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WESTERN ENVIRONMENTAL LAW CENTER

Bureau of Land Management
Nevada State Office
1340 Financial Boulevard,
Reno, NV 89502-714

Sent via Fedex and Email

May 18, 2022

Re: Protest of Final EA, ROD, and FONSI for the Nevada June 2022 Oil and Gas Lease Parcel Sale (DOI-BLM-NV-B000-2021-0007-Other).

Dear Bureau of Land Management:

The Western Environmental Law Center ("WELC"), along with the Center for Biological Diversity, Citizens for a Healthy Community, Defenders of Wildlife, Evergreen Action, Friends of the Earth, Montana Environmental Information Center, Sierra Club, Barbara Vasquez, Waterkeeper Alliance, Living Rivers/Colorado Riverkeeper, Rio Grande Waterkeeper, Western Watersheds Project, and WildEarth Guardians, (together "Conservation Groups"), submit the following protest of the BLM Nevada June 2022 and Gas Lease Parcel Sale ("Lease Sale") involving the below-listed nominated parcels of Federal minerals.

NV-2022-06-1508
NVNV105294467
NV, Battle Mountain District Office

NV-2022-06-6910
NVNV105294469
NV, Battle Mountain District Office

NV-2022-06-6912
NVNV105294471
NV, Battle Mountain District Office

NV-2022-06-1513
NVNV105294472
NV, Battle Mountain District Office,

NV-2022-06-1510

NVNV105294474
NV, Battle Mountain District Office

The names, mailing addresses, and telephone numbers for each organization and individual filing this protest are listed below:

Center for Biological Diversity
1536 Wynkoop Street Suite #421
Denver, CO 80202
520.623.5252

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Washington, D.C. 20036
720.943.0456

Friends of the Earth
P.O. Box 2333
Boulder, Colorado 80306
434.326.4647

Montana Environmental Information Center
P.O. Box 1184
Helena, MT 59624
406.443-2520

Sierra Club
2101 Webster St. Suite 1300
Oakland, CA 94612
415.977.5500

Barbara Vasquez
PO Box 54
Cowdrey, CO 80434

Waterkeeper Alliance, Inc.
180 Maiden Lane, Suite 603
New York, NY 10038
212.747.0622

Citizens for a Healthy Community
P.O. Box 1283
Paonia, Colorado 81428
970.399.9700

Living Rivers/Colorado Riverkeeper
P.O. Box 466
Moab, Utah 84532
435.260.2590

Rio Grande Waterkeeper (NM)
301 N. Guadalupe St., Ste. 201
Santa Fe, NM 87501
505.396.1752

Western Watersheds Project
P.O. Box 779
Depoe Bay, OR 97341
928.322.8449

WildEarth Guardians
301 N. Guadalupe, Ste. 201
Santa Fe, NM 87501
505.988.9126

I, Melissa A. Hornbein, have been authorized to file this protest on behalf of the above groups.

INTERESTS AND PARTICIPATION OF PROTESTING PARTIES

The **Center for Biological Diversity** is a non-profit environmental organization dedicated to the protection of native species and their habitats through science, policy, and environmental law. The Center also works to reduce greenhouse gas emissions to protect

biological diversity, our environment, and public health. The Center has over one million members and activists, including those living in Nevada who have visited these public lands for recreational, scientific, educational, and other pursuits and intend to continue to do so in the future, and are particularly interested in protecting the many native, imperiled, and sensitive species and their habitats that may be affected by the proposed oil and gas leasing.

Citizens for a Healthy Community is a 500-member nonprofit organization located in Paonia, Colorado. CHC was founded in 2010 for the purpose of protecting the Delta County region's air, water, and foodsheds from the impact of oil and gas development. CHC's members and supporters include farmers, ranchers, vineyard and winery owners, and other concerned citizens impacted by oil and gas development, who currently live in, and plan to continue to live in, use, and enjoy communities and landscapes affected by federal oil and gas development. CHC members are also affected by and concerned about climate change and the disproportionate impacts they are experiencing in a climate "hot spot". As such, they have an interest in any federal action that is inconsistent with maintaining warming below critical thresholds.

Founded in 1947, **Defenders of Wildlife** is a national non-profit conservation organization focused on conserving and restoring native species and the habitat upon which they depend. Based in Washington, DC, the organization also maintains six regional field offices, including offices situated in the Rockies and Plains, Southwest, California, and Northwest regions. Defenders is deeply involved in public lands management and wildlife conservation, including the protection and recovery of Greater sage-grouse and the Sagebrush Sea. We submit this protest on behalf of our nearly 2.2 million members and supporters.

Evergreen Action is a non-profit that was founded by a group of former Gov. Jay Inslee for America staffers and supporters who came together in 2019 on a mission to elect a new president to build support for an all-out national mobilization to defeat the climate crisis and create millions of jobs in a new economy run on clean energy. Evergreen is leading the fight to put bold climate action at the top of America's agenda, implement an all-out mobilization to defeat climate change, and create millions of jobs in a clean energy economy. We empower climate and community leaders and advocate for policymakers to adopt the urgent climate policies that science demands. Evergreen's members have a strong interest in engaging with any federal action that is inconsistent with keeping climate change below critical warming thresholds.

Friends of the Earth is a 501(c)(3) non-profit, membership-based organization with offices located in Berkeley, California and Washington, DC. FoE currently has over 4.7 million activists and over 290,000 members, located across all 50 states and the District of Columbia. FoE is also a member of Friends of the Earth-International, which is a network of grassroots groups in 74 countries worldwide. FoE's primary mission is to defend the environment and champion a more healthy and just world by collectively ensuring environmental and social justice, human dignity, and respect for human rights and peoples' rights. FoE is dedicated to fighting climate change and advocating for clean energy alternatives. FoE's Climate & Energy program directly engages in administrative and legal advocacy to protect the environment and society from climate change, pollution, and industrialization associated with fossil fuel development on public lands and associated greenhouse gas emissions. Key to this work is

fighting to reduce greenhouse gas emissions and domestic reliance on fossil fuels, including from federally produced fossil-fuels, and advance justly-sourced, renewable energy.

Montana Environmental Information Center is a nonprofit organization founded in 1973 with approximately 5,000 members and supporters throughout the United States and the State of Montana. MEIC is dedicated to the preservation and enhancement of the natural resources and natural environment of Montana and to the gathering and disseminating of information concerning the protection and preservation of the human environment through education of its members and the general public concerning their rights and obligations under local, state, and federal environmental protection laws and regulations. MEIC is also dedicated to assuring that federal officials comply with and fully uphold the laws of the United States that are designed to protect the environment from pollution, including GHG pollution.

The **Sierra Club** was founded in 1892 and is the nation's oldest grassroots environmental organization. The Sierra Club is incorporated in California, and has over 790,000 members nationwide and is dedicated to the protection and preservation of the environment. The Sierra Club's mission is to explore, enjoy and protect the wild places of the earth; to practice and promote the responsible use of the earth's ecosystems and resources; and to educate and enlist humanity to protect and restore the quality of the natural and human environments. The Sierra Club has a Nevada chapter with members, including members in the area of this lease sale. The Sierra Club has members that live in, work and use this area for recreation such as hiking, snowshoeing, cross-country skiing, climbing, backpacking, camping, fishing and wildlife viewing, as well as for business, scientific, spiritual, aesthetic and environmental purposes.

Barbara Vasquez is an individual resident of Jackson County, Colorado. Since moving to North Park in 2005, Barbara has been involved as a citizen scientist in issues including public lands management, oil and gas development, clean air and water, and climate change. Located in the headwaters of the North Platte River, North Park is a lightly populated, high elevation basin surrounded by forest and wilderness areas with abundant wildlife. Shale oil and gas development began in North Park in 2006. It was then that Barbara began work with various organizations to prevent and/or minimize impacts of operations in habitats important to wildlife including the imperiled Greater Sage Grouse as well as large game. She also has been involved in rule making for oil and gas operations at the state and national level, including the EPA and BLM methane emissions rules.

Waterkeeper Alliance is a not-for-profit, member supported, international environmental organization based in New York City. Waterkeeper Alliance unites more than 300 Waterkeeper Organizations and Affiliates that are on the frontlines of the global water crisis, patrolling and protecting more than 2.5 million square miles of rivers, lakes, and coastal waterways on 6 continents. Waterkeeper Organizations and Affiliates defend our fundamental human right to drinkable, fishable and swimmable waters, and combine firsthand knowledge of their waterways with an unwavering commitment to the rights of their communities. Through its Clean and Safe Energy campaign, Waterkeeper Alliance has increasingly engaged in public advocacy, administrative proceedings and litigation aimed at reducing the water quality and climate change impacts of fossil fuel extraction, transport and combustion, including from BLM-controlled lands, throughout the United States. Waterkeeper Alliance and its member

Waterkeeper Organizations and Affiliates have members, supporters and staff who have visited public lands in Nevada, including lands and waters that would be affected by actions under the challenged lease sale, for recreational, scientific, educational, and other pursuits, intend to continue to do so, and are particularly interested in protecting them from water-intensive energy development.

- **Living Rivers and Colorado Riverkeeper** is a 501(c)(3) nonprofit organization that empowers a movement to instill a new ethic of achieving ecological restoration, balanced with meeting human needs. Living Rivers works to restore inundated river canyons, wetlands and the delta, repeal antiquated laws which represent the river's death sentence, reduce water and energy use and their impacts on the river, and recruit constituents to aid in reviving the Colorado River. Living Rivers has an interest in protecting the Colorado River from impacts due to development of federal fossil fuels.

- **Rio Grande Waterkeeper** is a program within WildEarth Guardians that works to safeguard clean water and healthy flows in the Rio Grande from its headwaters in the San Juan Mountains of Colorado through Southern New Mexico. The program was formed out of a partnership between Guardians and Waterkeeper Alliance, a global movement united with more than 300 Waterkeeper Organizations and Affiliates around the world, and shares the Alliance's interest in protecting lands and waters that could be impacted as a result of the challenged lease sale.

Western Watersheds Project is a non-profit organization with more than 12,000 members and supporters. Its mission is to protect and restore western watersheds and wildlife through education, public policy initiatives and legal advocacy. Western Watersheds Project and its staff and members use and enjoy America's public lands and their wildlife, cultural and natural resources for health, recreational, scientific, spiritual, educational, aesthetic, and other purposes. Western Watersheds Project also has a direct interest in mineral development that occurs in areas with sensitive wildlife populations and important wildlife habitat.

The **Western Environmental Law Center** uses the power of the law to defend and protect the American West's treasured landscapes, iconic wildlife, and rural communities. WELC combines legal skills with sound conservation biology and environmental science to address major environmental issues in the West in the most strategic and effective manner. WELC works at the national, regional, state, and local levels; and in all three branches of government. WELC integrates national policies and regional perspective with the local knowledge of our 100+ partner groups to implement smart and appropriate place-based actions.

WildEarth Guardians ("Guardians") is dedicated to protecting and restoring the wildlife, wild places, wild rivers, and health of the American West. Guardians is a west-wide environmental advocacy organization with thousands of members, including members in Nevada and surrounding states. Guardians' members live in and regularly use and enjoy lands in the Lease Sale areas, and are interested in their conservation.

STATEMENT OF REASONS IN SUPPORT OF CONSERVATION GROUPS' PROTEST OF THE NEVADA JUNE 2022 LEASE SALE.

The above-named Conservation Groups protest the Nevada June 2022 Lease Sale Final EA, ROD, and FONSI for the following reasons:

I. EFFECT OF RECENT COURT DECISIONS AND EXECUTIVE ORDERS.

A. *Louisiana v. Biden* Does Not Require Holding a Lease Sale or Issuing Any Leases.

As an initial matter, the Interior Department's reasoning that it must proceed with lease sales to remain "[i]n compliance with an injunction from the Western District of Louisiana,"[1] is incorrect. The June 15, 2021, preliminary injunction order issued by the U.S. District Court for the Western District of Louisiana, *Louisiana v. Biden*, No. 2:21-cv-778-TAD-KK, 2021 WL 2446010 (W.D. La. June 15, 2021), does not require holding any lease sales.

The *Louisiana* order enjoined implementation of a nationwide "Pause" on offshore and onshore oil and gas leasing contemplated by President Biden's Executive Order 14008. *Id.* The Louisiana court, however, did not rule that BLM must hold lease sales every three months in every state office. Instead, while enjoining a nationwide "Pause" directed by the President, the Louisiana court distinguished lease sale postponements for NEPA or other environmental concerns.

The court stated that "[t]he agencies could cancel or suspend a lease sale due to problems with that specific lease [sale], but not as to eligible lands for no reason other than to do a comprehensive review pursuant to Executive Order 14008." *Id.* at *14. The court added: "there is a huge difference between the discretion to stop or pause a lease sale because the land has become ineligible for a reason such as an environmental issue," and halting lease sales "with no such issues and only as a result of Executive Order 14008." *Id.* at *13. The *Louisiana* ruling found that the plaintiffs had shown a likelihood of success on the merits of the case because BLM's postponement of some sales expressly relied on Executive Order 14008 or did not identify any NEPA concerns. *Id.* at *16; *see also id.* at *21 ("at least some of the onshore lease [sale]s were cancelled due to the Pause, without any other valid reason. Some were cancelled to do additional environmental analysis . . . but the Pause has obviously been implemented by Agency Defendants for some of the lease sales").

The Louisiana court's reasoning thus supports BLM's continued authority to postpone lease sales to address NEPA and similar concerns tied to a given sale. The Interior Department itself has recognized this point. In its appeal of the *Louisiana* ruling, the Department noted that: "the district court did not dispute that Interior retains discretion to insist on compliance with NEPA and other statutory prerequisites before finding that 'eligible lands are available' under the [Mineral Leasing Act] (and its injunction does not prevent Interior from doing so)." Appellants' Open. Br. at 32-33, *State of Louisiana v. Biden*, Fifth Cir. No. 21-30505 (Nov. 16,

[1] *See, e.g.,* https://www.doi.gov/pressreleases/interior-department-announces-significantly-reformed-onshore-oil-and-gas-lease-sales.

2021); *see also id.* at 14 n. 1 (similar). BLM also has tacitly acknowledged the same point by deciding not to hold any lease sale this quarter for the Eastern States.[2]

As discussed elsewhere in this protest, there are numerous NEPA, FLPMA and other issues that require postponing leasing, and the *Louisiana* order presents no obstacle to doing so. BLM's continued reliance on the *Louisiana* order as a justification for the proposed lease sales is arbitrary and capricious, and notably is inconsistent with the position the government has taken in litigation.

B. Adequate NEPA Review Under Secretarial Order 3399 Is Required Prior to Offering These Leases for Sale.

Many or most of the parcels currently being scoped were originally slated to be auctioned in the March 2021 lease sale. BLM postponed that lease sale due to concerns that, in light of recent NEPA case law and other court decisions, the analyses for the March 2021 sales were inadequate. Those same concerns still apply and require additional analysis before offering any parcels for lease. As discussed in detail below, neither the decision records for these sales nor the "2020 BLM Specialist Report on Annual Greenhouse Gas Emissions and Climate Trends from Coal, Oil, and Gas Exploration and Development on the Federal Mineral Estate, (hereinafter "Specialist Report")."[3] do not adequately cure these deficiencies. Under the plain terms of the National Environmental Policy Act and Department of Interior Secretarial Order 3399, the BLM's NEPA processes must take place under the Council on Environmental Quality's pre-2020 regulations implementing the National Environmental Policy Act.

On July 16, 2020, the Council of Environmental Quality (CEQ) published in the Federal Register its final rule to revise the NEPA regulations (2020 Rule), which went into effect on September 14, 2020. The 2020 Rule immediately drew five lawsuits challenging the 2020 Rule on a variety of grounds, including under the Administrative Procedures Act, NEPA, and the Endangered Species Act, contending that the 2020 Rule exceeded CEQ's authority and that the related rulemaking process was procedurally and substantively defective. *Wild Va. v. Council on Env't Quality*, No. 3:20cv45 (W.D. Va. 2020); *Envtl. Justice Health All. v. Council on Env't Quality*, No. 1:20cv06143 (S.D.N.Y. 2020); *Alaska Cmty. Action on Toxics v. Council on Env't Quality*, No. 3:20cv5199 (N.D. Cal. 2020); *California v. Council on Env't Quality*, No. 3:20cv06057 (N.D. Cal. 2020); *Iowa Citizens for Cmty. Improvement v. Council on Env't Quality*, No 1:20cv02715 (D.D.C. 2020).

Following the inauguration of President Biden in January 2021, CEQ moved the courts to stay the litigation mentioned above, pending the new administration's review of the 2020 Rule. In response to CEQ and joint motions, the districts courts have issued temporary stays in each of the cases, except for *Wild Virginia v. Council on Environmental Quality*, which the district court

[2] *See* https://eplanning.blm.gov/eplanning-ui/project/2015577/510 (BLM Eastern States office selecting no action alternative for proposed lease sale).

[3] See Department of the Interior, Bureau of Land Management, 2020 BLM Specialist Report on Annual Greenhouse Gas Emissions and Climate Trends (2020) (hereinafter "2020 BLM Specialist Report"), *available at* https://www.blm.gov/content/ghg/, and incorporated by reference into the Nevada EA.

dismissed without prejudice on June 21, 2021, and is currently on appeal to the U.S. Court of Appeals for the Fourth Circuit. To the extent BLM relied on or applied the 2020 Rule for purposes of administering this lease sale proposed in 2022, we find that reliance on and application of the 2020 Rule unlawful for the reasons explained in the stayed litigation of the 2020 Rule referenced above, including but not limited to the following reasons:

- Neither an EA nor EIS were prepared pursuant to NEPA to evaluate the environmental impacts of the 2020 Rule;

- The 2020 Rule was not analyzed for its potential impact on the directive in Executive Order 12898 and CEQ's longstanding policy and practice of fully analyzing the environmental justice impacts of its actions;

- The 2020 Rule is inconsistent with the statutory purpose and language of NEPA; and

- The 2020 Rule was issued by CEQ and the Chair of CEQ in excess of their statutory authority.

However, BLM's FONSIs for this lease sale proposed in 2022 apply the Significance Criteria described in 40 CFR §1508.27, which implies that BLM is applying the CEQ NEPA regulations that were in effect prior to the 2020 Rule. To our knowledge, only the FONSI for the 2022 lease sale in New Mexico explicitly states that BLM is applying the CEQ NEPA regulations that were in effect prior to the 2020 Rule. For the reasons explained in the bullets above and pending CEQ's review of the environmental impacts of the 2020 Rule, BLM should apply the CEQ NEPA regulations that were in effect prior to the 2020 Rule for purposes of administering the lease sale proposed in 2022, including in BLM's cumulative impact analysis of GHG emissions in the 2020 BLM Specialist Report. Applying the CEQ NEPA regulations that were in effect prior to the 2020 Rule also aligns with the Department of Interior Secretarial Order No. 3399 (April 16, 2021).

II. NATIONAL ENVIRONMENTAL POLICY ACT (NEPA)

A. BLM Must Prepare an EIS to Address the Cumulative Impacts of All Lease Sales Announced August 31.

The proposed lease sales in each state are driven by a national Interior Department decision to proceed with oil and gas leasing in light of the *Louisiana* litigation. On August 24, the Interior Department reported to the Louisiana court that BLM offices across the country had been directed "to finalize parcel lists for upcoming sales, in order to publicly post those parcel lists for NEPA scoping by August 31, 2021." ECF No. 155 at 5, *Louisiana v. Biden*. As directed by the Department, notices of scoping in each state were posted on August 31. Also on August 31, the Interior Department announced that it would proceed with offshore lease sale 257, which covers over 80 million acres in the Gulf of Mexico. That sale took place on November 17. And the Interior Department announced on April 15 that it would be holding all of the proposed lease

sales with the increased 18.75% royalty rate.[4] Each of the proposed lease sales here are plainly part of a larger national initiative and must be analyzed as such under NEPA.

That means preparing an environmental impact statement (EIS) to address the cumulative impacts of the tens of millions of acres that may be leased both onshore and offshore. Cumulative impacts include not only those related to climate and greenhouse gases, but also wildlife habitat, water pollution, impacts to wildlife and recreation and other uses of these lands and waters, and other relevant issues. NEPA's cumulative impacts requirement mandates that BLM must evaluate impacts "result[ing] from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions." 40 C.F.R. § 1508.1(g)(3) (2022). BLM's cumulative effects analysis "must give a realistic evaluation of the total impacts and cannot isolate a proposed project, viewing it in a vacuum." *Grand Canyon Trust v. Fed. Aviation Admin.*, 290 F.3d 339, 342 (D.C. Cir. 2002); *see also Great Basin Mine Watch v. Hankins*, 456 F.3d 955, 973-74 (9th Cir. 2006) (holding agency's cumulative impacts analysis insufficient based on failure to discuss other mining projects in the region); *Blue Mountains Biodiversity Project v. Blackwood*, 161 F.3d 1208, 1214-16 (9th Cir. 1998) (overturning Forest Service EA that analyzed impacts of only one of five concurrent logging projects in the same region); *see also Kern v. BLM*, 284 F.3d 1062, 1078 (9th Cir. 2002) (holding that BLM arbitrarily failed to include cumulative impacts analysis of reasonably foreseeable future timber sales in the same district as the current sale).

Analyzing those impacts will require an EIS. NEPA requires an agency to prepare an EIS for any major federal action that may significantly affect the quality of the human environment. 42 U.S.C. § 4332(2)(C). An agency can rely on an EA only if it makes an affirmative finding that environmental impacts will not be significant (a FONSI). If there are "substantial questions" whether leasing may have a significant effect on the environment, an EIS is required. *Anderson v. Evans*, 371 F.3d 475, 488 (9th Cir. 2004); *Ctr. for Biological Diversity v. BLM*, 937 F. Supp. 2d 1140, 1154 (N.D. Cal. 2013). Here, the Interior Department announced potential leasing that it predicts will cause billions of dollars in social and environmental costs. It would be arbitrary and capricious to conclude that leasing on that scale will not be significant.

BLM's claim that analyzing the cumulative carbon emissions from these lease sales would be inaccurate and not useful is arbitrary.[5] The EA for each proposed lease sale provides a similar analysis of the reasonably foreseeable GHG emissions from that sale, making it entirely feasible to aggregate and assess their cumulative impacts.[6] Even if such an estimate would be conservative, that does not excuse BLM from providing any forecast of cumulative emissions from the lease sales.[7]

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[4] https://www.doi.gov/pressreleases/interior-department-announces-significantly-reformed-onshore-oil-and-gas-lease-sales.

[5] see, e.g., Wyoming EA at 39; Colorado EA at 40; Montana EA at 45; Nevada EA at 32; Utah EA at 47; Oklahoma EA at 34; New Mexico EA at 78.

[6] *see, e.g.*, Wyoming EA at 29-40; Colorado EA at 32-43; Montana EA at 34-47; Nevada EA at

[7] The EAs cite to projected estimates from the recent BLM Specialist Report on Annual GHG Emissions for all federal oil and gas development in 2021 across different states. This estimate, however, covers existing and already-permitted production, and thus does not inform BLM or the public as to the cumulative impacts of the *new* leasing

B. BLM Must Prepare a Programmatic EIS To Take a Hard Look At Climate The Impacts Of The Resumption of Federal Oil and Gas Leasing And To Avoid Any New Greenhouse Gas Pollution.

The proposed lease sale in Nevada thus is plainly part of a larger national initiative and must be analyzed as such under NEPA. There is no remaining room in the carbon budget for any new commitments of future greenhouse gas (GHG) pollution. Greenhouse gas pollution resulting only from existing federal fossil fuel development and potential development from leases and drilling permits already issued but not yet under production, would contribute to catastrophic climate change and unnecessary and undue degradation to the atmosphere and other public lands values that BLM is legally obligated to protect. Adding to this the additional burden of new leasing would only exacerbate these extreme climate impacts, BLM has yet to acknowledge this data-driven reality at a programmatic level.

BLM and Interior must therefore take a hard and comprehensive look at the cumulative climate change impacts of authorizing *any* new leasing when combined with committed emissions already under lease or permit, and immediately defer ANY sale of new leases and APD approvals pending demonstration of compatibility with U.S. and global climate goals. This is the type of analysis that BLM and Interior had the opportunity to conduct under the auspices of the comprehensive review and reconsideration of Federal oil and gas permitting and leasing practices called for by Executive Order 14008,[8] but failed to complete. The Department and BLM must do so now, along with other relevant agencies that manage fossil fuel development on federal lands and waters, including BOEM. BLM must also consider, as proposed in Conservation Groups' scoping and EA comments, a reasonable alternative of managed decline of GHG emissions from the approximately 13.5 million acres of fossil fuel estate already under lease but not producing.[9]

The climate crisis is fundamentally an incremental problem and the contribution of individual oil and gas development actions on the part of the BLM to climate change are difficult to assess, precisely because it is rare that such actions—taken in isolation—will be truly significant at a national or global scale. This is particularly true at the level of an individual lease sale, where the projected development of mineral resources on a given lease or set of leases will reduce the remaining global and national carbon budgets by vanishingly small fractions. Yet it is this creeping normalcy that results in fossil fuel development on BLM administered lands being responsible for 14% of total U.S. GHG emissions, 1.6 % of global emissions, and nearly 20% of

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the agency is currently considering. Indeed, the EA's description only addresses emissions from 2021, a period before the June 2022 lease sales are even held.

[8] Executive Order 14008 of January 27, 2020, *Tackling the Climate Crisis at Home and Abroad*, Fed. Reg. Vol. 86, No. 19.

[9] *See* 2020 BLM Specialist Report at Table 4-8, Five-Year Federal Oil and Gas Statistics, recording 26.4 million acres under lease for oil and gas with nearly 13 million acres producing but note Section 1.0 – Introduction, which states that total acres under lease for oil and gas *and* coal is 26.4 million acres, of which "approximately 48%, or 13 million acres") is producing. It is therefore unclear whether these numbers represent *all* fossil-fuel development on federal lands or only oil and gas.

all emissions in the U.S. from fossil fuel production.[10] With respect to carbon dioxide, emissions from fossil fuels produced on federal lands represent a quarter of *all* CO_2 emissions in the U.S.[11]

It is precisely because of this incrementally small but collectively mammoth impact on the climate crisis that BLM must prepare a programmatic EIS for the federal oil and gas program. The "comprehensive review and reconsideration of the Federal oil and gas permitting and leasing practices" called for in Executive Order 14008 demanded no less.[12] Yet neither Interior nor BLM fulfilled the explicit mandate of Executive Order 14008. They must do before committing a single additional acre to fossil-fuel development. Such a programmatic examination would dovetail with an EIS that collectively analyzes the June 2022 lease sales, discussed above, which collectively constitute the government's response to the *Louisiana v. Biden* litigation over Executive Order 14008. At the outset, however, Conservation Groups stress that BLM should conduct a programmatic EIS for the entire federal oil and gas leasing program before holding another lease sale. The purpose of a programmatic EIS or other programmatic NEPA review is to:

> [A]ddress the general environmental issues relating to broad decisions, such as those establishing policies, plans, *programs*, or suite of projects, and can effectively frame the scope of subsequent site-and project-specific federal actions . . . [o]ne advantage of preparing a programmatic NEPA review *for repetitive agency activities* is that the programmatic NEPA review can provide a starting point for analyzing direct, indirect, and cumulative impacts.[13]

A programmatic approach is compelled for the following reasons: 1) the fundamentally incremental nature of the climate crisis; 2) Executive Order 14008 recognizes the small and shrinking window that remains to avoid the most catastrophic effects of climate change, a recognition that was not reflected in the Department's Report on the Federal Oil and Gas Leasing Program[14]; 3) BLM should complete the analysis it started with its issuance of the BLM Specialist Report and the Interior Report, by conducting a PEIS; and 4) the need for consistency with the pending federal coal review.

1. The Incremental Nature of Climate Change Requires a Programmatic EIS.

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[10] Department of the Interior, Bureau of Land Management, 2020 BLM Specialist Report at Section 9.1 (Representative Concentration Pathways), ("Climate change is fundamentally a cumulative phenomenon, global in scope, and all GHGs contribute incrementally to climate change regardless of scale or origin."); Section 7.1. (Emissions Comparisons), Table 7-1 (2020).

[11] **Exhibit 1**, Merrill, M.D., Sleeter, B.M., Freeman, P.A., Liu, J., Warwick, P.D., and Reed, B.C., Federal lands greenhouse gas emissions and sequestration in the United States—Estimates for 2005–14: U.S. Geological Survey Scientific Investigations Report 2018–5131, 31 (2018).

[12] **Exhibit 2**, Members of petitioner groups made this point initially in their comments submitted in response to Executive Order 14008, with the title: WELC et al Recommendations for Scope and Criteria for Review of the Federal Fossil Fuel Programs**.** (April 16, 2021).

[13] **Exhibit 3**, Memorandum for Heads of Federal Departments and Agencies, *Effective Use of Programmatic NEPA Reviews*, Counsel on Environmental Quality, December 18, 2014 (emphasis added).

[14] **Exhibit 4**, *Report on the Federal Oil and Gas Leasing Program, Prepared in Response to Executive Order 14008* (November, 2021) (Hereinafter "Interior Report") (the Report focused entirely on necessary fiscal reforms but ignored climate, in direct contravention of the language of §208 of Executive Order 14008.)

The Council on Environmental Quality (CEQ) has provided guidance on how federal agencies should address climate change in their NEPA analyses through its "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" (hereafter "Final Climate Guidance").[15] The Final Climate Guidance applies to all proposed federal agency actions, "including land and resource management actions." In its Final Climate Guidance, the CEQ recognizes that:

> Climate change results from the incremental addition of GHG emissions from millions of individual sources, which collectively have a large impact on a global scale. CEQ recognizes that the totality of climate change impacts is not attributable to any single action but is exacerbated by a series of actions including actions taken pursuant to decisions of the Federal Government. Therefore, a statement that emissions from a proposed Federal action represent only a small fraction of global emissions is essentially a statement about the nature of the climate change challenge, and is not an appropriate basis for deciding whether or not to what extent to consider climate change impacts under NEPA. Moreover, these comparisons are also not an appropriate method for characterizing the potential impacts associated with a proposed action and its alternatives and mitigations 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 small addition to global atmospheric GHG concentrations that collectively have a large impact.

