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WESTERN ENVIRONMENTAL LAW CENTER

April 7, 2026

Comments Submitted via ePlanning and Mail
Exhibits Submitted via Mail

BLM Farmington Field
Office Attn: Chaco Area
Withdrawal

Re: Comments on DOI-BLM-NM-F010-2026-0002-EA, Evaluation of Potential Revocation of Chaco Withdrawal

Dear BLM,

The Western Environmental Law Center (WELC), along with 350 New Mexico, the Center for Biological Diversity, Chaco Alliance, Citizens Caring for the Future, Citizens for a Healthy Community, Counselor Chapter Health Impact Assessment Committee, Diné Citizens Caring for the Future, Diné Centered Research and Evaluation, Living Rivers/Colorado Waterkeeper, New Mexico Climate Justice, Navi Pin Haa Un Muu/ Breath of My Heart Birthplace, San Juan Citizens Alliance, Sierra Club, Southern Utah Wilderness Alliance, Sovereign Energy, Torreon Community Alliance, Waterkeeper Alliance, and WildEarth Guardians (collectively, "Commenters"), submit the following Comments regarding the April 2026 Scoping for the Proposed Chaco Area Withdrawal Revocation.[1] These comments build upon and incorporate by reference our prior comments and exhibits regarding the Secretary of the Interior's proposal to withdraw up to approximately 338,690 acres of public lands surrounding Chaco Culture National Historical Park from location and entry under the Mining Law of 1872 and the Mineral Leasing Act of 1920, subject to valid existing rights, for a 20-year term.[2]

[1] *See* https://eplanning.blm.gov/Project-Home/?id=D949F582-402D-F111-8341-001DD804183B

[2] *See* Notice of Proposed Withdrawal and Public Meetings, San Juan County, NM, 87 Fed. Reg. 785 (Jan. 6, 2022); *See also* https://eplanning.blm.gov/eplanning-ui/project/2016892/510

We strongly oppose the proposed revocation of Public Land Order No. 7923 ("PLO 7923"), which currently protects approximately 336,404 acres surrounding Chaco Culture National Historical Park from new mineral leasing. The 2023 withdrawal represented the culmination of years of collaborative process, extensive public engagement, and meaningful Tribal consultation. Its revocation would cause irreparable harm to irreplaceable cultural, archaeological, environmental, and public health resources. While it remains critical that the Department of the Interior and the Bureau of Land Management take additional action to protect the *entire* Greater Chaco landscape—beyond a 10-mile boundary of Chaco Culture National Historical Park. We oppose the revocation of the withdrawal, and the procedurally unsound basis upon which the Department of Interior is attempting to institute the revocation.

We urge BLM to fully analyze and account for the landscape-level and cumulative impacts of fracking, including but not limited to health, climate, air, water, environmental justice, and cultural impacts. We ask that, throughout any process, BLM and the Interior Department ensure ongoing, meaningful involvement of frontline and Indigenous people and communities, meaningful Tribal consultation, and Free, Prior and Informed Consent (FPIC), *in addition to* minimum legally-required participation under NEPA and FLPMA, and consultation under the NHPA—and in so doing, help facilitate a just transition away from legacies of environmental racism, pollution and extraction.

Introduction

The Greater Chaco region is a living and ancient cultural landscape. A thousand years ago, Chaco Canyon in northern New Mexico was the ceremonial and economic center of the Chaco Cultural Landscape, an area encompassing more than 75,000 square miles of the Southwest in NM, AZ, CO and UT and sacred to Indigenous Peoples. Now, the vast majority of lands across the region are already leased for fracking, with over 40,000 oil and gas wells scarring the landscape, impacting the land, air, water, health, and cultural resources of local communities.

The Bureau of Land Management continues to approve new oil and gas wells and fracking-related projects, including miles of roads, pipelines, and irreparable disturbances with heavy machinery outside the current 10-mile buffer. New Mexico, the second-largest oil producer in the US, has become known as an energy sacrifice zone. Oil and gas extraction is so extensive in southeastern New Mexico's Permian Basin that the region has been described as a climate bomb. Avoiding catastrophic global warming requires ending new investments in fossil fuels. Ending new federal fossil fuel leasing, responsible for one-quarter of U.S. climate emissions, is the place to start.

We also urge BLM to develop entirely new Resource Management Plans (RMPs) for both the Farmington and Rio Puerco Field Offices. The EA for the 2022 withdrawal incorporates by reference the outdated 2003 Farmington EIS/RMP, but that RMP does not adequately account for the impacts of fracking and horizontal drilling—particularly cumulative and landscape-level impacts. New, updated RMPs for both field offices (not

just an RMP Amendment, as proposed thus far for the Farmington Field Office) are long overdue, and should be an integral part of the Honoring Chaco initiative and process—not artificially separated from the proposed withdrawal or Honoring Chaco efforts. Replacements for these severely outdated RMPs, with alternatives that fully account for environmental justice, health impacts, cultural resources, climate change and climate justice, and cumulative impacts are necessary to ensure the full landscape-level protections for Greater Chaco that those in frontline communities, and members of the Greater Chaco Coalition, including many Commenters, have long called for.[3] In this process, too, we urge BLM to ensure just treatment and meaningful involvement of frontline people and communities throughout the process, including meaningful Tribal consultation, and to adhere to the principles of Free, Prior and Informed Consent. [4]

