, the Netherlands has 18 million, and Pakistan has 248 million resides.)

Therefore, to dismiss the importance of thoroughly analyzing the GHG contributions and impacts of individual projects is to ignore the very mechanism by which the climate crisis has reached its current critical state. Comment 39.3e

The Laurel Generating Station, or LGS, is a major emitter of GHG emissions in Montana. Yet, the impact of GHG emissions from the facility has not been fully disclosed and analyzed through a state agency environmental review. Further, as discussed below, the GHG Assessment included in the Supplemental Draft EA is inappropriately limited to a 10.4 acre "disturbed" area.[3] The Supplemental Draft EA fails to disclose the LGS's significant contribution of GHG emissions and associated climate impacts. The Supplemental Draft EA also fails to disclose and analyze the cumulative and secondary impacts of the LGS's GHG emissions together with emissions from the other major stationary sources in the state under DEQ's jurisdiction, including currently or soon-to-be operating in the Laurel/Billings/Lockwood area. Comment 39.3f

I. The Laurel Generating Station (LGS)

The Laurel Generating Station is a 175-megawatt gas-fired power plant, comprised of eighteen 9.7-megawatt-electrical reciprocating internal combustion engines ("RICE"), approximately 300 feet from the north bank of the Yellowstone River in Laurel, Montana. NorthWestern began operating the plant in 2024 and anticipates it will continue operating until 2057. In its air quality permit application, NorthWestern predicted that the LGS would emit 769,706 tons per year of climate-harming greenhouse gases (calculated as carbon dioxide equivalent (CO2e) emissions).[4] This is equivalent to the annual emissions of 167,327 passenger vehicles.[5] As described in NorthWestern's air quality permit application, the utility selected the LGS over other resources that submitted bids in a competitive resource solicitation. In the context of NorthWestern's pending request to the Montana Public Service Commission for approval of the LGS, parties have argued that Comment 39.3g

[3] Draft EA at 31.

[4] NorthWestern App. for Mont. Air Quality Permit, Air Emissions Inventory, at 7 (May 10, 2021) (Of note, DEQ's Draft Supplemental EA contains a different figure from NorthWestern's Application, noting that the annual emissions total from the engines at the facility will equal 695,217 metric tons per year of CO2e per year. Draft EA at 29. DEQ should explain why its figure differs from NorthWestern's calculation.)

[5] EPA, Greenhouse Gas Equivalencies Calculator, available at: https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator#results.

NorthWestern's resource-selection process unreasonably foreclosed selection of other, cleaner, and safer generating resources, such as solar and wind energy projects that could be paired with battery storage.[6] As DEQ has previously acknowledged, "Montana's fossil fuel Electric Generating Units[,]" like the LGS, "are the largest contributor of greenhouse gases in Montana."[7]

DEQ previously performed an environmental analysis of the proposed impacts of the plant, as required by MEPA. The Montana Supreme Court subsequently determined that DEQ's analysis was insufficient, including particularly its failure to analyze climate change impacts from greenhouse gases.[8] Comment 39.3h

II. Requirements of Montana's Constitution and MEPA

Montana's Constitution recognizes the "inalienable" right to a "clean and healthful environment."[9] This is a fundamental right, and the Constitution imposes an affirmative obligation on the part of state agencies— including DEQ in carrying out its statutory duties—to "maintain and improve a clean and healthful environment in Montana for present and future generations."[10] It is well-settled that the environmental protections in Montana's Constitution compel state agencies to take action to realize those protections. Indeed,

> [the Constitution's] unambiguous reliance on preventative measures to ensure that Montanans' inalienable right to a 'clean and healthful environment' is as evident in the air, water, and soil of Montana as in its law books. Article IX, Section 1, of the Montana Constitution describes the environmental rights of 'future generations,' while requiring 'protection' of the environmental life support system 'from degradation' and 'prevent[ion of] unreasonable depletion and degradation' of the state's natural resources. This forward-looking and

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[6] *See, e.g.,* Docket No. 2024.05.053, In re. NorthWestern Energy's Application to Increase Retail Electric and Natural Gas Utility Service Rates and for Approval of Service Schedules, Cost Allocation, and Rate Design, Direct Test. of Michael Goggins (Jan. 17, 2025) available at https://reddi.mt.gov/prweb/PRAuth2/app/reddi/69MPqGeS_UTZWHGFH6YedHAuE3yJxESf*/!STANDARD.

[7] *MEIC v. DEQ*, 2025 MT 3, ¶ 47, 420 Mont. 150, 561 P.3d 1033.

[8] *Id.* at ¶ 62.

[9] Mont. Const. art. II., § 3.

[10] *Id.* art. IX, § 1(1).

> preventative language clearly indicates that Montanans have a right not only to reactive measures after a constitutionally-proscribed environmental harm has occurred, but to be free of its occurrence in the first place.[11]

The Legislature's duty under the Constitution is to "provide adequate remedies for the protection of the environmental life support system from degradation" and "to prevent unreasonable depletion and degradation of natural resources."[12]

The Montana Environmental Policy Act (MEPA) helps realize these lofty constitutional purposes. As the Montana Supreme Court has explained, "[s]ince its enactment, the Legislature has shaped MEPA as a vehicle for pursuing its constitutional mandate to prevent environmental harms and its forward-looking mechanisms are encompassed by the Legislature's constitutional obligations."[13] While MEPA mandates procedures rather than particular outcomes, the Legislature enacted MEPA to "prevent or eliminate damage to the environment."[14] And while "[t]he Montana Constitution guarantees that certain environmental harms shall be prevented, [that] prevention depends on forethought. MEPA's procedural mechanisms help bring the Montana Constitution's lofty goals into reality by enabling fully informed and considered decision making, thereby minimizing the risk of irreversible mistakes depriving Montanans of a clean and healthful environment."[15]

To that end, MEPA requires agencies, including DEQ, to "take a 'hard look' at the environmental impacts of a given project or proposal."[16] DEQ must consider, among other things, reasonable alternatives to the proposed action, the direct, secondary, and cumulative environmental impacts of the action, and "the economic

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[11] *Park Cnty. Env't Council v. DEQ*, 2020 MT 303, ¶ 62, 402 Mont. 168, 477 P.3d 288.

[12] Mont. Const. art. IX, § 1(3).

[13] *Held v. State*, 2024 MT 312, ¶ 59, 419 Mont. 403, 560 P.3d 1235.

[14] *Park Cnty. Env't. Council*, ¶ 65.

[15] *Id.* at ¶ 70.

[16] *Mont. Wildlife Fed'n v. Mont. Bd. of Oil & Gas Conservation,* 2012 MT 128, ¶ 43, 365 Mont. 232, 280 P.3d 877; *see also* Mont. Code Ann. § 75-1-201(1)(b)(iv); ARM 17.4.609(3)(d).

advantages and disadvantages of the proposal."[17] DEQ must also identify and evaluate measures that will mitigate the project's impacts.[18] In discussing all of these matters pursuant to MEPA, DEQ "must examine the relevant data and articulate a satisfactory explanation for its action, including a rational connection between the facts found and the choice made."[19]

Fully-informed decision-making is the cornerstone of MEPA. MEPA's environmental review requirement fosters better decision-making by establishing a look-before-you-leap mandate, "ensur[ing] that presently unquantified environmental amenities and values may be given appropriate consideration."[20] The informative purpose of MEPA is three-fold.

First, MEPA review exists to ensure that the state, by and through its agencies, uses the information it gathers through the MEPA process to make a decision that maintains and improves the environment. As the Montana Supreme Court recently noted in its *Held* decision, "a clean and healthful environment cannot occur unless the State and its agencies can make adequately informed decisions."[21] This is because, as the Court also explained in the context of foreclosing review of GHG emissions, inadequate review

> under MEPA prevents state agencies from using any information garnered during this process to inform and strengthen substantive permitting or regulatory decisions or any mutual mitigation measures or alternatives that might be considered when the environmental harms of the proposed project are fully understood.[22]

A stable climate is essential to and included within the all-encompassing environmental life support system.[23] The degradation of Montana's climate and natural resources as a result of Montana's fossil-fuel-dependent energy system and

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[17] Mont. Code Ann. § 75-1-201(1)(b)(iv), (v); *see also* ARM 17.4.609(3).

[18] ARM 17.4.609(3)(g).

[19] *Mont. Wildlife Fed'n*, ¶ 43 (quoting *Clark Fork Coal. v. Mont. Dep't of Envtl. Quality*, 2008 MT 407, ¶ 47, 347 Mont. 197, 197 P.3d 482).

[20] Mont. Code Ann. § 75-1-201(1)(b)(ii).

[21] *Held*, ¶ 67.

[22] *Id.* at ¶ 68.

[23] *Id.* at ¶ 29.

its associated greenhouse gas emissions has caused and continues to cause constitutional harm to all Montanans. Therefore, state agencies, including DEQ, must utilize MEPA review to inform its actions to help realize these constitutional protections.

Second, adequate MEPA review "ensure[s] that … environmental attributes are fully considered by the legislature in enacting laws to fulfill constitutional obligations."[24] "An environmental review [under MEPA] 'assist[s] the legislature in determining whether laws are adequate to address impacts to Montana's environment and … inform[s] the public and public officials of potential impacts resulting from decisions made by state agencies."[25] "MEPA serves a role in enabling the Legislature to fulfill its constitutional obligation to prevent environmental harms infringing upon Montana's right to a clean and healthful environment" and "is essential to the 'State's efforts to meet its constitutional obligations.'"[26] Comment 39.3i

Third, MEPA ensures that "the public is informed of the anticipated impacts in Montana of potential state actions."[27] Citing to Montana Constitution, Article II §8, the Montana Supreme Court recently affirmed the importance of public participation through MEPA analyses in its *MEIC* decision, which involved the LGS and its GHG emissions.[28] In that case, the Court noted that where significant public comment was received expressing concern about the GHG emissions of the LGS, "it was appropriate information to include in DEQ's MEPA analysis."[29] Without adequate MEPA analysis of the impacts of a project, including impacts from its GHG emissions, Montanans' right to participate in government decision making is undermined. Comment 39.3j

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[24] Mont. Code Ann. § 75-1-102(1); *see also Ravalli Cnty. Fish & Game Ass'n v. Mont. Dep't of State Lands*, 273 Mont. 371, 903 P.2d 1362, 1367 (1995) ("MEPA requires that an agency take procedural steps to review '… major actions of state government significantly affecting the quality of the human environment' in order to make informed decisions.") (citation omitted).

[25] *MEIC*, ¶ 60 (citing Mont. Code Ann. § 75-1-102 (3)(a); ARM 17.4.609 (3)(d), (e)).

[26] *Id.* (citations omitted).

[27] Mont. Code Ann. § 75-1-102(1).

[28] *MEIC*, ¶ 57 (citing Mont. Code Ann. §75-1-102(1)(a), (b); Mont. Const., art. II § 8; Mont. Code Ann. § 2-3-103 (providing for public participation)).

[29] *Id.* at ¶ 61.

While the Legislature has, on several occasions, amended MEPA, the Montana Supreme Court has warned that "the Legislature cannot fulfill its constitutional obligation to prevent proscribed environmental harms without some legal framework in place that mirrors the uniquely 'anticipatory and preventative' mechanisms found in the original MEPA."[30] Given MEPA's essential goals to implement multiple constitutional obligations, to the extent that MEPA is amended to require anything less than an adequate disclosure or evaluation of impacts sufficient to fulfill the State's and Legislature's constitutional mandates, the statute is unconstitutional. As a result, despite its similarities to the federal National Environmental Policy Act (NEPA) and the utility of NEPA case law, MEPA, rooted in the state's constitution, requires greater consideration of environmental effects than what might be required under NEPA.