BLM has struggled in the past to comply with this guidance and frame the requisite "hard look" required by NEPA with regard to the climate impacts of individual oil and gas lease sales. The agency has run afoul of NEPA in the past precisely because it has been unable or unwilling to articulate the ways in which individual lease sales and subsequent site-specific decisions contribute to climate change.[16] Importantly, courts have held BLM accountable by recognizing that "the impact of greenhouse gas emissions on climate change is precisely the kind of cumulative impacts analysis that NEPA requires agencies to conduct." *Ctr. for Biological Diversity v. Nat'l Highway Traffic Safety Admin*., 538 F.3d 1172, 1217 (9th Cir. 2008).

These past failings argue for a comprehensive, programmatic approach to provide context for subsequent leasing and drilling stage actions. NEPA, by its plain language, demands a

[15] **Exhibit 5**, 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).
[16] *See, e.g.*, *WildEarth Guardians v. Bernhardt*, 501 F. Supp. 3d 1192, 1209 (D.N.M. 2020) (acknowledging minimal impact of local actions but questioning BLM assertion that *de minimis* site specific decision would have *no* impact on climate change); *Wildearth Guardians v. U.S. Bureau of Land Mgmt*., 457 F. Supp. 3d 880, 894 (D. Mont. 2020) (noting that "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. Thus, if BLM ever hopes to determine the true impact of its projects on climate change, it can do so only by looking at projects in combination with each other, not simply in the context of state and nation-wide emissions."); *WildEarth Guardians v. Zinke*, 368 F. Supp. 3d 41, 69 (D.D.C. 2019) (NEPA requires BLM to quantify GHG emissions of leased parcels in the aggregate); *San Juan Citizens All. v. United States Bureau of Land Mgmt*., 326 F. Supp. 3d 1227 (D.N.M. 2018) (recognizing impact of challenged action alone may be significant only in combination with other actions).

comprehensive analysis of the impacts of the federal oil and gas leasing program—including, but not limited to the climate impacts.[17] Indeed, the 1978 regulations promulgated by the Council on Environmental Quality appear prescient in this respect; the cumulative impact and effects analyses might have been drafted as tools to help describe climate change. "Cumulative Impact" is "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions." 40 C.F.R. § 1508.7. "Indirect Effects" encompass such indicia as "effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems." 40 C.F.R. § 1508.8.[18]

If these sections, combined with the fundamentally cumulative nature of climate change, do not themselves compel a programmatic EIS, they certainly provide necessary guidance for one. As previously noted, BLM has been faulted in the past for not taking into consideration the cumulative and downstream impacts of its lease sales on climate change. *E.g. San Juan Citizens All. v. United States Bureau of Land Mgmt*., 326 F. Supp. 3d 1227, 1248 (D.N.M. 2018); *Wildearth Guardians v. U.S. Bureau of Land Mgmt*., 457 F. Supp. 3d 880, 894 (D. Mont. 2020). Yet the necessarily broad scale of an adequate analysis is indubitably best done once, and at the programmatic level, allowing the agency to tier to and place its subsequent, site-specific analyses within the context of the larger framework.[19] While the BLM Specialist Report initiated this process, it has yet to be completed because BLM omitted a number of important considerations, including a meaningful analysis of fossil fuels currently committed to development under existing leases, a program-wide economic analysis of the climate costs of the oil and gas program, and a meaningful discussion about how BLM land management fits within the broader framework of global climate commitments and warming thresholds. In short, preparing a programmatic NEPA analysis will help the Agency to reduce or eliminate redundant and duplicative analyses and effectively address cumulative impacts, substantially reducing the administrative burden and economic costs to the Agency and assisting the Agency in formulating comprehensive mitigation measures that apply at the national level.

a. There Is a Small Remaining Window to Avoid the Most Catastrophic Effects of Climate Change and a Programmatic Review Is Necessary to Inform Future Action.

The science is clear: there is simply no room for continuation of a "business as usual" approach on the federal mineral estate if humanity is to have a meaningful chance of curtailing truly catastrophic warming. Global fossil fuel production must decrease by approximately 6%

[17] *See, e.g.* 42 U.S.C. § 4332(C) (requiring "a detailed statement . . . on—(i) the environmental impact of the proposed action, (ii) any adverse environmental effects which cannot be avoided should the proposal be implemented, (iii) alternatives to the proposed action, (iv) the relationship between local short-term use of man's environment and the maintenance and enhancement of long-term productivity, and (v) any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented.").

[18] These sections illustrate the necessity of a clear declaration by BLM of which NEPA regulations were applied during the analyses for *all* sales, discussed *supra*.

[19] *See, Effective Use of Programmatic NEPA Reviews*, Exhibit 3.

per year between 2020 and 2030 if we hope to limit warming to 1.5°C.[20] Even this type of managed decline of fossil fuel production may be insufficient to achieve this goal. According to a recent study, to maintain a coin-flip chance of holding warming at 1.5°C, approximately 60% of global oil and gas must be left in the ground.[21] Even more recently, researchers at the University of Manchester's Tyndall Centre in 2022 published an analysis of phaseout pathways for coal, oil, and gas production compliant with carbon budgets for avoiding 1.5° C of warming. Their analysis finds that for developed nations, including the U.S., in order to maintain a 50% or better chance of avoiding 1.5° C of warming, "coal production needs to fall by 50% within five years and be effectively eliminated by 2030," while oil and gas production must be cut by 74% by 2030 and end by 2035.[22] To maintain a 67% chance of avoiding 1.5° C of warming, the U.S. must end oil and gas production by 2031.[23]

Similarly, the Intergovernmental Panel on Climate Change (IPCC) recently released the first three installments of its sixth assessment report (AR6).[24] The IPCC Sixth Assessment provided the remaining carbon budget from the beginning of 2020 as 400 $GtCO_2$ for a 67% probability of meeting the 1.5°C limit and 500 $GtCO_2$ for a 50% probability of 1.5°C.[25] At current emissions levels, the world will exceed the global carbon budget for a 50% chance of limiting warming to 1.5°C in just 10 years. The Sixth Assessment Report found that net anthropogenic greenhouse gas emissions during 2010 to 2019 were higher than any previous time in human history.[26] Nationally determined contributions (NDCs) make it likely that we will exceed 1.5°C this century. Policies implemented at the end of 2020 are projected to result in higher global GHG emissions than even those implied by NDCs. Projected CO_2 emissions over the lifetime of

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[20] **Exhibit 6**, SEI, IISD, ODI, E3G, and UNEP, *The Production Gap Report: 2020 Special Report* (2021).
[21] **Exhibit 7**, Welsby, D., Price, J., Pye, S. et al. *Unextractable fossil fuels in a 1.5 °C world*. Nature 597, 230–234 (2021) (if 60% of remaining oil and gas is left in situ, we will retain a 50% chance of limiting warming to 1.5°C).
[22] **Exhibit 8**, Calverley, D. and Anderson, K. (2022), *Phaseout pathways for fossil fuel production within Paris-compliant carbon budgets*. Tyndall Centre, University of Manchester.
[23] *Phaseout Pathways*, Exhibit 8.
[24] **Exhibits 9** and **10**, IPCC, 2021: Summary for Policymakers and Technical Summary. In: Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [MassonDelmotte, V., P. Zhai, A. Pirani, S.L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M.I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J.B.R. Matthews, T.K. Maycock, T. Waterfield, O. Yelekçi, R. Yu, and B. Zhou (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, pp. 3−32, doi:10.1017/9781009157896.001; **Exhibit 11**, IPCC, 2022*: Climate Change 2022: Mitigation of Climate Change. Contribution of Working Group III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* [P.R. Shukla, J. Skea, R. Slade, A. Al Khourdajie, R. van Diemen, D. McCollum, M. Pathak, S. Some, P. Vyas, R. Fradera, M. Belkacemi, A. Hasija, G. Lisboa, S. Luz, J. Malley, (eds.)]. Cambridge University Press, Cambridge, UK and New York, NY, USA. doi: 10.1017/9781009157926; **Exhibit 12**, IPCC, 2022: *Climate Change 2022: Impacts, Adaptation, and Vulnerability.* Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [H.-O. Pörtner, D.C. Roberts, M. Tignor, E.S. Poloczanska, K. Mintenbeck, A. Alegría, M. Craig, S. Langsdorf, S. Löschke, V. Möller, A. Okem, B. Rama (eds.)]. Cambridge University Press. In Press.
[25] Intergovernmental Panel on Climate Change, Summary for Policymakers In: Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change (2021), https://www.ipcc.ch/report/sixth-assessment-report-working-group-i/ at SPM-38, Exhibit 9.
[26] IPCC, 2022: Summary for Policymakers. In: Climate Change 2022: Mitigation of Climate Change. Contribution of Working Group III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [P.R. Shukla, J. Skea, R. Slade, A. Al Khourdajie, R. van Diemen, D. McCollum, M. Pathak, S. Some, P. Vyas, R. Fradera, M. Belkacemi, A. Hasija, G. Lisboa, S. Luz, J. Malley, (eds.)]. Cambridge University Press, Cambridge, UK and New York, NY, USA. doi: 10.1017/9781009157926.001. At SPM-4. Exhibit 11.

existing and planned fossil fuel infrastructure exceed the CO_2 emissions in pathways that limit warming to 1.5°C.[27] In pathways that limit warming to 1.5°C with no or limited overshoot, global GHG emissions peak between 2020 and 2025, and then fall to 48% below 2019 level by 2030, reaching net-zero by early 2050s. Without strengthening policies beyond those at present, GHG emissions are projected to rise beyond 2025, leading to global warming of 3.2°C by 2100.[28] Reducing GHG emissions across the energy sector requires substantial reduction in overall fossil fuel use and the deployment of low-emission energy sources. The continued installation of unabated fossil fuel infrastructure will 'lock-in' GHG emissions.[29]

As UN Secretary-General António Guterres stated upon the release of the Intergovernmental Panel on Climate Change's (IPCC) latest 2022 report:

> Climate scientists warn that we are already perilously close to tipping points that could lead to cascading and irreversible climate impacts. But, high-emitting Governments and corporations are not just turning a blind eye, they are adding fuel to the flames. They are choking our planet, based on their vested interests and historic investments in fossil fuels, when cheaper, renewable solutions provide green jobs, energy security and greater price stability…. Climate activists are sometimes depicted as dangerous radicals. But, the truly dangerous radicals are the countries that are increasing the production of fossil fuels. Investing in new fossil fuels infrastructure is moral and economic madness…[30]

BLM has yet to complete either a project or program-level NEPA document that analyzes the federal oil and gas program in light of these scientific conclusions and with an eye to developing alternatives that respond to them. A programmatic NEPA review is the ideal vehicle for such an analysis. NEPA requires analysis *before* making decisions with potentially irreversible effects: "the appropriate time for preparing an EIS is *prior* to a decision, when the decisionmaker retains a maximum range of options." *Sierra Club v. Peterson*, 717 F.2d 1409, 1414 (D.C. Cir. 1983). While this is of course true at the project level, it is no less true at the programmatic level when each project comprises an incremental part of the overall impact.

The leasing process "is the point of no return with respect to emissions," and it is therefore not only appropriate but critical that the Agency take not only a hard look but a comprehensive one before crossing that threshold. *WildEarth Guardians v. Zinke*, 368 F. Supp. 3d 41, 66 (D.D.C. 2019). At this moment in time, we have very nearly reached the point of no return, not only with regard to the projected lease sales at issue here, but with regard to the ability to avert the worst impacts of climate change. President Biden recognized this in Executive Order 14008: "The United States and the world face a profound climate crisis. We have a narrow moment to pursue action at home and abroad in order to avoid the most catastrophic impacts of that crisis and to seize the opportunity that tackling climate change presents."

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[27] *Id.* at SPM-15, 16.
[28] *Id.* at SPM-21
[29] *Id. at* SPM-36.
[30] United Nations Secretary-General, António Guterres (UN Secretary-General) to the press conference launch of IPCC Report (February 28, 2022) (emphasis added), https://media.un.org/en/asset/k1x/k1xcijxjhp.

The issuance of EO 14008 and its implementing secretarial orders represents both an opportunity and a demand for comprehensive action by the Department of Interior and BLM. Neither entity has yet responded to this directive to the extent explicitly contemplated by the Executive Order, but both retain the opportunity to do so before committing public lands to additional fossil-fuel production. The "comprehensive review and reconsideration" of the federal leasing program called for in Section 208 of EO 14008 required a hard and wholistic look not only at emissions from federal fossil fuels but at how the program contributes to the climate crisis and what must be done to help the United States achieve and contribute to global climate security—not only by compliance with binding international agreements but in a way that meaningfully reduces programmatic emissions.

b. BLM Must Complete the Analysis Begun in the "2020 BLM Specialist Report."

A programmatic review is particularly critical following release of the BLM Specialist Report and Interior Report. The former constitutes—in large part—the quantification and context of federal mineral estate-associated GHG emissions courts have faulted BLM for not providing in the past. BLM must now take the logical next step, by completing the programmatic NEPA analysis it has effectively begun with the BLM Specialist Report. It must also do what it failed to do in the Interior Report – qualitatively and quantitatively discuss the climate change impacts of these emissions in the context of the federal program, leased but as yet undeveloped federal lands, as well as national and global emissions. Failure to do so will represent not only a derogation of the action called for by EO 14008, but also a lost opportunity to meaningfully evaluate the outsized role the federal oil and gas leasing program plays in the climate crisis, and to explore alternatives to reduce its impacts through the federal oil and gas program.

BLM has, with the BLM Specialist Report, fulfilled the lowest common denominator of quantifying federal emissions against the backdrop of federal laws and climate science. It must now meaningfully analyze those emissions in light of remaining national and global carbon budgets, and must apply tools such as the Social Cost of Greenhouse Gases to describe the actual economic, ecologic, and human costs of the program at national and global scales. Section 7.2 of the BLM Specialist Report briefly describes federal fossil fuel emissions in the context of various carbon budgeting mechanisms and global emissions commitments (such as under the Paris Agreement). However, more is required by NEPA, and it must be done at a programmatic level, as the quantification of GHGs in the BLM Specialist Report was done. Just as uncertainty about the effects of an individual sale or permitted development does not absolve BLM from its duty to attempt to analyze those effects,[31] uncertainty about the United States' equitable share of the remaining carbon budget, or variability in carbon budgeting methods and social cost metrics does not justify a failure to analyze meaningful ways to address climate change and the oil and gas program's contributions to it.

[31] *Wildearth Guardians v. U.S. Bureau of Land Mgmt*., 457 F. Supp. 3d 880, 894 (D. Mont. 2020) (The global nature of climate change complicates an assessment of the exact climate change impacts from the lease sales. This complication does not preclude BLM from complying with the Ninth Circuit's mandate to catalogue past, present, and reasonably foreseeable projects).

c. A Programmatic EIS For the Federal Oil And Gas Program Is Consistent With The Department's Review of the Federal Coal Leasing Program.

A final factor weighing in favor of the completion of a programmatic EIS is the Federal Coal Program Review. Originally initiated in response to Secretarial Order 3338 (January 15, 2016), the intent was to conduct a programmatic EIS and review of the federal coal program designed to address a range of concerns, including but not limited to questions as to the fair return to American taxpayers from federal coal royalties, market fluctuations and resultant impacts to coal-dependent communities, and the more fundamental question of whether the leasing and production of federal coal is consistent with the Nation's domestic and international goals to preserve a livable climate and meet international commitments to maintain global warming below certain critical thresholds, namely 1.5°C. Secretarial Order 3338 was rescinded by former Interior Secretary Ryan Zinke through Secretarial Order 3348, which also lifted the federal coal leasing pause that had been implemented by SO 3338. On August 20, 2021, the BLM issued a Federal Register notice in response to Secretarial Order 3398 (issued by Interior Secretary Deb Haaland), indicating its intent to reinstitute a federal coal program review and soliciting public comment. BLM received 214,866 comments in response to its request. The current status of the review itself is unknown.

While SO 3398 did not reinstate SO 3338 or explicitly revive the PEIS, it did reinitiate review of the federal coal leasing program. The appropriate course for both that review and the "comprehensive review and reconsideration" called for by EO 14008 is one or more programmatic NEPA processes analyzing the climate, fiscal, and taxpayer impacts of all federal fossil fuel development. Until those analyses occur, no additional fossil fuel leasing should occur. As explained above, BLM and Interior have failed to comply with EO 14008's mandates by their actions thus far, but retain the ability to do so before committing federal lands to additional GHG emissions, and are compelled by EO 14008, as well as existing statutory mandates under FLPMA, to do so.

C. BLM Has Failed to Consider a Range of Alternatives.

1. No-Leasing Alternative.

BLM's analysis of the no-leasing or no action alternative is incomplete and insufficient to adequately inform the public and the decision maker. The impacts to GHG emissions and climate according to the no action alternatives considered in the EA are brief and fail to indicate the difference in estimated GHG emissions between the proposed alternatives and the no action alternatives. While the no action alternatives acknowledge that "no new GHG emissions from the development of these lease parcels would occur under the No Action Alternative, Federal production levels are expected to remain static or even increase in the short-term and non-Federal oil and gas supply would likely increase if the leases are not developed." See EA at 33-34. Courts have repeatedly rejected such "perfect substitution" arguments. *See, e.g. Friends of the Earth v. Haaland*, No. CV 21-2317 (RC), 2022 WL 254526, at *12 (D.D.C. Jan. 27, 2022)(finding argument that no action alternative would result in higher emissions arbitrary); *WildEarth Guardians v. United States Bureau of Land Mgmt.*, 870 F.3d 1222, 1238 (10th Cir. 2017) (irrational and unsupported substitution argument arbitrary).

The 2016 CEQ GHG Guidance indicates that in the alternatives analysis, agencies should compare anticipated levels of GHG emissions from each alternative, including the no-action alternative, and mitigation actions to provide information to the public and enable the decision maker to make an informed decision.[32] In addition, the analyses of the no-action alternatives implies a "perfect substitution" argument regarding GHG emissions that the Interior Department's Bureau of Ocean Energy Management recently disavowed. We again request BLM evaluate and discuss BOEM's NEPA analysis of GHG emissions from recent offshore lease sales in its NEPA analysis of the proposed 2022 lease sales.[33]

As we discussed above, BLM should have developed a single NEPA document analyzing all six proposed 2022 lease sales to better evaluate the cumulative GHG emissions estimated from the proposed lease sales and their impact on climate change. Likewise, the no-action alternative should evaluate and discuss the cumulative effect of not leasing any of the proposed 2022 parcels proposed for oil and gas development. This analysis should not only quantify the total GHG emissions that would be avoided as a result of not leasing but should also quantify and evaluate the co-benefits of not leasing, including the benefits of avoided air pollution, avoided water use, avoided produced water disposal, and the ability to put lands not leased to other beneficial uses.[34] The co-benefits analysis should also reflect the cumulative value of the renewable energy-generating capacity of the federal lands and mineral estate that would be preserved under the no-action alternative.

2. BLM Failed to Consider Proposed Alternatives.

In our comments, we requested BLM include an alternative that considers adopting a policy of managed decline of fossil fuel production from the entire federal mineral estate. The EA for the proposed lease sale in Utah considered this alternative without analyzing it in detail, but the remaining EAs evaluating the other proposed lease sales did not. In fact, the EAs for the New Mexico and Oklahoma proposed lease sales evaluated *only* the proposed action alternative and a no action alternative. Many of the EAs provide no discussion of the alternatives proposed during the scoping and draft EA comments and the basis for BLM's determination to consider some alternatives and not others. The inconsistencies among BLM offices in determining the alternatives to consider is another example of the need to consider the proposed lease sales in a single impact statement rather than through individual EAs. It also underscores the need for a programmatic review of the BLM fossil fuel program. We request BLM explain the basis for how and why it determined whether to consider proposed alternatives, and we renew our request that BLM consider an alternative involving a policy of managed decline of fossil fuel production from the entire federal mineral estate.

Additionally, few of the BLM EAs addressed the other alternatives we proposed in our scoping and draft EA comments, including:

[32] 2016 CEQ GHG Guidance at 15, Exhibit 5.
[33] **Exhibit 13**, Bureau of Ocean Energy Management, Draft Environmental Impact Statement for Cook Inlet Planning Area Oil and Gas Lease Sale 258 in Cook Inlet, Alaska (October 2021) at 32-42, 45-48.
[34] 2016 CEQ GHG Guidance at 23, Exhibit 5; Interior Report at 4, 12, Exhibit 4.

- An alternative that imposes a minimum bonus bide higher than $2.00 per acre;[35]

- An alternative that defers offering the proposed lease parcels for sale until at least 50% of all leased federal oil and gas acres in each of the state for which a Q1 2022 sale is proposed are put into production; and

- An alternative that analyzes and applies best available methane reduction technologies as a stipulation attached to all parcels in the lease sale.[36]

We renew our request that BLM consider these alternatives or, at minimum, explain the basis for its determination not to consider these alternatives.

3. BLM Should Consider an Alternative That Protects Groundwater.

BLM must consider alternatives that would protect usable groundwater. *See WildEarth Guardians v. U.S. Bureau of Land Mgmt.*, 457 F.Supp.3d 880, 890 (D. Mont. 2020). Specifically, BLM should consider not leasing parcels within areas where there is less than 2,000 feet of vertical separation between the oil and gas formations likely to be targeted and any groundwater aquifer with 10,000 ppm TDS or less. BLM should also analyze an alternative whereby parcels would not be leased in areas overlying usable groundwater and surface water, and an alternative that includes other measures to ensure that all usable groundwater zones are protected. This might involve pre-leasing groundwater testing and adding a lease stipulation or lease notice requiring specified casing and cementing depths. Alternatively, or additionally, BLM should consider requiring a lease stipulation or lease notice requiring the lessee to perform groundwater testing prior to drilling to identify all usable water, and consultation with the U.S. Geological Survey and other agencies to identify those waters with up to 10,000 ppm TDS.

4. BLM Must Consider an Alternative that Minimizes Methane Waste Through both Technology and Regulatory Authority.

In addition to the best available methane reduction technologies described in Conservation Groups' scoping and draft EA comments (incorporated here by reference), BLM must also consider an alternative that implements its legal obligation to use all reasonable precautions to prevent waste, including a stipulation on leases that provides for no routine venting or flaring, similar to regulations that are already being implemented in the states of Colorado and New Mexico. Similarly, Interior's standard lease form, Form 3100-11 (October 2008) provides, in section 4, that a "[l]essee … must prevent unnecessary damage to, loss of, or waste of leased resources," and that Interior "reserves right to specify rates of development and production in the public interest …". Such an alternative must also articulate the implementation of existing methane waste policies as described in Notice to Lessees 4a (Jan. 1, 1980) ("NTL-

[35] This alternative was briefly addressed in the Montana/Dakotas EA, but the BLM's basis for refusing to consider it—that the minimum bonus bid is set forth in regulation—is yet another reason to defer these sales until a programmatic EIS can be completed and the BLM takes the action recommended by the Interior Report of initiating a rulemaking to increase the minimum bonus bid. *See* Interior Report at 8.

[36] The Montana/Dakotas EA "considered" this alternative but noted only that drilling-stage analyses "may result in the imposition of additional project-specific control measures to protect air resources." EA at 21.

4A), and provide guidance requiring strict compliance with, at a minimum, NTL-4a's existing measures as well as BLM's legal authority and responsibility pursuant to the Federal Land Policy and Management Act to prevent or reduce methane emissions, independent of the agency's MLA duty to prevent waste. In addition, such an alternative could involve the following mechanisms to prevent methane waste:

- Removal of a lease parcel from proposed sale or denial of an application for permit to drill if Interior determines that methane, nitrogen oxides, or other harmful emissions are impermissible, whether because such emissions would constitute waste or impair or cause undue or unnecessary harm to non-mineral public lands resources and values, in particular but not exclusively "air and atmospheric" values.
- Controlling the timing, location, and pace of new drilling as well as the rate of production of new or existing wells to eliminate methane or other harmful emissions to align new drilling and production with midstream system capacity.
- A requirement, whether via stipulation or condition of approval, that a lessee or operator, once flowback establishes the level of gas production, connect an oil well producing associated gas to a natural gas line with sufficient capacity prior to the commencement of full production.
- A menu of drilling-stage of conditions of approval specifying known and readily available practices or technologies typically employed to reduce methane waste in accord with the MLA or methane and other harmful emissions in accord with FLPMA.

5. BLM Must Consider an Alternative That Prioritizes Conservation of All Greater Sage-Grouse Priority and General Habitat.

Under the requirements of the 2015 sage-grouse plan, BLM is required to prioritize leasing outside of sage-grouse habitat. In light of the unabated nationwide decline of sage-grouse populations, due in part to BLM's systemic practice of deprioritizing habitat relative to development, BLM should consider an alternative that removes from consideration, or at a minimum defers *all* parcels containing PHMA[37] and GHMA from consideration. Such an alternative is fully consistent with the 2015 Greater Sage Grouse ARMPAs. Moreover, such an alternative is also warranted in light of BLM's expressed intention to review and amend its 2015 Greater Sage-Grouse Resource Management Plan Amendments (the 2015 Plans) to address changed conditions and new information since 2015, as well as the impacts of climate change on sage-grouse.[38]

D. The BLM Has Failed to Take a Hard Look at Reasonably Foreseeable Environmental Consequences.

[37] Despite changes to the proposed sales in response to sage-grouse issues, there still appear to be two parcels in the Wyoming sale that overlap PHMA: Serial Number WYWY105294557/Parcel Number WY-2022-06-7123 appears to overlap 1 acre of PHMA, while Serial Number WYWY105294661/Parcel Number WY-2022-06-1223 appears to overlap 87 acres of PHMA.

[38] *See* Notice of Intent to Amend Land Use Plans Regarding Greater Sage-Grouse Conservation and Prepare Associated Environmental Impact Statements, 86 Fed. Reg. 66,331 (Nov. 22, 2021).

1. The EA and 2020 BLM Specialist Report Fails NEPA's "Hard Look" Test with Regard to Analyzing Climate Impacts of Resuming Federal Oil and Gas Leasing.

a. BLM Improperly Segmented Its NEPA Analysis Of The Proposed Lease Sales.

BLM improperly segmented its decision to offer portions of the federal mineral estate for fossil fuel development. According to BLM, the agency offered the 2022 lease sales consistent with the federal district court's order in *Louisiana v. Biden*.[39] Rather than evaluate the proposed lease sales and their associated environmental impacts in a single NEPA analysis, BLM separated the environmental analysis despite the connected nature of the leasing actions and the reasonably foreseeable cumulative climate impacts associated with the potential GHG emissions from authorized leases.

To assess the effects of a proposed action, BLM should account for the proposed action – including "connected" actions – subject to reasonable limits based on feasibility and practicality.[40] "Connected actions" are actions that are closely related and therefore should be discussed in the same impact statement. 40 C.F.R. 1508.25(a)(1)[41] Actions are connected if, among other circumstances, the actions are interdependent parts of a larger action and depend on the larger action for their justification. *Id.* at (a)(1)(iii). Other types of actions that should be considered in a single impact statement also include "cumulative actions," actions which when viewed with other proposed actions have cumulatively significant impacts, and "similar actions," actions which when viewed with other reasonably foreseeable or proposed agency actions, have similarities that provide a basis for evaluating their environmental consequences together, such as common timing or geography. *Id.* at (a)(2) and (3). Agencies should analyze similar actions in the same impact statement when the best way to assess adequately the combined impacts of similar actions or reasonable alternatives to such actions is to treat them in a single impact statement. *Id.* at (a)(3).

Rather than segment the NEPA analysis according to individual oil and gas lease sales, the CEQ NEPA regulations regarding connected actions, cumulative actions, and similar actions suggest BLM should analyze the environmental impacts of the proposed lease sales in a single NEPA analysis. The proposed 2022 lease sales meet the definition of "connected action" because according to BLM, the agency offered the six 2022 lease sales pursuant to the same overarching statutory obligation – the Mineral Leasing Act and associated laws – to hold quarterly lease sales for oil and gas development. The proposed 2022 lease sales also qualify as "cumulative actions" based on their cumulatively significant emissions of GHGs and their impacts on climate change. In addition, the proposed 2022 lease sales are properly understood as "similar actions" because

[39] Department of Interior, Interior Department Issues Statement on Oil and Gas Leasing Program (last edited 8/26/2021), available at www.doi.gov/pressreleases/interior-department-issues-statement-oil-and-gas-leasing-program.
[40] 2016 CEQ GHG Guidance at 13, Exhibit 5.
[41] All citations in this document are to the 1978 CEQ Regulations unless otherwise indicated, consistent with Secretarial Order 3399, which provides: "Bureaus/Offices will not apply the 2020 Rule in a manner that would change the application or level of NEPA that would have been applied to a proposed action before the 2020 Rule went into effect on September 14, 2020." Secretarial Order 3399, Sec. 5(a).

the NEPA analysis and proposed sale dates are common in time and the best way to adequately assess their cumulative GHG emissions is through a single impact statement.

BLM claims that the "dynamic nature of the lease sale process" and "independence of each administrative unit for constructing its lease sales" precludes BLM from analyzing potential GHG emissions that could occur from other lease sales.[42] But this is a nonsensical statement in light of the fact that BLM estimated the emissions from all the parcels being offered in each of the proposed 2022 lease sales in the EA associated with each sale.[43] BLM plainly can analyze the potential GHG emissions of all of the actions and should do so in a single impact statement.

b. Federal Fossil Fuel Emissions Are Significant Under NEPA.

i. EPA GHG Equivalency Calculator

BLM evaluated GHG emissions estimated from the proposed lease sales and from the cumulative GHG emissions from BLM's onshore federal fossil fuel program using several analytical tools, all of which indicate federal fossil fuel emissions of GHGs are significant under NEPA. BLM used EPA's greenhouse gas equivalency calculator to express the estimated annual GHG emissions from each lease sale in terms of the GHG emissions produced from gas-fueled vehicles driven for one year. As explained above, the GHG analysis for the sales was improperly segmented, analyzing GHG emissions using EPA's GHG equivalency calculator according to individual lease sales. However, the total annual GHG emissions from the proposed lease sales are equivalent to 524,886 gasoline-fueled passenger vehicles driven for one year. We request BLM further contextualize these GHG emissions by using the EPA GHG equivalency calculator to consider the GHG emissions over the average 30-year production life of the leases.

2022 Lease Sale EAs	**Equivalent of Total Annual GHG Emissions from the Proposed Lease Sales in Number of Gas-fueled vehicles driven for (1) year[44]**

[42] Environmental Assessment, June 2022, DOI-BLM-CO-0000-2022-0001-EA (Colorado EA) at 39-40; Environmental Assessment, June 2022, DOI-BLM-MT-0000-2021-0006-EA (Montana EA) at 45; Environmental Assessment, June 2022, DOI-BLM-NV-B000-2021-0007-Other (Nevada EA) at 32; Environmental Assessment, June 2022, DOI-BLM-NM-P000-2021-0001-EA ("New Mexico EA") at 78; Environmental Assessment June 2022, DOI-BLM-NM-0040-2021-0033-EA (Oklahoma EA) at 33; Environmental Assessment, June 2022, DOI-BLM-UT-0000-2021-0007-EA (Utah EA) at 46; Environmental Assessment, June 2022, DOI-BLM-WY-0000-2021-0003-EA (Wyoming EA) at 39.