The following comments detail myriad direct, indirect, and cumulative risks and impacts of historic, ongoing, and continued fracking and oil and gas extraction in the Greater Chaco Landscape, all of which BLM should consider with respect to the proposed revocation. With over 90% of the Greater Chaco already leased for oil and gas development, and with existing leases covering approximately 20% of the current withdrawal area (by acreage), the adverse risks and impacts of fracking across the landscape persist despite the withdrawal, absent additional protections. BLM's own 2022 EA estimated that the 10-mile withdrawal reduced annual gas production in the San Juan Basin by only 0.5 percent, and oil production by only 2.5 percent. The proposed revocation and the abandonment of the Honoring Chaco process represents an opportunity lost for BLM to engage in thorough analysis, disclosure, and mitigation of the impacts of fracking and other extractive activity across the Greater Chaco landscape, and to abide by the principles of just treatment and meaningful involvement and Free Prior and Informed Consent.

Chaco-area communities will continue to demand a just and equitable process that goes beyond "checking the box" on minimum legally-required environmental justice, public participation, and consultation. Such a process is not only necessary in its own right, but also essential to the informed decision-making at the heart of NEPA,[5] and to just and equitable outcomes that eliminate or mitigate adverse risks and impacts to the Greater Chaco, its people and communities, and the climate. BLM can and should take

[3] All scoping, draft EA or EIS, protest, and supplemental comments concerning BLM oil and gas lease sales, drilling permits, and resource management plans/plan amendments managed by the BLM Farmington Field Office or Rio Puerco Field Office, submitted by Western Environmental Law Center et al. and/or WildEarth Guardians et al. are incorporated by reference as well.

[4] *Meaningful* Tribal consultation includes, but should not be limited to, the minimum legal requirements of the National Historic Preservation Act ("NHPA") Section 106. It necessitates more than merely after-the-fact "input" on decisions already made.The duty to obtain free prior and informed consent from Indigenous peoples is recognized by the International Labour Organization Convention ("ILO") 169 and the U.N. Declaration on the Rights of Indigenous Peoples

[5] *See, e.g., W. Org. of Res. Councils v. U.S. Bureau of Land Mgmt., CV16-21-GF-BMM, 2018 WL 1475470, at 16 (D. Mont. Mar. 26, 2018).* (citing *California v. Block*, 690 F.2d 753, 761 (9th Cir. 1982)) "Without all the relevant information, a NEPA analysis cannot 'foster informed decision-making.'"

meaningful steps towards breaking a long-standing pattern of colonization and resource exploitation in the Greater Chaco region that irreparably harms the health and well-being— and economic, social and cultural fabric—of people and communities, desecrates the interconnected land, air, water, and ecosystems, and exacerbates the global climate crisis. The proposed 10-mile buffer is a necessary but insufficient protective measure. It does not define the full extent of the Chaco cultural landscape and must not be treated as a limit on the geographic scope of analysis or protection. Impacts to cultural resources, air quality, water, and community health extend well beyond this boundary and must be evaluated accordingly under NEPA, NHPA, and FLPMA.

Commenters call on BLM to:

- Analyze and disclose to the public new scientific, health, and economic information, including information about: (1) the impacts of greenhouse gas ("GHG") emissions, and related climate change impacts, in the San Juan Basin, the state of New Mexico, nationally and globally; (2) the social burden, or cost, of carbon and methane waste from oil and gas made available for development; (3) the need for a just transition away from the region's long dependence on fossil fuel development; (4) the present and reasonably foreseeable future economic realities of the fossil fuel industry, including market conditions and asset retirement obligations; and (5) the growing body of broad peer- reviewed research and data *and* local data and studies that document direct, indirect, and cumulative risks and impacts of oil and gas extraction, fracking, and related activity, including but not limited to public health and safety, social, cultural, and environmental justice risks and impacts.

- Take a hard look at risks and impacts of oil and gas extraction, fracking, and related development, including cumulative risks and impacts, to climate, air, water, human health, social and cultural impacts, and environmental justice, and consider conducting a detailed Health Impact Assessment ("HIA") or similar assessment, and meaningfully incorporating that and existing information about risks and impacts into its decision- making and planning.

- Implement a comprehensive landscape-level planning process that includes but is not limited to the revocation area, and that fully analyzes and discloses the direct, indirect, and *cumulative* risks and impacts, including but not limited to the above- mentioned impacts, of oil and gas activity in the Greater Chaco.

- Pause all new and pending oil and gas leasing and development proposals and related activities while the decision making process is underway and while the Department engages with Tribes, Pueblos, and affected communities.

- Take a hard look at environmental justice *impacts,* ensure just treatment and meaningful involvement, and adhere to the principles of Free Prior and Informed Consent throughout the *process* for all of BLM's planning, leasing, and permitting decisions.

- Affirmatively provide opportunities for meaningful Tribal consultation, and meaningful involvement in—which includes the ability to meaningfully *influence*— all agency decision-making that affects the people, communities, and landscape of Greater Chaco, including but *not* limited to what is required by the National Environmental Policy Act ("NEPA") the Federal Land Planning and Management Act ("FLPMA"), and the National Historic Preservation Act ("NHPA").