III. MEPA Review of GHG emissions

Less than four months before the Supplemental Draft EA was published, the Montana Supreme Court affirmed that "climate change is harming Montana's environmental life support system now and with increasing severity for the foreseeable future."[31] In holding that "Montana's right to a clean and healthful environment and environmental life support system includes a stable climate system," the Court found it undisputed that:

> GHG emissions are drastically altering and degrading Montana's climate, rivers, lakes, groundwater, atmospheric waters, forests, glaciers, fish, wildlife, air quality, and ecosystem: 'Anthropogenic climate change is impacting, degrading, and depleting Montana's environment and natural resources, including through increasing temperatures, changing precipitation patterns, increasing droughts and aridification, increasing extreme weather events, increasing severity and intensity of wildfires, and increasing glacial melt and loss.'[32]

Against this backdrop, the Legislature recently amended MEPA to require agencies to conduct greenhouse gas assessments in certain circumstances.

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[30] *Park Cnty. Env't. Council*, ¶ 70.

[31] *Held*, ¶ 29.

[32] *Id.* (restating undisputed Findings of Fact in *Held v. Montana*, No. CDV-2020-307 (1st Dist. Ct. Mont., Aug. 14, 2023)).

Assuming these newly-enacted MEPA amendments are signed into law, an agency must "conduct a greenhouse gas assessment" that analyzes the impacts of these emissions on "Montana's environment" for any "fossil fuel activity" which includes "a proposed action that authorizes…[the] burning of…natural gas to generate energy for electricity."[33] The Legislature further directed DEQ to "develop a guidance document" for determining when a greenhouse gas assessment is necessary and "include[s] direction on methodologies for completing a greenhouse gas assessment."[34] While DEQ has not yet developed this guidance, it must approach its greenhouse gas assessments consistently with the Montana Supreme Court's decisions in *Held v. State* and *MEIC v. DEQ*. These cases establish that DEQ must conduct an environmental review of GHG emissions in its MEPA reviews where GHG emissions are implicated in an agency decision. *Held* and *MEIC* establish the following principles (among others) to guide DEQ in its analysis:

- "Each additional ton of GHGs emitted into the atmosphere exacerbates impacts to the climate."[35]

- DEQ's obligation to conduct the required climate analysis exists independently of specific regulatory standards for GHGs under the Montana Clean Air Act.[36]

- DEQ must analyze the direct, secondary, and cumulative impacts of GHG emissions in permitting processes, taking a "hard look" at these impacts, even in the absence of established ambient air quality standards or specific regulations.[37]

- The substantial public concern regarding GHG emissions further underscores the necessity of evaluating these impacts under MEPA.[38]

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[33] Mont. Code Ann. § 75-1-201(1) (2025); *id.* at § 75-1-220 (2025); *id.* at §75-1-220(6), (7)(a) (2025) (defining "environmental review" and "fossil fuel activity").

[34] Mont. Code Ann. § 75-1-201(2)(a) (2025).

[35] *Held v. Montana*, No. CDV-2020-307 (1st Dist. Ct. Mont., Aug. 14, 2023) ¶ 91, *aff'd* 2024 MT 312.

[36] *MEIC*, ¶¶ 55–59.

[37] *Id.*

[38] *Id.* at ¶ 57.

- The cumulative and secondary impacts of Montana's GHG emissions are significant in a local, regional, national, and global context. Montana cannot disregard its contributions to environmental degradation within its borders simply because the impacts extend beyond them.[39]

In addition to the guidance provided by the Montana Supreme Court in its recent decisions, DEQ should also look to the overwhelming body of scientific research documenting the impacts of climate change, including in Montana. These scientific observations are summarized *infra* Section IV. DEQ should also adopt methodologies that incorporate and account for established scientific information about greenhouse gas emissions' impact on climate change, including climate change effects in Montana, as described *infra* Section V. If DEQ chooses to ignore the science and reject these well-established methodologies, as it did in its Draft Supplemental EA, the agency will fail to adequately evaluate the impacts of greenhouse gas emissions in defiance of both its MEPA obligations and the constitutional obligations underpinning MEPA.

Comment 39.9k

Comment 39.3l

Comment 39.3m

IV. Climate Change Causes Environmental and Societal Harm Globally and in Montana

Comment 39.3n

Climate change is having and will increasingly have significant environmental and economic impacts in Montana, the United States, and across the globe. These impacts are described in numerous studies and reports, including the most recent Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment Report (AR6),[40] the U.S. Fourth and Fifth National Climate Assessments,[41] the

[39] *Id.* at ¶ 62.

[40] Intergovernmental Panel on Climate Change, AR 6 WGII Technical Summary (2022), available at https://www.ipcc.ch/report/ar6/wg2/downloads/report/IPCC_AR6_WGII_TechnicalSummary.pdf (IPCC AR6), attached as Exhibit 1.

[41] U.S. Global Change Research Program, Fourth National Climate Assessment, Impacts, Risks, and Adaptation in the United States, Report-in-Brief, available at https://nca2018.globalchange.gov/downloads/NCA4_Report-in-Brief.pdf, attached as Exhibit 2; U.S. Global Change Research Program, Fifth National Climate Assessment, Impacts, Risks, and Adaptation in the United States, Report-in-Brief, available at https://nca2023.globalchange.gov/downloads/NCA5_Report-In-Brief.pdf, attached as Exhibit 3.

Montana Climate Assessment (MCA),[42] and the Montana Climate Assessment Special Report: Climate Change and Human Health in Montana.[43] Aided by the scientific literature that overwhelmingly confirms the negative impacts of greenhouse gas emissions, DEQ must account for the impacts of its decision to authorize this project on climate change.

A. Global Climate Change Impacts

In 2022, the IPCC completed and issued AR6, an extensive 4-volume appraisal of recent scientific and economic literature cataloging the principal mechanisms by which human-caused greenhouse gas emissions are contributing to climate change and undermining critical human and natural systems. In AR6, the IPCC comprehensively analyzed such observed threats to ecosystems and human systems, and confirms that impacts are real and often severe, including that:

- Climate change has caused local species losses, increases in disease [], and mass mortality events of plants and animals [], resulting in the first climate driven extinctions [], ecosystem restructuring, increases in areas burned by wildfire [], and declines in key ecosystem services.

- Widespread and severe loss and damage to human and natural systems are being driven by human-induced climate changes increasing the frequency and/or intensity and/or duration of extreme weather events, including droughts, wildfires, terrestrial and marine heatwaves, cyclones [], and flood []. Extremes are surpassing the resilience of some ecological and human systems.

- Extreme events and underlying vulnerabilities have intensified the societal impacts of droughts and floods and have negatively impacted agriculture, energy production and increased the incidence of water-borne diseases. Economic and societal impacts of water insecurity are more pronounced in

[42] Montana Climate Assessment: Stakeholder driven, science informed (2017), available at http://live-mca-site.pantheonsite.io/sites/default/files/thumbnails/image/2017-Montana-Climate-Assessment-lr.pdf (MCA), attached as Exhibit 4.

[43] Climate Change and Human Health in Montana: A Special Report on the Montana Climate Assessment (2021), available at http://live-mca-site.pantheonsite.io/sites/default/files/thumbnails/image/2021_C2H2inMT_final.pdf (MCA: Climate Change and Human Health), attached as Exhibit 5.

low-income countries than in the middle- and high-income ones.

- Over nine million climate-related deaths per year are projected by the end of the century, under a high emissions scenario and accounting for population growth, economic development and adaptation.

- In many regions, the frequency and/or severity of floods, extreme storms and droughts is projected to increase in coming decades, especially under high emissions scenarios, raising future risk of displacement in the most exposed areas []. Under all global warming levels, some regions that are presently densely populated will become unsafe or uninhabitable.[44]

- Approximately 3.3 to 3.6 billion people live in contexts that are highly vulnerable to climate change[]. A high proportion of species is vulnerable to climate change []. Human and ecosystem vulnerability are interdependent.[45]

Specifically looking at the United States, the IPCC concludes that:

> Rising air, water, ocean and ground temperatures have restructured ecosystems and contributed to the redistribution [] and mortality [] of fish, bird and mammal species. Extreme heat and precipitation trends on land have increased vegetation stress and mortality, reduced soil quality and altered ecosystem processes including carbon and freshwater cycling []. Warm and dry conditions associated with climate change have led to tree die-offs [] and increased prevalence of catastrophic wildfire [] with an increase in the size of severely burned areas in western North America [].[46]

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[44] Bulleted statements from Exhibit 1, IPCC AR 6 (omitting confidence level assignments for ease of reading).

[45] Intergovernmental Panel on Climate Change, AR 6 WGII Summary for Policymakers (2022), available at https://www.ipcc.ch/report/ar6/wg2/downloads, attached as Exhibit 18.

[46] Intergovernmental Panel on Climate Change, Contribution of Working Group II to the Sixth Assessment Report, Ch. 14, 1932 (2022) (omitting confidence level assignments for ease of reading), available at https://www.ipcc.ch/report/ar6/wg2/downloads/report/IPCC_AR6_WGII_Chapter14.pdf (IPCC Ch. 14), attached as Exhibit 6.

Similarly, the IPCC observed that "careful statistical analysis shows that record-setting hot temperatures in North America are occurring more often than record-setting cold temperatures as the overall climate has gotten warmer in recent decades. The area burned by large wildfires in the western USA has increased in recent decades."[47] Greenhouse gas emission increases since 1750 now produce a climate-forcing equivalent to twice the preindustrial level of atmospheric CO_2 and is already and will continue to experience the consequences of this climate change.[48]

These impacts are aggravated by all incremental emissions, such as those from coal and gas resources in Montana. On this point, the IPCC recently explained:

> Continued greenhouse gas emissions will lead to increasing global warming, with the best estimate of reaching 1.5°C in the near term in considered scenarios and modelled pathways. Every increment of global warming will intensify multiple and concurrent hazards []. Deep, rapid, and sustained reductions in greenhouse gas emissions would lead to a discernible slowdown in global warming within around two decades, and also to discernible changes in atmospheric composition within a few years.[49]

Incremental increases in emissions push the global atmosphere toward tipping points that will lead to irreversible changes:

> Some future changes are unavoidable and/or irreversible but can be limited by deep, rapid and sustained global greenhouse gas emissions reduction. The likelihood of abrupt and/or irreversible changes increases with higher global warming levels. Similarly, the probability of low-likelihood outcomes associated with potentially very large adverse impacts increases with higher global warming levels.[50]

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[47] *Id.* at 1938.

[48] Hansen, J. *et al.*, Global warming in the pipeline (Dec. 8, 2022) available at https://arxiv.org/pdf/2212.04474, attached as Exhibit 7.

[49] Synthesis Report of the IPCC Sixth Assessment Report (2023) available at https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_SPM.pdf (IPCC Synthesis Report), attached as Exhibit 8.

[50] *Id.* at 18.

"The likelihood and impacts of abrupt and/or irreversible changes in the climate system, including changes triggered when tipping points are reached, increase with further global warming []."[51] This means that no one can stand on the sidelines; "deep" and "rapid" emissions reductions must come from all jurisdictions. To have even a moderate chance at avoiding the worst impacts of climate change and keeping warming to 1.5° or even 2° C, wholesale emission reductions must occur between now and 2030.[52]

B. Climate Change Impacts in the Northern Great Plains Region

Comment 39.3o

Much like the United States in general, the number of days with hot temperatures is projected to largely increase across the Great Plains region even under scenarios in which greenhouse gas emissions are reduced. The number of days with temperatures over 100°F are projected to double in the north and quadruple in the south, with similar increases in nights with temperatures higher than 60°F in the north and 80°F in the south.[53]

The National Climate Assessment (NCA) contains a detailed analysis of regional impacts of climate change throughout the United States, including the northern plains region.[54] The NCA makes clear that the impacts of climate change are already being felt throughout the mountains and plains of Montana. Climate change is causing and is predicted to continue to cause warmer water temperatures in streams and rivers and low summer flows. Hotter temperatures and earlier spring snowmelt are also causing and expected to continue causing longer and more damaging wildfire seasons.[55]

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[51] *Id.*

[52] *Id.* (explaining current "gap" between emissions are reductions required to limit warming, which "make it likely that warming will exceed 1.5 C").