[43] Colorado EA at 35; Montana EA at 42; Nevada EA at 27; New Mexico EA at 73-74; Oklahoma EA at 29; Utah EA at 42-43; Wyoming EA at 33.

[44] Colorado EA at 36; Montana EA at 40; Nevada EA at 27; New Mexico EA at 74; Oklahoma EA at 30; Utah EA at 40; Wyoming EA at 35. (note: these numbers are identical to those in the Draft EAs, and therefore one set of numbers appears to be in error, an error BLM could rectify with a single NEPA analysis encompassing all sales, as requested by Conservation Groups.)

Colorado	104,368
Montana/Dakotas	6,030
Nevada	707
New Mexico	7,096
Oklahoma	1,885
Utah	3,205
Wyoming	400,926
TOTAL	**524,886**

BLM did not use EPA's GHG equivalency calculator to conduct a similar analysis of the cumulative GHG emissions from the federal fossil fuel program in the 2020 BLM Specialist Report, and BLM failed to explain the basis for its decision to omit this analysis. We request BLM contextualize the cumulative GHG emissions from the federal fossil fuel program using EPA's GHG equivalency calculator as well.

ii. Social Cost of Greenhouse Gases

BLM also used the social cost of greenhouse gases (SC-GHG) as another tool to assess GHG emissions and climate change effects from the proposed lease sale. The social cost of greenhouse gases provides an estimate of the monetized global damages associated with the incremental increases of GHGs. Again, because BLM improperly segmented its NEPA analysis of the proposed lease sales the EAs only provide the social cost of GHGs for each individual lease sale rather than a cumulative total. However, the combined total social cost of GHGs for all six proposed lease sales ranges between $410,780,000 (in 2020 dollars) and $4,685,620,000 (in 2020 dollars), depending on the discount rate.

2022 Lease Sale EAs[45]	**Average Value, 5% Discount Rate (2020 Dollars)**	**95th Percentile Value, 3% Discount Rate (2020 Dollars)**
Colorado	$33,869,000	$360,607,000
Montana/Dakotas	$5,189,000	$58,568,000
Nevada	$1,616,000	$16,968,000
New Mexico/Oklahoma: NM	$9,222,000	$97,767,000
OK	$2,350,000	$25,031,000
Utah	$932,000	$10,428,000
Wyoming	$357,602,000	$4,116,251,000

[45] Colorado EA at 39; Montana EA at 45; Nevada EA at 31; New Mexico EA at 77; Oklahoma EA at 33; Utah EA at 46; Wyoming EA at 39.

TOTAL	**$410,780,000**	**$4,685,620,000**

BLM did not use the social cost of GHGs tool to assess the impacts of the cumulative cost of global damages from BLM's fossil fuel program in the 2020 BLM Specialist Report, and BLM failed to explain the basis for its decision to omit this analysis. We request BLM contextualize the cumulative GHG emissions from the federal fossil fuel program using the social cost of GHGs. The cumulative costs of the federal fossil fuel program is an important consideration for BLM to weigh, as it is many orders of magnitude greater than the already significant costs of just the six proposed 2022 lease sales.

As a final comment on BLM's use of the social cost of GHGs, we are concerned by the way BLM frames its understanding and weight of the social cost of GHG analysis. BLM states: "[The SC-GHG] numbers were monetized; however, they do not constitute a complete cost-benefit analysis…SC-GHG is provided only as a useful measure of the benefits of GHG emissions reductions to inform agency decision-making." However, BLM must be clear that the SC-GHG is a measure of impacts to the human environment (reflected in 2020 U.S. dollars) that BLM is obligated to evaluate pursuant to NEPA regardless of whether or not BLM conducts a complete or partial cost cost-benefit analysis of the proposed lease sales.

iii. Carbon Budgeting

In addition to SC-GHG, BLM used carbon budgeting to evaluate the impact of GHG emissions associated with BLM's onshore fossil fuel authorizations on the remaining atmospheric capacity to take on further GHG emissions without exceeding different degrees of additional warming. As we discuss below, BLM improperly omitted carbon budget analysis of the United States' share of the global carbon budget. Nonetheless, GHG emissions from the onshore federal fossil fuel program consume a tremendous amount of the global budget – 1.47% of the budget consistent with a 66% chance of limiting warming to 1.5 C. And, this analysis improperly omits GHG emissions from federal offshore oil and gas leasing.

	Metric	**66% Chance of Limiting Warming to 1.5 Degree C**
	Carbon Budget ($GtCO_2$)	420
GHG Emissions from Onshore Federal Oil, Gas, and Coal	Federal Emissions During Budget Timeframe ($GtCO_2$)[46]	6.16
	Federal Consumption of Carbon Budget	1.47%

In addition to the tools BLM used to contextualize and evaluate federal fossil fuel GHG emissions, we request BLM evaluate and consider the impacts of climate change that have already occurred as a result of the cumulative emissions of GHGs. BLM's NEPA analysis of

[46] It is unclear why BLM did not conduct its carbon budget analysis according to CO_{2e}.

GHGs and climate change tends to frame the impacts of climate change as long-term impacts, estimated to be realized at some future point in time. However, the climate has already changed as a result of anthropogenic GHG emissions and the consequences of global climate change are already being realized.

BLM's NEPA analyses of the proposed lease sales acknowledge that anthropogenic GHG emissions over the past 60 years have resulted in impacts associated with the change in global climate.[47] In fact, the 2020 BLM Specialist Report refers to the IPCC climate assessment report, which states: "Warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia. The atmosphere and ocean have warmed, the amounts of snow and ice have diminished, sea level has risen, and the concentration of greenhouse gases have increased."[48] The IPCC AR5 report indicates that the globally averaged combined land and ocean surface temperature data, as calculated by a linear trend, show warming of 0.85 +/- 0.2 C over the period 1880 to 2012.[49] Warming of 0.85 C is only a little over half the warming the 1.5 C of warming the U.S. has committed to avoid and yet scientists are increasingly able to show the significant impacts of just 0.85 C of warming in terms of the intensification of wildfires, hurricanes, drought, and other weather-related phenomena.[50] We request BLM consider, discuss, and evaluate the climate science regarding past and present impacts from climate change to further contextualize the climate impacts from the cumulative emissions of GHGs associated with the proposed lease sales and the federal fossil fuel program.

Despite using these tools to contextualize and evaluate the significance of GHG emissions from the proposed lease sales and the cumulative emissions of the federal fossil fuel program, BLM determined the emissions and associated climate impacts are insignificant. Based on the information presented in BLM's NEPA analyses, some of which is summarized above, it is unclear how BLM reached this determination. Moreover, BLM never explained its rationale or decision making process for assessing the significance of GHG emissions and their climate impacts. We request BLM clarify and explain in detail how, based on the SC-GHG, carbon budgeting, and other analytical tools, it concluded the GHG emissions from the lease sales proposed in 2022 and the cumulative GHG emissions from the federal fossil fuel program do not significantly impact the human environment.

c. BLM Has the Ability to Provide For Meaningful And Measurable Mitigation Actions In The Context of Cumulative Climate Change Resulting From Global Emissions.

[47] Colorado EA at 34; Montana EA at 36; Nevada EA at 25; New Mexico EA at 72; Oklahoma EA at 28; Utah EA at 38; Wyoming EA at 31.
[48] 2020 BLM Specialist Report at Section 8.3, *citing* IPCC, 2013: Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the IPCC Fifth Assessment Report.
[49] *Id.*
[50] Every extreme-weather attribution peer-reviewed study published to date is tracked and available at Carbon Brief, *Mapped: How climate change affects extreme weather around the world*, https://www.carbonbrief.org/mapped-how-climate-change-affects-extreme-weather-around-the-world (last visited Nov. 29, 2021); *see also* **Exhibit 14**, Intergovernmental Panel on Climate Change, *Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* (2021); **Exhibit 15**, Swain, Daniel L. et al., *Attributing Extreme Events to Climate Change: A New Frontier in a Warming World*, One Earth (Jun. 2, 2020); **Exhibit 16**, Reed, Kevin A. et al., *Forecasted Attribution of the Human Influence on Hurricane Florence*, Science Advances 6 (1): eaaw9253, https://doi.org/10.1126/sciadv.aaw9253.

Throughout the 2020 BLM Specialist Report and the EAs for the proposed lease sales, BLM mischaracterizes its duty and authority to address climate change programmatically and in the context of project level actions. BLM's mischaracterizations misinform the public and decision makers and prejudice its NEPA analysis and conclusions. Examples of BLM's mischaracterizations include:

- BLM "has limited ability to provide for meaningful or measurable mitigations actions in the context of cumulative climate change resulting from global emissions."[51]

- The BLM's decision space for mitigating climate impacts from fossil fuels development is currently limited by authorization in statutes such as FLPMA and the MLA.[52]

- No single authorized project level action can produce emissions with such significance that the action could be perceived as influencing the climate. However, all GHG emissions (big and small) contribute to changes in atmospheric radiative forcing and ultimately climate change.[53]

Under FLPMA, BLM, has array of responsibilities, implicated by the impacts of climate change, when deciding whether to approve new oil and gas lease sales, including to:

- Protect public land values including air and atmospheric, water resource, ecological, environmental, and scenic values, and to preserve and protect "certain public lands in their natural condition," and "food and habitat for fish and wildlife." 43 U.S.C. §1701(a)(8);
- Account for "the long-term needs of future generations." 43 U.S.C. § 1702(c);
- Prevent "permanent impairment of the productivity of the land and quality of the environment." 43 U.S.C. § 1702(c);
- "[T]ake any action necessary to prevent unnecessary or undue degradation of the lands." 43 U.S.C. § 1732(b), and
- Manage public lands on the basis of multiple use and sustained yield. 43 U.S.C. § 1732(a).

To carry out these responsibilities in the context of oil and gas leasing, BLM has a corresponding array of authorities to address the impacts of oil and gas leasing and development. These authorities include choosing not to lease the federal mineral estate for oil and gas development, withdrawing federal minerals from leasing; prohibiting leasing in resource management plans and through resource management plan amendments, requiring conditions of approval in new authorizations of oil and gas leases, as well as managing the rate of oil and gas production in federal leases.

[51] 2020 BLM Specialist Report at Section 10.0.
[52] *Id.*
[53] *Id.*

To BLM's authority to choose not to lease the federal mineral estate, development of public lands is not required but must instead be weighed against other possible uses, including conservation to protect environmental values. *See, e.g.*, *New Mexico ex rel. Richardson v. BLM*, 565 F.3d 683, 710 (10th Cir. 2009) ("BLM's obligation to manage for multiple use does not mean that development *must* be allowed. . . . Development is a *possible* use, which BLM must weigh against other possible uses—including conservation to protect environmental values, which are best assessed through the NEPA process." (emphasis in original)); *Wilderness Workshop v. BLM*, 342 F. Supp. 3d 1145, 1166 (D. Colo. 2018) ("[T]he principle of multiple use does not require BLM to prioritize development over other uses" (internal quotations and citations omitted).). As we indicated above, the court in *Louisiana v. Biden* confirmed that BLM is authorized to postpone lease sales to address NEPA and similar concerns tied to particular lease proposals. *Louisiana v. Biden*, No. 2:21-cv-778-TAD-KK at *14.

Just as BLM can deny a project outright to protect the environmental uses of public lands, it can also condition a project's approval on the commitment to mitigation measures that lessen environmental impacts. *See, e.g.*, *Pub. Lands Council v. Babbitt*, 167 F.3d 1287, 1300–01 (10th Cir. 1999) ("FLPMA unambiguously authorizes the Secretary to specify terms and conditions in livestock grazing permits in accordance with land use plans."); *Grynberg Petro*, 152 IBLA 300, 307–08 (2000) (describing how appellants challenging conditions of approval bear the burden of establishing that they are "unreasonable or not supported by the data").

BLM's authority to mitigate environmental impacts is importantly related to BLM's NEPA obligations to consider ways to avoid, minimize, and mitigate impacts in accordance with the mitigation hierarchy. 40 C.F.R. §§ 1508.8, 1502.14, 1502.16, 1508.20. Specifically, BLM must "include appropriate mitigation measures not already included in the proposed action or alternatives." *Id.* §§ 1502.14(f), 1502.16(h). Thus, based on site-specific NEPA reviews that rationally connect to FLPMA's mandates, BLM must impose constraints on new well approvals to avoid catastrophic climate change and protect and advance the public interest.[54] This includes the robust use by BLM of conditions of approval to, in sequenced priority, avoid, mitigate, or compensate for climate, public lands, or community impacts. *See* 43 U.S.C. §§ 1701(a)(8), 1702(c), 1732(b); 43 C.F.R. § 3101.1-2; *Yates Petroleum Inc*., 176 I.B.L.A. 144, 154 (2008) (upholding conditions of approval more stringent than provisions contained in the overarching resource management plan).

The Mineral Leasing Act (MLA) also authorizes BLM to reduce the rate production over a defined period of time, limiting the amount of extraction and greenhouse gas pollution that would result. The MLA authorizes the Secretary of the Interior to "alter or modify from time to time the rate of prospecting and development and the quantity and rate of production under such a plan." 30 USCA § 226(m). Likewise, nearly all BLM leases for onshore oil and gas contain a clause which states that "Lessor reserves the right to specify rates of development and production in the public interest." See U.S. Department of the Interior, Offer to Lease and Lease for Oil and Gas, Form 3100-11 (Oct. 2008). According to these authorizations, the Secretary and BLM could

[54] **Exhibit 17**, Bruce. M Pendery, *BLM's Retained Rights: How Requiring Environmental Protection Fulfills Oil and Gas Lease Obligations*, 40 Envtl. L. 599 (2010).

set a declining rate of production over time that provides for an orderly phase-out of onshore fossil fuel production.

BLM's legal duty and authority provide a variety of mitigation actions BLM could take to meaningfully and measurably to address cumulative climate change resulting from global emissions. We request BLM revise its NEPA analyses to correctly reflect its legal duties and authorities.

d. The EA and 2020 BLM Specialist Report Omit Analysis of the Compatibility of New Commitments of Federal Fossil Fuels with the U.S. Goal of Avoiding 1.5 C Warming.

Neither the EAs for the proposed lease sales nor the 2020 BLM Specialist Report analyze whether the estimated GHG emissions associated with the proposed lease sales and the cumulative GHG emissions from the federal fossil fuel program are compatible with the U.S. goal of avoiding 1.5 C of warming. The United States is a signatory to the United Nations' Paris Agreement, which seeks to keep global temperatures within 2 C of the pre-industrial climate, and preferably within 1.5 C. Among other pledges and commitments, the United States has pledged to reduce its emissions by filing an intended nationally determined contribution with the United Nations to reduce net GHG emissions by 17 percent below 2005 levels by 2020, and by 26-28 percent by 2025. However, BLM's NEPA analyses fail to analyze the compatibility of cumulative federal fossil fuel program emissions with the United States' commitments to avoid 1.5 C of warming. This is despite federal agencies including the Bureau of Ocean Energy Management having conducted this type of analysis in the context of reviewing other federal projects pursuant to NEPA.[55] We request BLM conduct this analysis.

e. The EA and 2020 BLM Specialist Report Omit Analysis of the Global and National Over-Commitment of Fossil Fuels Relative to Global Carbon Budgets Necessary to Avoid 1.5 C Warming.

BLM's EAs for the proposed 2022 lease sales omit analyzing and evaluating the estimated GHG emissions from the lease sales and cumulative GHG emissions within the context of the widening production gap. The production gap is the difference between global fossil fuel production projected by governments and fossil fuel production consistent with the 1.5 C-warming pathway and other pathways. In 2019, the Stockholm Environment Institute (SEI) released a report on the production gap with grave findings that the world's projected fossil fuel production was seriously out of sync with the level of fossil fuel production consistent with limiting warming to 1.5 C.[56] The subsequent 2020 *Production Gap Report* warned that:

> the world must decrease fossil fuel production by roughly 6% per year between 2020 and 2030 to limit warming to 1.5°C, but fossil fuel producers are planning

[55] **Exhibit 18**, Bureau of Ocean Energy Management, Outer Continental Shelf Oil and Gas Leasing Program: 2017-2022, Final Programmatic Environmental Statement, Volume I (Nov. 2016) at 4-8 to 4-10.
[56] **Exhibit 19**, Stockholm Environment Institute, *The Production Gap: The Discrepancy Between Countries' Planned Fossil Fuel Production and Global Production Levels Consistent with Limiting Warming to 1.5°C or 2.0°C* (2019), https://www.sei.org/publications/the-production-gap-report/.

and projecting an average annual increase of 2%, which by 2030 would result in more than double the production consistent with the 1.5°C limit.[57]

Last year the United Nations, in collaboration with SEI and other academic institutions, issued the first comprehensive update to the 2019 production gap analysis.[58] The 2021 UN Production Gap Report raises more alarm that despite the most recent IPCC findings that the world is running out of time to limit long-term global warming to 1.5 C that the world's governments continue to plan to produce more than double the amount of fossil fuels in 2030 than would be consistent with a 1.5 C-warming pathway. The report's main findings include:

- In spite of net-zero emission targets, countries have not explicitly recognized or planned for the rapid reduction in fossil fuel production that these targets require;

- Global fossil fuel production must start declining immediately and steeply to be consistent with limiting long-term warming to 1.5 C;

- Governments' production plans and projections would lead to around 240% more coal, 57% more oil, and 71% more gas than would be consistent with limiting global warming to 1.5 C;

- Projections from the US Energy Information Administration show US oil and gas production increasing to 17% and 12% above 2019 levels by 2030, respectively.[59]

We request BLM consider the production gap reports discussed above, which indicate an imperative to rapidly transition away from fossil fuels using supply side policies.

f. The EA and the 2020 BLM Specialist Report Fail to Adequately Quantify and Assess All Related Past, Present, and Reasonably Foreseeable GHG Emissions.

The BLM failed to properly complete a cumulative impacts analysis of the proposed lease sales, including an assessment of the cumulative impact of greenhouse gas emissions from the federal fossil fuel program. 40 C.F.R. §§ 1502.14, 1508.7; *Center for Biological Diversity v. National Highway Traffic Admin.*, 538 F.3d 1172, 1215 (9th Cir. 2008). BLM must analyze greenhouse gas emissions from any and all federal, state, and private fossil fuel leasing and development projects. As we discussed above, BLM improperly segmented its NEPA analysis of the proposed lease sales and could more effectively conduct an analysis of the cumulative impacts of fossil fuel leasing and development in the context of a programmatic review of the federal fossil fuel program. Should BLM choose to carry on without a programmatic review, it must still comprehensively analyze cumulative GHG emissions pursuant to its statutory

[57] *See,* SEI, IISD, ODI, E3G, and UNEP. (2021). The Production Gap Report: 2020 Special Report, http://productiongap.org/2020report, Exhibit 6.
[58] **Exhibit 20**, SEI, IISD, ODI, E3G, and UNEP. (2021). The Production Gap Report 2021, http://productiongap.org/2021report.
[59] *See id*, 2021 Production Gap Report, Exhibit 20.

obligations under NEPA. The applicable CEQ NEPA regulations define "cumulative impacts" as:

> the impact on the environment which results from the incremental impact the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

40 C.F.R. § 1508.7 (2005).

i. GHG Emissions From Federal Offshore Oil and Gas Leasing.

BLM failed to assess the cumulative greenhouse gas emissions from recent and reasonably foreseeable federal offshore oil and gas lease sales. Recent and reasonably foreseeable federal offshore oil and gas lease sales, whose GHG emissions and the cumulative impacts must be assessed include:

Recent and Pending Federal Offshore Oil and Gas Lease Sales[60]

Year	Sale Number	Area
2021	257	Gulf of Mexico
2021	259	Gulf of Mexico
2022	258	Cook Inlet
2022	261	Gulf of Mexico

The U.S. Bureau of Ocean Energy Management produced a Programmatic Environmental Impact Statement, analyzing the estimated GHG emissions that would potentially be produced if the 2017-2022 Outer Continental Shelf (OCS) Oil and Gas Leasing Program were implemented. The four offshore oil and gas lease sales identified above are among the lease sales studied in the PEIS for the 2017-2022 OCS Oil and Gas Leasing Program. That PEIS estimated that if the 2017-2022 OCS program were implemented, the estimated future lifecycle GHG emissions from that program would be 7,886,680,000 metric tons of CO_{2e}:[61]

[60] *See* Bureau of Ocean Energy Management, Oil and Gas Lease Sales 2017-2022, available at https://www.boem.gov/oil-gas-energy/lease-sales.

[61] Bureau of Ocean Energy Management, Outer Continental Shelf Oil and Gas Leasing Program: 2017-2022, Final Programmatic Environmental Statement, Volume I (Nov. 2016) at 4-8, Exhibit 18.

Table 4.2-3. Estimated Future Lifecycle GHG Emissions from the Proposed Action in Thousands of Metric Tons of CO_2e

Program Area	Proposed Action (Low-Price Scenario)	No Action Alternative (Low-Price Scenario)	Proposed Action (High-Price Scenario)	No Action Alternative (High-Price Scenario)
Beaufort Sea	120	0	1,985,070	2,019,670
Chukchi Sea	20	0	1,943,310	2,043,210
Cook Inlet	39,480	40,620	156,820	240,930
GOM	1,245,920	1,258,110	3,801,480	3,719,880
Total	**1,285,540**	**1,298,730**	**7,886,680**	**8,020,550**

Source: Wolvovsky and Anderson 2016
Key: CO_2e = carbon dioxide equivalent

ii. GHG Emissions from Federal Fossil Fuel Projects.

BLM also failed to assess the cumulative greenhouse gas emissions from recent and reasonably foreseeable federal fossil fuel lease sales and similar federal actions, as required by NEPA. *WildEarth Guardians v. Zinke*, 368 F. Supp. 3d 41, 63 (D.D.C. 2019). Examples of pending coal lease applications that, if authorized, would contribute to GHG emissions include:

Applicant	Mine Name	Application Date	Application Tonnage	Application Acreage
Coteau Properties Co.[62]	Freedom Mine	May 17, 2019	19.2 M tons	1,119.89 acres
Falkirk Mining Co.[63]	Falkirk Mine	January 28, 2021	11.96 M tons	800 acres
Spring Creek Coal, LLC[64]	Spring Creek Mine	July 3, 2017	170.2 M tons	1,262.57 acres
Spring Creek Coal, LLC[65]	Spring Creek Mine	May 11, 2016	7.9 M tons	150 acres
UtahAmerican Energy, Inc.[66]	Not provided	December 13, 2017	1.34 M tons	317.84 acres
UtahAmerican Energy, Inc.[67]	Not provided	December 13, 2017	7.55 M tons	954.80 acres
Canyon Fuel Co., LLC[68]	Not provided	July 10, 2019	3.3 M tons	120 acres
UtahAmerican Energy, Inc.[69]	Not provided	March 1, 2002	Not provided	4,192 acres

[62] **Exhibit 21**, Coteau Properties Co. Leasing Application, Freedom Mine (May 17, 2019).
[63] **Exhibit 22**, Falkirk Mining Company Leasing Application, Falkirk Mine (Amended: January 28, 2021).
[64] **Exhibit 23**, Spring Creek Coal, LLC Leasing Application, Spring Creek Mine (Modified: July 3, 2017).
[65] **Exhibit 24**, Spring Creek Coal, LLC Leasing Application, Spring Creek Mine (Modified: May 11, 2016).
[66] **Exhibit 25**, UtahAmerican Energy, Inc. Leasing Application, UTU-014218 (December 13, 2017).
[67] **Exhibit 26,** UtahAmerican Energy, Inc. Leasing Application, UTU-0126947 (December 13, 2017).
[68] **Exhibit 27**, Canyon Fuel Company LLC, Leasing Application (July 10, 2019).
[69] **Exhibit 28**, UtahAmerican Energy, Inc., Leasing Application, UTU-80043 (March 1, 2002).

Bronco Utah Reserves, Inc.[70]	Not provided	March 28, 2018	Not provided	2,956 acres
Antelope Coal LLC[71]	Antelope Mine	August 20, 2015	441 M tons	3,508 acres

iii. GHG Emissions From Non-Federal Oil and Gas Leasing.

BLM continues to fail to assess cumulative greenhouse gas emissions from recent and reasonably foreseeable non-federal oil and gas leasing and development projects. For example, just this year five states have held 13 lease sales, selling tens of thousands of acres for oil and gas development.[72] In addition, as of the date of this comment Oklahoma currently has an oil and gas lease sale open to bid, and North Dakota, New Mexico, Wyoming, and Colorado each have additional oil and gas lease sales tentatively scheduled for early 2022.[73]

Colorado State Land Board

- May 20, 2021 Oil and Gas Lease Sale[74]
- August 18, 2021 Oil and Gas Lease Sale[75]

North Dakota Department of Trust Lands

- August 3, 2021 Oil and Gas Lease Sale[76]
- November 2, 2021 Oil and Gas Lease Sale[77]

New Mexico Stand Land Office

- June 15, 2021 Oil and Gas Lease Sale[78]
- July 20, 2021 Oil and Gas Lease Sale[79]
- August 17, 2021 Oil and Gas Lease Sale[80]
- September 21, 2021 Oil and Gas Lease Sale[81]
- October 19, 2021 Oil and Gas Lease Sale[82]
- November 16, 2021 Oil and Gas Lease Sale[83]

Utah School and Institutional Trust Lands Administration

- July 23, 2021 Oil and Gas Lease Sale[84]

[70] **Exhibit 29**, Bronco Utah Reserves, Inc., Leasing Application (March 28, 2018).
[71] **Exhibit 30**, Antelope Coal LLC, Leasing Application, Antelope Mine (August 20, 2015).
[72] Past state oil and gas lease sale data available at https://www.energynet.com/page/Government_Sales_Results.
[73] Planned state oil and gas lease sales may be evaluated at https://energynet.com/govt_listing.pl.
[74] **Exhibit 31**, EnergyNet, Colorado State Land Board Lease Sale Results (May 20, 2021).
[75] **Exhibit 32**, EnergyNet, Colorado State Land Board Lease Sale Results (August 18, 2021).
[76] **Exhibit 33**, EnergyNet, State of North Dakota Oil and Gas Lease Sale Results (August 3, 2021).
[77] **Exhibit 34**, EnergyNet, State of North Dakota Oil and Gas Lease Sale Results (November 2, 2021).
[78] **Exhibit 35**, EnergyNet, New Mexico State Land Office Lease Sale Results (June 15, 2021).
[79] **Exhibit 36**, EnergyNet, New Mexico State Land Office Lease Sale Results (July 20, 2021).
[80] **Exhibit 37**, EnergyNet, New Mexico State Land Office Lease Sale Results (August 17, 2021).
[81] **Exhibit 38**, EnergyNet, New Mexico State Land Office Lease Sale Results (September 21, 2021).
[82] **Exhibit 39**, EnergyNet, New Mexico State Land Office Lease Sale Results (October 19, 2021).
[83] **Exhibit 40**, EnergyNet, New Mexico State Land Office Lease Sale Results (November 16, 2021).
[84] **Exhibit 41**, EnergyNet, Utah School and Institutional Trust Lands Lease Sale Results (July 23, 2021).

Wyoming Office of State Lands and Investments

- July 14, 2021 Oil and Gas Lease Sale[85]
- November 3, 2021 Oil and Gas Lease Sale[86]

g. The Emission Comparisons in the EA fails NEPA's "Hard Look" Standard.

BLM continues to improperly frame and weigh the context and intensity factors for assessing the significance of reasonably foreseeable GHG emissions from the proposed lease sales and their cumulative climate impacts. Although BLM acknowledges that all GHGs contribute incrementally to the climate change phenomenon, BLM persists in comparing the estimated emissions associated with the proposed actions to the total global, national, state, and other categories of GHG emissions to support its finding that the GHG emissions from the proposed actions are insignificant. BLM's attempt to minimize the estimated GHG emissions from the proposed actions in this way is precisely how the 2016 CEQ GHG Guidance directed federal agencies *not* to limit assessments of the significance of GHG emissions.[87] This method of analysis doesn't reveal anything beyond the nature of the climate change challenge itself.[88]

Moreover, BLM's analysis of GHG emissions from the proposed lease sales in comparison with global, national, state, and other categories of emissions is incomplete and fails to inform the public and decision maker of comparisons that would more effectively reveal the context and intensity of the reasonably foreseeable GHG emissions. BLM correctly points out that GHGs have a long atmospheric lifetime, which allows them to become well mixed and uniformly distributed over the entirety of the Earth's surface, no matter their point of origin. However, BLM's EAs for the 2022 lease sales never explain why this aspect of GHGs should limit BLM's comparison of potential emissions from the proposed actions to global, national, and state emission totals for purposes of providing context of their significance and potential contribution to climate change impacts. In other words, BLM never compares or explains why it would be inappropriate to compare potential GHG emissions from one proposed lease sale to the potential GHG emissions from another past or present lease sale. Similarly, why not compare the potential GHG emissions from one proposed lease sale with another past or present federal (or non-federal) fossil fuel action or project? Why not compare the potential emissions to different individual sources of GHG emissions, such as a gas-fired power plant? A dairy operation? A landfill?

BLM never explains the basis for its decision to limit its GHG emission comparisons to the global, national, and state levels, even though the examples of other comparisons mentioned above would provide valuable context and intensity information to the public and the decision maker. We request BLM include a more comprehensive comparison of the estimated GHG emissions associated with the lease sales proposed in 2022 and the cumulative GHG emissions from the federal fossil fuel program to other emissions source, including but not limited to other

[85] **Exhibit 42**, EnergyNet, Wyoming Office of State Lands and Investments Lease Sale Results (July 14, 2021).
[86] **Exhibit 43**, EnergyNet, Wyoming Office of State Lands and Investments Lease Sale Results (Nov. 3, 2021).
[87] 2016 CEQ GHG Guidance at 10-11, Exhibit 5.
[88] *Id*., Exhibit 5.

individual federal and non-federal fossil fuel leases, individual coal-fired and natural gas electric generating facilities, and individual concentrated animal feeding operations (CAFOs).

h. BLM's Analysis of Cumulative GHG Emissions in the 2020 BLM Specialist Report Fails NEPA's "Hard Look" Standard.