- Take into account FLPMA's mandate to prevent unnecessary and undue degradation.

- Complete a whole new RMP for the Farmington Field Office, not just an RMP Amendment, and complete a new RMP for the Rio Puerco Field office. These RMP updates should not be artificially separated from the proposed mineral withdrawal and are an essential part of Honoring Chaco. These RMPs should include landscape-level planning, and a "no new leasing" alternative as a reasonable alternative to continued fracking and drilling. In updating its outdated RMPs for the Farmington and Rio Puerco Field Offices, BLM should adhere to the principles of Free Prior and Informed Consent and ensure truly meaningful public involvement, particularly with those in frontline communities, and meaningful Tribal consultation, as noted above.

1. THE SEVEN-DAY SCOPING COMMENT PERIOD IS PROCEDURALLY DEFICIENT, LEGALLY INADEQUATE, AND FUNDAMENTALLY INCOMPATIBLE WITH MEANINGFUL PUBLIC PARTICIPATION

A. Introduction and Overview

The Bureau of Land Management's ("BLM") decision to open a seven-day online-only public scoping comment period — running from March 31, 2026 through April 7, 2026 — for its proposed revocation of Public Land Order No. 7923 ("PLO 7923") represents one of the most compressed and procedurally deficient public notice processes in the agency's recent history. This comment period is not a good-faith effort to gather public input. It is, in form and effect, a procedural shell that forecloses the meaningful participation of the very communities this decision will most profoundly affect: the Navajo Nation, the Pueblo Nations, and the broader public who have spent years engaged in the collaborative process designed to protect Chaco Culture National Historical Park and the surrounding landscape.

The undersigned respectfully submit that BLM must immediately extend this comment

period by no fewer than 90 days, publish formal notice in the Federal Register, provide translated materials and in-person comment opportunities for Diné-speaking and other affected community members, and schedule public meetings in accessible locations. The existing seven-day window fails on procedural, statutory, constitutional, and equitable grounds, as detailed below.

B. The Seven-Day Period Is Facially Inadequate Under Controlling Statutory Authority

I. FLPMA Section 1714 Requires Federal Register Notice and Public Process for Withdrawal Revocations

The Federal Land Policy and Management Act of 1976 ("FLPMA"), 43 U.S.C. §§ 1701–1784, establishes the statutory framework governing mineral withdrawals and their revocation. Section 204 of FLPMA, codified at 43 U.S.C. § 1714, provides the Secretary of the Interior with authority to "make, modify, extend, or revoke withdrawals," but only "in accordance with the provisions and limitations of this section." 43 U.S.C. § 1714(a).

Critically, for withdrawals aggregating 5,000 acres or more — and PLO 7923 covers approximately 336,404 acres — Section 1714(b)(1) requires that "[w]ithin thirty days of receipt of an application for withdrawal, and whenever he proposes a withdrawal on his own motion, the Secretary shall publish a notice in the Federal Register" stating the nature and extent of the proposed action, the extent to which the land is to be segregated while the application is being considered, and inviting the public to submit comments. 43 U.S.C. § 1714(b)(1) (emphasis added). This Federal Register notice requirement is mandatory, not discretionary.

The BLM has, as of the submission of these comments, apparently bypassed publication of a formal Federal Register notice of intent. The agency's announcement of the scoping comment period appears to have been made via the BLM's ePlanning web portal only, without the formal Federal Register publication that FLPMA requires when the Secretary proposes action on his own motion affecting hundreds of thousands of acres of public land. *See* 43 U.S.C. § 1714(b)(1). This omission is not a technicality. The Federal Register serves a foundational role in public notice — it is the official journal of the United States Government and the primary mechanism by which citizens, governmental entities, tribal governments, and interested parties are formally notified of proposed agency actions. An online posting on a federal web portal, accessible only to those who already know to look for it, cannot substitute for the legally mandated publication in the Federal Register.

Moreover, for large withdrawals, FLPMA Section 1714(c) requires the Secretary to notify Congress and provide extensive information to the relevant committees of jurisdiction — including the House Committee on Natural Resources and the Senate Committee on Energy and Natural Resources — no later than the effective date of a qualifying withdrawal action. *See* 43 U.S.C. § 1714(c). While the current action is framed as a revocation rather than a new withdrawal, the FLPMA framework makes clear that procedural rigor is not diminished when the government seeks to undo protections affecting vast acreage of public land with significant cultural and environmental value. The statutory procedures are designed precisely to ensure that consequential decisions about the public domain do not proceed without meaningful public

engagement.

For these reasons, the present scoping process does not satisfy FLPMA's mandatory procedural requirements, and any environmental review or decision proceeding from this inadequate scoping period would be legally vulnerable to challenge.

II. BLM's Own NEPA Regulations and Handbook Contemplate Substantially Longer Comment Periods

Even setting aside FLPMA's specific requirements, BLM's obligations under the National Environmental Policy Act, 42 U.S.C. §§ 4321–4370m ("NEPA"), and the agency's own implementing regulations and handbook independently require comment periods far exceeding seven days.