[53] U.S. Global Change Research Program, Third National Climate Assessment, Climate Change Impacts in the United States (2014), available at https://nca2014.globalchange.gov/downloads/low/NCA3_Full_Report_19_Great_Plains_LowRes.pdf, attached as Exhibit 9.

[54] U.S. Global Change Research Program, Fourth National Climate Assessment, Impacts, Risks, and Adaptation in the United States, Northern Great Plains (2018), available at https://nca2018.globalchange.gov/downloads/NCA4_Ch22_Northern-Great-Plains_Full.pdf (NCA Northern Great Plains), attached as Exhibit 10.

[55] *Id.*

These impacts to natural systems are, in turn, harming important sectors of Montana's economy, including agriculture and outdoor recreation.[56] [57] For example, higher temperatures and water shortages have harmed and are projected to worsen harms to the agricultural sectors of the state's economy. Climate change is also causing more frequent extreme weather events and flooding in the region.[58]

The energy sector in the northern plains region is a "significant source of greenhouse gases and volatile organic compounds that contribute to climate change and ground-level ozone pollution."[59] "Unless offset by additional emissions reductions of ozone precursors, these climate-driven increases in ozone forecast to cause premature deaths, hospital visits, lost school days, and acute respiratory symptoms."[60]

A climate assessment for Montana has also been conducted by Montana State University, the University of Montana, and the Montana Institute on Ecosystems. The Montana Climate Assessment (MCA) provides a more detailed look at the impacts from climate change that are already being experienced across the state and impacts that are expected in the future.[61] Changes include:

- Annual average temperatures, including daily minimums, maximums, and averages, have risen across the state between 1950 and 2015. The increases range between 2.0-3.0°F (1.1-1.7°C) during this period.

- Despite no historical changes in average *annual* precipitation between 1950 and 2015, there have been changes in average *seasonal* precipitation over the same period.

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[56] Power Consulting Inc., The Economic Impact of Climate Change in Montana (Sept. 2023), available at https://montanawildlife.org/wp-content/uploads/2023/10/Economic-Impacts-of-Climate-Change-in-MT_Power-Consulting-Inc._Clean-Version_9-27-2023.docx.pdf?c6b026&c6b026, attached as Exhibit 11.

[57] Power Consulting Inc., The Economic Impact of Climate Change on Montana Agriculture (Oct. 2024), available at https://farmconnectmontana.org/files/reports/Econ-Impact-of-Climate-Change-on-MT-Ag-2024.pdf, attached as Exhibit 12.

[58] Exhibit 5, MCA: Climate Change and Human Health at XIX.

[59] Exhibit 10, NCA Northern Great Plains at 962.

[60] *Id.* at 963.

[61] Exhibit 4, MCA.

- Montana is projected to continue to warm in all geographic locations, seasons, and under all emission scenarios throughout the 21st century. By mid-century, Montana temperatures are projected to increase by approximately 4.5-6.0°F (2.5-3.3°C) depending on the emission scenario. By the end-of-century, Montana temperatures are projected to increase 5.6-9.8°F (3.1-5.4°C) depending on the emission scenario. These state-level changes are larger than the average changes projected globally and nationally.

- Across the state, precipitation is projected to increase in winter, spring, and fall; precipitation is projected to decrease in summer. The largest increases are expected to occur during spring in the southern part of the state. The largest decreases are expected to occur during summer in the central and southern parts of the state.[62]

The Montana Climate Assessment also presented findings on climate impacts that Montana can expect in the future. Water resources are at risk from rising temperatures that will reduce snowpack, shift historical patterns of streamflow, and likely result in additional stress on Montana's water supply, particularly during summer and early fall. Specifically:

- Montana's snowpack has declined over the observational record (i.e., since the 1930s) in mountains west and east of the Continental Divide; this decline has been most pronounced since the 1980s. Warming temperatures over the next century, especially during spring, are likely to reduce snowpack at mid and low elevations.

- Historical observations show a shift toward earlier snowmelt and an earlier peak in spring runoff in the Mountain West. Projections suggest that these patterns are very likely to continue into the future as temperatures increase.

- Earlier onset of snowmelt and spring runoff will reduce late-summer water availability in snowmelt-dominated watersheds.

- Groundwater demand will likely increase as elevated temperatures and changing seasonal availability of traditional surface-water sources (e.g., dry stock water ponds or inability of canal systems to deliver water in a timely

[62] *Id.* at XXVI–XXVIII.

manner) force water users to seek alternatives.[63]

The MCA also found that rising temperatures will exacerbate persistent drought periods that have been a natural part of Montana's climate. Specifically:

- Multi-year and decadal-scale droughts have been, and will continue to be, a natural feature of Montana's climate; rising temperatures will likely exacerbate drought when and where it occurs; and

- Changes in snowpack and runoff timing will likely increase the frequency and duration of drought during late summer and early fall.[64]

The MCA also forecasts that climate change will negatively affect Montana agriculture.[65] Impacts include:

- Decreasing mountain snowpack will continue to lead to decreased streamflow and less reliable irrigation capacity during the late growing season. Reduced irrigation capacity will have the greatest impact on hay, sugar beet, malt barley, market garden, and potato production across the state; and

- Increases in temperature will allow winter annual weeds, such as cheatgrass, to increase in distribution and frequency in winter wheat cropland and rangeland. Their spread will result in decreased crop yields and forage productivity as well as increased rangeland wildfire frequency.[66]

C. Climate Change Harms Montanans' Health

Comment 39.3p

As shown in both the National and Montana Climate Assessments, all Montanans will experience environmental impacts from a changing climate. Building on the MCA, Montana State University, the Montana Institute of Ecosystems, and Montana Health Professionals for a Healthy Climate published Climate Change and Human Health in Montana: A Special Report of the Montana Climate Assessment in January 2021.[67] This report examines the connections

[63] *Id.* at XXXII.

[64] *Id.*

[65] *Id.* at 197–244.

[66] *Id.* at 198–99.

[67] Exhibit 5, MCA: Climate Change and Human Health.

between climate change impacts and the health of Montanans. The report focused on three aspects of projected climate change of greatest concern for human health in Montana: increased summer temperatures and periods of extreme heat; reduced air quality, as wildfires increase in size and frequency; and more unexpected climate-related weather events, including rapid spring snowmelt and flooding, severe summer drought, and more extreme storms.[68] The report concludes that these climate change impacts will adversely affect Montanans in myriad ways, including that:

- [I]ncreased summer temperatures and wildfire occurrence will worsen heat- and smoke-related health problems such as respiratory and cardiopulmonary illness.

- Earlier snowmelt will endanger lives and lead to more gastrointestinal disease due to contaminated water supplies as well as increased opportunities for other water-borne, food-borne and mold-related diseases.

- Increased summer drought will likely increase cases of West Nile virus, pose challenges to local agriculture, and result in decreased food availability and nutritional quality as well as jeopardizing the safety and availability of public and private water supplies.

- [W]armer temperatures and elevated carbon dioxide levels will lead to worsening allergies and asthma as a result of increased pollen levels.

- Climate changes are reducing the availability of wild game, fish, and many subsistence, ceremonial, and medicinal plants, which threatens food security, community health, and cultural well-being, particularly for tribal communities.[69]

[68] *Id.* at XIX.

[69] *Id.*

In light of these existing and projected impacts, the State of Montana has recognized that "urgent action [] is needed to address the increasing threats and impacts of climate change."[70]

D. Montana's Fossil Fuel Energy Sources and Gas Infrastructure Spur Climate Change and Its Harmful Impacts in Montana

Comment 39.3q

As a net energy exporter positioned with disproportionate access to untapped fossil fuel reserves, Montana is a significant contributor to anthropogenic climate change. According to the U.S. Environmental Protection Agency (EPA), nearly 75% of total climate-altering greenhouse gas emissions in the U.S. come from combustion of fossil fuels (including for energy production), namely coal, oil, and methane gas.[71] Montana's 2022 electric-sector greenhouse gas emissions, calculated as carbon dioxide-equivalent emissions, amounted to 13.3 million metric tons, with residential and commercial-sector greenhouse gas emissions (primarily from burning gas for heating and other purposes) adding 3.8 million metric tons.[72] As affirmed in the December 2024 *Held v. Montana* ruling and supported by broad scientific consensus, these greenhouse gas emissions cause a climate-altering effect with dire implications within the state of Montana.[73] Emitters regulated by DEQ develop, maintain, and utilize power from substantial fossil-fuel energy infrastructure that is responsible for these climate-altering emissions. This infrastructure includes coal-burning power plants, methane-gas burning power plants, petroleum-coke burning power plants, and methane gas pipelines and distribution systems.

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[70] Montana Climate Solutions Council, Montana Climate Solutions Plan (Aug. 2020), p. 58, available at https://deq.mt.gov/Files/DEQAdmin/Climate/2020-09-09_MontanaClimateSolutions_Final.pdf (Montana Climate Solutions Plan), attached as Exhibit 13.

[71] U.S. EPA, Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2021, Executive Summary, p. ES-9 (April 2023), available at https://www.epa.gov/system/files/documents/2023-04/US-GHG-Inventory-2023-Chapter-Executive-Summary.pdf, attached as Exhibit 14.

[72] U.S. Energy Info. Admin., State energy-related carbon dioxide emissions, Table 3, available at https://www.eia.gov/environment/emissions/state/

[73] *Held,* ¶¶19–46.

E. Burning Fossil Fuels in Montana Has Significant Environmental and Societal Costs

Comment 39.3r

Combustion of fossil fuels generates real economic harm in the state, which can be estimated using the Social Cost of Greenhouse Gases, discussed further below (SC-GHG). The SC-GHG is a metric that estimates the economic damage caused by each additional ton of carbon dioxide, methane, and nitrous oxide emitted into Earth's atmosphere. While not the only climate-forcing greenhouse gases, these three gases account for the vast majority of global climate change, with carbon dioxide being the most prevalent in the atmosphere and methane and nitrous oxide comprising only a fraction of atmospheric greenhouse gases, but having far greater potency. The SC-GHG allows decision-makers such as DEQ to internalize the cost of greenhouse gas emissions that were previously externalized. In 2023, the U.S. EPA released its Final Report on the Social Cost of Greenhouse Gases, which calculated the Social Cost of Carbon at a rate of $190 per ton of CO_2 emitted in 2021.[74] The Colstrip coal-fired power plant, Montana's largest point-source emitter of greenhouse gases, reported 10,967,111 metric tons of carbon dioxide-equivalent emissions to the EPA for 2023. At $190 per ton, that is $2,040,725,970 in annual economic damages from just a single emission source in Montana.[75]

V. Appropriate Methodologies for Review of GHG Emissions under MEPA

Comment 39.3s

The DEQ must employ appropriate and comprehensive methodologies for the review of GHG emissions from the proposed LGS under MEPA. In conducting this review, DEQ should consult the various publications and scientific literature cited

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[74] U.S. EPA, Report on the Social Cost of Greenhouse Gases: Estimates Incorporating Recent Scientific Advances (November 2023), available at https://www.epa.gov/system/files/documents/2023-12/epa_scghg_2023_report_final.pdf (EPA Social Costs GHG), attached as Exhibit 15. The SC-GHG includes specific values for each climate-forcing greenhouse gas. As referenced, carbon dioxide has the greatest impact on global climate change as a result of its atmospheric abundance, but EPA has also established social costs for methane (CH4), and nitrous oxide (N2O) of $1,600 and $54,000 per ton, respectively.