Neither the EAs nor the FONSIs for the proposed 2022 lease sales clearly or properly assess the significance of the cumulative impacts of the potential emissions of GHGs and their impact on climate change. To start, no EA analyzing any of the proposed lease sales includes a section analyzing and explaining BLM's assessment of significance of the cumulative impacts of GHG emissions and their impact on climate change. The EAs refer the public and decision maker to a discussion of past, current, and projected future climate change impacts in Chapters 8 and 9 of the 2020 BLM Specialist Report. However, nothing in those chapters or the remainder of the 2020 BLM Specialist Report ever provides BLM's basis for assessing significance of GHG emissions or its ultimate conclusion on significance. Moreover, only the *draft* FONSI for the Wyoming 2022 lease sale includes a discussion of the NEPA intensity factor for cumulative impacts.[89] Even the discussion of cumulative impacts from GHG emissions in the Wyoming draft FONSI is unclear as to how exactly BLM evaluated the significance of the cumulative impact from potential GHG emissions, stating:

> Although future potential development of proposed lease parcels could add incrementally to the oil and gas development, the EA did not identify any significant effects beyond those already analyzed in the RMPs and their EISs. The interdisciplinary team evaluated the lease sale in the context of the affected environment and, as appropriate, reasonably foreseeable trends and planned actions.[90]

As mentioned above, this conclusion contradicts earlier statements in BLM's FONSIs, claiming that BLM could not determine the significance or non-significance of GHG emissions. Regardless, it's impossible to understand how BLM reached this conclusion related in this brief statement in the FONSI because BLM failed to discuss how it assessed the significance of GHG emissions in the EAs, as well as in the 2020 BLM Specialist Report.

In addition, although the 2020 BLM Specialist Report provided a discussion of cumulative GHG emissions from the BLM fossil fuel leasing program and future climate change impacts, the 2020 BLM Specialist Report failed to analyze these cumulative impacts using the SC-GHG and failed to assess carbon budgets according to historic GHG contribution and equitable apportionment. BLM estimated the monetized net harm to society associated with incremental increases in GHG emissions for each individual lease sale proposed in 2022, but without explanation, BLM chose not to conduct the same analysis of cumulative GHG emissions in the 2020 BLM Specialist Report. We request BLM conduct a social cost analysis of the cumulative GHG emissions attributable to federal fossil fuel development and production in

[89] It is notable that the final, unsigned FONSI does not contain even this cursory analysis.
[90] Final Unsigned FONSI for the 2022 June Competitive Lease Sale, DOI-BLM-WY-0000-2021-0003-EA (2021) ("Wyoming FONSI") at 3.

accordance with the Interim Estimates of the Social Cost of Carbon, Methane, and Nitrous Oxide.[91] This analysis must include the monetized net harm to society of reasonably foreseeable emissions according to the increasing social cost of greenhouse gases, which reflects the expectation that the net harm to society will increase as the impacts of climate change accumulate over time.

BLM's 2020 BLM Specialist Report must also further contextualize its carbon budget analysis by evaluating carbon budgets according to the United States' historic contributions. It is well-documented that the United States is the world's largest historic contributor of GHG emissions and, thus, bears a greater global responsibility to more quickly reduce the quantity of its GHG emissions.[92] The 2020 BLM Specialist Report attempts to cast doubt on the utility of assessing GHG emissions according to carbon budgets, stating: "Carbon budgets have not yet been established on a national or subnational scale, primarily due to the lack of consensus on how to allocate the global budget to each nation, and as such the global budgets that limit warming to 1.5 C or 2.0 C are not useful for BLM decisionmaking as it is unclear what portion of the budget applies to emissions occurring in the United States."[93] However, uncertainty in other contexts of GHG and climate change analysis has not prevented BLM from using averages, estimates, and models to address uncertainty and provide the public and decision makers helpful information.[94] As such, BLM should consult the best scientific reports and data available to determine a representative carbon budget that reasonably applies to emissions in the United States, given its historic contributions.[95] The carbon budget analysis in the 2020 BLM Specialist Report, as currently drafted, is misleading because it inappropriately compares GHG emissions from the BLM federal fossil fuel program to the remaining global carbon budget. To the public or a decision maker, this analysis minimizes the GHG emissions from the BLM federal fossil fuel program and implies the emissions are insignificant to the global carbon budget, comparatively.

i. BLM Must Take a Hard Look at Methane Emissions and Waste.

BLM's analysis of the climate impacts of methane in the Nevada EA is cursory at best, a failing that characterizes all of the June 2022 EAs. BLM must take a hard look at the impacts of methane, preferably in both a programmatic NEPA review, and an aggregated EIS for the June sales as discussed above. At a minimum, BLM must rectify this omission in the Nevada EA.

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[91] **Exhibit 44**, U.S. Government Interagency Working Group on Social Cost of Greenhouse Gases, Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide Interim Estimates under Executive Order 13990 (February 2021).

[92] Evans, Simon, *Analysis: Which countries are historically responsible for climate change?* Carbon Brief, https://www.carbonbrief.org/analysis-which-countries-are-historically-responsible-for-climate-change (last visited Nov. 29, 2021).

[93] 2020 BLM Specialist Report at Section 7.2.

[94] *See, e.g.,* 2020 BLM Specialist Report at Section 3.4 (estimating global warming potentials), Section 4.0 (using various methods and assumptions to estimate emission factors for coal, oil, and gas and short- and long-term fossil fuel emissions projections), Sections 6.2-6.4 (projecting global and U.S. emissions).

[95] *See, e.g.,* **Exhibit 45**, Van den Berg, Nicole et al., *Implications of various effort-sharing approaches for national carbon budgets and emission pathways*, Climatic Change 162: 1805-1822 (2020), https://link.springer.com/article/10.1007%2Fs10584-019-02368-y; Dooley, Kate et al., *Ethical choices behind quantifications of fair contributions under the Paris Agreement*, Nature Climate Change 11: 300-305 (2021), available at https://www.nature.com/articles/s41558-021-01015-8.

Methane is an incredibly potent greenhouse gas. Methane has contributed to approximately 30% of the global rise in termperatures to date. [96] Because of Methane's potent short-term warming characteristics, curbing methane emissions is one of the most effective near-term ways to address the climate crisis. Methane emissions from fossil fuel operations represent nearly one-third of human-caused emissions.[97] These emissions represent both a major climate threat and also an opportunity. Slowing and ultimately halting fossil fuel demand will not by itself achieve needed GHG cuts, particularly in the near-term. This means that curbing wasteful methane emissions from oil and gas production are an essential element of reducing climate-warming emissions.[98]

In 2019, oil and gas operators vented or flared approximately 150 billion cubic feet of methane, resulting in the loss of over $50 million in federal royalty revenue. This is enough natural gas to meet the needs of 2.1 million households, which is nearly as many households as the states of New Mexico, North Dakota, Utah and Wyoming combined. BLM is required to must take a hard look at direct, indirect, and cumulative methane emissions in accordance with the National Environmental Policy Act ("NEPA"). This includes Interior's duty to quantify methane emissions and, on that basis, to assess impacts and a range of reasonable alternatives and mitigation measures to cut those emissions. BLM must also consider the other environmental impacts of this wasted resource, including the public health and welfare impacts of flaring.[99]

While Conservation Groups understand that BLM is currently undertaking rulemaking on methane waste, and this is necessary regulatory action, BLM *must* adequately address the impacts of methane waste from these sales both individually and collectively, and identify pathways to mitigate both the emission of methane and those impacts.

2. BLM Must Take a Hard Look at Impacts to Human Health.

BLM must include an analysis of reasonably foreseeable direct, indirect, and cumulative human health impacts resulting from oil and gas leasing and development. 40 C.F.R. § 1506.6. Protecting public health is fundamental to NEPA's underlying purpose. NEPA was enacted in part to "stimulate the health and welfare of man," 42 U.S.C § 4321, and mandates that agencies consider the degree to which their proposed actions affect public health or safety. 40 C.F.R § 1508.27(b)(2). NEPA requires federal agencies "to use all practicable means, consistent with other essential considerations of national policy" to "assure for all Americans safe, healthful, productive and aesthetically and culturally pleasing surroundings." 42 U.S.C 4331(b). "Effects" that agencies must analyze include ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or *health*, whether direct, indirect, or cumulative." 40 C.F.R § 1508.8 (emphasis added). In addition, NEPA's use of the term "human environment" expressed

[96] **Exhibit 46**, IEA (2021) Michaels, K.C., de Oliveira, Tomás, *Curtailing Methane Emissions from Fossil Fuel Operations, Pathways to a 75% cut by 2030*, International Energy Agency,
[97] *Id.*
[98] *Id.*
[99] EDF, Flaring Aerial Survey Results (2021), *available at* https://www.permianmap.org/flaring-emissions/; *see also* **Exhibit 47**, Gvakharia et al., *Methane, Black Carbon, and Ethane Emissions from Natural Gas Flares in the Bakken Shale,North Dakota*, Environmental Science & Technology 5317, 5317 (2017); **Exhibit 48**, Cushing et al., *Up in Smoke: Characterizing the Population Exposed to Flaring From Unconventional Oil and Gas Development in the Contiguous U.S.*, 16 Environmental Research Letters 1, 1 (2021).

Congressional intent that NEPA should promote public policy attentive to the inexorable link between human well-being and environmental integrity.[100] Senator Henry Jackson, the key author of NEPA, expressed this intent by stating: "When we speak of the environment, basically, we are talking about the relationship between man and these physical and biological and social forces that impact upon him."[101]

To protect public health and promote informed agency decision-making, transparency, and public participation, NEPA imposes "action-forcing procedures … requir[ing] that agencies take a hard look at environmental consequences." *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 350 (1989). Such consequences include all "reasonably foreseeable" direct, indirect, and cumulative effects, including health effects. *See, e.g., Middle Rio Grande Conserv. Dist. v. Norton*, 294 F.3d 1220, 1229 (10th Cir. 2002). An effect is "reasonably foreseeable" if it is "sufficiently likely to occur that a person of ordinary prudence would take it into account in reaching a decision." *Sierra Club v. Marsh,* 976 F.2d 763, 767 (1st Cir.1992). An agency's hard look "must be taken objectively and in good faith, not as an exercise in form over substance, and not as a subterfuge designed to rationalize a decision already made." *Forest Guardians v. U.S. Fish & Wildlife Serv.,* 611 F.3d 692, 712 (10th Cir. 2010).

Courts have recognized BLM's obligation to take a hard look at health impacts in its NEPA analyses at the oil and gas leasing stage. *See Wilderness Workshop v. Bureau of Land Mgmt.*, 342 F. Supp. 3d 1145 (D. Colo. 2018). In *Wilderness Workshop*, the court reasoned that it was premature to consider health effects at the planning stage, but, "in the context of oil and gas leasing, the site-specific impacts occur in the later stages of leasing and development," and therefore, health impacts should be considered at those stages. *Id.* at 1163 (citing *Pennaco Energy v. U.S. Dep't of Interior*, 377 F. 3d 1147, 1151-1152 (10th Cir. 2004)).

Yet, in its NEPA documentation for these lease sales, BLM fails to analyze several important issues related to health and safety risks and impacts—whether direct, indirect, or cumulative. In the Pecos District Office ("PDO") EA, for example, BLM generally lists some historic health and safety-related *risks* that "have resulted" in the *past* from development of 41,006 active wells across the 20-million-acre PDO, but does not actually analyze any present or reasonably foreseeable future health and safety *impacts* that could result from the lease sale. *See, e.g.,* Pecos District Office EA at 48-49. Merely listing historical risks simply establishes background information—it tells the decision-maker and the public nothing about impacts from this leasing decision. NEPA and its implementing regulations require BLM to do more than list generalized categories of risks: the agency must analyze and take a hard look at those risks and their *effects*. *See* 40 C.F.R. § 1508.8 (requirement to analyze direct and indirect *effects*, synonymous with impacts); *see also* 40 C.F.R. § 1508.7 (defining cumulative *impacts*, which include past, *present*, and *reasonably foreseeable future* actions); *see also* 40 C.F.R. § 1508.25 (c) (stating that, in determining scope of environmental impact statements, agencies shall consider direct, indirect, and cumulative impacts). Here, BLM's "[g]eneral statements about

[100] **Exhibit 49**, Rajiv Bhatia and Aaron Wernham, *Integrating Human Health into Environmental Impact Assessment: An Unrealized Opportunity for Environmental Health and Justice*, 116 ENVIRONMENTAL HEALTH PERSPECTIVES 991 (Apr. 16, 2008) (Noting that "the statutory and procedural requirements of EIA provide a powerful and underutilized mechanism to institutionalize a holistic, cross-sectoral approach to addressing health in public policy" and describing the then-emerging and now well-established practice of health impact assessment as a "catalyst" for integrating health considerations into environmental assessments under NEPA and its state analogs).
[101] *Id*.

'possible' effects and 'some risk' do not constitute a 'hard look' absent a justification regarding why more definitive information could not be provided." *Kern v. Unites States BLM*, 284 F.3d 1062, 1075 (9th Cir. 2002). Moreover, in the Montana EA, BLM does not analyze health and safety impacts *at all*, instead dismissing them as "NI"—that is, "present, but not affected to a degree that detailed analysis is required." Montana EA at 96-97, Table 6. The only explanation BLM offers for its omission of health and safety concerns from the Montana analysis is that there will be "no issues from the act of leasing. Stipulation application and regulatory requirements will adequately mitigate impacts at the APD stage." Montana EA at 96, Table 6. But BLM cannot defer NEPA's requisite hard look at health impacts to the APD stage. The intent of NEPA is for agencies to study the impact of their actions on the environment—here, leasing—*before* the action is taken. *See Conner v. Burford,* 848 F.2d 1441, 1452 (9th Cir. 1988) (NEPA requires that agencies prepare an EIS before there is "any irreversible and irretrievable commitment of resources")*; see also Upper Pecos Ass'n v. Stans*, 500 F.2d 17 (10th Cir. 1974) (concluding that "consideration of environmental factors should come in the early stages of program and project formulation").

a. Overview of Human Health Impacts and Sources of Peer-Reviewed Literature Related to Proximity to Oil and Gas Development.

An extensive and ever-growing body of peer-reviewed research has shown what people living near oil and gas operations already know firsthand—that proximity to drilling and fracking operations and other oil and gas facilities is linked to adverse health risks and impacts. These risks and impacts are discussed in further detail throughout this section, and in the numerous accompanying exhibits, but in general, they include (but are not limited to):

- Reproductive harms – including birth defects, low birth weight, preterm births, and miscarriages;
- Respiratory health effects – including asthma, lung disease, breathing difficulty, and, most recently, increased vulnerability to COVID-19;
- Eye, skin, and throat irritation and rashes;
- Cardiovascular effects – including higher blood pressure and other indicators of, or precursors to, heart disease;
- Possible disruption of the endocrine system (a system of glands producing hormones that regulate a variety of functions in the body, including metabolism, growth and development, reproduction, sleep, and mood);
- Cancer (lung cancer and other types of cancer);
- Motor vehicle injuries and fatalities, and other health and safety risks associated with increased vehicle traffic (and the air pollutants it emits) from oil and gas development;
- Injuries and fatalities from explosions, fires, spills, and leaks; and
- Trauma and psychological stress.

One excellent, frequently updated, and easy-to-use resource for keeping up with this growing body of peer-reviewed research is the Physicians, Scientists, and Engineers for Healthy Energy ("PSE Healthy Energy") database, the Repository for Oil and Gas Energy Research, or

"ROGER."[102] ROGER is an extensive repository of peer-reviewed literature, "a near-exhaustive collection of bibliographic information, abstracts, and links to many of [sic] journal articles that pertain to shale and tight gas development."[103] This database is organized into several categories, and for the "Health" category alone, there are over 250 studies listed, including several recent studies from 2019-2021. BLM should avail itself of this invaluable resource in order to take NEPA's requisite hard look at health impacts.

There are several other notable scientific papers BLM should consider in order to analyze and disclose to the public the health risks and impacts associated with its leasing decisions.[104] Multiple peer-reviewed papers have identified adverse health effects and risks arising from exposure to unconventional oil and gas drilling operations, even within a large radius of residences—potentially up to ten miles.[105] For example, one study found that babies whose

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[102] *See* Physicians, Scientists, and Engineers for Healthy Energy ("PSE Healthy Energy"), "The ROGER Citation Database," https://www.psehealthyenergy.org/our-work/shale-gas-research-library/ (last visited November 19, 2021).

[103] *Id.*

[104] *See, e.g.,* **Exhibit 50**, R.Z. Witter, et al*., Occupational exposures in the oil and gas extraction industry: state of the science and research recommendations*, AMERICAN JOURNAL OF INDUSTRIAL MEDICINE (2014); **Exhibit 51**, Jessica Gilman, et al., *Source signature of volatile organic compounds (VOCs) from oil and natural gas operations in northeastern Colorado*, ENVIRONMENTAL SCIENCE & TECHNOLOGY (2013); **Exhibit 52**, Roxana Z. Witter, et al., *The Use of Health Impact Assessment for a Community Undergoing Natural Gas Development,* FRAMING HEALTH MATTERS (2013); **Exhibit 53**, Nadia Steinzor, et al., *Investigating links between shale gas development and health impacts through a community survey project in Pennsylvania*, NEW SOLUTIONS, vol. 23 iss. 1. (2013); **Exhibit 54**, John L. Adgate, et al., *Potential Public Health Hazards, Exposures and Health Effects from Unconventional Natural Gas Development*, ENVIRONMENTAL SCIENCE & TECHNOLOGY (2014); **Exhibit 55**, Christopher W. Moore, et al., *Air Impacts of Increased Natural Gas Acquisition, Processing, and Use: A Critical Review*, ENVIRONMENTAL SCIENCE & TECHNOLOGY (2014); **Exhibit 56**, Avner Vengosh, et al., *The effects of shale gas exploration and hydraulic fracturing on the quality of water resources in the United States*, PROCEDIA EARTH AND PLANETARY SCIENCE (2014); **Exhibit 57**, Christopher D. Kassotis, et al., Estrogen and Androgen Receptor Activities of Hydraulic Fracturing Chemicals and Surface and Ground Water in a Drilling-Dense Region, ENDOCRINOLOGY (2014); **Exhibit 58**, Brian E. Fontenot, et al., *An Evaluation of Water Quality in Private Drinking Water Wells Near Natural Gas Extraction Sites in the Barnett Shale Formation*, ENVIRONMENTAL SCIENCE & TECHNOLOGY (2013); **Exhibit 59**, Sherilyn A. Gross, et al., *Analysis of BTEX Groundwater Concentrations from Surface Spills Associated with Hydraulic Fracturing Operations*, JOURNAL OF THE AIR & WASTE MANAGEMENT ASSOCIATION (2013); **Exhibit 60**, K.D. Retzer, *et al., Motor vehicle fatalities among oil and gas extraction workers,* ACCIDENT ANALYSIS & PREVENTION (2013); Gayathri Vaidyanathan, *Fracking Can Contaminate Drinking Water*, Climate Wire (April 4, 2016), available at: https://www.scientificamerican.com/article/fracking-can-contaminate-drinking-water/; **Exhibit 61**, A. Tustin, et al., *Associations Between Unconventional Natural Gas Development and Nasal and Sinus, Migraine Headache, and Fatigue Symptoms in Pennsylvania,* ENVIRONMENTAL HEALTH PERSPECTIVES (July 31, 2016), available at: http://ehp.niehs.nih.gov/wp-content/uploads/advpub/2016/8/EHP281.acco.pdf

[105] *See, e.g.,* **Exhibit 62**, Lisa M. McKenzie *et al.*, *Birth Outcomes and Maternal Resident Proximity to Natural Gas Development in Rural Colorado*, 122 ENVIRONMENTAL HEALTH PERSPECTIVES 412 (April 2014) [Hereinafter McKenzie et al., *Birth Outcomes*) (Finding an increased risk of congenital heart and neural tube defects in babies born to mothers living within 10 miles of a natural gas well); **Exhibit 63**, Janet Currie *et al., Hydraulic Fracturing and Infant Health: New Evidence from Pennsylvania*, 3 SCIENCE ADVANCES e1603021(Dec. 13, 2017) (Finding evidence of negative health effects of in utero exposure to fracking sites within 3 km, or about 1.86 miles, of a mother's residence, with the largest health impacts seen within 1 km, or about 0.62 miles); **Exhibit 64**, Ellen Webb *et al., Potential Hazards of Air Pollutant Emission from Unconventional Oil and Natural Gas Operations on the Respiratory Health of Children and Infants*, 31 REV. ENVIRONMENTAL HEALTH 225-243 (Jun. 1, 2016), at 236 [hereinafter Webb et al.] (Noting that many unconventional oil and gas setback rules, for setbacks of 1000 feet or less, do not adequately protect health, especially children's respiratory health, that "the majority of municipal

mothers lived in close proximity to multiple oil and gas wells were 30% more likely to be born with heart defects than babies born to mothers who did not live close to oil and gas wells.[106] Other adverse health impacts documented among residents living near drilling and fracking operations include increased reproductive harms, asthma attacks, higher rates of hospitalization, ambulance runs, emergency room visits, self-reported respiratory problems and rashes, motor vehicle fatalities, trauma, and drug abuse. Moreover, one recent study found that fracking and drilling near people's homes "drives stress experiences that go beyond the mere presence of industrial land uses in neighborhoods," and identified

> two key institutional barriers driving negative mental health impacts for people living near UOG [unconventional oil and gas] production – namely: 1) uncertainty, due to inaccessible, transparent information about environmental and public health risks and 2) powerlessness to meaningfully impact regulatory or zoning processes.[107]

In turn, "these institutional barriers make UOG production a chronic stressor – which can be more insidious, negative, and, significantly, can generate longer- term mental health impacts such as self-reported depression."[108]

A 2020 review of literature on health impacts of fracking by Physicians for Social Responsibility ("PSR") concluded that:

> By several measures, evidence for fracking-related health problems has emerged across the United States and Canada….Drilling and fracking operations in multiple states are variously correlated with increased rates of asthma; increased hospitalizations for pneumonia and kidney, bladder, and skin problems; high blood pressure and signs of cardiovascular disease; elevated motor vehicle fatalities; symptoms of depression and anxiety; ambulance runs and emergency room visits; and incidence of sexually transmitted diseases….Benzene levels in ambient air surrounding drilling and fracking operations are sufficient to elevate risks for future cancers in both workers and nearby residents, according to studies. Animal studies show numerous threats to fertility and reproductive success from exposure to various concentrations of oil and gas chemicals at levels representative of those found in drinking water. At least 43 chemicals used in drilling and fracking operations area classified as known or presumed human reproductive toxicants… Two dozen chemicals commonly used in fracking operations are endocrine disruptors that can variously disrupt organ systems, lower sperm counts, and cause reproductive harm...[109]

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setback ordinances are not supported by empirical data," and calling for a one-mile minimum for setbacks between drilling facilities and schools, hospitals, and occupied dwellings).

[106] *See* McKenzie *et al.*, *Birth Outcomes*, *supra* Exhibit 62.

[107] *See* **Exhibit 65**, Stephanie A. Malin, *Depressed democracy, environmental injustice: Exploring the negative mental health implications of unconventional oil and gas production in the United States*, 70 Energy Research & Social Science, 101720 at 2 (2020).

[108] *Id*.

[109] **Exhibit 66**, Physicians for Social Responsibility and Concerned Health Professionals of NY, Compendium of Scientific, Medical, and Media Findings Demonstrating Risks and Harms of Fracking, Seventh Edition (Dec. 2020). [Hereinafter PSR 2020].

"No Surface Occupancy" (NSO) stipulations could be implemented within a certain distance of residences, schools, or other occupied areas that might mitigate some of these effects, but they do not eliminate BLM's obligation to take a hard look at health effects at the leasing stage, as NEPA requires. Stipulations and notices are used to comply with FLPMA and the MLA, and are not a substitute for a NEPA analysis. *See, e.g.,* 43 C.F.R. § 3101.1-3; 43 U.S.C. § 1732(a). Moreover, most existing oil and gas setbacks or NSO stipulations (typically < 1000 feet) are likely inadequate to protect people and communities against health and safety risks and adverse effects. At minimum, some health experts have called for a one-mile minimum distance between drilling facilities and schools, hospitals, and occupied dwellings, in light of the heightened health risks of residing within close proximity to unconventional oil and gas drilling sites.[110] Many others call for setbacks of even greater distances. One study found adverse health impacts at distances of six miles.[111] Another study found increased risk of congenital heart and neural tube defects in babies born to mothers living within 10 miles of natural gas wells.[112] Even larger setbacks may not protect against certain health hazards, especially for people already facing disproportionate health risks due to cumulative social, structural, and environmental factors, or for children and the elderly. For example, a 2016 study and Health Impact Assessment ("HIA") in Maryland's Marcellus Shale Basin found that, even with a setback of 2000 feet from residential property as a "mitigating factor," Air Quality was a fracking-related hazard of High concern for its potential negative health impacts after taking into account additional evaluation criteria, such as presence of vulnerable populations, duration and frequency of exposure, and likelihood and severity/magnitude of health effects.[113] BLM must take a hard look at the adverse health risks and effects associated with proximity to oil and gas activity and facilities and disclose them to the public.

b. Cumulative Health Risks and Impacts to Social and Structural Factors Affecting Health.

BLM must take a hard look not only at direct health impacts and proximity-related health impacts of oil and gas development, but also at cumulative health risks and impacts. *See* 40 C.F.R. § 1508.7 (defining cumulative impacts)*; see also* 40 C.F.R. § 1508.25(c) (stating that, in determining scope of environmental impact statements, agencies shall consider direct, indirect, and cumulative impacts); 40 C.F.R. § 1508.27(b)(7) (stating that one of the factors agencies must consider in assessing the significance of an action is "whether the action is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if

[110] *See* Webb *et al*., *supra* Exhibit 64.

[111] **Exhibit 67**, Kathy V. Tran et al., Residential Proximity to Oil and Gas Development and Birth Outcomes in California: A Retrospective *Cohort Study of 2006–2015 Births*, 128 Environmental Health Perspectives , 067001 (2020)

[112] Mckenzie et al., *Birth Outcomes*, *supra*, Exhibit 62.

[113] *See, e.g.*, **Exhibit 68**, *Meleah* D. Boyle et al., Hazard Ranking Methodology for Assessing Health Impacts of Unconventional Natural Gas Development and Production: The Maryland Case Study, 11 PLOS ONE e0145368 (Jan. 4, 2016) [Hereinafter Boyle et al.](Assigning setback effectiveness a "positive" value of 1 if it is anticipated to minimize health effects, and a "negative" value of 2 if it is not anticipated to minimize health effects, in evaluating the "hazard rankings" for a variety of unconventional natural gas drilling impacts. Notably, there is no "zero" value by which setbacks eliminate health risks or health effects. And, for effects related to water quality, seismic activity, social determinants of health, healthcare infrastructure, cumulative exposures/risks, and occupational health and safety, the authors determined that, at least in that study area (Marcellus Shale in Maryland), setbacks were not anticipated to minimize or mitigate health risks at all. *See* Table 3).

it is reasonable to anticipate a cumulatively significant impact on the environment…"). Cumulative health risks and impacts can arise not only from multiple pollutant exposures, and cumulative pollution exposures over time, but also from compounding structural, social, and economic factors, many of which are rooted in systemic inequities and injustices. Researchers have begun to apply a growing body of evidence documenting how social and environmental stressors lead to health inequities and cumulative impacts[114] specifically in the oil and gas drilling context.[115] For example, the aforementioned 2016 Marcellus Shale study and Health Impact Assessment ("HIA") ranked "social determinants of health," (in this study, social determinants included crime, injuries, mental health, sexually transmitted infections, and substance abuse) as a fracking-related hazard of the highest concern with respect to public health impacts, along with air quality and health care infrastructure.[116] Cumulative risks, too, were considered their own category of fracking-related public health hazard, and ranked as a "moderately high" concern (along with water quality, noise, and traffic).[117]

In general, the research indicates that the potential cumulative effects of social and environmental stressors and "social determinants of health" in the context of oil and natural gas

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[114] *See, e.g.,* **Exhibit 69**, Rachel Morello-Frosch et al., *Understanding the Cumulative Impacts of Inequalities in Environmental Health: Implications for Policy*, 30 HEALTH AFFAIRS 879 (May 2011) (Identifying four key concepts underlying the emerging knowledge about cumulative impacts of environmental and social stressors: "First, health disparities between groups of different racial or ethnic makeup or socioeconomic status are significant and persistent, and exist for diseases that are linked to social and environmental factors. Second, inequalities in exposures to environmental hazards are also significant and persistent, and are linked to adverse health outcomes. Third, intrinsic biological and physiological factors—for example, age—can modify the effects of environmental factors and contribute to differences in the frequency and severity of environmentally related disease. And fourth, extrinsic social vulnerability factors at the individual and community levels—such as race, sex, and socioeconomic status—may amplify the adverse effects of environmental hazards and can contribute to health disparities."). In addition, the U.S. EPA and numerous states have called for, and developed guidance on, cumulative impact analyses, including cumulative risk assessments and health impact assessments (HIAs), that analyze multiple environmental stressors in conjunction with social stressors, environmental justice considerations, and social determinants of health. *See, e.g.*, **Exhibit 70**, U.S. ENVIRONMENTAL PROTECTION AGENCY, FRAMEWORK FOR CUMULATIVE RISK ASSESSMENT (May), *Available at* https://www.epa.gov/sites/production/files/2014-11/documents/frmwrk_cum_risk_assmnt.pdf; **Exhibit 71**, MINNESOTA POLLUTION CONTROL AGENCY, CUMULATIVE IMPACT ANALYSIS *Available at* https://www.pca.state.mn.us/air/cumulative-impact-analysis (Noting that "People's health is affected by many outside factors including multiple sources of pollution and other social conditions and stressors. Some people and communities are burdened by higher levels of pollution and more social stressors than others."; **Exhibit 72**, CUMULATIVE IMPACTS SUBCOMMITTEE, ENVIRONMENTAL JUSTICE ADVISORY COUNCIL TO THE NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION, STRATEGIES FOR ADDRESSING CUMULATIVE IMPACTS IN ENVIRONMENTAL JUSTICE COMMUNITIES (March 2009), *Available at* https://www.nj.gov/dep/ej/docs/ejac_impacts_report200903.pdf (Identifying adverse cumulative impacts of exposures to multiple environmental burdens in "environmental justice" communities as one of "the most critical and pertinent Environmental Justice issues requiring state action and attention").