BLM's NEPA Handbook (H-1790-1) and the Department of Interior's NEPA implementing regulations establish that meaningful public scoping is an essential component of the environmental review process. Standard scoping periods under NEPA practice have historically run a minimum of 30 days, and agencies routinely provide 45 to 90 days for complex or controversial actions involving significant public interest, Tribal consultation obligations, or wide geographic impact. *See generally* 43 C.F.R. Part 46 (DOI NEPA regulations, as in effect).

When BLM proposed the original mineral withdrawal of these same lands in January 2022, the agency provided an initial 90-day public comment period, later extended by an additional 30 days at the request of the All Pueblo Council of Governors and in recognition of the complexity of the issues and the needs of affected communities.[6] The agency further held multiple in-person public meetings in Farmington and Albuquerque, New Mexico, and conducted government-to-government consultations with 24 Tribal Nations over a period of more than two years before issuing the withdrawal order in June 2023.[7]

A seven-day scoping period for the revocation of these same protections is not merely shorter — it is categorically incompatible with the procedural rigor that NEPA requires for a proposed action of this magnitude. The affected acreage, the number of impacted Tribal Nations, the density of identified cultural and archaeological resources (more than 4,700 known sites outside the park boundary alone), and the sustained public interest that has surrounded this issue for well over a decade all counsel strongly in favor of a comment period measured in months, not days.

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[6] Bureau of Land Mgmt., Press Release, *Bureau of Land Management Takes Next Steps to Protect Chaco Canyon* (Jan. 7, 2022), https://www.blm.gov/press-release/bureau-land-management-takes-next-steps-protect-chaco-canyon (announcing 90-day-comment period and publication of proposed withdrawal in Federal Register) and Bureau of Land Mgmt., Press Release, *BLM Extends Comment Period, Announces Additional Meetings for Proposed Mineral Withdrawal Surrounding Chaco Culture National Historical Park* (Mar. 31, 2022), https://www.blm.gov/press-release/blm-extends-comment-period-announces-additional-meetings-proposed-mineral-withdrawal (announcing 30-day extension of comment period and additional public meetings).

[7] U.S. Dep't of Interior, Press Release, *Biden-Harris Administration Protects Chaco Region, Tribal Cultural Sites from Development* (June 2, 2023), https://www.doi.gov/pressreleases/biden-harris-administration-protects-chaco-region-tribal-cultural-sites-development (describing withdrawal process, consultation with 24 Tribal Nations, and Honoring Chaco Initiative Phase 1).

It is worth noting, parenthetically, that BLM has confirmed that this scoping period will be followed by a subsequent comment period once the draft Environmental Assessment ("EA") is completed. BLM's own framing of the current period as "intended to gather input on the scope of the environmental analysis and potential issues to be considered" makes clear that the agency understands scoping to be a distinct and foundational procedural step.[8] Truncating the scoping period to seven days ensures that the EA will be prepared with an artificially constrained understanding of the issues, and that the subsequent comment period on the draft EA will be structurally compromised from the start.

C. The Seven-Day Period Betrays the Purposes and Commitments of the Honoring Chaco Initiative

The procedural inadequacy of this scoping period cannot be fully appreciated without contextualizing it within the years-long multi-stakeholder process from which it descends — and which it effectively repudiates.

In November 2021, then-Secretary of the Interior Deb Haaland initiated the Honoring Chaco Initiative ("HCI"), a broad collaborative process designed to engage BLM field offices, the Bureau of Indian Affairs, Tribes, Pueblos, impacted communities, and other stakeholders in developing a comprehensive cultural landscape management framework for the Greater Chaco region. The HCI was explicitly described as a "regional conversation" intended to "develop a broader cultural approach to all land management decisions across the Greater Chaco Landscape."[9]The HCI included 45 broader stakeholder interviews, multi-day facilitated sessions, and outreach to Tribal Historic Preservation Officers, Tribal organizations, and Tribally led non-governmental organizations.

The withdrawal embodied in PLO 7923 was itself described as only one component of the larger HCI, which was intended to continue developing landscape-level protections beyond the immediate mineral withdrawal area. Since 2014, more than two million people had engaged on Greater Chaco issues, calling for meaningful Tribal and community consultation at every stage of decision-making.[10]

Now, the BLM proposes to reverse the foundational action of this years-long process — a revocation affecting 336,404 acres of culturally and archaeologically irreplaceable land — through a seven-day internet posting. The HCI, which represented a model of multi-year collaborative engagement, has apparently been shelved without explanation. The community and tribal participation that HCI fostered — painstakingly built over years through formal consultation, public meetings, stakeholder sessions, and ethnographic studies — is to be replaced by a one-week web form.

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[8] Santa Fe New Mexican, BLM Opens Comment Period on Proposal to Shrink or Remove Chaco Canyon Buffer Zone (Apr. 1, 2026).

[9] Bureau of Land Mgmt., Honoring Chaco Initiative (archived pre-Jan. 20, 2025), https://www.blm.gov/honoringchacoinitiative (describing the Initiative as a regional conversation co-led by BLM and BIA to develop a broader cultural landscape management framework).

[10] Greater Chaco Coalition, *Timeline: Coalition Engagement to Protect Greater Chaco and Communities from Fracking* (Sept. 26, 2023), https://www.frackoffchaco.org/blog/coalition-timeline (documenting multi-year advocacy history beginning 2014).