[75] U.S. EPA, Greenhouse Gas Reporting Program (GHGRP), GHGRP Emissions by Location 2022, available at https://www.epa.gov/ghgreporting/ghgrp-emissions-location. This figure does not break down emissions by type or account for the higher social costs of methane and nitrous oxide. Thus, the actual social costs of Colstrip's greenhouse gas emissions are likely higher.

Comment 39.3ss continued

above.[76] To achieve this comprehensive review, the following section details the minimum requirements for an analysis of direct effects, secondary and cumulative impacts, a thorough evaluation of alternatives, and the identification of potential mitigation measures.

A. Direct Effects

Comment 39.3t

To comply with both MEPA and Montana's constitution, DEQ must do more than simply quantify potential emissions. DEQ's assessment of the direct effects of GHGs from the LGS must provide a more thorough analysis.[77] MEPA requires a "hard look" at the environmental impacts of a proposed project, and applying this requirement to GHGs necessitates moving beyond simply stating the amount of emissions.[78] The proposed action's contribution to climate change must be evaluated in a meaningful context.[79]

Comment 39.3u

DEQ should not rely on statements asserting that the emissions from the proposed action represent only a small fraction of global or domestic emissions to dismiss the potential significance of these effects. As the proposed CEQ guidance on GHG analysis under NEPA correctly notes,

> [s]uch a statement merely notes the nature of the climate change challenge, and is not a useful basis for deciding whether or to what extent to consider climate change effects under NEPA. Moreover, such comparisons and fractions also are not an appropriate method for characterizing the extent of a proposed action's and its alternatives' contributions to climate change because this approach does not reveal anything beyond the nature of the climate change challenge itself—the fact that diverse individual sources of emissions each make a relatively

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[76] *Supra* Section IV.

[77] *See* Draft EA at 27–29.

[78] *See Mont. Wildlife Fed'n*, ¶ 43; *MEIC*, ¶ 40; *Ravalli Cnty. Fish & Game Assn.* at 377. *See also Ctr. for Biological Diversity v. Nat'l Highway Traffic Safety Admin.*, 538 F.3d 1172, 1198–1204 (9th Cir., 2008); *California v. Bernhardt*, 472 F. Supp. 3d 573, 623 (N.D. Cal. 2020); *Ctr. for Biological Diversity v. U.S. Forest Service*, 687 F. Supp. 3d 1053, 1077 (D. Mont. 2023).

[79] *See* National Environmental Policy Act Guidance on Consideration of Greenhouse Gas Emissions and Climate Change, 88 Fed. Reg. 1196, 1201 (2023); *Diné Citizens Against Ruining Our Env't. v. Haaland*, 59 F.4th 1016, 1044 (10th Cir. 2023); *350 Montana v. Haaland*, 50 F.4th 1254, 1265–67 (9th Cir. 2022).

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small addition to global atmospheric GHG concentrations that collectively have a large effect.[80]

Comment 39.3v

To provide a more useful analysis, DEQ should describe the harms associated with GHG emissions in the context of relevant climate action goals and commitments. Evaluating the proposed action and its alternatives' consistency with such goals and commitments helps DEQ, the Legislature, and the public better understand the policy context, recognize the importance of considering alternatives and mitigation, and identify the tradeoffs of the decision, all of which are crucial for evaluating the significance of the project's GHG emissions and climate change effects. As a starting point, DEQ should consider Executive Order 8-2019, which aims to reduce emissions from traditional electricity generation by setting an interim goal of net greenhouse gas neutrality for average annual electric loads in the state by no later than 2035.[81] DEQ should also consider the Montana Climate Solutions Plan, which recognizes that "[u]rgent action is needed to address the increasing threats and impacts of climate change."[82]

Comment 39.3w

Comment 39.3x

Comment 39.3y

To enhance public understanding and inform decision-makers, DEQ should provide accessible comparisons or equivalents for the estimated GHG emissions from the LGS. Examples include expressing emissions in terms of passenger car equivalents or the amount of electricity needed to power a certain number of homes annually.[83] Finally, DEQ must adopt an appropriate scope of analysis for direct effects that fully captures the reasonably foreseeable consequences of the proposed

Comment 39.3z

[80] National Environmental Policy Act Guidance on Consideration of Greenhouse Gas Emissions and Climate Change, 88 Fed. Reg. 1196 (2023) (while withdrawn, the underlying scientific principles about the nature of climate change contained in this guidance remain sound).

[81] State of Montana, Office of the Governor, Executive Order 8-2019.

[82] Exhibit 13, Montana Climate Solutions Plan at 58.

[83] *See* EPA, Greenhouse Gas Equivalencies Calculator, available at https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator#:~:text=Convert%20emissions%20or%20energy%20data,at%20reducing%20greenhouse%20gas%20emissions.

action's GHG emissions.[84] A single vague sentence stating a few general impacts from climate change, as reflected in the Draft EA, is simply insufficient.

B. Secondary Impacts

Under MEPA, DEQ must analyze as a secondary impact "a further impact to the human environment that may be stimulated or induced by or otherwise result from a direct impact of the action."[85] Analyzing these secondary impacts of GHG emissions is crucial given the nature of climate change. The effect of numerous individual emissions sources, each seemingly small on a global scale, leads to significant and far-reaching consequences.[86] As explained above, these consequences are not abstract; they are manifesting as severe and often irreversible impacts on ecosystems and human systems worldwide.[87]

Comment 39.3aa

As explained above, climate change is increasing the frequency and intensity of extreme weather events like droughts, heatwaves, and floods, often surpassing the resilience of natural and human systems and intensifying societal impacts on agriculture, energy, and human health.[88] Due to the interconnectedness of the climate system and the long atmospheric lifetime of many GHGs, emissions from sources like the LGS contribute to these global effects and their long-lasting consequences.

Comment 39.3bb

These impacts are already evident in the Western United States, where rising temperatures have led to ecosystem restructuring, vegetation stress, tree die-offs, and increased catastrophic wildfires.[89] Montana is particularly vulnerable,

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[84] *See* National Environmental Policy Act Guidance on Consideration of Greenhouse Gas Emissions and Climate Change, 88 Fed. Reg. 1196 (while withdrawn, the underlying scientific principles about the nature of climate change contained in this guidance remain sound).

[85] ARM 17.4.603(18).

[86] *See* Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews, 81 Fed. Reg. 51866 (while subsequently withdrawn, this guidance still provides relevant context to consider climate change impacts).

[87] Exhibit 1, IPCC AR6.

[88] *Id.*

[89] Exhibit 6, IPCC Ch. 14.

experiencing rising temperatures faster than the global or national average and facing significant projected risks, including reduced snowpack, earlier runoff, decreased summer water availability, exacerbated drought, and negative impacts on agriculture.[90] Crucially, these environmental changes directly threaten human health in Montana, contributing to worsened respiratory illness, increased water-borne diseases, greater incidence of West Nile virus, and impacts on food security and cultural well-being, particularly for tribal communities.[91] The State of Montana has recognized the need for "urgent action" due to these increasing threats.[92] These existing and projected impacts are aggravated by all incremental emissions, such as those associated with the LGS.[93] Every increment of global warming intensifies hazards, and the likelihood of abrupt or irreversible changes increases with higher warming levels.[94] To avoid the worst of climate change, all jurisdictions must achieve rapid and sustained global emission reductions.[95]

Comment 39.3bb continued

Comment 39.3cc

DEQ must analyze how the proposed LGS may increase local and state vulnerability to the impacts of climate change.[96] This analysis should consider how climate change can exacerbate existing vulnerabilities and lessen the resilience of resources, ecosystems, and human communities to other environmental effects. For example, if anthropogenic influence on climate is driving snowpack declines throughout the region, DEQ should infer that anthropogenic influence on climate from the LGS and other sources is also contributing to observed declines in snowpack in Montana.[97] This inference is reasonable even without a downscaled attribution study definitively linking local impacts to global climate change.

Comment 39.3dd

To appropriately describe these effects, DEQ should adopt the Social Cost of Greenhouse Gas (SC-GHG) framework. The SC-GHG provides a valuable metric that offers decision-makers and the public useful information and context about a

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[90] Exhibit 4, MCA.

[91] Exhibit 5, MCA: Climate Change and Human Health.

[92] Exhibit 13, Montana Climate Solutions Plan.

[93] See *MEIC v. DEQ*, ¶ 62.

[94] Exhibit 8, IPCC Synthesis Report, *See Held v. Montana*, No. CDV-2020-307 (1st Dist. Ct. Mont., Aug. 14, 2023) ¶ 91, *aff'd* 2024 MT 312.

[95] *Id.*

[96] *See Id.*

[97] *See* Exhibit 4, MCA.

proposed action's climate effects.[98] Even if no other costs or benefits are monetized, the SC-GHG helps to translate abstract metric tons of GHGs into a more understandable economic value, reflecting the long-term damages associated with the emissions.[99] Importantly, the SC-GHG metric is not solely an economic analysis, but rather, it is a tool that allows agencies to meet their statutory obligation to describe a project's incremental environmental harm that is otherwise difficult to quantify. The Montana Supreme Court's decision in *Belk v. DEQ* does not prohibit this analysis, as the court upheld agency discretion to gather the information necessary to make their findings.[100] As an example, DEQ should look to the Supplemental Environmental Impact Statement ("SEIS") for the 2024 Miles City Field Office Resource Management Plan Amendment, which applies the SC-GHG tool in the NEPA context.[101] Furthermore, DEQ should describe the health effects of climate change in its analysis, citing relevant scientific literature to ensure public awareness of the impacts of additional greenhouse gas emissions on climate change in Montana (*see* Section IV and attached exhibits).

Com

Comment 39.3dd continued

C. Alternatives

DEQ must disclose the impacts of a no-action alternative in its EA. This analysis is critical for understanding the baseline scenario and the potential consequences of not proceeding with the proposed project. DEQ's assertion that it cannot fully analyze the no-action alternative because it could not deny the permit is inconsistent with the purpose of MEPA. As the Montana Supreme Court recognized in *MEIC v. DEQ*, agencies should use the information provided through the MEPA process to inform decision-makers, which includes a thorough understanding of baseline alternatives.[102] In its analysis of alternatives, DEQ should not simply assume that if the LGS does not take place, another action will perfectly substitute for it and generate identical emissions, such that the proposed action's net emissions relative to the baseline are zero. This assumption ignores the potential for different energy development pathways that could avoid the

Comment 39.3ee

Comment 39.3ff

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[98] Exhibit 15, EPA Social Costs GHG; Exhibit 1, IPCC AR6.

[99] *See* Exhibit 15, EPA Social Costs GHG.

[100] 2022 MT 38, ¶31, 408 Mont. 1, 504 P.3d 1090.

[101] SEIS, Miles City Field Office (2024), https://eplanning.blm.gov/public_projects/2021155/200534253/20110900/251010891/MCFO_Final%20SEIS_Proposed%20RMPA_508.pdf, attached as Exhibit 16.

[102] 2025 MT 3, ¶ 62.

environmental harm of fossil-fuel development and the possibility of reduced energy demand or increased energy efficiency. Given the urgency of the climate crisis and the potential for cumulative impacts from similar fossil-fuel projects, DEQ should also consider a programmatic review of fossil-fuel actions within DEQ's jurisdiction, or of a similar type to the LGS, which would allow for a more comprehensive review of alternatives and their associated GHG emissions.