[115] *See, e.g.,* **Exhibit 73**, Susan Kinnear et al., *The Need to Measure and Manage the Cumulative Impacts of Resource Development on Public Health: An Australian Perspective* (May 15, 2013), Available at https://www.intechopen.com/books/current-topics-in-public-health/the-need-to-measure-and-manage-the-cumulative-impacts-of-resource-development-on-public-health-an-au (https://www.intechopen.com/books/current-topics-in-public-health/the-need-to-measure-and-manage-the-cumulative-impacts-of-resource-development-on-public-health-an-au; *See also* **Exhibit 74**, Jill Johnston & Lara Cushing, *Chemical Exposures, Health, and Environmental Justice in Communities Living on the Fenceline of Industry*, 7 Current Environmental Health Reports, 48-57 (2020).

[116] Boyle et al., Exhibit 68.

[117] Boyle et al., Exhibit 68.

activity are as follows: (1) they can increase the *risk or magnitude of exposure* and the *number and/or severity of adverse health impacts* of oil and gas drilling (e.g. pollution sources are often located closer to "environmental justice" communities; underlying health conditions can increase vulnerability to pollution-related health impacts; and pollution-related risks and impacts can exacerbate existing health, social, and economic stressors and vice versa); and (2) they can present obstacles to diagnosing, managing, treating, and mitigating adverse health impacts (e.g. lack of access to health care providers makes it more difficult to manage asthma). BLM must take a hard look at the reasonably foreseeable cumulative health impacts of its actions, including cumulative impacts as they relate to social and structural factors—often referred to as social determinants of health—and environmental justice. These "social determinants" can include both positive and negative factors. Most broadly, "social determinants of health" that BLM should consider are:

> conditions in the environments in which people are born, live, learn, work, play, worship, and age that affect a wide range of health, functioning, and quality-of-life outcomes and risks. Conditions (e.g., social, economic, and physical) in these various environments and settings (e.g., school, church, workplace, and neighborhood) have been referred to as 'place.' In addition to the more material attributes of 'place,' the patterns of social engagement and sense of security and well-being are also affected by where people live. Resources that enhance quality of life can have a significant influence on population health outcomes. Examples of these resources include safe and affordable housing, access to education, public safety, availability of healthy foods, local emergency/health services, and environments free of life-threatening toxins.[118]

Moreover, the CEQ guidance on environmental justice in the NEPA process specifically directs agencies to incorporate relevant underlying health data, and what amounts to social determinants of health, into their NEPA analyses, and to use this data to identify cumulative risks and reasonably foreseeable cumulative effects.[119] It emphasizes the importance of using public health data to identify "the potential for multiple or cumulative exposure to human health or environmental hazards in the affected population and historical patterns of exposure to environmental hazards, to the extent such information is reasonably available…"[120] and notes that "[a]gencies should consider these multiple, or cumulative effects, even if certain effects are not within the control or subject to the discretion of the agency proposing the action."[121] It also embraces a broad, socio-ecological model of health that is consistent with the language and purpose of NEPA. An additional guiding principle is that "[a]gencies should recognize the interrelated cultural, social, occupational, historical, or economic factors that may amplify the natural and physical environmental effects of the proposed agency action. These factors should include the physical sensitivity of the community or population to particular impacts; the effect of any disruption of the community structure associated with the proposed action; and the nature and degree of impact on the physical and social structure of the community."[122]

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[118] Office of Disease Prevention and Health Promotion, *Healthy People 2020: Social Determinants of Health*, *Available at* https://www.healthypeople.gov/2020/topics-objectives/topic/social-determinants-of-health.
[119] **Exhibit 75**, Council on Environmental Quality, ENVIRONMENTAL JUSTICE: GUIDANCE UNDER THE NATIONAL ENVIRONMENTAL POLICY ACT (December 10, 1997) at 9 [Hereinafter CEQ EJ and NEPA Guidance].
[120] *Id.*, Exhibit 75.
[121] *Id*., Exhibit 75.
[122] *Id*., Exhibit 75.

BLM's full analysis and disclosure of health and safety risks and impacts, including cumulative impacts, is particularly important given that typical methods of collecting and analyzing emissions data have often underestimated health risks by failing to adequately measure the intensity, frequency, and duration of community exposure to toxic chemicals from fracking and drilling; failing to examine the effects of chemical mixtures; and failing to consider vulnerable populations.[123] Of high concern, numerous studies highlight that health assessments of drilling and fracking emissions often fail to consider impacts on vulnerable populations including environmental justice communities[124] and children.[125] For example, a recent analysis of oil and gas development in California found that 14 percent of the state's population totaling 5.4 million people live within a mile of at least one oil and gas well. More than a third of these residents, totaling 1.8 million people, also live in areas most burdened by environmental pollution.[126]

The existing health status and pollution burdens experienced by individuals and populations in the lease sale areas, and the disproportionate health risks they face in light of social determinants of health and environmental justice concerns, are precisely the kinds of "incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or non-federal) or person undertakes such other actions" that NEPA requires BLM to analyze here. 40 C.F.R. § 1508.7. BLM cannot simply dismiss the "incremental" addition of wells from a particular lease sale (or the "incremental" increase in air pollution from those wells) as insignificant merely because they constitute a small "percent increase" *compared to* state, regional/basin-wide, or national well counts or emissions. *See, e.g.,* Pecos District Office EA at 49 (describing the estimated new wells to be developed from the lease sale as a 0.012% increase over existing active well numbers in the PDO); Pecos District Office EA at 62 (Table 3.16, calculating lease sale air pollutant emissions as a "percent increase" compared to emissions projected for wells across the PDO). This misses the entire point of NEPA's requisite cumulative impacts analysis—it is not to determine what *fraction* of regional, state, or national wells and emissions the wells and emissions from a particular lease sale make up. Quite the opposite—rather than breaking emissions from an individual lease sale down into annual fractions or "component parts" in attempt to dismiss them as insignificant, BLM must analyze *additive* short *and* long-term emissions *and their direct, indirect, and cumulative health effects* from these lease sales—the impacts which result "from the incremental impact of the action when *added* to past, present, and reasonably

[123] **Exhibit 76**, Brown, David et al., *Understanding Exposure From Natural Gas Drilling Puts Current Air Standards to the Test.* 29 REVIEWS ON ENVIRONMENTAL HEALTH 277 (2014).
[124] **Exhibit 77**, NRDC [Natural Resources Defense Council], Drilling in California: Who's At Risk?, October 2014 ("NRDC 2014"); **Exhibit 78**, Clough, Emily & Derek Bell, *Just Fracking: A Distributive Environmental Justice Analysis of Unconventional Gas Development in Pennsylvania, USA*, 11 Environmental Research Letters 025001 (2016); **Exhibit 79**, McKenzie, Lisa M. et al., *Population Size, Growth, and Environmental Justice Near Oil and Gas Wells in Colorado*, 50 ENVIRONMENTAL SCIENCE & TECHNOLOGY 11471 (2016).
[125] Webb, Ellen et al., *Potential Hazards of Air Pollutant Emissions From Unconventional Oil and Natural Gas Operations on The Respiratory Health of Children And Infants.* 31 REVIEWS ON ENVIRONMENTAL HEALTH 225 (2016), Exhibit 64.
[126] NRDC 2014, Exhibit 77.

foreseeable future actions" (and impacts). 40 C.F.R. § 1508.7. *See also* 40 C.F.R. § 1508.27 (discussing cumulative impacts in evaluating significance).

In addition, BLM must not summarily dismiss health and safety *impacts* as temporary simply because some *exposures* (e.g., to emissions and fugitive dust from construction) are temporary. It is arbitrary, and contrary to scientific understanding, to assume that just because an exposure is temporary, so too are the effects resulting from that exposure. The health effects that can arise from environmental exposures, especially in conjunction with social determinants of health and environmental justice issues, may endure long after the acute exposure source is gone.[127] Indeed, NEPA requires BLM to consider, in assessing the significance of an action, "[w]hether the action is related to other actions with individually insignificant but cumulatively significant impacts." 40 C.F.R. § 1508.27(b)(7). Indeed, "[s]ignificance cannot be avoided *by terming an action temporary* or by breaking it down into small component parts." 40 C.F.R. § 1508.27(b)(7) (emphasis added). *See also* 40 C.F.R. § 1508.27(a) (requiring consideration of both short *and* long-term *effects*).

BLM also cannot dismiss health impacts as "temporary," and thus avoid taking a hard look at cumulative health impacts, by simply stating that wells will be properly plugged and reclaimed "at the end of their useful lives," and thus cease to cause unspecified "aggregate" health risks and impacts at that time. *See, e.g.,* Pecos District Office at 49. For one, a well's "useful life" can span decades. BLM must analyze cumulative emissions and their impacts over the full life course of a well, in conjunction with other wells in the lease sale area *and* other past, present, and reasonably foreseeable future actions and emissions. Moreover, information from several states, and nationally, indicates that wells often are *not* properly plugged and reclaimed at the end of their "useful lives." For example, while it is sometimes difficult to obtain an exact count of "orphaned" or improperly plugged and abandoned wells, reports indicate that there are hundreds, even thousands, of such wells across private, state, and federal lands in New Mexico alone,[128] and in nearby Western states such as Colorado and Wyoming.[129] These wells can leach toxic chemicals and contaminate water supplies, posing direct and cumulative health risks to nearby communities.[130] State and BLM bonding requirements are usually insufficient to meet the costs associated with plugging and abandoning these wells, retiring other equipment, and cleaning up the well sites. Thus, idle or orphaned wells and abandoned well sites pose not only health risks and impacts, but also financial ones,[131] which can further compound existing health impacts, including cumulative impacts, and related health inequities.[132]

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[127] *See, e..g.,* Morello-Frosch et al, Exhibit 69; Some specific examples include birth defects arising from prenatal exposures, enduring cognitive difficulties arising from prenatal or early childhood exposures, or asthma that develops in childhood, affects school attendance (and health outcomes related to it), and endures into adulthood.
[128] *See, e.g.,* **Exhibit 80**, Adrian Hedden, *State Agencies Grapple With Abandoned Oil Wells,* Carlsbad Current-Argus, Feb. 9, 2018, *Available at* https://www.currentargus.com/story/news/local/2018/02/09/unplugged-state-agencies-grapple-abandoned-oil-wells/324990002/.
[129] *See, e.g.,* **Exhibit 81**, Joshua Zaffos, *'Orphaned' Oil and Gas Wells are on the Rise."* High Country News, Jan. 16, 2018. *Available at* https://www.hcn.org/issues/50.3/energy-industry-orphaned-oil-and-gas-wells-are-on-the-rise.
[130] *Id.* Exhibit 81.
[131] *Id.* Exhibit 81; *See also* **Exhibit 82** U.S. Gov't Accountability Office, Oil and Gas Wells: Bureau of Land Management Needs to Improve its Data and Oversight of Its Potential Liabilities 1, GAO-18-250 (May 2018), available at: https://www.gao.gov/assets/700/691810.pdf; **Exhibit 83**, U.S. Gov't Accountability Office, Bureau of Land Management Should Address Risks from Insufficient Bonds to Reclaim Wells, GAO-19-615 (Sept. 2019).
[132] PSR 2020, Exhibit 66.

c. Health and Environmental Justice.

BLM also fails to take a hard look at the inexorable relationship between health and environmental justice. Executive Order 12898 ("EO 12898") on environmental justice requires each federal agency to make the achievement of "environmental justice part of its mission by identifying *and addressing*, as appropriate, disproportionately high and adverse *human health* or environmental effects of its programs, policies, and activities on minority populations and low-income populations."[133] EO 12898, Section 1-101 (emphasis added). The Montana EA exemplifies BLM's failure to link health and environmental justice for these lease sales, despite the clear mandate of EO 12898. As mentioned above, BLM does not analyze health and safety impacts at all in the Montana EA, instead dismissing them as "present, but not affected to a degree that detailed analysis is required." Montana EA at 96-97, Table 6. Yet BLM identifies environmental justice impacts as "present" effects that "will be analyzed" in the Montana EA. *Id.* It is difficult to see how BLM can possibly analyze, let alone take NEPA's requisite hard look at, environmental justice impacts without analyzing health and safety impacts, particularly cumulative and disproportionate risks and impacts.

As noted above, the CEQ guidance on environmental justice in the NEPA process specifically directs agencies to incorporate relevant underlying health data, and social and structural factors, into their NEPA analyses, and to use this data to identify cumulative risks and reasonably foreseeable cumulative effects.[134] Yet, the environmental justice "analysis" in the Montana EA contains little more than a textbook citation to Executive Order 12898, and tables listing demographic data and identifying the general existence of "environmental justice" populations of concern in the lease sale area, with no discussion of actual risks and impacts to those populations. Montana EA at 69-71; 75-76. The Montana EA does include a short section entitled "Cumulative Impacts and Environmental Justice" but it contains no actual analysis of the nature or magnitude of such cumulative impacts, does not analyze environmental justice impacts, and does not discuss health impacts at all. Montana EA at 75. Merely providing a textbook citation to the requirements of Executive Order 12898, and *listing* environmental justice populations in the lease sale area, without engaging in any further analysis or public disclosure of the *impacts* of its leasing decisions on these populations, is arbitrary and capricious and fails to satisfy NEPA's hard look mandate. *Standing Rock Sioux Tribe v. U.S. Army Corps of Engineers*, 255 F. Supp. 3d 101, 140 (D.D.C. 2017), is instructive here. In this case, concerning the Dakota Access Pipeline (DAPL), the court looked to the CEQ Guidance on Environmental Justice in the NEPA processes and ruled that it was not enough for the Army Corps EA merely to acknowledge that the Standing Rock community had a high percentage of "minorities" and "low-income individuals," and could be affected by an oil spill. The court noted that the EA was silent on "the distinct cultural practices of the Tribe and the social and economic factors that might amplify its experience of the environmental effects of an oil spill" and that in order to meet its NEPA "hard look" obligations, the Army Corps "needed to offer more than a bare-bones conclusion that Standing Rock would not be disproportionately harmed." *Standing Rock Soiux*

[133] Executive Order 12898, 59 Fed. Reg. 7629 (Feb. 11, 1994) Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations, *available at* https://www.archives.gov/files/federal-register/executive-orders/pdf/12898.pdf.
[134] CEQ EJ and NEPA Guidance, Exhibit 75.

Tribe, 255 F. Supp. 3d at 140; see also Friends of Buckingham v. State Air Pollution Control Board, 947 F.3d 68, 92 (4th Cir. 2020) (finding that the agency's failure to consider disproportionate impacts on those closest to a Compressor Station resulted in a "flawed analysis."). "In sum, NEPA requires more. BLM cannot discount the localized impacts to people for whom the public health impacts are of clear significance." *California v. Bernhardt*, 472 F. Supp. 3d 573, 622 (N.D. Cal. 2020) (citing *Anderson v. Evans*, 371 F.3d 475, 490 (9th Cir. 2004)).

The inequities at which BLM must take a hard look in an environmental justice analysis are not incidental, nor are they biologically determined—they are structural, systemic, and part of an unjust historical and ongoing pattern and practice of environmental racism, settler colonialism, and treatment of communities in the leasing areas as energy sacrifice zones. And, as discussed throughout these comments, there are several other health risks and impacts BLM should also analyze in the context of health and environmental justice, particularly in light of social and structural factors that affect health. BLM must engage in a thorough analysis of these and other inequities that NEPA requires, apply this analysis to its decision-making, and articulate a "rational connection between the facts found and the choices made" in coming to its ultimate conclusions in light of that analysis. *Motor Vehicle Mfr. Ass'n v. State Farm Mut. Auto. Ins. Co*., 463 U.S. 29, 43, 52 (1983). In conducting this analysis, BLM can and should synthesize existing local health, socioeconomic, and other data in the lease sale areas—for example, county health statistics and reports, locally-conducted health impact assessments,[135] where available, or mapping of pollution exposure risks and demographic data through tools like U.S. EPA's "EJ Screen"[136]—and the best available science, including but not limited to the peer-reviewed studies and sources mentioned in these comments.

d. Air Pollution and Health Impacts.

Air pollution is of particular concern with respect to health impacts of these lease sales, including not only direct impacts, but also cumulative risks and impacts and historical patterns of multiple and cumulative exposures The potential harms resulting from exposure to dangerous air pollutants associated with fracking and drilling are serious and wide-ranging. A growing body of scientific research has documented adverse health impacts from air pollution related to unconventional oil and gas development or fracking, including studies showing air pollutants at levels associated with reproductive and developmental harms and increased risk of morbidity and mortality.[137] More broadly, a recent study found that if implemented, nationwide efforts to

[135] Health Impact Assessment, or HIA, is a process that helps evaluate the potential health effects of a plan, project, or policy before it is built or implemented. HIA brings potential positive and negative public health impacts and considerations to the decision-making process for plans, projects, and policies that fall outside traditional public health arenas, such as transportation and land use. An HIA provides practical recommendations to increase positive health effects and minimize negative health effects." Centers for Disease Control and Prevention (CDC), "Health Impact Assessment" (Sept. 19, 2016), https://www.cdc.gov/healthyplaces/hia.htm.

[136] *See https://www.epa.gov/ejscreen.*

[137] **Exhibit 84**, Hays, Jake & Seth B.C. Shonkoff , *Towards an Understanding of the Environmental and Public Health Impacts of Unconventional Natural Gas Development: A Categorical Assessment of the Peer-Reviewed Scientific Literature*, 11 PLoS ONE e0154164 (2016); **Exhibit 85**, Webb, Ellen et al*., Developmental and reproductive effects of chemicals associated with unconventional oil and natural gas operations*, 29 REV ENVIRON HEALTH 307 (2014); **Exhibit 86**, Clean Air Task Force, Fossil Fumes: A Public Health Analysis of Toxic Air

eliminate energy-related emissions, including from oil and gas production could prevent as many as 53,200 premature deaths each year and would provide $608 billion in benefits from avoided $PM_{2.5}$-related illness and death.[138]

A comprehensive review of the risks and harms of fracking to human health came to several key findings, including: (1) "drilling and fracking contribute to toxic air pollution and smog (ground-level ozone) at levels known to have health impacts," (2) "public health problems associated with drilling and fracking include poor birth outcomes, reproductive and respiratory impacts, cancer risks, and occupational health and safety problems"; and (3) "fracking infrastructure poses serious potential exposure risks to those living near it." [139]

The range of illnesses that can result from the wide array of air pollutants from fracking were summarized in a study by Dr. Theo Colburn, which charts which fracking chemicals have been linked to certain illnesses.[140] This study analyzed air samples taken during drilling operations near natural gas wells and residential areas in Garfield County, Colorado, and detected 57 chemicals between July 2010 and October 2011, including 44 with reported health effects.[141] For example:

> Thirty-five chemicals were found to affect the brain/nervous system, 33 the liver/metabolism, and 30 the endocrine system, which includes reproductive and developmental effects. The categories with the next highest numbers of effects were the immune system (28), cardiovascular/blood (27), and the sensory and respiratory systems (25 each). Eight chemicals had health effects in all 12 categories. There were also several chemicals for which no health effect data could be found.[142]

The study found extremely high levels of methylene chloride, which may be used as cleaning solvents to remove waxy paraffin that is commonly deposited by raw natural gas in the region. These deposits solidify at ambient temperatures and build up on equipment.[143] While none of the detected chemicals exceeded governmental safety thresholds of exposure, the study noted that such thresholds are typically based on "exposure of a grown man encountering relatively high concentrations of a chemical over a brief time period, for example, during occupational exposure."[144] Consequently, such thresholds may not apply to individuals experiencing "chronic, sporadic, low-level exposure," including sensitive populations such as children, the elderly, and

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Pollution From the Oil and Gas Industry, June 2016, *available at* http://www.catf.us/resources/publications/files/FossilFumes.pdf.

[138] **Exhibit 87**, Mailloux, N. A., Abel, D. W., Holloway, T., & Patz, J. A. (2022). Nationwide and regional PM2.5-related air quality health benefits from the removal of energyrelated emissions in the United States. GeoHealth, 6, e2022GH000603. https:// doi.org/10.1029/2022GH000603. ($PM_{2.5}$ is fine particulate matter that results from a number of energy production activities, including oil and gas. This study also looked at the benefits of removal of sulfur dioxide, and nitrogen oxides, pollutants often released with $PM_{2.5}$, including from the oil and gas sector.

[139] PSR 2020, Exhibit 66.

[140] **Exhibit 88**, Theo Colborn et al., *An exploratory study of air quality near natural gas operations*, HUM. ECOL. RISK ASSESS (Nov. 9, 2012) [Hereinafter Colborn 2012].

[141] Colborn 2012 at pp. 21-22 (pages refer to page numbers in attached manuscript and not journal pages), Exhibit 88.

[142] Colborn 2012 at 11, Exhibit 88.

[143] Exhibit 88 at 10.

[144] Exhibit 88 at 11-12

pregnant women.[145] For example, the study detected polycyclic aromatic hydrocarbon (PAH) levels that could be of "clinical significance," as recent studies have linked low levels of exposure to lower mental development in children who were prenatally exposed.[146] In addition, government safety standards do not take into account "the kinds of effects found from low-level exposure to endocrine-disrupting chemicals…, which can be particularly harmful during prenatal development and childhood.[147]

A rigorous study by Johns Hopkins University, which examined 35,000 medical records of people with asthma in Pennsylvania, found that people who live near a higher number of, or larger, active gas wells were 1.5 to 4 times more likely to suffer from asthma attacks than those living farther away, with the closest groups having the highest risk.[148] Relatedly, a 2018 study of pediatric asthma-related hospitalizations found that children and adolescents exposed to newly spudded unconventional natural gas development wells within their zip code had 1.25 times the odds of experiencing an asthma-related hospitalization compared to children who did not live in these communities. Furthermore, children and adolescents living in a zip code with any current or previous drilling activity had 1.19 times the odds of experiencing an asthma-related hospitalization compared to children who did not live in these communities. Amongst children and adolescents (ages 2-18), children between 2 and 6 years of age had the greatest odds of hospitalization in both scenarios.[149]

BLM should analyze these asthma-related effects in relation to existing asthma rates and related impacts in the communities adjacent to and counties encompassing the proposed lease sales. For example, Eddy County and Chaves County, New Mexico, within the analysis area for the Pecos District Office, have the highest adult asthma emergency department visit crude rates in the state, more than double the state average.[150] Eddy County also has the second highest crude rate of child asthma emergency department visits in New Mexico (a very close second), and Lea County the third highest. The rate in Eddy County is well over twice the state average (150.1 per 10,000 population vs. a state average of 62.7 per 10,000 population).[151] And air pollution-related asthma, in particular, can exert profound and widespread cumulative health effects throughout a person's life course, especially when combined with social determinants of health. For example, children with asthma are much more likely to miss school, hurting their educational prospects as well as their health (with some adverse health effects enduring into

[145] Exhibit 88 at. 12.
[146] Exhibit 88 at 10-11.
[147] Exhibit 88 at 12.
[148] **Exhibit 89**, Rasmussen, Sara G. et al., *Association Between Unconventional Natural Gas Development in the Marcellus Shale and Asthma Exacerbations,* 176 JAMA INTERNAL MEDICINE 1334 (2016)
[149] **Exhibit 90**, Willis, Mary D. et al., *Unconventional natural gas development and pediatric asthma hospitalizations in Pennsylvania,* 166 ENVIRONMENTAL RESEARCH 402 (2018)
[150] Based on most recent, 2014-2016 data on NM Dept. of Health IBIS Database. For Eddy County 2014-2016: 69.5/10k population. For Chaves County, 69/10k population. For NM overall 2014-2016: 31.2. *See* **Exhibit 91**, New Mexico Department of Health, *Health Indicator Report of Asthma Emergency Department Visits Among Adults* (Last Visited November 18, 2021). *Available at* https://ibis.health.state.nm.us/indicator/view/AsthmaEDAdult.Cnty.html.
[151] *See* **Exhibit 92**, New Mexico Department of Health, *Health Indicator Report of Asthma Emergency Department Visits Among Children* (Last Visited November 18, 2021). *Available at* https://ibis.health.state.nm.us/indicator/complete_profile/AsthmaEDChild.html.

adulthood), and resulting in significant funding losses for local schools.[152] As the New Mexico Department of Health has noted,[153] and nationwide studies confirm,[154] "low-income" populations and "environmental justice" populations face not only disproportionate asthma risks, but also significant difficulty managing their asthma, in part due to lack of access to health care.

Ozone is a criteria pollutant of particular concern in the region that contributes to asthma and missed school days (and one that can, in general, adversely affect health, especially for "sensitive groups" such as children, the elderly, and those with pre-existing health issues). In New Mexico, over 12,000 children suffer asthma attacks annually due to oil and gas ozone smog.[155] Smog is also responsible for almost 9,000 missed school days in New Mexico.[156] And Eddy County New Mexico, specifically, received a failing grade of "F" from the American Lung Association for high ozone days (based on data collected from 2016–2018.[157] Background concentrations of ozone in some of the lease sale areas are already at or exceed the National Ambient Air Quality Standards ("NAAQS"), leaving virtually no room for growth in emissions. Several studies that measured and/or modeled gas-related air emissions in various states have identified significant increases in ground level ozone as a result of natural gas development.[158] Ozone was once a summertime urban phenomenon but is now being seen increasingly in western rural areas during the winter due to the natural gas boom, so much so that some relatively small cities are no longer in compliance with the federal regulations that set allowable ozone levels.[159]

Ozone can cause difficulty breathing, coughing and sore throat. It can also inflame and damage the airways. It aggravates lung diseases like asthma, emphysema, and chronic bronchitis. It can make the lungs more susceptible to infection and it can continue to damage the lungs even when the symptoms have disappeared.[160] Children are particularly vulnerable because their lungs are still developing until about age 18.[161] As their lungs grow in the presence of ozone, their alveoli production is reduced, and they can end up with smaller, more brittle lungs. Women exposed during pregnancy deliver preterm, low birth weight babies with a high probability of developing asthma. In a letter to former EPA Administrator Lisa Jackson, a group of five

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[152] *See* **Exhibit 93**, Attendance Works, *Mapping the Early Attendance Gap* (2017). *Available at* http://www.attendanceworks.org/wp-content/uploads/2017/05/Mapping-the-Early-Attendance-Gap_Final-4.pdf.
[153] **Exhibit 94**, New Mexico Dept. of Health*, The Burden of Asthma in New Mexico: 2014 Epidemiology Report* (Jan. 2014), at 41. Available at https://nmhealth.org/data/view/environment/54/.
[154] *See, e.g.,* **Exhibit 95**, Tim Kelley and Gregory D. Kearney, *Insights Into the Environmental Health Burden of Childhood Asthma*, 12 ENVIRONMENTAL HEALTH INSIGHTS doi: 10.1177/1178630218757445 (Feb. 20, 2018).
[155] Oil and Gas Threat Map (2018). New Mexico. *Available at* http://oilandgasthreatmap.com/threat-map/new-mexico/ ; Western Environmental Law Center, *Reducing Oil and Gas Exploitation in the San Juan Basin. Available at* https://westernlaw.org/safeguarding-climate/reforming-oil-gas-operations/reducing-oil-and-gas-exploitation-in-the-san-juan-basin/.
[156] *Id.*
[157] **Exhibit 96**, American Lung Association, *State of the Air 2020* at 123, http://www.stateoftheair.org/assets/SOTA-2020.pdf.
[158] *See, e.g.,* **Exhibit 97**, Seth Lyman and Howard Shorthill, *Final Report: 2012 Uintah Basin Winter Ozone & Air Quality Study*, UTAH STATE UNIVERSITY, February 1, 2013.
[159] **Exhibit 98**, Gabrielle Pétron, *et al*., *Estimation of emissions from oil and natural gas operations in northeastern Colorado*, Power Point available at: http://www.epa.gov/ttnchie1/conference/ei20/session6/gpetron_pres.pdf
[160] *See* EPA, *Ozone – Good Up High Bad Nearby*, available at: http://www.epa.gov/oar/oaqps/gooduphigh/bad.html#7.
[161] *See* U.S. EPA, "Children are Not Little Adults," *https://www.epa.gov/children/children-are-not-little-adults*

national medical and public health groups wrote that the most vulnerable individuals, including children, teens, senior citizens, people who exercise or work outdoors, and people with chronic lung diseases like asthma, COPD, and emphysema, are most in danger of being sickened by ozone and that children who grow up in areas of high ozone pollution may never develop their full lung capacity as adults, which can put them at greater risk of lung disease throughout their lives.[162]

In addition, oil and gas air pollution exacerbates cancer risks. A recent Yale University study identified numerous fracking chemicals that are known, probable, or possible human carcinogens (20 air pollutants) and/or are linked to increased risk for leukemia and lymphoma (11 air pollutants), including benzene, 1,3-butadiene, cadmium, diesel exhaust, and polycyclic aromatic hydrocarbons.[163] And a 2018 study by McKenzie et al. conducted in the Denver Julesberg Basin on the Colorado Northern Front Range (CNFR) found that the established setback distance of 152 m (500 ft) did little to protect people in that proximity. In analyses of nonmethane concentrations from 152 to >1600 meters from oil and gas facilities, the study found that the EPA's minimum cumulative lifetime excess cancer risk benchmark of 1 in a million was exceeded. Cumulative lifetime excess cancer risk increased with decreasing distance from the nearest oil and gas facility. Residents living within 610 meters of and oil and gas facility had an overall cancer risk in excess of the EPA's upper bound for remedial action of 1 in 10,000. Furthermore, residents within 152 meters of an oil and gas facility had an overall excess cancer risk of 8.3 in 10,000, along with an increased likelihood of neurological, hematological, and developmental health effects. Over 95% of the total risk was due to benzene, with additional risk due to the presence of toluene, ethylbenzene, xylene, and alkanes.[164] Other studies have found that residents living closer to drilling and fracking operations had higher hospitalization rates[165] and reported more health symptoms including upper respiratory problems and rashes.[166]

e. Maternal, Prenatal and Child Health Impacts.

Numerous studies also suggest that higher maternal exposure to fracking and drilling can increase the incidence of high-risk pregnancies, premature births, low-birthweight babies, and birth defects.[167] A study of more than 1.1 million births in Pennsylvania found evidence of a greater incidence of low-birth-weight babies and significant declines in average birth weight among pregnant women living within 3 kilometers of fracking sites.[168] The study estimated that about 29,000 U.S. births each year occur within 1 kilometer of an active fracking sties and "that

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[162] *See* **Exhibit 99**, Letter from American Lung Association to U.S. EPA (November 30, 2011).
[163] **Exhibit 100**, Elliot, Elise G. et al., *A Systematic Evaluation of Chemicals in Hydraulic-Fracturing Fluids and Wastewater for Reproductive and Developmental Toxicity*, 27 JOURNAL OF EXPOSURE SCIENCE AND ENVIRONMENTAL EPIDEMIOLOGY 90 (2016).