This is not a procedural oversight. It reflects a deliberate administrative choice to minimize participation and foreclose the kind of substantive engagement that federal law requires and that this community was promised. The undersigned expressly object to this approach and call on BLM to honor the commitments embodied in the Honoring Chaco Initiative by restoring a process commensurate with the significance of the proposed action.

I. The Online-Only Format of the Comment Period Is Inaccessible to the Most Affected Communities

Even if a seven-day period were otherwise legally adequate — it is not — the decision to conduct the scoping period entirely through an online portal compounds the procedural deficiency by rendering the process inaccessible to the communities most directly affected by the proposed revocation.

A. The Navajo Nation Faces Severe and Documented Internet Access Disparities

The communities surrounding Chaco Culture National Historical Park are predominantly members of the Navajo Nation, whose homeland spans more than 27,000 square miles across northeast Arizona, northwest New Mexico, and southeast Utah.[11] This is among the most underserved regions in the United States with respect to broadband internet access.

According to data from the U.S. Census Bureau's American Community Survey, the Navajo Reservation had a broadband subscription rate of only 33% as of the 2017–2021 five-year estimates — compared to statewide rates of 80% in New Mexico and 88% in Arizona.[12] Historical data from the National Broadband Map, maintained by the National Telecommunications and Information Administration ("NTIA") in collaboration with the Federal Communications Commission, showed that at one point fewer than 4 percent of the population living in Navajo Nation territory had access to even the most basic wireline broadband.[13] At least 60 percent of homes in the Navajo Nation have historically lacked landline telephone service, and wireless signals are often spotty or nonexistent across the reservation's interior communities.[14]

An agency that announces a proposed action affecting the Navajo homeland through an online-only portal — and provides seven calendar days to respond — is not conducting meaningful public engagement. It is conducting a procedural formality designed to minimize participation from the communities with the most at stake.

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[11] Nat'l Telecomm. & Info. Admin., *Narrowing the Digital Divide in the Navajo Nation* (Jan. 2014), https://ntia.gov/blog/narrowing-digital-divide-navajo-nation (reporting that fewer than 4% of Navajo Nation territory residents had access to wireline broadband; describing 60% of homes as lacking landline telephone service)
[12] U.S. Census Bureau, *Broadband Access in Tribal Areas Lags Rest of the Nation* (June 18, 2024), https://www.census.gov/library/stories/2024/06/broadband-access-tribal-areas.html (reporting Navajo Reservation broadband subscription rate of 33% per 2017–2021 ACS 5-year estimates).
[13] *See* Nat'l Telecomm. & Info. Admin.
[14] Id.

B. Diné-Speaking Community Members Require Translation and Language Access

The Navajo language, Diné Bizaad, is the most widely spoken indigenous language north of the U.S.-Mexico border, with an estimated 170,000 speakers.[15] According to data compiled from ethnographic research and Census sources, approximately 7,600 individuals are classified as monolingual Navajo speakers — persons who have limited or no functional English literacy.[16] Among older generations in rural reservation communities, the proportion of individuals for whom Diné Bizaad is the primary or exclusive language of daily life may be substantially higher than national averages suggest.

On December 30, 2024, Navajo Nation President Buu Nygren signed legislation making Navajo the official language of the Navajo Nation, underscoring the centrality of Diné Bizaad to Navajo governance and identity.[17]

Despite this demographic reality, BLM's scoping notice and online comment portal are available only in English. There is no Diné Bizaad translation of the notice, the proposed action description, or the online comment submission system. For monolingual Diné speakers — and for the many bilingual community members for whom government regulatory language in English presents a practical barrier — the online-only English-language comment period is effectively inaccessible.

Federal agencies have obligations, rooted in Executive Order 13166 (*Improving Access to Services for Persons with Limited English Proficiency,* 65 Fed. Reg. 50,121 (Aug. 16, 2000)) and in federal civil rights law, to ensure that persons with limited English proficiency have meaningful access to federally conducted programs and activities. While BLM has broad discretion over how it conducts outreach, the decision to conduct a scoping period for a major action directly affecting a predominantly Diné-speaking community — without translation, without in-person meetings, and within seven days — is inconsistent with both the letter and spirit of these obligations.

C. The Rural Geography of the Affected Region Creates Additional Access Barriers

The Greater Chaco region is one of the most sparsely populated and geographically remote areas in the continental United States. Tribal chapter houses, the primary civic infrastructure of Navajo communities, may be many miles from the nearest town, paved road, or reliable communication infrastructure. Transportation to urban centers where reliable internet access might be available — such as Farmington or Gallup, New Mexico — requires significant travel time and resources that many community members cannot easily mobilize on a seven-day

[15] Navajo Times, *Data Shows Huge Reduction in Diné Speakers* (Jan. 19, 2023), https://navajotimes.com/reznews/data-shows-huge-reduction-in-dine-speakers/ (reporting approximately 7,600 Navajo-only speakers and over 171,000 fluent speakers worldwide; documenting decline from 93% fluency in 1980 to approximately 50% in 2010).

[16] Id.

[17] Wikipedia (as updated through Apr. 2026), https://en.wikipedia.org/wiki/Navajo_language (noting that on December 30, 2024, Navajo Nation President Buu Nygren signed legislation making Navajo the official language of the Navajo Nation).

timeline.