D. Cumulative Impacts

DEQ's cumulative impacts analysis must include an analysis of upstream and downstream GHG emissions associated with the proposed LGS.[103] This includes emissions from the extraction, processing, and transportation of the fuel source (upstream) as well as the emissions resulting from the combustion of that fuel to generate electricity (downstream).[104] Comment 39.3gg

While Montana Senate Bill 221 (2025), if enacted, would restrict the consideration of certain indirect impacts, a comprehensive assessment of the LGS's contribution to climate change, as mandated in *Held* and *MEIC* and by Montana's constitutional guarantees, necessitates the inclusion of these reasonably foreseeable emissions directly linked to the project's operation.[105] This approach aligns with the principles of cumulative impact analysis, which requires consideration of the combined environmental effects of the proposed action and other past, present, and Comment 39.3hh Comment 39.3 ii

[103] ARM 17.4.603(7).

[104] *See, e.g. Sierra Club v. Fed. Energy Regul. Comm'n.*, 867 F.3d 1357, 1374 (D.C. Cir. 2017) (downstream GHG emissions were an indirect effect of pipeline project and required the agency to provide a quantitative estimate of the downstream GHG emissions resulting from the burning of the natural gas to be transported by the pipeline or explain why it could not do so, and to discuss the significance of these emissions).

[105] *See Held*, ¶¶ 37, 62; *MEIC*, ¶¶ 55–62.

related future actions.[106] Federal environmental review under NEPA routinely includes the analysis of upstream and downstream emissions in cumulative impacts assessments.[107]

Comment 39.3 ii continued

DEQ has previously asserted in response to comments that "DEQ is not required to evaluate impacts emanating from activities beyond its permitting authority" and that the standard under NEPA is different.[108] However, DEQ cannot simply ignore these impacts. Critically, the decision in *Bitterrooters v. DEQ* does not absolve DEQ from the obligation to conduct a thorough cumulative impacts analysis that accounts for the full environmental consequences causally linked to its permitting decisions.[109] The Montana Supreme Court's decision in *MEIC v. DEQ* does not eliminate the agency's obligation to evaluate upstream and downstream emissions. These emissions resulting from the transportation to and combustion of fuel at the facility are clearly secondary impacts directly caused by the permitted activity and must be analyzed.

Comment 39.3jj

E. Mitigation

Comment 39.3kk

Finally, DEQ must describe appropriate and feasible mitigation measures to reduce the GHG emissions associated with the LGS. As the Court noted in *MEIC*, "MEPA … allow[s] a project sponsor and the regulating agency to mutually develop measures that are incorporated into the permit."[110] These mitigation measures are

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[106] *See WildEarth Guardians v. U.S. Bureau of Land Mgmt.*, 457 F. Supp. 3d 880, 894 (D. Mont. 2020) ("Third, the large-scale nature of environmental issues like climate change show why cumulative impacts analysis proves vital to the overall NEPA analysis. The cumulative impacts analysis was designed precisely to determine whether 'a small amount here, a small amount there, and still more at another point could add up to something with a much greater impact.' *Klamath-Siskiyou*, 387 F.3d at 994. The global nature of climate change and greenhouse-gas emissions means that any single lease sale or BLM project likely will make up a negligible percent of state and nation-wide greenhouse gas emissions.")

[107] *See, e.g.*, *Sierra Club* at 1374 (downstream GHG emissions were an indirect effect of pipeline project and required the agency to provide a quantitative estimate of the downstream GHG emissions resulting from the burning of the natural gas to be transported by the pipeline or explain why it could not do so, and to discuss the significance of these emissions).

[108] Final Permit Issuance for MAQP #1564-38, at 33.

[109] *See* 2017 MT 222, 388 Mont. 453, 401 P.3d 712.

[110] *MEIC*, ¶ 56.

important given MEPA's purpose to "avoid, minimize, or mitigate environmental impacts"[111] which is an essential part of "MEPA's unique role in protecting Montanans' constitutional right to a clean and healthful environment."[112] This review should, at a minimum, include a thorough evaluation of potential technologies and strategies to minimize emissions throughout the project's lifecycle.

Comment 39.3kk continued

VI. The Draft Supplemental EA Fails to Comply with MEPA

A. Direct Impacts

MEPA requires a thorough examination of the direct environmental impacts of a proposed action.[113] This necessitates a detailed analysis of GHG emissions directly resulting from the operation of the LGS. The DEQ constrained its analysis in the Draft Supplemental EA of direct impacts to conducting a rudimentary quantification of the GHG emissions associated with the station.[114] While quantifying emissions is a necessary first step, it is insufficient to meet the requirements of MEPA for a meaningful analysis of direct impacts. Simply stating the projected annual emissions fails to provide the public and the legislature with a clear understanding of the significance of these emissions and their contribution to climate change.

Comment 39.3ll

To provide a more robust analysis of the direct impacts, DEQ should adopt the framework outlined above. This framework includes, but is not limited to:

- **Contextualizing emissions within state climate goals:** DEQ should explicitly evaluate the projected direct GHG emissions from the LGS in relation to Montana's established climate goals, such as the interim goal of net greenhouse gas neutrality for average annual electric loads by 2035 as outlined in Executive Order 8-2019[115], and the urgent call for action in the Montana Climate Solutions Plan.[116] The EA should clearly articulate how the LGS's emissions trajectory aligns with or deviates from these goals.

Comment 39.3mm

Comment 39.3nn

[111] Mont. Code Ann. § 75-1-102(2) (2025).

[112] *MEIC*, ¶ 60.

[113] Mont. Code Ann. §§ 75-1-102, 103.

[114] Draft EA at 27–28.

[115] State of Montana, Office of the Governor, Executive Order 8-2019.

[116] Exhibit 13, Montana Climate Solutions Plan.

Comment 39.3oo

- **Illustrating the additive nature of LGS emissions:** The analysis must clearly state that the GHG emissions from the LGS will directly add to the total GHG emissions in the state.

- **Providing comparative context to other projects:** To help the public and decision-makers understand the scale of the LGS's direct emissions, DEQ should contextualize these emissions by comparing them to the projected emissions of other similar-sized projects within Montana or the region. DEQ should also explain that "Montana's fossil fuel Electric Generating Units (EGUs) are the largest contributor of greenhouse gases in Montana."[117] This comparative analysis will offer a valuable benchmark for assessing the relative impact of the facility.

Comment 39.3pp

- **Describing total emissions over the life of the plant:** The EA must include an estimate of the total direct GHG emissions that the LGS is projected to release into the atmosphere over its anticipated operational lifespan. This long-term perspective is essential for understanding the full climate impact of the proposed project and for evaluating the long-term costs and benefits.[118]

Comment 39.3qq

By providing this more comprehensive analysis of the direct GHG impacts, DEQ will fulfill its obligations under MEPA to provide a detailed and understandable assessment of the environmental consequences of the LGS.

B. Secondary Impacts

Comment 39.3rr

MEPA requires a thorough examination of the secondary or indirect impacts of a proposed action, which are those that are caused by the proposed action and are later in time or farther removed in distance, but are still reasonably foreseeable.[119] While the direct GHG emissions from the LGS are significant, the secondary impacts of these emissions on Montana's environment, economy, and public health are equally critical and must be rigorously analyzed by DEQ. The Draft EA's one-sentence perfunctory recitation of well-known impacts of climate change taken from

Comment 39.3ss

[117] *MEIC*, ¶ 47.

[118] Assuming the plant operates for 33 years, as predicted by NorthWestern, the lifetime emissions of the plant will exceed 25 million tons of carbon dioxide equivalent emissions.

[119] ARM 17.4.603(18).

Comment 39.3ss continued

a U.S. Bureau of Land Management report does not constitute the "hard look" required by MEPA. The EA's insufficient treatment of the lifetime of carbon dioxide and its single sentence addressing the broad impacts of increased carbon dioxide in Montana do not constitute the "hard look" required by MEPA.

The secondary impacts of GHG emissions encompass a wide range of environmental and societal consequences resulting from climate change driven by these emissions. Without a dedicated analysis, the EA fails to adequately inform decision-makers and the public about the true costs and risks associated with the proposed project. To properly analyze these secondary effects, DEQ should adopt a comprehensive framework that includes, at a minimum:

Comment 39.3tt

- **Adoption of the Social Cost of Greenhouse Gas (SC-GHG) Framework:** As discussed in the section above, DEQ should adopt the SC-GHG framework. This tool provides a robust and scientifically sound method for monetizing the long-term damages associated with each ton of emitted GHG, thereby capturing the broad range of secondary impacts in a meaningful way. In the absence of utilizing the SC-GHG framework or a similar comprehensive economic analysis, DEQ has effectively provided no meaningful analysis of the secondary effects of the proposed project's GHG emissions. Quantifying direct emissions alone does not capture the cascading and far-reaching consequences of climate change.

Comment 39.3uu

- **Description of Health Effects in Montana:** The analysis must explicitly address the health effects of climate change in Montana, which are exacerbated by GHG emissions from sources like the LGS. DEQ should cite the Montana Climate Assessment 2021 Special Report[120], which provides a detailed overview of the observed and projected impacts of climate change on various sectors in Montana, including human health. This report highlights the increasing risks of heat-related illnesses, respiratory problems due to wildfire smoke, vector-borne diseases, and mental health impacts associated with climate change in the state. The GHG emissions from the LGS will contribute to these adverse health outcomes, representing a significant secondary impact.

Comment 39.3vv

- **Analysis of Local and State Vulnerability Increases:** DEQ must analyze how the GHG emissions from the LGS will contribute to increased local and

[120] Exhibit 5, MCA: Climate Change and Human Health.

state vulnerability to the impacts of climate change. This includes assessing how these emissions will exacerbate existing climate-related risks such as changes in water availability, increased frequency and intensity of extreme weather events (including heatwaves, droughts, and floods), impacts on agriculture and forestry, and disruptions to ecosystems and biodiversity.[121] The analysis should consider how these vulnerabilities will affect Montana's communities, economy, and natural resources.

Comment 39.3ww

While DEQ may be out of practice with respect to the appropriate scope of climate change impacts under MEPA, the federal government and judicial branch have spent the last two decades clarifying what is required under NEPA, and caselaw interpreting the sufficiency of climate analyses under NEPA can provide a useful first step in MEPA analysis where an agency lacks familiarity with basic principles of climate analysis.[122] Of course, NEPA is not underpinned by the same constitutional imprimatur as is MEPA, so Federal caselaw can at best set a floor for

[121] *See* attached resources.

[122] *Ravalli Cnty. Fish & Game Ass'n, Inc.* at 1366 (Because MEPA is modeled after the National Environmental Policy Act (NEPA), when interpreting MEPA, we find federal case law persuasive); *accord N. Fork Pres. Ass'n v. Dep't of State Lands*, 238 Mont. 451 , 778 P.2d 862, 866 (1989); *Bitterrooters*, ¶ 18.

MEPA analysis, not a ceiling. Nonetheless, federal cases provide a useful baseline.[123]

Comment 39.3 xx

By failing to adequately analyze these secondary impacts, the current EA provides an incomplete and potentially misleading picture of the true environmental consequences of the LGS. DEQ must rectify this deficiency by adopting a comprehensive framework, including the SC-GHG and a thorough assessment of the project's contribution to increased vulnerability and adverse health effects in Montana.