[164] **Exhibit 101**, McKenzie, Lisa et al., *Ambient Nonmethane Hydrocarbon Levels Along Colorado's Northern Front Range: Acute and Chronic Health Risks*, 52 ENVIRONMENTAL SCIENCE & TECHNOLOGY 4514 (2018).
[165] **Exhibit 102**, Jemielita, Thomas et al., *Unconventional Gas and Oil Drilling Is Associated with Increased Hospital Utilization Rates.* 10 PLoS ONE e0131093 (2015).
[166] **Exhibit 103**, Rabinowitz, Peter M. et al., *Proximity to Natural Gas Wells and Reported Health Status: Results of a Household Survey in Washington County, Pennsylvania*, 123 ENVIRONMENTAL HEALTH PERSPECTIVES 21.
[167] *See, e.g.,* PSR 2020 at 187-189, Exhibit 66.
[168] Currie, Janet et al., *Hydraulic fracturing and infant health: New evidence from Pennsylvania*, 3 SCIENCE ADVANCES E1603021 (2017), Exhibit 63.

these births therefore may be at higher risk of poor birth outcomes." A study of 9,384 pregnant women in Pennsylvania found that women who live near active drilling and fracking sites had a 40 percent increased risk for having premature birth and a 30 percent increased risk for having high-risk pregnancies.[169] Another Pennsylvania study found that pregnant women who had greater exposure to gas wells—measured in terms of proximity and density of wells—had a much higher risk of having low-birthweight babies; the researchers identified air pollution as the likely route of exposure.[170] In rural Colorado, mothers with greater exposure to natural gas wells had a higher risk of having babies with congenital heart defects and possibly neural tube defects.[171] A July 2020 study found that residential proximity to flaring (the open combustion of natural gas) from oil and gas development was associated with an increased risk of preterm birth, specifically for "Hispanic" women, in the Eagle Ford Shale of Texas.[172] Here, again, these documented risks are of particular concern in certain communities near the proposed lease sales in light of environmental justice concerns, like proximity of homes to multiple wells[173] (an exacerbating factor in the Eagle Ford Shale study), and social and structural inequities, such as limited access to prenatal care. (For example, in Chaves County, NM (within the Pecos District Office) in 2017, nearly half of mothers lacked access to prenatal care during the first trimester of their pregnancies.)[174] BLM should have taken local health data like this into account as part of its "hard look" at health impacts, especially as they relate to social determinants of health and environmental justice.

f. Occupational Health and Safety Impacts

Those *living* near oil and gas development aren't the only ones at risk. Oil and gas *workers* also suffer high risks from toxic exposure and accidents.[175] One study of the occupational inhalation risks caused by emissions from chemical storage tanks associated with fracking wells found that chemicals used in 12.4 percent of wells posed acute non-cancer risks,

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[169] **Exhibit 104**, Casey, Joan A., *Unconventional Natural Gas Development and Birth Outcomes in Pennsylvania, USA*, 27 EPIDEMIOLOGY 163 (2016).
[170] **Exhibit 105**, Stacy, Shaina L. et al., *Perinatal Outcomes and Unconventional Natural Gas Operations in Southwest Pennsylvania*. 10 PLoS ONE e0126425 (2015).
[171] McKenzie, *Birth Outcomes* (2014), Exhibit 62.
[172] **Exhibit 106**, Lara J. Cushing et al., *Flaring from Unconventional Oil and Gas Development and Birth Outcomes in the Eagle Ford Shale in South Texas*, 128 ENVIRONMENTAL HEALTH PERSPECTIVES , 077003 (2020).
[173] *See* EDF, New Mexico Oil and Gas Data tool, available at https://www.edf.org/nm-oil-gas/, for one excellent resource for mapping proximity of homes to wells, along with other environmental-justice-relevant data, specifically in New Mexico. We recommend that BLM use this and other available tools for taking a hard look at cumulative health impacts and environmental justice impacts.
[174] **Exhibit 107**, New Mexico Department of Health, *Health Indicator Report of Prenatal Care in the First Trimester*, *available at* https://ibis.health.state.nm.us/indicator/view/PrenCare.Cnty.html.
[175]**Exhibit 108**, Esswein, Eric J. et al., *Occupational Exposures to Respirable Crystalline Silica During Hydraulic Fracturing*, 10 JOURNAL OF OCCUPATIONAL AND ENVIRONMENTAL HYGIENE 347 (2013); **Exhibit 109**, Esswein, Eric et al., *Evaluation of Some Potential Chemical Exposure Risks during Flowback Operations in Unconventional Oil and Gas Extraction: Preliminary Results*, 11 JOURNAL OF OCCUPATIONAL AND ENVIRONMENTAL HYGIENE D174 (2014); **Exhibit 110**, Harrison, Robert J. et al., *Sudden Deaths Among Oil and Gas Extraction Workers Resulting from Oxygen Deficiency and Inhalation of Hydrocarbon Gases and Vapors — United States, January 2010–March 2015*, 65 MMWR MORB MORTAL WKLY REP 6 (2016); PSR 2020, Exhibit 66.

chemicals used in 7.5 percent of wells posed acute cancer risks, and chemicals used in 5.8 percent of wells posed chronic cancer risks.[176] As summarized below:

> Drilling and fracking jobs are among the most dangerous jobs in the nation with a fatality rate that is four to seven times the national average. Irregularities in reporting practices mean that counts of on-the-job fatalities among oil and gas workers are likely underestimates…Occupational hazards in the fracking industry include head injuries, traffic accidents, blunt trauma, burns, inhalation of hydrocarbon vapors, toxic chemical exposures, heat exhaustion, dehydration, and sleep deprivation. An investigation of occupational exposures found high levels of benzene in the urine of wellpad workers, especially those in close proximity to flowback fluid coming up from wells following fracturing activities. Exposure to silica dust, which is definitively linked to silicosis and lung cancer, was singled out by the National Institute for Occupational Safety and Health as a particular threat to workers in fracking operations where silica sand is used. At the same time, research shows that many gas field workers, despite these serious occupational hazards, are uninsured or underinsured and lack access to basic medical care.[177]

g. Naturally Occurring Radioactive Materials and Technology Enhanced Naturally Occurring Radioactive Materials.

Radioactive wastes from oil and gas production can be found in produced water, flowback water from hydraulic fracturing, drilling waste including cuttings and mud, and/or sludge. This material can concentrate in pipes, storage tanks and facilities, and on other extraction equipment, and may be left on site or be emitted into the environment. Some of these materials, such as Radium, can penetrate the skin and raise the risk of cancer.[178] The NEPA analysis conducted for this plan amendment must consider the potential health impacts of radioactive materials, as well as all other potential health effects discussed herein.

Processes used to produce oil and gas often generate radioactive waste containing concentrations of naturally occurring radioactive materials (NORM) and Technologically Enhanced Naturally Occurring Radioactive Materials (TENORMS). The geological formations to be drilled will result in radioactive waste, containing both NORMS and TENORMs. The radioactive materials will show up in formation drilling, production wastes, and operations. Every single shale well that uses an on-site pit for disposal of drill cuttings and/or fluids likely will leave behind some amount of concentrated radioactive materials.[179] Further, Alpha-emitting radioactive decay elements concentrate at the pipe scale, so the waste is much more radioactive

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[176] **Exhibit 111**, Chen, Huan & Kimberly E. Carter, *Modeling potential occupational inhalation exposures and associated risks of toxic organics from chemical storage tanks used in hydraulic fracturing using AERMOD*, 224 ENVIRONMENTAL POLLUTION 300 (2017).
[177] PSR 2020 at 162, Exhibit 66.
[178] *See, e.g.,* **Exhibit 112**, Agency for Toxic Substances and Disease Registry (ASTDR). *Radium.* (July 1999), *Available at* https://www.atsdr.cdc.gov/toxfaqs/tfacts144.pdf; (Beta and gamma particles can penetrate the skin).
[179] *See* **Exhibit 113**, Occupational Health and Safety (Oct. 01, 2012) "Radiation Sources in Natural Gas Well Activities," https://ohsonline.com/Articles/2012/10/01/Radiation-Sources-in-Natural-Gas-Well-Activities.aspx?Page=2.

than any of the constituent parts.[180] BLM must also evaluate radiation exposure risks as part of its obligation to take a hard look at public health and safety. Further, BLM should conduct a baseline groundwater analysis in the lease sale areas before any more leasing and development occurs, to ensure that no environmental contamination occurs from disposal of radioactive sludge/scale.

3. BLM Must Take a Hard Look At Environmental Justice.

BLM must also take a hard look at environmental justice—not just in relation to health, but also in its own right. As defined by the U.S. Environmental Protection Agency, "environmental justice" means "the fair treatment and meaningful involvement of all people, regardless of race, color, national origin, or income, in the development, implementation, and enforcement of environmental laws, regulations, and policies."[181] Executive Order 12898 (EO 12898) requires each Federal agency to "make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations."[182] Even more recently, President Biden's January 27, 2021 "Executive Order on Tackling the Climate Crisis at Home and Abroad" (EO 14008) explicitly recognizes the inexorable links among climate, health, and environmental justice (which includes social and economic justice), and the corresponding need to address all of them in concert, with a whole-of-government approach.[183]

Environmental Justice is a "relevant factor" for which federal agencies must take a hard look under NEPA, made reviewable under the APA's arbitrary and capricious standard. *See Latin Ams. for Social & Econ. Dev. v. Fed. Highway Admin.,* 756 F.3d 447, 465 (6th Cir. 2014); *Coliseum Square Ass'n, Inc. v. Jackson*, 465 F.3d 215, 232 (5th Cir. 2006); *Cmtys. Against Runway Expansion, Inc. v. FAA*, 355 F.3d 678, 689 (D.C. Cir. 2004); *Standing Rock Sioux Tribe v. U.S. Army Corps of Engineers*, 440 F. Supp. 3d 1, 9 (D. D.C. 2020), *vacated by, in part, affirmed by, in part, Standing Rock Sioux Tribe v. United States Army Corp of Eng'rs*, 985 F.3d 1032 (D.C. Cir. 2021)*; Friends of Buckingham v. State Air Pollution Control Bd*., 947 F.3d 68, 87 (4th Cir. 2020). While we appreciate that BLM has at least *included* subsections discussing environmental justice in its NEPA documentation for the proposed lease sales, they fall far short of NEPA's requirements for a "hard look" at environmental justice.

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[180] **Exhibit 114**, USGS (1999) Naturally Occurring Radioactive Materials (NORM) in Produced Water and Oil-Field Equipment— An Issue for the Energy Industry https://pubs.usgs.gov/fs/fs-0142-99/fs-0142-99.pdf.

[181] *See* U.S. Environmental Protection Agency, *Environmental Justice*, www.epa.gov/environmentaljustice.

[182] Exec. Order No. 12,898, 59 Fed. Reg. 32 (Feb. 11, 1994), available at: https://www.archives.gov/files/federal-register/executive-orders/pdf/12898.pdf.

[183] *See* Executive Order 14008, 86 Fed. Reg. 7619-7633, Tackling the climate crisis at home and abroad (January 27, 2021), *available at* https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/27/executive-order-on-tackling-the-climate-crisis-at-home-and-abroad/ Section 201 (Policy), for example, recognizes the threat to public health posed by the climate crisis and the need to "deliver environmental justice in communities all across America." Another part of the EO is expressly dedicated to "Securing Environmental Justice and Spurring Economic Opportunity," and Section 219 expands on the language of EO 12898, directing agencies to make environmental justice part of their mission, to expressly include climate, cumulative impacts, and "accompanying economic challenges." Section 221 creates the "White House Environmental Justice Advisory Council" (WHEJAC), which has since submitted draft recommendations to CEQ on an environmental justice screening tool and on updates to EO 12898.

As EO 12898, EO 14008, and related agency guidance documents state,[184] and as courts have affirmed specifically with regard to the NEPA process, BLM *must* take environmental justice seriously. As the court stated in *Standing Rock*, 440 F. Supp. 3d 1, 9:

> in this Circuit, NEPA creates, through the Administrative Procedure Act, a right of action deriving from Executive Order 12,898. This order requires federal agencies to 'make achieving environmental justice part of their mission'—'[t]o the greatest extent practicable and permitted by law'—'by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of [their] programs, policies, and activities on minority populations and low-income populations.'

(citing 59 Fed. Reg. 7629 (Feb. 11, 1994), § 1-101; *Cmtys. Against Runway Expansion, Inc.*, 355 F.3d at 688–89 (recognizing right to environmental-justice review under NEPA and APA)).

According to EPA Guidance on environmental justice in the NEPA process, an environmental justice analysis must also include "the cultural values that the community and/or Indian Tribe may place on a natural resource at risk."[185] The Guidance also states that it is "essential" for the "NEPA analyst to consider the cumulative impacts from the perspective of these specific resources or ecosystems which are vital to the communities of interest."[186] Yet BLM has failed to incorporate Tribes' and community members' knowledge of, and concerns about, such cultural values and cumulative impacts in its NEPA analyses for the lease sales. It is arbitrary and capricious, a failure to "articulate a rational connection between the facts found and the choices made," *Motor Vehicle Mfr. Ass'n*, 463 U.S. at 43, for BLM to acknowledge that there are "environmental justice populations" in the lease sale areas who could experience adverse and disproportionate risks or impacts, without actually *analyzing*, or in some cases even mentioning, the risks and impacts of its leasing decisions on these populations, let alone taking them into account in its decision-making. "Where BLM has acknowledged increased risk, it cannot then conclude impacts are not significant absent a comprehensive analysis." *State of California*, 472 F. Supp. 3d at 622.

BLM must also adhere to the "process" requirements of environmental justice—fair treatment and *meaningful involvement*. If BLM ignores or excludes the very people and communities who are most affected by its leasing decisions, BLM is not only denying them fair treatment and meaningful involvement in decision-making—and, in the case of indigenous peoples and Tribes,

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[184] For example, CEQ's 2016 Final Guidance on climate change, Exhibit 5, has also recommended that federal agencies should incorporate environmental justice principles into their programs, policies, and activities. The 2016 Final Guidance further recommended that agencies consider whether the effects of climate change, in association with the effects of a proposed agency action, may result in a disproportionate effect on minority and low-income populations. And, as mentioned throughout these comments, CEQ's Guidance on Environmental Justice in the NEPA process directs agencies to identify and address disproportionate and cumulative risks and impacts; *See also* **Exhibit 115**, U.S. EPA (2016), "Promising Practices for EJ Methodologies in NEPA Review" *available at* https://www.epa.gov/sites/default/files/2016-08/documents/nepa_promising_practices_document_2016.pdf.

[185] **Exhibit 116**, 1998 EPA NEPA Final Guidance https://www.epa.gov/sites/production/files/2015-02/documents/ej_guidance_nepa_epa0498.pdf.

[186] *Id.* Exhibit 116.

abrogating the right to self-determination and free prior and informed consent[187]—but also depriving itself, and the general public, of invaluable knowledge and expertise that would enable better-informed and more transparent decision-making. "Better decisions" are indeed a fundamental goal of NEPA, and they require extensive, meaningful public involvement throughout an agency's decision-making process—not just "input" on pre-determined agendas.[188] Indeed, "environmental justice is not merely a box to be checked." *Friends of Buckingham*, 947 F.3d at 92.

4. BLM Must Take A Hard Look At Impacts to Resources Other Than Climate. From Development Of The Proposed Leases.

The draft EAs violate NEPA because they fail to analyze and disclose the reasonably foreseeable impacts to a variety of non-climate resources from drilling on these particular leases. In particular, BLM has failed to take a hard look at the impacts to groundwater, wildlife and other resources that will be harmed by oil and gas development resulting for its leasing decisions.

Courts have long made clear that "the sale of leases cannot be divorced from post-leasing exploration, development, and production." *Bob Marshall All. v. Hodel*, 852 F.2d 1223, 1229 (9th Cir. 1988). BLM's issuance of leases typically is an irretrievable commitment of resources, and before taking that step the agency must consider the reasonably foreseeable impacts—such as oil and gas drilling—to other resources. Making an irreversible commitment of resources, without analyzing effects of developing those leases, is an "approve now and ask questions later" approach—"precisely the type of environmentally blind decision-making NEPA was designed to avoid." *Conner v. Burford*, 848 F.2d 1441, 1450-51 (9th Cir. 1988); *Sierra Club v. Peterson*, 717 F.2d 1409, 1413-15 (D.C. Cir. 1983).

BLM's draft EAs, however, provide only broad descriptions of categories of impacts that result from oil and gas development generally, without examining how severe those impacts are likely to be for the particular leases being offered here. The EAs' boilerplate could be applied to virtually any oil and gas proposal anywhere on public lands, and provides the agency and the public no useful information about the specific leases proposed in these lease sales. This does not satisfy NEPA. "General statements about possible effects and some risk do not constitute a hard look absent a justification regarding why more definitive information could not be provided." *Conservation Cong. v. Finely*, 774 F.3d 611, 621 (9th Cir. 2014).

The EAs' assertion that additional analysis is not feasible at the leasing stage is arbitrary and capricious and violates NEPA. There is ample information available to forecast reasonably foreseeable development on the specific leases being offered, and to evaluate the potential

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[187] The duty to obtain free prior and informed consent (FPIC) from indigenous peoples is recognized by the International Labour Organization Convention ("ILO") 169 and the U.N. Declaration on the Rights of Indigenous Peoples ("UNDRIP"), Articles 10, 11, 19, 28, 29, and 32. *See* **Exhibit 117**, UN General Assembly, *United Nations Declaration on the Rights of Indigenous Peoples.* FPIC is embedded in the right to self-determination. "The duty of States to obtain Indigenous Peoples' FPIC entitles Indigenous people to effectively determine the outcome of decision-making that affects them, *not merely a right to be involved*." **Exhibit 118**, UN Expert Mechanism on the Rights of Indigenous Peoples, *Final report of the study on indigenous peoples and the right to participate in decision-making* (August 17, 2011), *see especially* para. 21.

[188] *See* 40 C.F.R. § 1500.1(c).

impacts of that development on groundwater, wildlife and other resources. Indeed, BLM has already done that for its climate analysis: its EAs "analyz[e] potential GHG emissions from projected oil and gas development on the parcels proposed for leasing using estimates based on past oil and gas development and available information from existing development within the State." Nevada EA at 24, *see also id*. at 32. For each alternative considered, BLM used its projection of future development on the leases to estimate the direct on-site emissions, and indirect (downstream) emissions, over the entire life of the leases, for the average year of production, and for the year of maximum production. *Id.* at 32-35.

As discussed below, it is entirely feasible for BLM to use the same projection of future development on the leases to estimate impacts to other resources. Indeed, BLM has sought to focus these sales on lease parcels that are adjacent to existing oil and gas development.[189] BLM can use evidence of impacts from existing development on wildlife, groundwater, etc., to predict what will happen from allowing even more oil and gas development in these areas.

While any projection of future development impacts necessarily involves uncertainty, that uncertainty does not excuse BLM from making any projection at all. Failure to use readily available resources to forecast reasonably foreseeable impacts to these resources would be arbitrary and capricious and violate NEPA. *New Mexico ex rel. Richardson v. BLM*, 565 F.3d 683, 718-19 (10th Cir. 2009) (failure to discuss impacts from developing oil and gas lease was arbitrary and capricious where "[c]onsiderable exploration has already occurred on parcels adjacent to the" proposed lease); *N. Plains Res. Council*, 668 F.3d at 1078-79 (rejecting agency argument that impacts from future coalbed methane development were "too speculative" to evaluate where there was "available data concerning likely future development").

a. Groundwater Quality and Water Demands.

NEPA's requirement to assess all the potential environmental impacts from oil and gas leases, before it offers those leases to operators, includes taking a "hard look" at how ensuing development could impact groundwater. *WildEarth Guardians v. U.S. Bureau of Land Mgmt.*, 457 F. Supp. 3d 880, 886–89 (D. Mont. 2020). BLM's EAs fail to do so.

With the exception of Montana, the EAs contain only cursory sections containing generic boilerplate about potential water resource impacts from oil and gas development, summarizing various resource management plan (RMP) and other standard stipulations that would apply, and then asserting that adequate protections for groundwater will be applied at the APD stage. *See, e.g.*, Wyoming EA at 41-44; Colorado EA at 15-17 (including surface and groundwater resources in list of "Issues Considered but Not Analyzed in Detail," which lists applicable regulatory and other requirements intended to protect water resources). Similarly, most of the EAs say almost nothing about the water demands from development on the proposed leases. *See, e.g.*, Wyoming EA at 41-44.

It is entirely feasible for BLM to take a hard look at the foreseeable water resource impacts from its leasing decisions—in fact, the agency's draft Montana EA has a much more

[189] https://www.doi.gov/pressreleases/interior-department-announces-significantly-reformed-onshore-oil-and-gas-lease-sales.

extensive discussion of these impacts. Montana EA at 80-98. In addition, the attached report from PSE Healthy Energy (PSE)[190] illustrates the readily available data that can be used for such an analysis in Wyoming. The PSE analysis also shows that existing federally approved oil and gas development in Wyoming does not adequately protect usable groundwater resources. Similar information is available for Montana.[191]

Groundwater is a critical resource that supplies many communities, particularly rural ones, with drinking water. Protecting these resources is imperative to protect human health and the environment, especially because groundwater will become more important as increased aridity and higher temperatures alter water use. The U.S. Environmental Protection Agency (EPA) has noted that existing drinking water resources "may not be sufficient in some locations to meet future demand" and that future sources of fresh drinking "will likely be affected by changes in climate and water use."[192] As a result, BLM must protect both aquifers currently used for drinking water, and deeper and higher-salinity aquifers that may be needed in coming decades.

Oil and gas drilling involves boring wells to depths thousands of feet below the surface, often through or just above groundwater aquifers. Without proper well construction and vertical separation between aquifers and fractured formations, oil and gas development can contaminate underground sources of water.[193] However, federal rules and regulations do not provide specific direction for BLM and operators to protect all usable water. Even rules that purport to do so, like Onshore Order No. 2's requirement to "protect and/or isolate all usable water zones," are inconsistently applied and often disregarded in practice.[194] State regulations are similarly inadequate to ensure protection of groundwater.

Moreover, industry has admitted that it often does not protect usable water in practice. Western Energy Alliance and the Independent Petroleum Association of America have told BLM that the "existing practice for locating and protecting usable water" does not measure the numerical quality of water underlying drilling locations, and therefore does not consider whether potentially usable water would be protected during drilling.[195] For example, reports studying a sample of existing oil and gas well records in Montana and Wyoming confirm industry

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[190] **Exhibit 119**, Rebecca Tisherman, et al., *Examination of Groundwater Resources in Areas of Wyoming Proposed for the June 2022 BLM Lease Sale* (May 12, 2022) (PSE 2022 Wyoming Review)
[191] **Exhibit 120**, Dominic C. DiGiulio, *Examination of Groundwater Resources in Areas of Montana Proposed for the March 2018 BLM Lease Sale* (January 10, 2018).
[192] U.S. Environmental Protection Agency, Hydraulic Fracturing for Oil and Gas: Impacts from the Hydraulic Fracturing Water Cycle on Drinking Water Resources in the United States, EPA/600/R-16/236F, at 2–18 (Dec. 2016) (EPA 2016 Report). Available at www.epa.gov/hfstudy.
[193] *See, e.g.*, **Exhibit 121**, Gayathri Vaidyanathan, *Fracking Can Contaminate Drinking Water*, at 8, Sci. Am. (Apr. 4, 2016); **Exhibit 122**, Dominic C. DiGiulio & Robert A. Jackson, *Impact to Underground Sources of Drinking Water and Domestic Wells from Production Well Stimulation and Completion Practices in the Pavillion, Wyoming Field*, 50 Am. Chem. Society, Envtl. Sci. & Tech. 4524, 4532 (Mar. 29, 2016); EPA 2016 Report.
[194] *See* BLM, Regulatory Impact Analysis for the Final Rule to Rescind the 2015 Hydraulic Fracturing Rule, at 44–45 (Dec. 2017). Available at https://beta.regulations.gov/document/BLM-2017-0001-0464.
[195] **Exhibit 123**, Western Energy Alliance and the Independent Petroleum Association of America, Sept. 25, 2017 comments Re: RIN 1004-AE52, Oil and Gas; Hydraulic Fracturing on Federal and Indian Lands; Rescission of a 2015 Rule (82 Fed. Reg. 34,464) (2017 WEA comments), at 59. Available at https://www.regulations.gov/document?D=BLM-2017-0001-0412.

admissions that well casing and cementing practices do not always protect underground sources of drinking water.[196] Similarly, a study of hydraulic fracturing in Pavillion, Wyoming, confirmed that oil and gas drilling had contaminated underground sources of drinking water in that area due to lack of vertical separation between the aquifer and target formation.[197] A review of lease parcels proposed for the proposed Wyoming sale concluded:

- Numerous proposed lease parcels are located in areas with usable water, particularly those in the Green River Basin (Colorado Plateaus aquifers) and the Powder River Basin (Lower Tertiary aquifers).

- The EA, however, does not identify the depths of usable water covered by the proposed lease parcels, which creates ambiguity in surface casing and cementing requirements for new wells in WY.

- Existing federal wells in the Powder River basin are not protecting usable water. Of 61 wells reviewed in the same township and ranges as the proposed parcels, most (at least 36) had inadequate construction.

- If current active federal wells (completed since January 1, 2000) are not adequately cased and cemented, then it can be assumed that a significant portion of future wells installed on these proposed parcels will also be inadequately cased/cemented and thus pose a threat to usable water.[198]

In light of these risks to a critical resource, BLM must evaluate potential groundwater impairment. As a threshold matter, BLM must provide a detailed account of all regional groundwater resources that could be impacted, including usable aquifers that may not currently be used as a drinking water supply. The accounting must include, at minimum, all aquifers with up to 10,000 parts per million total dissolved solids, and it cannot substitute existing drinking water wells or any other incomplete proxy for a full description of all usable or potentially usable groundwater in the region. Second, BLM must use that accounting to assess how new oil and gas wells might impact these resources. That evaluation must assess the sufficiency of protective measures that will be employed, including wellbore casing and cementing and vertical separation between aquifers and the oil and gas formations likely to be hydraulically fractured. In assessing these protections, BLM cannot presume that state and federal regulations will protect groundwater, because of the shortcomings and industry noncompliance described above. BLM may not defer this analysis of groundwater impacts to the APD stage. *WildEarth Guardians*, 457 F. Supp. 3d at 888. Failure to conduct this analysis violates NEPA. *Id.*

[196] Dominic Digiulio, *Examination of Selected Production Files in Southcentral Montana to Support Assessment of the March 2018 BLM Lease Sale* (December 22, 2017). Exhibit 120. https://eplanning.blm.gov/public_projects/nepa/87551/136880/167234/Earthjustice_Protest_1-12-2018.pdf., Exhibit 120; PSE 2022 Wyoming Review, Exhibit 119.
[197] DiGiulio & Jackson, Exhibit 122.
[198] PSE 2022 Wyoming Review at 15, Exhibit 122.

With regard to the water demands from development, BLM should address the potential use of surface water and groundwater for hydraulic fracturing and drilling by assessing the reasonably foreseeable development on groups of proximate parcels, and evaluate the potential for aquifer drawdown or overdraft due to cumulative effects of past, present and future activities that could impact nearby groundwater wells, as well as the potential for cumulative effects on surface water quantity and stream/river structure and function. *See, e.g.*, Wyoming draft EA Response to Comments table at comment 143 (comment from US EPA).

b. Greater-Sage Grouse.

Several of the proposed lease sales involve important habitat for the greater sage-grouse. *See, e.g*., Wyoming EA at 44-76; Colorado EA at 61-65. The draft EAs, however, fail to evaluate reasonably foreseeable impacts to sage-grouse from development on the proposed leases. Instead, the EAs describe: (a) the regulatory and management frameworks applicable to sage-grouse, (b) existing conditions, and which lease parcels are in different categories of sage-grouse habitat (such as priority or general habitat, and proximity to active leks), and (c) the lease stipulations that would apply. *Id.* They also discuss the "prioritization" process under which BLM selected which parcels in sage-grouse habitat to offer or defer. *Id.;* (*see also* discussion of Wyoming prioritization analysis below).

Notably absent from BLM's analysis in most states is any effort to assess the likely impacts to grouse from the leases it proposes to offer. Instead, the EAs provide boilerplate statements about categories of impacts and state that impacts "would be similar to those discussed in the" RMP-level EISs. *See, e.g.*, Wyoming EA at 76; Colorado EA at 62-65. This does not satisfy NEPA, and BLM cannot rely for these sales on the plan-level NEPA analysis conducted for the 2015 RMP amendments. Tiering is only appropriate when a subsequent NEPA document incorporates by reference earlier general matters into a subsequent narrower statement; but it does not allow a subsequent analysis to ignore the specific environmental issues that are presented in the later analysis. 40 C.F.R. § 1508.28. The 2015 RMP EISs do not address the site-specific impacts associated with issuing these particular lease parcels. On the contrary, by requiring a prioritization analysis the 2015 RMP amendments contemplate that such an analysis will occur at the leasing stage. *See S. Fork Band Council of W. Shoshone of Nevada v. U.S. Dep't of the Interior*, 588 F.3d 718, 726 (9th Cir. 2009) (holding that while tiering is sometimes permissible, "the previous document must actually discuss the impacts of the project at issue").

BLM must use its available information on lek location, reasonably foreseeable development, and other factors, to provide a forecast of the impacts from these specific leases to sage-grouse in the affected areas. For example, the agency can look to nearby existing development to assess where and how much drilling may occur on the proposed leases. BLM already has identified whether the leases would be adjacent to existing leases, in an area with high development potential, and how close the lease would be to a lek. Similarly, the Montana draft EA provides a site-specific analysis of specific leases in relationship to nearby sage-grouse leks. *See* Montana EA at 62-68. Failing to use this type of readily available information to forecast development would violate NEPA. *See New Mexico ex rel. Richardson*, 565 F.3d at 718-19 (failure to discuss impacts from developing oil and gas lease was arbitrary and capricious

where "[c]onsiderable exploration has already occurred on parcels adjacent to the" proposed lease).

c. Big Game.

The draft EAs' analyses of big game have similar flaws. The EAs describe: (a) the regulatory and management frameworks applicable to big game species, along with the scientific literature, (b) existing conditions, and which lease parcels are in different categories of habitat (such as crucial winter habitat and migration corridors), (c) the lease stipulations that would apply, and (d) how BLM selected which parcels in big game habitat to offer or defer. *See, e.g.,* Wyoming EA at 77-100; Colorado EA at 56-60.