Even for community members who have some internet access, the time necessary to learn of the comment period, understand the proposed action, travel to access the internet or a community facility, navigate BLM's ePlanning portal, and prepare and submit meaningful comments may exceed seven days. This is particularly true for Tribal governments and chapter houses that must engage their own governance processes — including consultations with leadership and community meetings — before preparing and submitting official comments.

The practical effect of an online-only, seven-day scoping period is to exclude from participation the very people most affected by the proposed revocation. This exclusion is not incidental; it is the predictable, foreseeable consequence of designing a comment process without regard to the realities of the community it is ostensibly inviting to participate.

D. The Comment Period Coincides with Major Religious and Cultural Observances, Further Limiting Participation

The timing of the BLM's scoping comment period — March 31 through April 7, 2026 — is particularly insensitive given that it falls entirely during a period of overlapping religious and cultural observances of profound importance to both the surrounding communities and to the broader public.

Of particular relevance is the fact that the weekend of April 4-5 is a period of intensive ceremonial activity across New Mexico's nineteen Pueblo Nations. According to calendars maintained by the Indian Pueblo Cultural Center, many Pueblos hold dances and ceremonies during this weekend.[18] These ceremonies are not peripheral community events — they are significant religious and cultural observances in Pueblo life, requiring the participation of community leaders, cultural practitioners, and tribal officials who are urgently needed to engage with BLM's proposed revocation of protections for Chaco Canyon.

The Pueblo Nations, through the All Pueblo Council of Governors and individual Pueblo governments, have been active and vocal participants in the decade-long effort to protect the Greater Chaco landscape. Pueblo leaders have testified before Congress, participated in the Honoring Chaco Initiative, submitted detailed comments during previous comment periods, and traveled to Washington, D.C. to advocate for these protections. To schedule a seven-day comment period that overlaps entirely with Passover, Easter, and the Pueblo Easter ceremonial season is to ensure that the leaders of these communities are occupied with sacred obligations precisely during the narrow window in which BLM claims to be inviting their input.

Additionally, Easter 2026 falls on Sunday, April 5, 2026, which falls within the final days of the seven-day scoping period. (confirming Easter 2026 date). The days surrounding Easter — including Holy Thursday (April 2), Good Friday (April 3), Holy Saturday (April 4), and Easter

[18] Indian Pueblo Cultural Center, Pueblo Feast Days (2026), https://indianpueblo.org/feast-days/ (documenting that most Pueblos hold dances and ceremonial events during Easter Weekend). And Visit Albuquerque, Native American Feast Days , https://www.visitalbuquerque.org/about-abq/culture-heritage/native-american/feast-days/ (listing "Easter Weekend — Most Pueblos: Dances" as a regular annual observance).

Sunday (April 5) — are the most sacred days of the Christian liturgical calendar and are observed by billions of people worldwide, including a substantial portion of New Mexico's population. The comment period runs through the entirety of Holy Week, the most active and observance-intensive period of the year for Christian communities. Many New Mexicans, including community members, advocates, and government employees who might otherwise have assisted affected community members in navigating the comment process, will have family and religious commitments that limit their availability during this period.

Passover 2026 also begins at sundown on Wednesday, April 1, 2026, and ends at nightfall on Thursday, April 9, 2026. A comment period that runs through this three-day observance period effectively excludes many Jewish community members and advocates from meaningful participation.

The cumulative effect of scheduling this comment period during Passover (April 1–9), Easter (April 5), and the Pueblo Easter ceremonial season (Easter Weekend) is that virtually no day within the seven-day window is free from significant religious or cultural obligations for multiple invested communities. A federal agency planning in good faith would have identified these conflicts and selected a comment period accordingly. The failure to do so — whether through negligence or deliberate design — results in a scoping process that is structurally biased against meaningful participation.

E. Historical Comparison Confirms the Inadequacy of the Current Process

The inadequacy of the seven-day scoping period is thrown into sharp relief by comparison with the process BLM itself conducted when it originally proposed the mineral withdrawal:

- In January 2022, when the BLM first proposed the mineral withdrawal of these same lands under PLO 7923, it opened a 90-day comment period, published a notice in the Federal Register, and hosted multiple public meetings.

- Following requests from affected stakeholders, BLM extended the comment period by an additional 30 days and held additional public meetings, including in-person sessions in Farmington and the Rio Grande Valley/Albuquerque area.

- The overall process from initiation to issuance of PLO 7923 took approximately 2.5 years, included consultation with 24 Tribal Nations, multiple rounds of public input, ethnographic studies, and formal environmental review.

- The All Pueblo Council of Governors and other stakeholders demanded a 90-day comment period on the proposed revocation notice, with an additional 30 days once the draft EA was issued, and full public meetings in Farmington and Albuquerque.[19]

[19] Octavius Seowtewa & Paul Reed, *Chaco Canyon Again Is Under Threat,* Santa Fe New Mexican (Nov. 9, 2025), https://www.santafenewmexican.com/opinion/commentary/chaco-canyon-again-is-under-threat/article_1d0d024d-52eb-4069-bc7a-48ed31eaaef7.html (demanding 90-day comment period and public meetings in Farmington and Albuquerque).