Comment 39.3 yy

C. Cumulative Impacts

Comment 39.3 zz

MEPA mandates that an EA must consider the cumulative impacts of a proposed action. "Cumulative impact" is defined as "the collective impacts on the human environment of the proposed action when considered in conjunction with other past and present actions related to the proposed action by location or generic type. Related future actions must also be considered when these actions are under concurrent consideration by any state agency through preimpact statement studies, separate impact statement evaluation, or permit processing procedures."[124] In the context of GHG emissions and climate change, this requires DEQ to analyze the

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[123] Federal courts have repeatedly held under the framework of NEPA that federal agencies are required to consider and analyze both direct emissions that will result from the development of a given project and indirect impacts of the emission of GHGs. See, e.g., *Ctr. for Biological Diversity* at 1198–1201 (articulating heightened standard for duty to analyze GHG and climate impacts); *Sierra Club,* 867 F.3d at 1374 (downstream GHG emissions were an indirect effect of pipeline project and required the agency to provide a quantitative estimate of the downstream GHG emissions resulting from the burning of the natural gas to be transported by the pipeline or explain why it could not do so, and to discuss the significance of these emissions). Courts have upheld and echoed this reasoning in numerous other contexts including pipeline permitting, coal transport, mine plan modifications, and oil and gas development, to name only a few. *MEIC v. U.S. Off. of Surface Mining*, No. CV 15-106-M-DWM, 2017 WL 5047901, *3 (D. Mont. Nov. 3, 2017); *Diné Citizens Against Ruining Our Env't v. U.S. Off. of Surface Mining Reclamation & Enf't*, 82 F.Supp.3d 1201, 1213 (D. Colo. 2015); *WildEarth Guardians v. U.S. Off. of Surface Mining Reclamation & Enf't*, 104 F.Supp.3d 1208, 1229–30 (D. Colo. 2015); *San Juan Citizens All. v. U.S. Bureau of Land Mgmt.*, 326 F.Supp.3d 1227, 1244 (D.N.M. 2018); *WildEarth Guardians v. Zinke*, 368 F.Supp.3d 41, 73 (D.D.C. 2019).

[124] ARM 17.4.603(7).

incremental contribution of the LGS in conjunction with emissions from other sources.

The EA's analysis of cumulative GHG impacts is insufficient because it focuses solely on the direct emissions of the LGS without considering the broader context of GHG emissions in the region and throughout the lifecycle of the project. The limited scope of the analysis fails entirely to address the station's broader contribution to GHG emissions within the Billings/Laurel/Lockwood area or throughout the state. A legitimate cumulative impact analysis is critical for accurately assessing the project's role, particularly in the context of climate change, given the presence of refineries and other major sources of GHG emissions in the state.[125] This analysis must include an examination of the project within the context of existing sources' cumulative emissions, a step DEQ has skipped.[126]

Comment 39.3 ab

Comment 39.3 ac

Furthermore, the EA's comparison of project emissions to Montana's total emissions is insufficient and provides little meaningful information about the project's actual environmental impact.[127] A comprehensive assessment of each project's emissions, however small they may seem in isolation, is essential to understanding and addressing the cumulative impact of fossil fuel development. A comprehensive GHG analysis in the MEPA review is not merely a procedural formality, but a crucial component in understanding the true environmental cost of the permit.

Comment 39.3 ad

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[125] *See WildEarth Guardians v. U.S. Bureau of Land Mgmt.* 457 F. Supp. 3d at 894 ("Third, the large-scale nature of environmental issues like climate change show why cumulative impacts analysis proves vital to the overall NEPA analysis. The cumulative impacts analysis was designed precisely to determine whether 'a small amount here, a small amount there, and still more at another point could add up to something with a much greater impact.' *Klamath-Siskiyou*, 387 F.3d at 994. The global nature of climate change and greenhouse-gas emissions means that any single lease sale or BLM project likely will make up a negligible percent of state and nation-wide greenhouse gas emissions.")

[126] *See* National Environmental Policy Act Guidance on Consideration of Greenhouse Gas Emissions and Climate Change, 88 Fed. Reg. 1196, 1205–06 (2023).

[127] *See id.* at 1201; *Diné Citizens Against Ruining Our Env't.*, 59 F.4th at 1042; *350 Montana*, 50 F.4th, at 1269–70.

To provide an adequate cumulative impacts analysis, DEQ should adopt a framework that includes, at a minimum, the following elements[128]:

Comment 39.3 ae

- **Comprehensive Inventory of Regional GHG Sources:** DEQ must identify and describe other projects in DEQ's regulatory purview, including in the vicinity of the LGS, that are also generating GHG emissions. This inventory should include, but not be limited to, other power plants, industrial facilities, transportation sources, and agricultural activities.

Comment 39.3 af

- **Evaluation of Disproportionate Cumulative Effects:** Given the potential for multiple GHG-emitting sources to be located in close proximity to the Laurel community, DEQ must evaluate whether this community will experience disproportionate cumulative effects. This analysis should consider the combined impacts of air pollution, potential health risks, and other environmental burdens resulting from the location of these facilities.

Comment 39.3 ag

- **Analysis of Upstream and Downstream Emissions:** As explained above, DEQ's cumulative impacts analysis must include an assessment of the upstream and downstream GHG emissions associated with the LGS. This includes emissions from the extraction, processing, and transportation of the natural gas used as fuel (upstream), as well as the emissions resulting from the combustion of that gas to generate electricity (downstream). These emissions are a reasonably foreseeable consequence of the project and must be considered in the context of other GHG emissions contributing to climate change. This is consistent with the principles of cumulative impact analysis, which requires consideration of the total environmental effect resulting from

[128] Nothing in state caselaw interpreting MEPA (including *Bitterrooters*) supports a contrary view that agencies may analyze only the direct emissions related to a proposed activity. This approach does not align with the evolving understanding of climate science and federal jurisprudence, which requires agencies to consider the complete environmental footprint of their decisions. DEQ's efforts to narrowly circumscribe the scope of its GHG analysis and reduce it to a mere checkbox exercise are concerning. This restrictive approach contravenes the Court's directives in *Held* and *MEIC* as well as established federal case law under NEPA and, more fundamentally, DEQ's constitutional obligations because it does not reflect the simple reality of the measurable environmental consequences that result from such decisions. This deficiency is particularly acute given the presence of existing cumulative sources of GHG emissions that have not yet been subject to a comprehensive climate analysis.

the proposed action and associated actions. While SB 221 places restrictions on certain indirect impacts, these upstream and downstream emissions are directly linked to and necessary for the operation of the LGS and should be considered within a comprehensive cumulative impact analysis under MEPA, particularly in the context of their contribution to the global issue of climate change.

Comment 39.3 ah

By conducting a thorough cumulative impacts analysis that includes a regional inventory of GHG sources, an evaluation of potential disproportionate effects on the local community, and an assessment of upstream and downstream emissions, DEQ will provide a more accurate and comprehensive understanding of the true environmental consequences of the LGS.

D. Alternatives

1. The Supplemental EA's Alternatives Analysis is Insufficient

Comment 39.3 ai

MEPA requires agencies to "study, develop, and describe appropriate alternatives to recommend courses of action in any proposal that involves unresolved conflicts concerning alternative uses of available resources."[129] In analyzing alternatives to the proposed action, an agency must "complete a meaningful no-action alternative analysis. The no-action alternative analysis must include the projected beneficial and adverse environmental, social, and economic impact of the project's noncompletion."[130]

Comment 39.3 aj

The Draft EA states at the outset that it "will examine the proposed action and alternatives to the proposed action and disclose potential impacts that may result from the proposed and alternative actions."[131] This "examination," however, results in a scant two paragraphs discussing the no action alternative, and concluding that "[t]he No Action Alternative would not allow for the construction and operation of the facility" but that "[d]emand for electricity would likely be met from other sources providing electricity to the electrical grid, if the proposed activity

[129] Mont. Code Ann § 75-1-201(b)(v).

[130] *Id.* at (b)(iv)(C)(III).

[131] Draft EA at 3, 4.

is not approved."[132] DEQ's analysis of the "no-action" alternative comprises four sentences:

> In addition to the analysis above for the proposed action, DEQ considered the "no action" alternative. The "no action" alternative would deny the approval of the proposed permitting action and the applicant would then lack the authority to conduct the proposed activity. Any potential impacts that would result from the proposed action would not occur. The no action alternative forms the baseline from which the impacts of the proposed action can be measured.

Comment 39.3 aj continued

Comment 39.3 ak

This statement, standing alone, does not constitute the "meaningful" analysis required by MEPA, nor does it address the "projected beneficial and adverse environmental, social, and economic impact[s] of the project's noncompletion,"[133] particularly with respect to the project's climate impacts. As noted at Section IV.D., *supra*, simply stating that certain impacts will not occur under the no-action alternative is insufficient.

This paucity of information is underscored by the more informative approach DEQ took to analyzing lighting impacts for the facility. Here, DEQ took identifiable steps to meaningfully analyze the differences between the "projected . . . impact[s]" of the proposed and no-action alternatives by establishing a baseline photographic record without external lighting and overlaying it with modeled external and nighttime lighting to demonstrate the difference between the proposed action and no-action alternative's respective impacts.[134]

Comment 39.3 al

This comparison is in marked contrast to the analysis done on the no-action alternative with respect to climate impacts, which is nonexistent. DEQ must do

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[132] DEQ then goes on to assert that "[i]f the applicant demonstrates compliance with all applicable rules and regulations as required for approval, the 'no action' alternative would not be appropriate. Pursuant to, § 75-1-201(4)(a), MCA DEQ 'may not withhold, deny, or impose conditions on any permit or other authority to act based on" an environmental assessment.'" Draft EA at 30. As discussed in sections II and IV.D, *supra*, this position is simply incorrect and wholly ignores the substantive Constitutional obligations DEQ is required to carry out through the vehicle of MEPA.

[133] Mont. Code Ann. §75-1-201(b)(iv)(C).

[134] Draft EA at 13–19.

more, as described below, to establish a scientifically defensible baseline through meaningful analysis of the no action alternative.

2. Appropriate Framework for Analysis of Alternatives

Comment 39.3 am

DEQ must conduct a meaningful no-action alternative impact analysis in which it uses the no-action alternative to establish a *meaningful* baseline for comparison of project impacts. A perfunctory statement that any impacts that would result from the project will not occur without it does nothing to establish such a reference point and contributes nothing useful to DEQ's analysis. While the lighting analysis may be more straightforward (particularly with the benefit of an already-constructed plant with which to "model" lighting impacts), the *many* available methodologies for analyzing climate impacts discussed in Section IV, *supra*, provides DEQ with all the tools it needs to establish a meaningful baseline based on the no-action alternative.

Comment 39.3 an

Moreover, DEQ should use readily available and scientifically defensible references such as the National and Montana Climate Assessments[135] to aid in its establishment and analysis of a no-action alternative baseline against which to compare the "proposed" action's climate impacts. DEQ should additionally use tools such as the social cost of greenhouse gases and other GHG and climate accounting and comparison tools discussed in Section IV with respect to both direct and secondary impacts to analyze the baseline or "no action" condition. Finally, DEQ should have, and going forward *must* consider the no action alternative as a meaningful and viable option to uphold its constitutional obligations.

Comment 39.3 ao

Comment 39.3 ap

Comment 39.3 aq

Without a meaningful baseline, it is impossible for DEQ to adequately evaluate emissions from the LGS in the context of state climate goals, accurately describe the additive effect of the facility's emissions, provide context for the LGS with respect to other facilities, or describe the preferred alternative's impacts over the life of the facility. DEQ's acknowledgment that in the absence of the LGS, "[d]emand for electricity would likely be met from other sources providing electricity to the electrical grid" says nothing meaningful about what this alternative scenario looks like in terms of its environmental costs *or* its economic impacts. Information on this point is available to DEQ through many sources, including the many Public Service Commission proceedings in which the LGS has been addressed both directly and indirectly. DEQ need not comprehensively determine which "other sources" would in fact be used to provide the alternative sources of electricity. Such an

Comment 39.3 ar

[135] *See* Exhibits 2, 3, and 5.

analysis is both beyond the scope of this analysis and DEQ's expertise. But DEQ should, at a minimum, acknowledge the potential sources of such energy, including purchases from regional energy markets which are likely to include significant amounts of non-thermally generated energy from renewable and storage resources.[136]

Comment 39.3 as

Moreover, DEQ must conduct this analysis within the context of its constitutional obligations, not in a merely performative box-checking exercise which renders the analysis meaningless in precisely the manner the Montana Supreme Court has warned against.[137] Such a constitutionally sufficient baseline analysis argues for a thorough programmatic review of DEQ's energy permitting program. Programmatic environmental reviews are particularly appropriate in situations where individual permitting actions may have individually minor but collectively significant impacts.[138]

Comment 39.3 at

Climate change and permitting actions that contribute to it constitute precisely such circumstances, particularly in light of the recent decisions in *MEIC* and *Held*, which directly address agencies' constitutional and statutory obligations to analyze climate impacts following a prolonged period during which the state willfully ignored those impacts. Moreover, preparation of a thorough and scientifically-grounded programmatic environmental impact statement would—in addition to ensuring a constitutionally adequate analysis—contribute to greater efficiency in DEQ's energy permitting program. While this is only one mechanism by which DEQ can achieve constitutionally sufficient environmental review, it is one supported by the circumstances, and Commenters urge DEQ to use the recent legal developments as a meaningful opportunity to better uphold its constitutional obligations in this and future analyses than it has done in the past.