This information provides a basis for analyzing the likely impacts to big game from development on the proposed leases—but it does not substitute for that analysis. The EAs generally fail to analyze the likely impacts to big game populations from the leases it proposes to offer. Instead, the EAs provide boilerplate statements about categories of impacts and state that impacts would be similar to those discussed in the RMP-level EISs. *See, e.g., id*. This does not satisfy NEPA.

d. Other Species and Resources.

BLM also has not taken a hard look at impacts to other resources. For example, the Wyoming draft EA provides no analysis at all of foreseeable impacts to cultural and heritage resources, wilderness study areas and lands with wilderness characteristics, and special status species. Wyoming EA at 12-15 (listing resources "eliminated from further analysis"). For example, white-tailed prairie dogs apparently are present on several of the lease parcels (judging from BLM's list of stipulations for the Wyoming sale) but not analyzed in the EA. And BLM received comments raising concerns about archaeological resources in the Red Desert, Wyoming draft EA Response to Comments at Comment 17, and the Fort Laramie National Historic site, Wyoming draft EA at 226, but declined to address those potential impacts.

In addition, the Wyoming and Montana EAs fail to address the Pallid Sturgeon, an endangered species listed in 1990. 55 Fed. Reg. 36,641, 36,641 (Sept. 6, 1990). The Pallid Sturgeon are:

> among the rarest surviving fish species in North America and are a federally endangered species in the Missouri River Watershed which includes the Yellowstone River and [Powder River Basin]. Once estimated to support over 1,000 adults, now, fewer than 125 naturally produced pallid sturgeon are estimated to live in the Upper Missouri Basin above Lake Sakakawea in North Dakota. Surviving wild sturgeon in the Upper Missouri River Basin are estimated to be at least 44 years old.[199]

The Yellowstone River and its tributaries are critical to the survival and recovery of this unique species because—unlike the upper Missouri River—the Yellowstone River provides vital spawning habitat for a small group of Pallid Sturgeon that has not hybridized with other sturgeon

[199] **Exhibit 124**, Marcus Griswold, Pallid Sturgeon Synthesis Report at 8 (2021) (Synthesis Report).

species. *Id*. at 9. Since 2014, Pallid Sturgeon have repeatedly migrated up the Powder River in Montana, traveling as far as 96 miles beyond the confluence with the Yellowstone River. *Id.* at 1. BLM acknowledges that Pallid Sturgeon are present on lease parcels in Richland County and Roosevelt County, Montana, Montana EA at Table 1, and would attach a lease stipulation precluding surface occupancy within 0.25 mile of the water's edge of the Yellowstone and Missouri Rivers. *See* Montana Stipulation NSO 11-78.[200] But the Montana EA provides no analysis of whether a quarter-mile buffer is adequate, and how development of the leases may impact the species. In addition, Pallid Sturgeon habitat lies downstream of the group of lease parcels north of Gillette, Wyoming, and could be impacted by development of those parcels.[201] The draft Wyoming EA, however, does not even mention the Sturgeon.

Oil and gas operations may harm both water quality and water quantity in the Powder River Basin. *See* Synthesis Report at 8; Contaminants Assessment. The cumulative impacts of oil and gas development, other fossil fuel development, and climate change may adversely impact the survival and recovery of pallid sturgeon in the Yellowstone and Powder Rivers (and indeed, in the upper Missouri River basin). Synthesis Report at 8, attached. This habitat—in which Pallid Sturgeon populations have not hybridized—is impacted by fossil fuel development in the Powder River basin and oil and gas development in the Bakken. Both cause water pollution, which threaten Pallid Sturgeon.[202]
Prior to offering these leases, BLM should take a hard look at the reasonably foreseeable impacts to the Pallid Sturgeon. In addition, we note that the Miles City Field Office has already reinitiated consultation with the Fish and Wildlife Service regarding the impacts of the Mile City RMPs on the Sturgeon. Under Endangered Species Act Section 7(d), 16 U.S.C. § 1536(d), BLM may not "make any irreversible or irretrievable commitment of resources," such as issuing new oil and gas leases, that would foreclose alternative measures to protect the Sturgeon.

E. BLM's Conclusion Regarding GHGs and Climate in Its Proposed Finding Of No Significant Impact Are Not Adequately Supported by NEPA Analysis In The EA.

1. BLM's FONSIs for the Proposed Lease Sales Are Inconsistent and Fail to Properly Address the NEPA Intensity Factors.

As an initial matter, the eight FONSIs associated with the proposed lease sales in 2022 significantly differ from one another, especially with regard to their findings related to GHG emissions and climate change, without explaining a sufficient basis for these discrepancies. The inconsistent method of impact analysis displayed in these FONSIs, particularly with regard to the impacts of GHGs and climate change, is improper and absent further explanation from BLM, arbitrary. These unjustified discrepancies provide yet another reason for BLM to analyze and evaluate the environmental impacts of these oil and gas leasing proposals in a single impact

[200] *See* Montana lease sale notice, https://eplanning.blm.gov/public_projects/2015346/200495288/20057740/250063922/2022%20June%20Lease%20Sale%20Sale%20Notice.pdf.
[201] **Exhibit 125**, *See* Synthesis Report; FWS, *Pallid Sturgeon Basin-Wide Contaminants Assessment* (Contaminants Assessment).
[202] **Exhibit 126**, Contaminants Assessment; US Army Corps of Engineers, Yellowstone River Cumulative Effects Analysis at 206-07 (Apr. 2016) (discussing increased pollution from pipeline ruptures and spills of produced water from oil development in Bakken).

statement, as well as evaluate the BLM federal fossil fuel program pursuant to a programmatic EIS. Further, to fully inform the public we request BLM explicitly evaluate and discuss the impacts of GHG emissions estimated from the proposed lease sales, cumulative GHG emissions, and their impact on climate change according to all the NEPA intensity factors. We request this evaluation be done in the context of a single EIS for all six proposed lease sales.

2. BLM's Assessment of the Significance of Impacts from GHG Emissions and Climate Change is Improper and Unjustified.

In each of the FONSIs, BLM states that it cannot determine the significance of GHG emissions from the proposed lease sales, acknowledges that the "all GHGs contribute incrementally to climate change"[203] but ultimately concludes, anyway, that the GHG emissions from the proposed lease sales, and the cumulative emissions from the federal fossil fuel program, are insignificant. This is a text book example of an arbitrary and capricious determination, which must be remedied.

As an initial matter, neither the EAs for the 2022 proposed lease sales nor the 2020 BLM Specialist Report provide a basis or rationale for BLM's conclusion that it cannot determine the significance of GHG emissions for a proposed action. We request BLM clarify and further explain precisely why the agency cannot make a judgment based on the best available science and its own expertise as to the significance of its GHG emissions.

In each of the proposed FONSIs, BLM determines that no environmental effects, including the cumulative effects of GHG emissions on climate change, meet the NEPA definition of significance. Should BLM wish to maintain this conclusion, it must provide the basis and rationale that support the conclusion to inform and be evaluated by the public and decision makers.

Despite indicating that it cannot make a significance determination with regard to GHGs and climate, BLM in fact proposes to issue FONSIs for each lease sale proposed in 2022, determining that the impacts associated with the leases sales, including the cumulative impacts of GHG emissions from the federal fossil fuel program, are insignificant. BLM reaches this conclusion despite neither its EAs nor its FONSIs clearly articulating the basis for making this decision. The EAs, FONSIs, and 2020 BLM Specialist Report discussion of GHG emissions and climate change use comparisons with global, national, and state level GHG emissions to imply that the potential emissions from the proposed lease sales are insignificant. But these NEPA documents never clearly articulate whether this proxy comparison to global, national, and state level emissions is the basis on which BLM determined the GHG emissions from the proposed lease sales are insignificant. This determination is particularly troubling in light of BLM's conclusion that:

> As of the publication of this FONSI, there is no scientific data in the record, including scientific data submitted during the comment period for these lease sales, that would allow the BLM, in the absence of an agency carbon budget or

[203] Colorado FONSI at3-5; Montana FONSI at 1-2; Nevada FONSI at 2-3; New Mexico FONSI at 1-4; Oklahoma FONSI at 1-3; Wyoming FONSI at 2-3.

> similar standard, to evaluate the significance of the greenhouse gas emissions from this proposed lease sale. [204]

How can BLM determine that the impact of the sales is insignificant without such information, and why is BLM unable to establish an agency carbon budget in light of all the data it has available to it. Such a conclusion of insignificance is arbitrary. Critically, the 2016 CEQ GHG Guidance specifically instructs federal agencies not to limit their analysis of GHG emissions to this type of proxy analysis.[205]

Beyond the contradiction in each of BLM's FONSIs, BLM attempts to avoid making a significance determination regarding the GHG emissions from the proposed lease sales is an improper dereliction of the agency's duty under NEPA and FLPMA. BLM's NEPA analyses and FONSIs for the proposed lease sales include the statement: "There are no established thresholds for NEPA analysis to contextualize the quantifiable GHG emissions or social cost of an action in terms of the action's propensity to affect the climate, incrementally or otherwise."[206] While this may be true, it is also true that there are no established specific or particularized thresholds that determine whether other types of environmental impacts are significant for purposes of NEPA analysis. Significance determinations are made according to the potentially affected environment (or the relative context in which the action would occur) and the degree of the effects of the proposed action (or the intensity of the effects of the proposed action). At the end of the day, weighing these factors to make a significance determination requires an agency to make a judgment call based on the best science available. We request BLM clearly articulate the basis for its significance determination of the estimated GHG emissions from the proposed lease sales and the cumulative GHG emissions from the federal fossil fuel program and their associated impacts related to climate change.

3. BLM Improperly Limits the Context of Significance Analysis.

BLM's FONSIs for the proposed 2022 lease sales improperly limit the context and scope of the potentially affected environment in which the proposed leasing actions, and their cumulative impacts, will occur. Significance assessments under NEPA require consideration of "context," meaning the significance of the proposed action must be analyzed in several contexts such as society as a whole (human, national), the affected region, the affected interests, and the locality.[207] Significance varies with the setting of the proposed action.[208] Despite these requirements for considering the context of the proposed lease sales and despite the global nature and impacts of cumulative GHG emissions and climate change, BLM's FONSIs generally limit the consideration of context to the localities wherein the oil and gas development would take place, if authorized, and find that the impacts of oil and gas development would not have

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[204] Colorado FONSI at 5; Montana FONSI at 2; Nevada FONSI at 3; New Mexico FONSI at 4; Oklahoma FONSI at 3; Wyoming FONSI at 3.
[205] 2016 CEQ Guidance, at 10-11, Exhibit 5.
[206] 2020 BLM Specialist Report at Section 7.0; *see also* Colorado FONSI at 3; Montana FONSI at 2; Nevada FONSI at 3; New Mexico FONSI at 4; Oklahoma FONSI at 3; Wyoming FONSI at 3.
[207] 40 CFR 1508.27(a).
[208] *Id*.

international, national, regional, or state-wide importance.[209] We request BLM consider a far wider array of contexts, including society as whole, global, national, and regional contexts, that reflect the cumulative and global nature of climate change impacts.

4. BLM's Analysis of Public Health and Safety Impacts from GHG Emissions and Climate Change is Absent or Unsupported.

BLM's FONSIs vary widely in how they evaluate and discuss the impacts of GHG emissions and climate change on public health and safety, and we request BLM more clearly address these impacts in a single EIS. For example, with regard to public health and safety impacts most of the FONSIs do not mention climate change at all, even though the 2020 BLM Specialist Report describes both the existing health threats caused by climate change and the predicted intensification and new emerging health threats caused by continued GHG emissions.[210]

5. BLM's Analysis of Uncertainty is Contradictory.

Similar to other NEPA intensity factors, BLM's consideration of uncertainty varies widely among the eight FONSIs for the proposed 2022 lease sales. The FONSIs range from not considering the uncertainty of the possible effects on the human environment to outright contradicting the myriad statements BLM makes regarding the uncertainty of different aspects GHG emissions and climate change. These conclusions are, at best, incongruous in light of on BLM's own claim that it lacks the certainty and information necessary to determine whether the GHG emissions associated with the proposed actions are significant or not. Moreover, both the EAs for the proposed lease sales and the 2020 BLM Specialist Report identify countless areas of uncertainty regarding the analysis of GHGs and climate change, including:

- [Global warming potentials] have a large uncertainty: +/- 30 percent and +/-39 percent for the 20-year and 100-year CH4 GWPs, respectively, and +/-21 percent and +/-29 percent for the 20-year and 100-year N2O GWPs, respectively.[211]

- Earth's climate system is complex and interwoven in ways that are not yet fully understood. There are several known climate feedback mechanisms that add uncertainty in terms of timing (fast and slow feedbacks) and overall sensitivity within the evaluation of the climate system.[212]

- As with the forcing components, there are also positive and negative feedback mechanisms, and there is a relatively large range of uncertainty concerning estimates of the climate sensitivity that leaves the subject open to further investigation.[213]

[209] Colorado FONSI at 2; Montana FONSI at 1-2; Nevada FONSI at 1-2; New Mexico FONSI at 2; Oklahoma FONSI at 2; Wyoming FONSI at 2.
[210] 2020 BLM Specialist Report at Section 9.5.
[211] 2020 BLM Specialist Report at Section 3.4.
[212] *Id.* at Section 8.2.
[213] *Id.*

- Melting glaciers are likely to produce uncertainties for hydrologic power generation, which is an important resource in Alaska.[214]

- The IPCC [carbon] budget suggests a range of approximately 420 $GtCO_2$ for a 66% chance of limiting warming to 1.5 C to 840 $GtCO_2$ for a 33% chance. Similarly, estimates for the 2 C probabilities range from 1,170 to 2,030 $GtCO_2$. These estimates contain uncertainties that are characteristic of scientists' current understanding of the Earth's climate influencing systems, such as feedbacks and the forcing and response associated with the non- CO_2GHG species, and historical emissions accounting. The uncertainty range associated with the new estimates is approximately +/- 400 Gt CO_2.[215]

- As expected with such a complex model, there are multiple sources of uncertainty inherent in the SC-GHG estimates. Some sources of uncertainty relate to physical effects of GHG emissions, human behavior, future population growth and economic changes, and potential adaptation.[216]

Well-documented scientific research and BLM's own analysis demonstrate that the potential effects of climate chance are highly uncertain and involve unique and unknown risks. BLM must properly address this NEPA intensity factor in light of these impacts, and we request BLM do so in a single EIS.

6. BLM's Analysis of Controversy Over Impacts from GHGs is Absent or Unsupported.

Only the draft FONSI for the proposed lease sale in Wyoming addressed the NEPA intensity factor regarding controversy. BLM's discussion of the controversy intensity factor in the Wyoming draft FONSIs was incorrect, and BLM's omission of this intensity factor in the final Wyoming FONSI and FONSIs associated with the other lease sales is improper.

As this public comment submission reflects, as well as the global body of scientific research and understanding of climate change, there is controversy concerning critical aspects of the nature and effect of GHG emissions and their impact on climate change. This controversy is exemplified by the BLM's conclusions that the emissions from the proposed lease sales and the cumulative emissions from the federal fossil fuel program are not significant as compared to a robust scientific literature, indicating current and foreseeable fossil fuel development is not aligned GHG reductions necessary to prevent warming exceeding 1.5 C.[217] The issue of the cumulative impacts of climate change is so controversial BLM cannot even agree with itself because despite its findings of no significant impact as they relate to the proposed lease sales, BLM also concludes that it is incapable of determining whether the emissions associated with the proposed lease sales would significantly affect the human environment, as we discussed above.

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[214] *Id.* at Section 8.4.
[215] *Id.* at Section 7.2.
[216] Colorado EA at 39; Montana EA at 43; Nevada EA at 31; New Mexico EA at 77; Oklahoma EA at 32; Utah EA at 45; Wyoming EA at 38.
[217] See, e.g. The Production Gap Report 2021, Exhibit 20.

We request BLM revise and address its discussion and determination of the NEPA intensity factor for controversy and do so in a single EIS.

7. BLM's Analysis of the Cumulative Impacts of GHG Emissions is Absent or Unsupported.

BLM's evaluation of the estimated GHG emissions from the proposed lease sales is another NEPA intensity factor that receives little to no consideration in the associated FONSIs. This is astounding given the seriousness and cumulative nature of climate change. Considering both the impacts of climate change that are already occurring as a result of historic anthropogenic emissions of GHGs and forecast impacts of continued GHG emissions, it is challenging to understand the basis for BLM's conclusion that significant cumulative effects are not expected from the proposed oil and gas lease sales. We request BLM fully inform the public and the decision makers by providing a complete and comprehensive justification for how the agency reached its significance determination on this NEPA intensity factor.

8. BLM's Analysis of Federal or State Law and Policy is Absent.

Not one of the FONSIs for the proposed lease sales indicate the lease actions will violate federal or state law and policy, but there are several federal and state government laws and policies that set GHG emission reduction targets or commitments, which authorization of the proposed leases will likely threaten. On the federal side, President Biden announced a goal to achieve net-zero emissions by 2050,[218] as well as a target to reduce GHG emissions by 50-52% by 2030, compared to 2005 levels.[219] In addition, the United States is a signatory to the 2015 Paris Agreement, committing to a goal of limiting global temperature increase well below 2 C, pursuing efforts to limit the increase to 1.5 C, and committing to reaching global peaking of GHGs as soon as possible.

On the state side, both Colorado and New Mexico have statutes and executive orders setting emission reduction goals. In Colorado, HB19-1261 requires the state to reduce GHG emissions by at least 26 percent in 2025, at least 50 percent by 2030, and at least 90 percent by 2050, relative to 2005 pollution levels. In New Mexico, Executive Order 2019-003 declares the state's support of the 2015 Paris Agreement goals and orders the state to achieve statewide reduction of GHG emissions of at least 45% by 2030, relative to 2005 levels.

BLM's EAs and FONSIs must discuss and evaluate how the proposed lease sales and their estimated GHG emissions may threat violation of these federal and state laws and policies.

F. BLM's leasing decisions are arbitrary and capricious and violate NEPA to the extent they rely on unlawful USGS assessments.

The Energy Policy and Conservation Act ("EPCA") requires the Department of the Interior ("DOI") to conduct an inventory that includes United States Geological Survey ("USGS") estimates of oil and gas resources underlying onshore federal lands, as well as "the

[218] Executive Order 13990 (January 20, 2021).
[219] Executive Order 14008 (January 27, 2021).

extent and nature of any restrictions or impediments to the development of the resources." 42 U.S.C. § 6217(a). EPCA requires this information to "be regularly updated and made publicly available." *Id.* § 6217(b). USGS updates its estimates of oil and gas resources through periodic "assessments."[220] However, USGS assessments do not provide updates regarding "the extent and nature of any restrictions or impediments to the development of [oil and gas] resources," despite the clear statutory mandate to do so. 42 U.S.C. § 6217(a). Such assessments therefore overstate the availability of oil and gas resources on federal lands and fail to acknowledge the significant limitations on development of these resources.

BLM relies directly on these statutorily defective USGS assessments for its NEPA analysis of the proposed lease sales. For example, BLM's Reasonably Foreseeable Development ("RFD") scenarios for lease sale environmental assessments ("EAs")—which estimate development of parcels proposed for lease—are based on USGS assessments.[221] Environmental assessments for BLM lease sales are also tiered to management plans that rely on USGS assessments.[222] More broadly, BLM decisions and public input on which lands to offer for lease are based on USGS assessments of where oil and gas resources exist. Because these assessments fail to properly account for restrictions and impediments to the development of these resources, BLM's decisions about which lands to open for lease are arbitrary and capricious. Moreover, because BLM's RFD scenarios for lands proposed for lease fail to incorporate impediments to their development—such as the broader climate impacts of opening federal lands for oil and gas development—BLM has failed to take a hard look at leasing impacts, as required by NEPA.

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[220] United States Geological Survey, *United States Assessments of Undiscovered Oil and Gas Resources,* https://www.usgs.gov/centers/central-energy-resources-science-center/science/united-states-assessments-undiscovered-oil ("USGS Energy Resources Program provides periodic assessments of the oil and natural gas endowment of the United States and the World. This website provides access to new, prioritized, assessment results and supporting data for the United States, as part of the Energy Policy and Conservation Act (EPCA)"); **Exhibit 127**, U.S. Geological Survey, *Assessment of Undiscovered Continuous Oil Resources in the Bakken and Three Forks Formations of the Williston Basin Province, North Dakota and Montana*, 2021.

[221] *See, e.g.,* BLM June 2022 Oil and Gas Lease Parcel Sale Environmental Assessment, DOI-BLM-MT-0000-2021-0006-EA at 93, https://eplanning.blm.gov/public_projects/2015346/200495288/20057737/250063919/2022%20June%20Lease%20Sale%20EA%20Final%2004.18.22.pdf; BLM, North Dakota Field Office Reasonably Foreseeable Development Scenario at 2, https://eplanning.blm.gov/public_projects/2015346/200495288/20054342/250060525/Appendix%20D%20Reasonably%20Foreseeable%20Development.pdf. Internal guidance for BLM and other agencies specifically states that RFD scenarios should include "[i]nformation from existing oil and gas assessments (especially USGS assessments) pertinent to area of investigation." *See* **Exhibit 128**, Rocky Mountain Federal Leadership Forum on Oil and Gas, NEPA, and Air Quality, Interagency Reference Guide for Reasonably Foreseeable Development Scenarios and Cumulative Effects Analysis at C-1, https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5173039.pdf.

[222] *See, e.g.,* June 2022 Oil and Gas Lease Parcel Sale Environmental Assessment, DOI-BLM-MT-0000-2021-0006-EA at 10, https://eplanning.blm.gov/public_projects/2015346/200495288/20057737/250063919/2022%20June%20Lease%20Sale%20EA%20Final%2004.18.22.pdf ("This EA is also tiered to the information and analysis and conforms to the decisions contained in the USACOE Garrison Dam/Lake Sakakawea Project Oil and Gas Management Plan (June 2020)"); **Exhibit 129**, U.S. Army Corps of Engineers, Garrison Dam/Lake Sakakawea Project Oil and Gas Management Plan (June 2020), https://usace.contentdm.oclc.org/digital/collection/p16021coll7/id/967 (relying on USGS assessments).

III. FEDERAL LAND POLICY AND MANAGEMENT ACT (FLPMA)

A. Leasing New Federal Fossil Fuels for Development Would Cause Unnecessary and Undue Degradation That Is Prohibited Under FLPMA.

The Federal Land Policy and Management Act ("FLPMA"), 43 U.S.C. § 1701 *et seq.*, directs that "the public lands be managed in a manner that will protect the quality of [critical resource] values; that, where appropriate, will preserve and protect certain public lands in their natural condition; that will provide food and habitat for fish and wildlife and domestic animals; and that will provide for outdoor recreation and human occupancy and use." 43 U.S.C. § 1701(a)(8). This substantive mandate requires that BLM not elevate the development of oil and gas resources above other critical resource values in the planning area. To the contrary, FLPMA requires that where oil and gas development would threaten the quality of critical resources, conservation of these resources should be the preeminent goal.

Congress has declared through FLPMA that it is the policy of the United States that "the public lands [shall] be managed in a manner that will protect the quality of … air and atmospheric … values." 43 U.S.C. § 1701(a)(8). Under FLPMA's "multiple use and sustained yield" management directive, *id.* § 1701(a)(7), the federal government must manage public lands and resources in a manner that "takes into account the *long-term needs of future generations* for renewable and nonrenewable resources, including, but not limited to, recreation, range, timber, minerals, watershed, wildlife and fish, and natural scenic, scientific and historical values; and *harmonious and coordinated management of the various resources without permanent impairment of the productivity of the land*[.]" *Id.* § 1702(3) (emphasis added). BLM's obligation to manage for multiple use does not mean that development *must* be allowed. Rather, [d]evelopment is a *possible* use, which BLM must weigh against other possible uses—including conservation to protect environmental values[.]" *New Mexico ex rel. Richardson v. Bureau of Land Mgmt.*, 565 F.3d 683, 710 (10th Cir. 2009) (emphasis original). Under these authorities, BLM is required not only to evaluate the impacts that federal fossil fuel leasing has on public lands, waters, and wildlife resources, but to avoid harm to those resources whenever possible.

These directives are not simply aspirational, but grounded in the substantive requirements of FLPMA. "In managing the public lands," the agency "shall, by regulation or otherwise, take any action necessary to prevent unnecessary or undue degradation of the lands." 43 U.S.C. § 1732(b). Written in the disjunctive, BLM must prevent degradation that is "unnecessary" and degradation that is "undue." *Mineral Policy Ctr. v. Norton*, 292 F.Supp.2d 30, 41-43 (D.D.C. 2003). This protective mandate applies to BLM planning and management decisions, and should be considered in light of its overarching mandate that the agency employ "principles of multiple use and sustained yield." 43 U.S.C. § 1732(a); *see also, Utah Shared Access Alliance v. Carpenter*, 463 F.3d 1125, 1136 (10th Cir. 2006) (finding that BLM's authority to prevent degradation is not limited to the RMP planning process). While these obligations are distinct, they are interrelated and highly correlated. The Bureau must balance multiple uses in its management of public lands, including "recreation, range, timber, minerals, watershed, wildlife and fish, and [uses serving] natural scenic, scientific and historical values." 43 U.S.C. § 1702(c). It must also plan for sustained yield— "control [of] depleting uses over time, so as to ensure a high level of valuable uses in the future." *Norton v. S. Utah Wilderness Alliance,* 542 U.S. 55, 58

(2004).

"Application of this standard is necessarily context-specific; the words 'unnecessary' and 'undue' are modifiers requiring nouns to give them meaning, and by the plain terms of the statute, that noun in each case must be whatever actions are causing 'degradation.'" *Theodore Roosevelt Conservation Partnership v. Salazar*, 661 F.3d 66, 76 (D.C. Cir. 2011) (citing *Utah v. Andrus,* 486 F. Supp. 995, 1005 n. 13 (D. Utah 1979) (defining "unnecessary" in the mining context as "that which is not necessary for mining"—or, in this context, "for oil and gas development"—and "undue" as "that which is excessive, improper, immoderate or unwarranted.")); *see also Colorado Env't Coalition,* 165 IBLA 221, 229 (2005) (concluding that in the oil and gas context, a finding of "unnecessary or undue degradation" requires a showing "that a lessee's operations are or were conducted in a manner that does not comply with applicable law or regulations, prudent management and practice, or reasonably available technology, such that the lessee could not undertake the action pursuant to a valid existing right.").

Here, the actions that BLM must determine meet the substantive requirements of FLPMA as outlined above include: (1) the programmatic resumption of oil and gas leasing on federal lands; and (2) the decision of whether or not to offer to sell and issue oil and gas leases on each of the specific parcels identified. Critically, however, BLM's consideration of these substantive requirements must not be viewed in the abstract, but within the specific "context" of the agency's analysis and the scientific information available to it. 40 C.F.R. §§ 1502.24 (requiring "scientific integrity" of analysis), 1508.27(a) (requiring consideration of "both short and long-term effects" (1978)).[223]Accordingly, and of foundational importance, is whether the continued leasing and development of oil and gas will result in unnecessary and undue degradation to lands, resources, and species as a result of climate impacts.

Courts have recognized, "[t]he impact of [GHG] emissions on climate change is precisely the kind of cumulative impacts analysis that NEPA requires agencies to conduct." *Ctr. for Biological Diversity v. Nat'l Highway Traffic Safety Admin*., 538 F.3d 1172, 1217 (9th Cir. 2008); *see also San Juan Citizens Alliance v. Bureau of Land Mgmt.,* 326 F. Supp. 3d 1227, 1248 (D.N.M. 2018); 40 C.F.R. § 1508.7 (1978) ("Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time."). Moreover, BLM has a duty to "consider the cumulative impact of GHG emissions generated by past, present, or reasonably foreseeable BLM lease sales in the region and nation." *WildEarth Guardians v. Zinke,* 368 F. Supp. 3d 41, 77 (D.D.C. 2019). This consideration must be contextual. An "agency's [environmental analysis] must give a realistic evaluation of the total impacts and cannot isolate a proposed project, viewing it in a vacuum." *Grand Canyon Trust v. F.A.A.*, 290 F.3d 339, 342 (D.C. Cir. 2002). In other words, it is not sufficient to simply list estimated emissions in a table, without relating those emissions to other BLM decisions and without "analysis of that catalogue and 'their combined environmental impacts.'" *WildEarth Guardians v. Bureau of Land Mgmt*., 457 F. Supp. 3d 880, 892 (D. Mont. 2020).

As discussed above, BLM has endeavored to satisfy the requirement to consider the cumulative climate impacts of its leasing decisions by preparing the "2020 BLM Specialist

[223] *See* Section I.B., *infra* (discussing applicability of CEQ NEPA regulations).

Report on Annual Greenhouse Gas Emissions and Climate Trends" (hereinafter "Report").[224] Setting aside any potential deficiencies of the Report, the underlying conclusions are chilling. Annual greenhouse gas emissions from *existing* federal fossil fuel production totals 918.6 $MTCO_2e$, with total projected cumulative "life-of-project" emissions of 3,682.7 $MTCO_2e$ over the next 12 months. Report at Executive Summary, Table ES-1, Table ES-2; Table ES-3; 7.0 Emissions Analysis, Table 7-1. Already permitted but not yet producing leases add 656.2 $MTCO_2e$ to this total over the next 12 months. Report at Executive Summary, Table ES-3. And the long-term onshore fossil fuel emissions projection is 24,112.35 $MTCO_2e$. Report at Executive Summary, Table ES-4; 5.0 GHG Emissions and Projections from BLM-Authorized Actions, Table 5-18. BLM also applies these emissions in the context of the remaining Global Carbon Budget, which recognizes that there are 420 $GtCO_2$ that remain for a 66% chance to prevent warming above a 1.5C threshold. Report at 7.2 Carbon Budgets and Carbon Neutrality. With a federal fossil fuel emissions estimate of 2.24 $GtCO_2$ during that timeframe, this represents 1.47% of the total remaining global budget to avoid catastrophic warming. Report at 7.2 Carbon Budgets and Carbon Neutrality, Table 7-3. In other words, *any* additional emissions are entirely incompatible with maintaining a livable planet. The Report also details past and present climate impacts, at Section 8.3, projected future climate impacts under varying mitigation pathways, at Sections 7.2 and 9.2, as well as state specific climate projections, at Sections 8.4 and 9.4.

What the agency fails to do, however, is apply this analysis to its substantive duty to avoid unnecessary and undue degradation under FLPMA. 43 U.S.C. § 1732(b).