The administration has now compressed even the inadequate 14-day period to seven days. The trajectory of procedural narrowing — from 120+ days to 90 days to 30 days to 14 days to 7 days — reflects not a proportionate assessment of what is required, but a deliberate attempt to minimize public engagement and shield from scrutiny a reversal of landmark land protections.

We also recommend that BLM abide by the following frameworks and guiding principles, and refer to the following additional recommendations with respect to environmental justice, meaningful involvement, meaningful consultation, and engagement with Tribes and those in frontline communities:

- The Jemez Principles for Democratic Organizing[20]
- Free Prior and Informed Consent (FPIC)[21]
- Executive Order 13175, Consultation and Coordination With Indian Tribal Governments
- Resource list shared with the Bureau of Land Management to inform it/the Department of Interior's Honoring Greater Chaco process, guided by the principles of environmental justice and Free, Prior and Informed Consent as discussed in WELC's 2022 Chaco proposed 10-mile withdrawal EA comments.

2. BLM Should Suspend *all* Oil and Gas Leasing and Development across the Greater Chaco Landscape as it Completes the Honoring Chaco Process, and Pending Completion of Updated Farmington and Rio Puerco RMPs.

BLM should view the proposed revocation in the context of the broader Honoring Chaco Initiative—a collaborative process that the current administration has abandoned without explanation. We strongly oppose this proposed revocation and urge BLM to maintain PLO 7923 in its entirety, while also pursuing additional steps to fulfill the original purpose of protecting the connected Greater Chaco landscape beyond the 10-mile withdrawal area. Updating the outdated Farmington and Rio Puerco RMPs remains necessary and should complement, not replace, the existing withdrawal protections.

Before additional public lands are sold and developed by the oil and gas industry, the agency must first analyze and disclose to the public the additional impacts of fracking paired with horizontal drilling in the Mancos Shale/Gallup formation.

BLM's RMP for the Rio Puerco Field Office is even more outdated. BLM issued a draft RMP/EIS in 2012, intended to replace the 1986 RMP and subsequent amendments—but meanwhile, the RPFO is operating under an RMP that is over 35 years old, and last revised approximately three decades ago, in 1992. Like the Farmington RMP, it fails to account for new fracking and drilling technologies, and a

[20] *See* https://www.ejnet.org/ej/jemez.pdf
[21] *See* UNDRIP, *at* *https://www.un.org/development/desa/indigenouspeoples/wp-content/uploads/sites/19/2018/11/UNDRIP_E_web.pdf*.

vast array of critical new information about climate, health, environmental justice, and cumulative impacts that has become available since the original RMP was developed (and even since a draft was issued in 2012).

3. BLM Must Take a Hard Look at Greenhouse Gas (GHG) Emissions and Climate Impacts of Fracking and Drilling, Particularly Cumulative Impacts, and Avoid *any* New GHG Pollution from Further Oil and Gas Leasing and Permitting, Not Just in the Withdrawal Area.

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. To maintain a coin flip chance of maintaining warming below 1.5°C, *global* fossil fuel production must decrease by approximately 6% per year between 2020 and 2030, and approximately 60% of global fluid mineral resources must be left in the ground. [22, 23] 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.[24] To maintain a 67% chance of avoiding 1.5°C of warming, the U.S. must *end* oil and gas production by 2031.[25] The latest reports only paint a grimmer picture of the rapidly shrinking opportunity to avert the worst consequences of climate change. It is clear that extreme weather events, and their human, ecological, and economic costs, are already harming, killing, and displacing millions of people around the world.[26] Instead of falling, greenhouse gas concentrations continue to rise, and modest reductions have done little to check their trajectory.[27] Without drastic action, "the physical and socioeconomic impacts of climate change will be devastating. Irreversible physical changes in the climate system, known as tipping points, cannot be ruled out and could have significant global and regional consequences."[28] International pledges are insufficient to avert catastrophic temperature increases and are woefully insufficient to constrain global temperature rise below 1.5°C.[29] Moreover, most nations that pledged reductions are nowhere near meeting those pledges.[30] In light of ongoing production, BLM must

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[22] **Exhibit 1,** SEI, IISD, ODI, E3G, and UNEP, *The Production Gap Report: 2020 Special Report* (2021).
[23] **Exhibit 2,** 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).
[24] **Exhibit 3,** Calverley, D. and Anderson, K. (2022), *Phaseout pathways for fossil fuel production within Paris-compliant carbon budgets*. Tyndall Centre, University of Manchester.
[25] *Id.*
[26] **Exhibit 4,** The 2022 report of the *Lancet* Countdown on health and climate change: health at the mercy of fossil fuels. https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(22)01540-9/fulltext
[27] **Exhibit 5,** World Meteorological Organization (2022). United in Science 2022 A multi-organization high-level compilation of the most recent science related to climate change, impacts and responses. https://library.wmo.int/doc_num.php?explnum_id=11309; **Exhibit 6,** United Nations Framework Convention on Climate Change (October 26, 2022), Nationally Determined Contributions Under the Paris Agreement: Synthesis Report by the Secretariat. https://unfccc.int/documents/619180.
[28] *Id.*
[29] **Exhibit 7,** United Nations Environment Programme (2022). Emissions Gap Report 2022: The Closing Window — Climate crisis calls for rapid transformation of societies. Nairobi. https://www.unep.org/emissions-gap-report-2022.
[30] *Id.*; United Nations Framework Convention on Climate Change (October 26, 2022), Nationally Determined Contributions Under the Paris Agreement: Synthesis Report by the Secretariat, https://unfccc.int/documents/619180, Exhibit 6.