Comment 39.3 au

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[136] *See* Gridlab Energy Strategies, Assessing Resource Adequacy in Montana (December 2023), available at: https://gridlab.org/portfolio-item/assessing-resource-adequacy-in-montana/ (attached as Exhibit 17) for one example of a readily available analysis of regional energy supplies available to the state.

[137] *See, e.g. MEIC*, ¶88; *Held*, ¶60; *Park Cnty. Env't. Council*, ¶70.

[138] *See*, *Nat. Res. Def. Council, Inc. v. Adm'r, Energy Rsch. & Dev. Admin.*, 451 F. Supp. 1245, 1258 (D.D.C. 1978), *aff'd in part and vacated in part sub nom. Nat. Res. Def. Council, Inc. v. U.S. Nuclear Regul. Comm'n*, 606 F.2d 1261 (D.C. Cir. 1979).

3. Mitigation Measures

Comment 39.3 av

As with its alternatives analysis, DEQ simply ignored the potential for mitigation measures to ameliorate the LGS' climate-harming emissions. Mitigation is an integral part of MEPA, which emphasizes the importance of preventing, mitigating, or eliminating damage to the environment.[139] Moreover, as discussed above, MEPA's unique role in implementing the "anticipatory and preventative" right to a clean and healthful environment requires agencies to take seriously MEPA's mitigation directive and ideally to implement meaningful mitigation measures.[140] No such implementation can occur in the total absence of analysis, however.

Comment 39.3 aw

DEQ appears to at least acknowledge this responsibility in the context of its lighting analysis, having adopted in the proposed action Dark Sky Approved lighting fixtures along with "other design features intended to mitigate light pollution."[141] No such recognition is demonstrated with respect to the much more significant and less remediable climate impacts of the LGS. Indeed, the EA references the term "mitigate" only three times in the entire EA. All three references are in the context of the lighting analysis. The adage "an ounce of prevention is worth a pound of cure" is particularly cogent in the present context where, once GHGs are released into the atmosphere, the "cure" is for all practical purposes impossible. Without knowing what prevention measures are available, neither DEQ nor the project proponent has any ability to implement them. DEQ should address this deficiency in its final EA.

Comment 39.3 ax

Comment 39.3 ay

Comment 39.3 az

Given the MEPA's emphasis on mitigation and limitation of environmental damage, the final analysis should, at a minimum, contain a dedicated section on GHG mitigation measures. In light of MEPA's substantive role in carrying out the constitutional mandate to maintain and improve a clean and healthful environment, DEQ should have required NorthWestern to adopt such measures before issuing it an air quality permit. Even now, with the plant already constructed and operational, a meaningful analysis of mitigation measures—including after-market approaches—could render the current analysis much more

Comment 39.3 ba

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[139] Mont. Code Ann. § 75-1-102(2) (stating MEPA's policy to "promote efforts that will prevent, mitigate, or eliminate damage to the environment and biosphere").

[140] *MEIC*, ¶ 60; *Held*, ¶¶ 59–60; *Park Cnty. Env't. Council*, ¶¶ 31, 89.

[141] Draft EA at 12, 19, 25.

meaningful by outlining for the public and the operator ways the LGS can be operated so as to minimize climate harm. Comment 39.3 bc

Various mitigation measures for GHG emissions from power plants exist and, according to the US EPA, have the ability to "achieve substantial reductions in carbon pollution at reasonable cost."[142] For new and existing plants, emissions reductions can best be achieved by selection of more efficient generators, heat rate limitations,[143] and operational restrictions such as those adopted by the current EPA Greenhouse Gas Standards and Guidelines for Fossil Fuel-Fired Power Plants. These measures include carbon capture and storage, methane abatement, and efficiency upgrades, among others.[144] A plethora of additional guidance exists with Comment 39.3 bd

[142] EPA Greenhouse Gas Standards and Guidelines for Fossil Fuel-Fired Power Plants, available at: https://www.epa.gov/stationary-sources-air-pollution/greenhouse-gas-standards-and-guidelines-fossil-fuel-fired-power. (While this rule has been flagged by the current administration for "reconsideration," the technological and scientific bases for the standards remain the best available science for limiting power plant emissions).

[143]U.S. Energy Information Administration: Use of Natural Gas-Fired Generation Differs in the United States by Technology and Region (February 22, 2024). Available at: https://www.eia.gov/todayinenergy/detail.php?id=61444#:~:text=Older%20facilities%20that%20opened%20between,turbine%20technology%20will%20be%20added.

[144] *See, e.g.*, EPA Greenhouse Gas Standards and Guidelines for Fossil Fuel-Fired Power Plants, n. 142, *supra*; Bose, et al., *Innovative approaches for carbon capture and storage as crucial measures for emission reduction within industrial sectors*, Carbon Capture Science & Technology Volume 12, 100238 (September 2024) (available at https://www.sciencedirect.com/science/article/pii/S2772656824000502?ref=pdf_download&fr=RR-2&rr=9377afe59ced9357); International Energy Agency, *Methane Abatement Options* (available at https://www.iea.org/reports/methane-tracker-2020/methane-abatement-options); U.S. Dep't of Energy, Transformative Power Systems, available at https://www.energy.gov/fecm/transformative-power-systems#:~:text=Improvements%20to%20turbines%2C%20boilers%2C%20and,monitoring%20with%20AI%20base%20analyses.

respect to how best available control technology limits can be implemented at new and existing generating stations to reduce GHG emissions.[145]

DEQ should in the final EA, and as part of the "hard look" MEPA requires, include a detailed discussion of such mitigation measures, with a particular emphasis on measures that can be adopted in light of the LGS' currently operational status. Such an analysis should include a detailed qualitative and quantitative analysis of how emissions control technologies and operational limitations can reduce GHG emissions and climate impacts from the LGS.

Comment 39.3 be

Thank you for considering our comments.

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On behalf of:
Montana Environmental Information Center, Helena Interfaith Climate Advocates, Bridger Bowl, Montana Health Professionals for a Healthy Climate, Park County Environmental Council, Northern Plains Resource Council, Climate Smart Missoula, Forward Montana, MontPIRG, Families for a Livable Climate, Environmental Defense Fund, League of Women Voters, Protect Our Winters, and Sierra Club Montana Chapter.

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[145] In addition to the numerous sources identified on EPA's page for the 2024 EPA Greenhouse Gas Standards and Guidelines for Fossil Fuel-Fired Power Plants noted in fn. 8, *supra*, see also the EPA's comments on the permit for the Mid-Kansas Electric Company's Rubart Station for additional information on how BACT GHG measures should be implemented. Available at https://19january2021snapshot.epa.gov/sites/static/files/2015-08/documents/20130117_rubart_psd_comments.pdf

Our Children's Trust Youth v. Gov

April 28, 2025

RECEIVED
By Rina V at 4:42 pm, Apr 28, 2025

Submitted via email only

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RE: Our Children's Trust Comments on DEQ's Supplemental Draft Environmental Assessment: Laurel Generating Station

To Montana Department of Environmental Quality ("DEQ"):

On behalf of the 16 youth Plaintiffs in the constitutional climate case *Held v. State of Montana*, Our Children's Trust respectfully submits this comment letter on DEQ's Supplemental Draft Environmental Assessment ("EA") for the Laurel Generating Station.

Following decisions by the Montana Supreme Court in *Held v. State of Montana*, 2024 MT 312, and *Montana Environmental Information Center v. DEQ,* 2025 MT 3*,* the DEQ published a Supplemental Draft EA for the Laurel Generating Station for Montana Air Quality Permit Application Number 5261-00. The Supplemental Draft EA includes a "Greenhouse Gas Assessment" section that was absent from the prior EA. The Supplemental Draft EA confirms arguments the Plaintiffs made in *Held*, that DEQ has the means to quantify GHG emissions from fossil fuels projects.

Nevertheless, the Supplemental Draft EA remains legally deficient because it does not account for the current unconstitutional degradation of Montana's natural resources and environment, or the ongoing violations of Montana youths' constitutional rights, including their rights to a clean and healthful environment, to a stable climate system, to individual dignity, and to health, safety, and liberty from the *current* atmospheric concentration of greenhouse gases ("GHGs"). Nor does the Supplemental Draft EA demonstrate a need for a new gas-fired generation station, establish that a gas-fired power station is the best way to meet Montanans energy needs, or adequately considerate alternatives means, such as renewable energy, to meet Montanans current and future energy needs.

Accordingly, for the reasons outlined herein, DEQ must conduct further review to adequately evaluate the significant and cumulative harms to Montana's environment, natural resources, and citizens (and especially children) from the GHG emissions and climate harms that will result from the Laurel Generating Station. Pending further review and demonstration of a compelling government interest in the project, because there is already an unconstitutional level of GHG emissions in the atmosphere, and because DEQ has failed to present any evidence to justify a further increase in GHG emissions, DEQ should immediately suspend or revoke the air quality permit for the Laurel Generating Station.

Comment 41.a

I. DEQ Admits the Laurel Generating Station will Allow for the Burning of Fossil Fuels and Release GHG Emissions, but Largely Ignores the Harms from the Project's Fossil Fuel Pollution and Contribution to Climate Change.

Comment 41.b

The purpose of the Laurel Generating Station is to enable and facilitate the burning of fossil gas to produce electricity. Burning fossil fuels results in the release of GHG emissions, including fugitive methane emissions, which DEQ admits. While the Supplemental Draft EA includes a "Greenhouse Gas Assessment," there is scant analysis about how the proposed project will exacerbate climate change, and no discussion of harm to Montana's youth or why the project is necessary given the already unconstitutional concentration of GHGs in the atmosphere.

DEQ was a defendant in *Held v. State of Montana*, and is aware of, and bound by, the ruling in that case, including the District Court's August 14, 2023, Findings of Fact and Conclusions of Law Order, and the December 18, 2024, Montana Supreme Court decision that fully affirmed the District Court's Order.

The District Court's August 14, 2023, Order in *Held v. State of Montana* set forth detailed findings of fact and conclusions of law relating to Montanans' fundamental rights, including their right to a clean and healthful environment. The Order also made detailed factual findings related to the array of serious harm that fossil fuel pollution and climate change has already caused and will increasingly cause to Montana's environment and citizens. Importantly, based on the testimony of the youth Plaintiffs and their experts at trial, the District Court detailed how Montana children, including the 16 youth Plaintiffs, are already suffering grave injuries because of DEQ's historic and ongoing approval of fossil fuel activities. The District Court made clear that these injuries to children will get worse if fossil fuel permitting and activities continue. Based on the uncontested evidence presented at trial, the District Court found, in part, that:

> 89. Until atmospheric GHG concentrations are reduced, extreme weather events and other climactic events such as drought and heatwaves will occur more frequently and in greater magnitude, and Plaintiffs will be unable to live clean and healthy lives in Montana.
>
> 92. Every ton of fossil fuel emissions contributes to global warming and impacts to the climate and thus increases the exposure of Youth Plaintiffs to harms now and additional harms in the future.
>
> 98. According to the Intergovernmental Panel on Climate Change (IPCC), "Climate change is a threat to human well-being and planetary health (*very high confidence*). . . . There is a rapidly closing window of opportunity to secure a liveable and sustainable future for all (*very high confidence*). . . . The choices and actions implemented in this decade will have impacts now and for thousands of years (*high confidence*)."
>
> 101. Dr. Byron provided expert testimony that climate change and the air pollution associated with it are negatively affecting children in Montana, including Youth Plaintiffs, with a strong likelihood that those impacts will worsen in the absence of

aggressive actions to mitigate climate change. Dr. Byron outlined ways in which climate change is already creating conditions that are harming the health and well-being of the Youth Plaintiffs. Dr. Byron testified that reducing fossil fuel production and use, and mitigating climate change now, will benefit the health of the Youth Plaintiffs now and for the rest of their lives.