These requirements are distinct from BLM's requirements under NEPA. "A finding that there will not be significant impact [under NEPA] does not mean either that the project has been reviewed for unnecessary and undue degradation or that unnecessary or undue degradation will not occur." *Ctr. for Biological Diversity v. United States DOI,* 623 F.3d 633, 645 (9th Cir. 2010) (quoting *Kendall's Concerned Area Residents,* 129 I.B.L.A. 130, 140 (1994)). In the instant case, the BLM's failure to specifically account for unnecessary and undue degradation in its decision to continue the leasing and development of oil and gas—which is distinct from its compliance under NEPA—is actionable on procedural grounds and must occur before the leasing decision is approved.

The inquiry, then, is whether BLM has taken sufficient measures to prevent degradation unnecessary to, or undue in proportion to, its oil and gas leasing decisions. *See Theodore Roosevelt Conservation Partnership*, 661 F.3d at 76. BLM has neither defined what constitutes "unnecessary or undue degradation" in the context of continued oil and gas leasing and development, either at a programmatic level or within these specific sales—and with particular consideration of greenhouse gas emissions and resulting climate impacts—nor has the agency explained why its chosen alternative will not result in such degradation, as required by FLPMA, 43 U.S.C. § 1732(b). BLM's failure to define, analyze, or take action to prevent the unnecessary or undue degradation of lands in the context of climate impacts is arbitrary and capricious agency action, an abuse of discretion, and action without observance of procedures required by law, pursuant to the APA. 5 U.S.C. § 706(2).

[224] 2020 BLM Specialist Report.

B. FLPMA Methane Section.

As discussed at Sections II.C.4 and II.D.1.i, methane represents an opportunity for BLM to meaningfully reduce GHG emissions associated with the federal oil and gas program. BLM is not only required to analyze alternatives that address this highly potent short-term GHG, it also has substantive mandates under FLPMA to prevent, reduce, or mitigate methane emissions, independent of the agency's MLA duty to prevent waste. We note in particular FLPMA's mandates that Interior:

- Protect "air and atmospheric" values (43 U.S.C. § 1701(a)(8));
- Account for "the long-term needs of future generations" (43 U.S.C. § 1702(c));
- Prevent "permanent impairment of the productivity of the land and quality of the environment" (43 U.S.C. § 1702(c)); and
- "[T]ake any action necessary to prevent unnecessary or undue degradation of the lands." (43 U.S.C. § 1732(b)).

These statutory directives enable Interior to take action before lease rights are conferred, whether at the planning or leasing stages, that will eliminate methane emissions and otherwise protect public lands. That includes the authority *and responsibility* to (1) reduce acres available for leasing to address the contribution of methane emissions to the climate crisis and the impacts of the crisis to public lands, (2) attach methane and other harmful emission reduction stipulations to an oil and gas lease to protect air and atmospheric resources and to mitigate climate impacts to public lands, and (3) condition lease development at the permitting stage. See 43 C.F.R. § 3101.1-2. In the absence of existing methane waste and air quality regulations, and even following the conclusion of current EPA and BLM rulemaking efforts with regard to methane, BLM has a duty to leverage its considerable authority under FLPMA to the fullest extent permitted by law, including by identifying stipulations and conditions of approval for *all* of the June lease sales, to minimize, reduce, and mitigate methane impacts to the greatest extent possible.

C. BLM's Approach to Prioritization of Greater Sage-Grouse Habitat Violates FLPMA.

As noted above, BLM should defer all leases in GHMA or PHMA while it revisits the 2015 RMP amendments. At a minimum, however, it must comply with the prioritization requirement of the 2015 RMP amendments. Those plans require the agency to prioritize new oil and gas leasing outside of PHMA and GHMA in order to protect that habitat from future disturbance. In May 2020, BLM's national policy addressing prioritization, Instruction Memorandum 2018-026, was struck down by a court. Montana Wildlife Federation v. Bernhardt, No. 18-cv-69-GF-BMM, 2020 WL 2615631 (D. Mont. May 22, 2020). BLM has not adopted new national guidance on the prioritization requirement, and has represented to the Montana court that the agency's previous prioritization guidance (adopted in 2016) also is not in effect. As a result, there is currently no national guidance providing direction on how prioritization is to be applied. Complying with the prioritization requirement of the 2015 Plans must be a central consideration for any lease parcels in PHMA and/or GHMA.

BLM has failed to comply with the prioritization requirement because it is prioritizing leasing only outside of PHMA, but not GHMA. Under FLPMA, BLM must manage public lands "in accordance with the [applicable] land use plans . . . ." 43 U.S.C. § 1732(a); see also 43 C.F.R. § 1610.5-3(a) ("All future resource management authorizations and actions…shall conform to the approved plan."). The Supreme Court has explained that the statutory directive that BLM manage "in accordance with" land use plans, and the regulatory requirement that authorizations and actions "conform to" those plans, prevent BLM from taking actions inconsistent with the provisions of a land use plan. Norton v. Southern Utah Wilderness Alliance, 542 U.S. 55, 68 (2004).

Here, the EA action alternatives are not consistent with the 2015 RMP requirement to prioritize leasing outside of GHMAs. BLM must:

- prioritize oil and gas leasing and development outside of identified PHMAs and GHMAs . . . to further limit future surface disturbance and to encourage new development in areas that would not conflict with GRSG. This objective is intended to guide development to lower conflict areas and, as such, protect important habitat and reduce the time and cost associated with oil and gas leasing development. It would do this by avoiding sensitive areas, reducing the complexity of environmental review and analysis of potential impacts on sensitive species, and decreasing the need for compensatory mitigation. Rocky Mountain Region ROD at 1-25 (emphasis added).

The 2015 Wyoming RMP amendment echoes this directive and includes the following objective: "Priority will be given to leasing and development of fluid mineral resources, including geothermal, outside of PHMAs and GHMAs." Wyoming Plan Management Objective No. 14, at 24 (emphasis added). Thus, the prioritization requirement applies to both GHMA and PHMA.

The Wyoming EA, however, offers no explanation of how the action alternatives prioritize leasing outside GHMA. To the contrary, its prioritization analysis would offer all GHMA parcels being considered, doing nothing more than ensuring that correct stipulations are applied. Wyoming draft EA at 57-61. Moreover, the flow chart describing BLM's prioritization analysis includes nothing to prioritize new leasing away from GHMA. Wyoming draft EA at 46-48. Without applying prioritization to GHMA, the proposed lease sale would violate FLPMA. BLM must direct new leasing away from both PHMA and GHMA in its prioritization analysis.

IV. ENDANGERED SPECIES ACT (ESA) AND CLEAN AIR ACT (CAA)

A. BLM Must Consult with the National Marine Fisheries Service and the U.S. Fish and Wildlife Service on the Greenhouse Gas Emissions Caused by Its Leasing Proposal.

For every discretionary action, Section 7(a)(2) of the Endangered Species Act ("ESA") requires each federal agency, in consultation with the nation's wildlife agencies, to "insure that any action authorized, funded, or carried out by such agency … is not likely to jeopardize the

continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species" using the best scientific data available. 16 U.S.C. § 1536(a)(2). The Supreme Court has unequivocally stated that the Act's "language, history, and structure" made clear "beyond doubt" that "Congress intended endangered species to be afforded the highest of priorities" and endangered species should be given "priority over the 'primary missions' of federal agencies" especially during such consultations. *Tenn. Valley Auth. v. Hill*, 437 U.S. 153, 174, 185 (1978). Even with a global threat to biodiversity such as climate change, "the plain intent of Congress in enacting this statute was to halt and reverse the trend toward species extinction, *whatever the cost*." *Id*. at 184 (emphasis added). Because resuming federal oil and gas leasing will have an appreciable, cumulative impact on climate-threatened species, BLM must include these species as part of its consultation with both the National Marine Fisheries Service and the U.S. Fish and Wildlife Service (collectively the "Services").[225]

While many of the ESA's provisions work to effectuate the conservation goals of the statute, the "heart of the ESA" is the interagency consultation requirements of Section 7 of the ESA. *W. Watersheds Project v. Kraayenbrink*, 632 F.3d 472, 495 (9th Cir. 2011); 16 U.S.C. § 1536. At the first step of the consultation process, an action agency must determine if its action either "may affect" listed species or will have "no effect" on listed species within the action area. Under the ESA, "action" is broadly defined to include "all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by Federal agencies in the United States or upon the high seas" and include, but are not limited to "(a) actions intended to conserve listed species or their habitat; (b) the promulgation of regulations; (c) the granting of licenses, contracts, leases, easements, rights-of-way, permits, or grants-in-aid; or (d) actions directly or indirectly causing modifications to the land, water, or air." 50 C.F.R. § 402.02. Similarly, the "action area" is equally broadly defined as "all areas to be affected directly *or indirectly* by the Federal action and not merely the immediate area involved in the action." 50 C.F.R. § 402.02 (emphasis added).

For this proposed action, it is clear that the anticipated greenhouse gas pollution from federal oil and gas leasing will harm listed species far beyond the immediate area of the proposed activity in a manner that is attributable to the agency action.

1. Greenhouse Gas Emissions Have Direct, Predictable, and Devastating Effects on Endangered Species and Habitats.

As an initial matter, the science is overwhelmingly clear that climate change represents a stark threat to the future of biodiversity within the United States and around the world. The Fourth National Climate Assessment warns that "climate change threatens many benefits that the natural environment provides to society," and that "extinctions and transformative impacts on some ecosystems" will occur "without significant reductions in global greenhouse gas

[225] In *Massachusetts v. EPA*, the Supreme Court found that U.S. vehicle emissions represented a "meaningful contribution" to global emissions, and even addressing a fraction of these emissions was sufficient for standing purposes and requires EPA to take action. *Massachusetts v. EPA*, 549 U.S. 497 (2007).

emissions."[226]The best available science shows that anthropogenic climate change is causing widespread harm to life across the planet, disrupting species' distribution, timing of breeding and migration, physiology, vital rates, and genetics—in addition to increasing species extinction risk.[227] Climate change is already affecting 82% of key ecological processes that underpin ecosystem function and support basic human needs.[228] Climate change-related local extinctions are widespread and have occurred in hundreds of species, including almost half of the 976 species surveyed.[229] Nearly half of terrestrial non-flying threatened mammals and nearly one-quarter of threatened birds are estimated to have been negatively impacted by climate change in at least part of their range.[230] Furthermore, across the globe, populations of terrestrial birds and mammals that are experiencing greater rates of climate warming are more likely to be declining at a faster rate.[231] Genes are changing, species' physiology and physical features such as body size are changing, species are moving to try to keep pace with suitable climate space, species are shifting their timing of breeding and migration, and entire ecosystems are under stress.[232]

Species extinction risk will accelerate with continued greenhouse gas pollution. One million animal and plant species are now threatened with extinction, with climate change as a primary driver.[233] At 2°C compared with 1.5°C of temperature rise, species' extinction risk will increase dramatically, leading to a doubling of the number of vertebrate and plant species losing more than half their range, and a tripling for invertebrate species.[234] Numerous studies have projected catastrophic species losses during this century if climate change continues unabated: 15 to 37% of the world's plants and animals committed to extinction by 2050 under a mid-level

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[226]U.S. Global Change Research Program, *Impacts, Risks, and Adaptation in the United States, Fourth National Climate Assessment, Vol. II* 42, 44 (2018), https://nca2018.globalchange.gov/.
[227] Rachel Warren et al., *Increasing impacts of climate change upon ecosystems with increasing global mean temperature rise*, 106 Climatic Change 141 (2011).
[228] Brett R. Scheffers*, The broad footprint of climate change from genes to biomes to people,* 354 Science 719 (2016).
[229] John J. Wiens, *Climate-related local extinctions are already widespread among plant and animal species*, 14 PLoS Biology e2001104 (2016).
[230] Michela Pacifici et al., *Species' traits influenced their response to recent climate change*, 7 Nature Climate Change 205 (2017). The study concluded that "populations of large numbers of threatened species are likely to be already affected by climate change, and … conservation managers, planners and policy makers must take this into account in efforts to safeguard the future of biodiversity."
[231] Fiona E.B. Spooner et al., *Rapid warming is associated with population decline among terrestrial birds and mammals globally*, 24 Global Change Biology 4521 (2018).
[232] Camille Parmesan & Gary Yohe, *A globally coherent fingerprint of climate change impacts across natural systems*, 421 Nature 37 (2003); Terry L. Root et al., *Fingerprints of global warming on wild animals and plants*, 421 Nature 57 (2003); Camille Parmesan, *Ecological and evolutionary responses to recent climate change*, 37 Annual Review of Ecology Evolution and Systematics 637 (2006); I-Ching Chen et al., *Rapid range shifts of species associated with high levels of climate warming*, 333 Science 1024 (2011); Ilya M. D. Maclean & Robert J. Wilson, *Recent ecological responses to climate change support predictions of high extinction risk*, 108 PNAS 12337 (2011); Rachel Warren et al., *Increasing impacts of climate change upon ecosystems with increasing global mean temperature rise*, 106 Climatic Change 141 (2011); Abigail E. Cahill et al., *How does climate change cause extinction?*, 280 Proceedings of the Royal Society B 20121890 (2012).
[233] IPBES, Global Assessment Report on Biodiversity and Ecosystem Services (E.S. Brondízio et al eds., 2019), https://ipbes.net/news/Media-Release-Global-Assessment.
[234] Intergovernmental Panel on Climate Change, *Summary for Policymakers,* in Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change (V. Masson-Delmotte et al eds., 2021), https://www.ipcc.ch/report/ar6/wg1/.

emissions scenario[235]; the potential extinction of 10 to 14% of species by 2100[236]; global extinction of 5% of species with 2°C of warming and 16% of species with business-as-usual warming[237]; the loss of more than half of the present climatic range for 58% of plants and 35% of animals by the 2080s under the current emissions pathway, in a sample of 48,786 species[238]; and the loss of a third or more of animals and plant species in the next 50 years.[239] As summarized by the Third National Climate Assessment, "landscapes and seascapes are changing rapidly, and species, including many iconic species, may disappear from regions where they have been prevalent or become extinct, altering some regions so much that their mix of plant and animal life will become almost unrecognizable."[240]

Methane emissions are particularly alarming. Immediate, deep reductions in methane emissions are critical for lowering the rate of global warming in the near-term, preventing the crossing of irreversible planetary tipping points, and avoiding harms to species and ecosystems from methane's intensive near-term heating effects and ground-level ozone production.[241] Methane is a super-pollutant 87 times more powerful than CO_2 at warming the atmosphere over a 20-year period,[242] and is second only to CO_2 in driving climate change during the industrial era.[243] Methane also leads to the formation of ground-level ozone, a dangerous air pollutant, that harms ecosystems and species by suppressing plant growth and reducing plant productivity and carbon uptake.[244] Because methane is so climate-damaging but also comparatively short-lived with an atmospheric lifetime of roughly a decade, cutting methane has a relatively immediate effect in slowing the rate of temperature rise in the near-term. Critically, deep cuts in methane emissions of ~45% by 2030 would avoid 0.3°C of warming by 2040 and are considered necessary to achieve the Paris Agreement's 1.5°C climate limit and prevent the worst damages from the climate crisis.[245] Deep cuts in methane emissions that reduce near-term temperature rise are also critical for avoiding the crossing of planetary tipping points—abrupt and irreversible changes in Earth systems to states wholly outside human experience, resulting in severe physical, ecological and socioeconomic harms.[246]

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[235] Chris D. Thomas et al., *Extinction risk from climate change*, 427 Nature 145 (2004).
[236] Ilya M. D. Maclean & Robert J. Wilson, *Recent ecological responses to climate change support predictions of high extinction risk*, 108 PNAS 12337 (2011).
[237] Mark C. Urban, *Accelerating extinction risk from climate change*, 348 Science 571 (2015).
[238] Rachel Warren et al., *Quantifying the benefit of early climate change mitigation in avoiding biodiversity loss*, 3 Nature Climate Change 678 (2013).
[239] Cristian Román-Palacios & John J. Wiens, *Recent responses to climate change reveal the drivers of species extinction and survival*, 117 PNAS 4211 (2020).
[240] U.S. Global Change Research Program, *Climate Change Impacts in the United States: The Third National Climate Assessment* 196 (Jerry M. Melillo et al. eds., 2014), doi:10.7930/J0Z31WJ2.
[241] United Nations Environment Programme & Climate and Clean Air Coalition, *Global Methane Assessment: Benefits and Costs of Mitigating Methane Emissions* 11 (2021), https://www.unep.org/resources/report/global-methane-assessment-benefits-and-costs-mitigating-methane-emissions.
[242] G. Myhre et al., *Anthropogenic and Natural Radiative Forcing*, in: Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (T.F. Stocker et al. eds., 2013), https://www.ipcc.ch/report/ar5/wg1/ at Table 8.7.
[243] United Nations Environment Programme & Climate and Clean Air Coalition, *supra* note 247, at 11.
[244] *Id.* at 11, 69.
[245] *Id.* at 11.
[246] O. Hoegh-Guldberg et al., *Impacts of 1.5°C Global Warming on Natural and Human Systems*, in: Global Warming of 1.5°C, An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the

What is more, scientists can now predict specific harms to individual species from the incremental emissions increases directly attributable to the federal agency actions, and can also assess the consequences of emissions for listed species' conservation and recovery. For example, the recovery plan for the polar bear predicts three different scenarios for polar bear populations under scenarios where emissions are abated early, emissions are abated later, and where emissions continue unabated.[247] Likewise, with respect to particular agency actions, scientists were able to calculate that the rollback of vehicle emissions standards by the Trump administration would have resulted in a sustained loss of more than 1,000 square miles of summer sea ice habitat for the polar bear and nearly one full additional day of ice-free conditions in Alaska and many other parts of the Arctic, which would reduce the length of the polar bear feeding season and lower reproductive success and survival.[248] Thus as a scientific matter, there is no basis for any federal agency to assert that climate change does not harm endangered and threatened species or that it is scientifically impossible to ascertain the particular harm caused by an agency's contribution to greenhouse gas emissions.

Furthermore, there are no defensible legal rationales for ignoring climate-threatened species that are harmed by the emissions that will result from a proposed agency action. Since 2008, federal agencies have taken cover behind a cursory, two-page memorandum from the Fish and Wildlife Service, which asserted, without any citation or acknowledgement of the scientific literature, that the "best scientific data available today do not allow us to draw a causal connection between GHG emissions from a given facility and effects posed to listed species or their habitats, nor are there sufficient data to establish that such impacts are reasonably certain to occur."[249] Several months later, David Bernhardt — then Department of Interior Solicitor during the George W. Bush administration—issued a five-page memorandum concurring with the FWS.[250] Even if these memoranda were correct at the time — and they were not — as the FWS memorandum stated: that "As new information and knowledge about emissions and specific impacts to species and their habitats is developed, we will adapt our framework for consultations accordingly. This is particularly important as more regionally-based models are developed and refined to the level of specificity and reliability needed for the Service to execute its implementation of the Act's provisions ensuring consistency with the statute's best available information standard."[251] Thus, the FWS and Bernhardt Memoranda were never intended to provide a permanent shield to avoid consultations, and any reliance on it today would simply be arbitrary and capricious. Accordingly, all federal agencies must assess whether the emissions that result from their activities harm climate-threatened species.

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threat of climate change, sustainable development, and efforts to eradicate poverty 262 (V. Masson-Delmotte et al. eds., 2018), https://www.ipcc.ch/sr15/chapter/chapter-3/.

[247] U.S. Fish and Wildlife Service, *Polar bear (*Ursus maritimus*) Conservation Management Plan, Final* (2016).

[248] Declarations of Shaye Wolf and Steven Amstrup, *Competitive Enterprise Inst. et al. v. National Highway Traffic Safety Admin. et al.,* Case No. 20-1145, Document No. 1880214 (filed Jan. 14, 2021) and Dirk Notz & Julienne Stroeve, *Observed Arctic sea ice loss directly follows anthropogenic CO_2 emission*, 354 SCIENCE 747 (2016), https://science.sciencemag.org/content/354/6313/747/tab-pdf.

[249] Memorandum from H. Dale Hall, Director Fish & Wildlife Service, to Regional Directors, Regions 1-8 (May 14, 2008), https://www.fws.gov/policy/m0331.pdf ("FWS Memorandum").

[250] Memorandum from David L. Bernhardt, Department of the Interior, Office of the Solicitor to the Secretary of the Department of the Interior Director (Oct. 3, 2008), https://doi.opengov.ibmcloud.com/sites/doi.opengov.ibmcloud.com/files/uploads/M-37017.pdf.

[251] FWS Memorandum at 2-3.

2. The BLM's Proposed Leasing Action Clearly Crosses the "May Affect" Threshold for Climate-Threatened Species and Requires Consultation.

If the agency determines that an action *may affect* a species—even if the effect is small, indirect, or the result of cumulative actions—it must formally consult with the Services. 50 C.F.R. §§ 402.02, 402.14(a), (g) (2020). Federal courts have repeatedly held that the "may affect" threshold is "very low" and that any effect — whether "beneficial, benign, adverse or of an undetermined character" — is sufficient to cross that threshold. *Karuk Tribe of Cal. v. U.S. Forest Serv.*, 681 F.3d 1006, 1027 (9th Cir. 2012). Only a scientific finding of "no effect" is sufficient to avoid the consultation process altogether.[252] In essence, as the Joint Consultation Handbook explains, a "no effect" finding means exactly what it says, and is only properly made "when the action agency determines its proposed action will not affect a listed species or designated critical habitat";[253] it cannot be employed when an agency simply believes it is too hard to determine the impacts of its actions. *Am. Fuel & Petrochemical Mfrs. v. EPA*, 937 F.3d 559, 598 (D.C. Cir. 2019) (A finding that "it is impossible to know" an agency action will affect listed species or critical habitat "is not the same as" a no effect determination.).

It is abundantly clear in this instance the proposed agency action will result in a significant fraction of all global greenhouse gas emissions, and consequently there are real impacts that cross the "may affect" threshold, even if some of those impacts are still of an undetermined character at this point. The purpose of the consultation process, by Congressional design, is to allow the expert wildlife agencies to assess these impacts using the best available science, so that they can evaluate the harm that may be caused. Any attempt by the Bureau of Land Management (or U.S. Fish and Wildlife Service) to simply assert that it is unable to determine the impacts of greenhouse gas emissions on listed species is illegal and *ultra vires*. Only the expert wildlife agencies, with best scientific data available, can determine the effects of a federal action on species or habitat.

Indeed, the second step of the consultation process reinforces the basic notion that an action agency may not unilaterally assert that the greenhouse gases that will be emitted will not harm listed species. Once the "may affect" threshold is crossed, the action agency must then prepare a "biological assessment" to determine whether the listed species may be adversely affected by the proposed action. If the action agency believes that the impacts of its greenhouse gas emissions are not significant, it may make a finding that such impacts are "not likely to adversely affect" listed species, which is defined as all impacts being "discountable" or "insignificant."[254] Critically, however, the expert wildlife agencies must themselves concur regarding whether the action agency's scientific assessment of the impacts to climate-threatened species is correct. 50 C.F.R. § 402.14(b)(1).

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[252] U.S. Fish and Wildlife Service & National Marine Fisheries Service, *Endangered Species Consultation Handbook: Procedures for Conducting Consultation and Conference Activities under Section 7 of the Endangered Species Act* xvi (1998), https://www.fws.gov/endangered/esa-library/pdf/esa_section7_handbook.pdf.
[253] *Id.* at xvi. However, the agencies are still encouraged to obtain written concurrence from the Services. *See id.* definitions of "Formal consultation" and "Informal consultation" at xiv, xv.
[254] U.S. Fish and Wildlife Service & National Marine Fisheries Service, *supra* note 254, at xv.

At the formal consultation phase, the Services must provide the action agency with a "biological opinion" explaining how the proposed action will affect the listed species or habitat. 16 U.S.C. § 1536(b); 50 C.F.R. §§ 402.14(g), (h). If the Services conclude that the proposed action will jeopardize the continued existence of a listed species, including those that are not in the immediate project area and that are harmed by greenhouse gas emissions, or will result in the destruction or adverse modification of critical habitat, the Services must provide "reasonable and prudent alternatives" ("RPAs") to the proposed action that they believes would address those impacts. 16 U.S.C. § 1536(b)(3). If the Services conclude that the proposed action will not likely to jeopardize listed species, or result in the destruction or adverse modification of critical habitat, then they must provide an "incidental take statement" ("ITS"), specifying the amount or extent of such incidental taking on the species, any "reasonable and prudent measures" ("RPMs") that they consider necessary or appropriate to minimize such impact. 16 U.S.C. § 1536(b)(4); 50 C.F.R. §§ 402.14(h)(4)(i).

With respect to the greenhouse gas emissions that will result from federal fossil fuel leasing, the best available science suggests that this action, along with other federal onshore mineral production will result in approximately 24,112 megatons of carbon dioxide equivalent through 2050.[255] These emissions are appreciable and significant, and must be assessed under the ESA's consultation framework. This analysis is also consistent with President Biden's "whole of government" approach to addressing the climate crisis, as well as Executive Order 13990, which states that all federal agencies "must be guided by the best science and be protected by processes that ensure the integrity of Federal decision-making."[256]

Consultation on climate-threatened species that may be affected by cumulative impacts of emissions caused by the agency's action is similar to many other complex consultations undertaken by the Services. The Services must first attempt to quantify any take of listed species, but if such harms cannot be quantified, the Services can qualitatively assess the harm, something Congress contemplated when it passed the 1982 amendments to the Endangered Species Act. The legislative history of those amendments reflects Congress' recognition that a numerical determination of take would not always be obtainable— such as when the eggs of listed species are boiled alive in power plant cooling systems—and intention that such challenges not present an insurmountable barrier to completing consultations.[257] Furthermore, the Services have regularly relied on surrogates, such as habitat, ecological conditions, or a similarly-affected species that are easier to monitor in instances where the biology of a listed species or the nature of the proposed action makes it difficult to detect or monitor take of individual animals.

Similarly, the Services must also assess the negative impacts of greenhouse gases on critical habitat. Assessing the loss of critical habitat in a climate consultation is complex, but no more difficult than assessing critical habitat in other nationwide programmatic consultations. Under the Services' regulations,[258] critical habitat is only adversely modified or destroyed when it appreciably diminishes the value of the "whole" designation. In many cases, climate impacts to critical habitat will affect the entirety of a designation — likely to the same extent in a relatively

[255] 2020 BLM Specialist Report at Section 6.0 and Table ES-4.
[256] Executive Order 13990.
[257] H.R. Rep. No. 97-567, at 27 (1982).
[258] These regulations are being challenged in federal court and the Administration initiated a review.

similar manner. For example, acidification impacts to a listed coral are likely to be roughly equivalent across the range of each species, and sea level rise would likely harm the habitat of Florida Keys species relatively equally across the range, making it more likely that an adverse modification determination would be needed at the end of the assessment process. But the fact that the outcome of such an analysis is a positive adverse modification or destruction determination is not a legal justification for not conducting an analysis at all. Thus, to the extent that the impacts to critical habitat are significant, the Services must develop RPAs and RPMs — including through surrogate metrics — to address the habitat degradation that climate change is bringing.

For both the jeopardy analysis and critical habitat analysis, the Services will need to develop analytical tools and methods that meet the standards of the Endangered Species Act, just as it does in traditional consultations, to address complex threats that are hard to assess quantitatively. The National Marine Fisheries Service can use the amount of sea ice lost as a surrogate for determining anticipated take of bearded seals, while the Fish and Wildlife Service can use declining stream flows and increasing water temperatures as a surrogate to infer the status of the western glacier stonefly or its critical habitat. This has been a pre-existing practice and the Services already have the knowledge and expertise to do this.

If the Services ultimately determine that the proposed action will result in jeopardy, the Services must provide RPAs that will allow the agency to move forward in a way that avoids jeopardy to the species or destruction or adverse modification of designated critical habitat. 16 U.S.C. 1536(b)(3)(A). While jeopardy determinations are rare, in the context of climate consultations they are all the more critical to the survival not only of listed species, but of humanity itself. If a federal agency action substantially increases the likelihood of overshooting the 1.5-degree Celsius goal of the Paris Agreement, it is likely to not only jeopardize climate-threatened species, but people everywhere. As the Endangered Species Act makes clear, the action agency must not take such an action, or it must implement RPAs that ensure that GHG emissions decrease such that they are consistent with the goals of the Paris Agreement, the reports of the Intergovernmental Panel on Climate Change, and the best available science. Thus, consultations would provide a powerful mechanism to achieve President Biden's stated policy to "reduce climate pollution in every sector of the economy; increase resilience to the impacts of climate change; protect public health" and "conserve our lands, waters, and biodiversity."[259]

In instances where the federal agency actions will not rise to the level of jeopardy but will result in incidental take in areas that are geographically remote from the agency action itself, the Services must *still* issue RPMs to minimize the take of climate-threatened species. The most durable and effective approach for climate consultations to implement RPMs would be for the Services to condition the receipt of an ITS through the implementation of RPMs within a climate-focused Section 7(a)(1) conservation program for each climate-threatened species identified in the biological opinion where the Services anticipate take.[260] Section 7(a)(1) requires

[259] Executive Order 14008.

[260] H.R. Rep. No 97-567, at 44 ("I]n many cases in which a proposed action will not result in jeopardy, there may be minor modifications to the project which will minimize the effects on the species and which the action agency could easily and inexpensively adopt. We believe that providing such information to the action agency is important for the

all federal agencies to "utilize their authorities…by carrying out programs for the conservation of endangered species and threatened species."[261] As the Supreme Court noted in *Tennessee Valley Authority v. Hill* noted, section 7(a)(1) is no less than "stringent, mandatory language,"[262] that "reveals an explicit congressional decision to require agencies to afford first priority to the declared national policy of saving endangered species."[263] By requiring agencies to develop a climate-focused Section 7(a)(1) conservation program as a condition to obtaining an ITS, the Services can require agencies to finally comply with the law and ensure that their activities are consistent with the recovery of listed species and address the take they cause.

V. CONCLUSION

The Conservation Groups appreciate your consideration of the information and concerns addressed herein, as well as the information included in the attached exhibits. All claims herein are relevant to all challenged parcel numbers except to the extent explicitly provided.

Should you have any questions, please do not hesitate to contact us.

Sincerely,

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continued protection of endangered species and assists other federal agencies in fulfilling their obligations under section 7(a)(1) of the Act").

[261] 16 U.S.C. 1536(a)(1).

[262] TVA v. Hill, 437 U.S. at 183.

[263] *Id.* at 185.

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