104. Children are uniquely vulnerable to the consequences of climate change, which harms their physical and psychological health and safety, interferes with family and cultural foundations and integrity, and causes economic deprivations.

108. The physical and psychological harms are both acute and chronic and accrue from impacts to the climate such as heat waves, droughts, wildfires, air pollution, extreme weather events, the loss of wildlife, watching glaciers melt, and the loss of familial and cultural practices and traditions.

138. The unrefuted testimony at trial established that climate change is a critical threat to public health.

139. Actions taken by the State to prevent further contributions to climate change will have significant health benefits to Plaintiffs.

140. Anthropogenic climate change is impacting, degrading, and depleting Montana's environment and natural resources, including through increasing temperatures, changing precipitation patterns, increasing droughts and aridification, increasing extreme weather events, increasing severity and intensity of wildfires, and increasing glacial melt and loss.

141. Climate change impacts result in hardship to every sector of Montana's economy, including recreation, agriculture, and tourism.

193. The science is clear that there are catastrophic harms to the natural environment of Montana and Plaintiffs and future generations of the State due to anthropogenic climate change. . . . The degradation to Montana's environment, and the resulting harm to Plaintiffs, will worsen if the State continues ignoring GHG emissions and climate change.

Based on the compelling factual record presented by Plaintiffs and their experts, the District Court held, as a conclusion of law, that:

6. Every additional ton of GHG emissions exacerbates Plaintiffs' injuries and risks locking in irreversible climate injuries.

7. Plaintiffs' injuries will grow increasingly severe and irreversible without science-based actions to address climate change.

> 8. Plaintiffs have proven that as children and youth, they are disproportionately harmed by fossil fuel pollution and climate impacts.
>
> 49. Based on the plain language of the implicated constitutional provisions, the intent of the Framers, and Montana Supreme Court precedent, climate is included in the "clean and healthful environment" and "environmental life support system" Mont. Const. Art. II, Sec. 3; Art. IX, Sec. 1.
>
> 50. Montana's climate, environment, and natural resources are unconstitutionally degraded and depleted due to the current atmospheric concentration of GHGs and climate change.

The Montana Supreme Court affirmed the District Court's Order in full, finding that:

> Montana is heating faster than the global average and the rate of warming is increasing. Overwhelming scientific evidence and consensus shows that this warming is the direct result of greenhouse gas (GHG) emissions that trap heat from the sun in the atmosphere, primarily from carbon dioxide (CO2) released from human extraction and burning of fossil fuels such as coal, oil, and natural gas.
>
> These emissions result in extreme weather events that are increasing in frequency and severity, including droughts, heatwaves, forest fires, and flooding. These extreme weather events will only be exacerbated as the atmospheric concentration of GHGs continues to rise. Projections indicate that under a business-as-usual emissions scenario, Montana will see almost ten additional degrees of warming by 2100 compared to temperatures in 2000. By 2050, Montana will have 11–30 additional days per year with temperatures exceeding 90 degrees and a similar loss of days below freezing. Montana has already seen (and will increasingly see) adverse impacts to its economy, including to recreation, agriculture, and tourism caused by a variety of factors including decreased snowpack and water levels in summer and fall, extreme spring flooding events, accelerating forest mortality, and increased drought, wildfire, water temperatures, and heat waves.
>
> We reject the argument that the delegates—intending the strongest, all-encompassing environmental protections in the nation, both anticipatory and preventative, for present and future generations—would grant the State a free pass to pollute the Montana environment just because the rest of the world insisted on doing so. The District Court's conclusion of law is affirmed: Montana's right to a clean and healthful environment and environmental life support system includes a stable climate system, which is clearly within the object and true principles of the Framers inclusion of the right to a clean and healthful environment.

Held v. State of Montana, 2024 MT 312, ¶¶ 3-4, 30.

Despite being a defendant in the *Held* case and being deeply familiar with both the District Court and Supreme Court orders, the Supplemental Draft EA includes only a single sentence on

the impacts of climate change in Montana that fails to address the full range of harms, including as those listed above, and completely ignores impacts to Montanan's health and safety, and especially the health and safety of Montana's children, who are most harmed by fossil fuel projects such as the Laurel Generating Station and the ensuring air pollution. Supplemental Draft EA at 28. Ignoring these significant and known harms to Montana's environment, natural resources, citizens, and especially Montana's children renders the Supplemental Draft EA legally deficient and demonstrates the need for further review of these significant and cumulative harms, which are both direct and indirect.

II. DEQ's Supplemental Draft EA Fails to Consider Alternative Sources of Energy, such as Renewable Energy, to Meet Montanans' Current and Future Energy Needs

Comment 41.c

Fossil fuel energy sources, such as the gas-fired Laurel Generating Station, are the least cost-effective and least efficient means of providing affordable and reliable energy sources for Montanans, in addition to the myriad of climate and public health harms associated with fossil fuel use (as detailed in part above). Fossil fuel projects, such as the Laurel Generating Station, increase energy costs for Montana electricity users, exacerbate costly extreme weather events, and increase health care costs associated with air pollution from fossil fuels. Renewable energy, on the other hand, is cheaper, safer, reliable, readily available, and will not exacerbate extreme climate events in Montana. The Supplemental Draft EA is legally deficient because it fails to adequately consider alternative means, such as renewable energy, to meet Montanans' current and future energy needs.

As the District Court found in *Held*:

> 271. Non-fossil fuel electricity-based energy systems across all sectors, including electricity, transportation, heating/cooling, and industry, are currently economically feasible and technologically available to employ in Montana. Experts have already prepared a roadmap for the transition of Montana's all purpose energy systems (for electricity, transportation, heating/cooling, and industry) to a 100% renewable portfolio by 2050, which, in addition to direct climate benefits, will create jobs, reduce air pollution, and save lives and costs associated with air pollution.
>
> 272. It is technically and economically feasible for Montana to replace 80% of existing fossil fuel energy by 2030 and 100% by no later than 2050, but as early as 2035.
>
> 275. Converting from fossil fuel energy to renewable energy would eliminate another $21 billion in climate costs in 2050 to Montana and the world. Most noticeable to those in Montana, converting to wind, water, and solar energy would reduce annual total energy costs for Montanans from $9.1 to $2.8 billion per year, or by $6.3 billion per year (69.6% savings). The total energy, health, plus climate cost savings, therefore, will be a combined $29 billion per year (decreasing from $32 to $2.8 billion per year), or by 91%.

276. Wind, water, and solar are the cheapest and most efficient form of energy. Cost per unit of energy in a 100% WWS [wind, water, solar] system in Montana would be about 15% lower than a business-as-usual case by 2050, even when including increased costs for energy storage. New wind and solar are the lowest cost new forms of electric power in the United States, on the order of about half the cost of natural gas and even cheaper compared to coal.

281. Transitioning to WWS will keep Montana's lights on while saving money, lives, and cleaning up the air and the environment, and ultimately using less of Montana's land resources.

283. Montana has abundant renewable energy resources that can provide enough energy to power Montana's energy needs for all purposes in 2050.

None of these findings are considered in the Supplemental Draft EA. Accordingly, further review is required by DEQ to adequately consider renewable energy as an alternative means to meet Montanan's energy needs, especially when considering the already unconstitutional concentration of GHGs in the atmosphere.

III. The Supplemental Draft EA Fails to Present Evidence of a Compelling Government Need in the Laurel Generating Station

Comment 41.d

The *Held* rulings made clear that Plaintiffs' constitutional rights are being violated due to the *current* atmospheric concentration of GHGs and the resulting climate harms. Therefore, it is incumbent upon DEQ before issuing new (or revised) permits that will result in additional GHG emissions, to establish that the proposed project will not further violate Plaintiffs' constitutional rights and will lead to the reduction in GHG emissions necessary to restore a clean and healthful environment. For projects that will *increase* Montana's GHG emissions, such as the Laurel Generating Station, the DEQ must: first, demonstrate a compelling government need for the project, and second, prove the project is the least burdensome means of meeting the demonstrated government need. Only then can a project that increases Montana's GHG emissions be approved and deemed constitutionally compliant.

Here, DEQ has failed to present evidence of any need for the Laurel Generating Station, and on the contrary, notes that "[d]emand for electricity would likely be met from other sources providing electricity to the electrical grid, if the proposed activity is not approved." Supplemental Draft EA at 29. In addition to not demonstrating any need for the Laurel Generating Station, DEQ has not demonstrated that a gas-fired power plant is the least burdensome means of meeting any purported energy needs.

The DEQ, of course, has the authority to deny permits, as the District Court in *Held v. State of Montana* made clear, holding as conclusions of law that:

18. Defendants can alleviate the harmful environmental effects of Montana's fossil fuel activities through the lawful exercise of their authority if they are allowed to consider GHG emissions and climate change during MEPA review, which would

> provide the clear information needed to conform their decision-making to the best science and their constitutional duties and constraints, and give them the necessary information to deny permits for fossil fuel activities when inconsistent with protecting Plaintiffs' constitutional rights.
>
> 22. Permitting statutes give the State and its agents discretion to deny permits for fossil fuel activities.
>
> 24. [T]his Court clarifies that Defendants do have discretion to deny permits for fossil fuel activities that would result in unconstitutional levels of GHG emissions, unconstitutional degradation and depletion of Montana's environment and natural resources, or infringement of the constitutional rights of Montanans and Youth Plaintiffs.

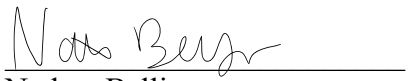
The constitutional rights of Montana's youth, including the *Held* Plaintiffs, are currently being violated, in part, due to DEQ's historic and ongoing permitting of fossil fuel activities. *Held* requires a change in DEQ's longstanding permitting practices. The State, and DEQ in particular, must take actions to reduce Montana's GHG emissions and not approve permits for fossil fuel projects that increase Montana's GHG emissions. Permits that increase GHG emissions must be denied unless DEQ proves there is a compelling need for the project and the project is the least burdensome means to meet the need. The Supplemental Draft EA fails to prove a need for the Laurel Generating Station or that is it the least burdensome way to provide energy for Montanans.

IV. Conclusion

Every new fossil fuel permit approved by DEQ that causes an increase in Montana's GHG emissions is a violation of Montana Constitution. Every additional ton of GHG emissions exacerbates the injuries and constitutional violations the Plaintiffs are already suffering. Fortunately, as the undisputed facts in *Held* established, Montana can transition to 100% clean renewable energy—thereby mitigating the enormous harms caused to Montana's youth and saving Montanans billions of dollars in avoidable costs caused by reliance on fossil fuels.

For the reasons outlined herein, DEQ must substantially revise its Draft Supplemental Environmental Assessment to comply with the District Court and Supreme Court Orders in *Held v. State of Montana*. In the meantime, DEQ should immediately suspend or revoke the air quality permit for Laurel Generating Station.

Sincerely,



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