not lease any further parcels for development, as doing so jeopardizes meeting the 1.5° C target.[31]

A fundamental disconnect exists between the reality of climate change, and how public lands are managed for energy production. A recent paper calculates that lifecycle emissions from federal fossil fuel development resulted in an average of 1,408 million metric tons (MMT) of Carbon Dioxide-equivalent (CO2e) per year since 2005—the equivalent of 377 coal-fired power plants, or the emissions from 303 million cars—and are projected to be around 1,130 MMT CO2e by 2030.[32] These emissions will amount to around 20% of total U.S. greenhouse gas emissions each year.[33]

Most recently, at COP28, the parties to the Paris Agreement acknowledged the need for a just transition away from fossil fuel energy sources and a phase-out of fossil fuel subsidies.[34] BLM's continued authorization of fossil fuel leasing and development is contrary to these international goals, and seriously undermines U.S. progress toward meeting them.

Similarly, the Intergovernmental Panel on Climate Change (IPCC) recently released the entirety of its sixth assessment report (AR6), including a synthesis of its findings.[35] 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.[36] 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.[37] Nationally determined contributions (NDCs) make it likely that we will

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[31] **Exhibit 8**, *Navigating Energy Transitions: Mapping the Road to 1.5° C*, Exhibit 11. Additional development also risks leaving stranded assets, as fields will need to be decommissioned before the end of their lifespan. *Id.*

[32] **Exhibit 9,** N. Ratledge et al., *Emissions from Fossil Fuels Produced on US Federal Lands and Waters Present Opportunities for Climate Mitigation*, 171 Climatic Change, no. 11, Mar. 14, 2022, at 2–5, https://link.springer.com/content/pdf/10.1007/s10584-021-03302-x.pdf.

[33] *Id*. at 6 fig. 2.

[34] *See* **Exhibit 10**, United Nations Framework on Climate Change (UNFCC), Conference of the Parties (COP28), First global Stocktake, Proposal by the President, Draft Decision (Dec. 13, 2023), at 5; *see also* **Exhibit 11**, UNFCC Conference of the Parties, Work Programme on Just Transition Pathways, Proposal By the President, Draft Decision (Dec. 13, 2023).

[35] **Exhibits 12** and **13**, IPCC, 2021: Summary for Policymakers and Technical Summary. **Exhibit 14,** 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 [Masson Delmotte et al. (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, pp. 3−32, doi:10.1017/9781009157896.001; **Exhibit 15**, 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 et al. (eds.)]. Cambridge University Press, Cambridge, UK and New York, NY, USA. doi: 10.1017/9781009157926; **Exhibit 16**, 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 et al.]. Cambridge University Press. In Press; **Exhibit 17,** IPCC 2023: *Synthesis Report of the IPCC Sixth Assessment Report* [Paola Arias et al. (eds.)], Cambridge University Press.

[36] 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 14.

[37] 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 17.

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 existing and planned fossil fuel infrastructure exceed the CO_2 emissions in pathways that limit warming to 1.5°C.[38] 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.[39] 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.[40]

As UN Secretary-General António Guterres stated upon the release of the Intergovernmental Panel on Climate Change's (IPCC) 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. . ..[41]

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.

a. BLM Must Prepare a Programmatic EIS to take a Hard Look at the Impacts of the Resumption of Federal Oil and Gas Leasing and to Avoid Any New Greenhouse Gas Pollution.

Current policy commitments indicate that Federal agencies intend to take imminent action that will significantly impact our ability to fight climate change. The administration's January 20, 2025 "Unleashing American Energy" Executive Order, attempted freeze of federal funding for climate mitigation, rollback of fuel economy standards, halting of all leasing of federal lands and waters for new wind farms, and targeting of electric vehicle rollout and tax credits are all evidence of this. The proposed lease sale thus is plainly part of a larger national initiative and must be analyzed in a Programmatic EIS.

BLM and Interior must therefore take a hard and comprehensive look at the cumulative

[38] *Id.* at SPM-15, 16.
[39] *Id.* at SPM-21.
[40] *Id. at* SPM-36.
[41] 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.

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 global climate goals. The Department and BLM must conduct this analysis now, along with other relevant agencies that manage fossil fuel development on federal lands and waters, including BOEM. BLM must also consider 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.[42]

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 15.3% of total U.S. GHG emissions, 1.8% of global emissions, and nearly 21% of all emissions in the U.S. from fossil fuel production.[43] 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.[44]

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—prior to committing a single additional acre to fossil-fuel development.[45] Such a programmatic examination would dovetail with an EIS that collectively analyzes the proposed lease sales, discussed below. At the outset, however, Commenters stress that BLM should prepare 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

[42] *See* 2021 BLM Specialist Report at Table 4-11, Five-Year Federal Oil and Gas Statistics, recording nearly 25 million acres under lease for oil and gas with over 12.6 million acres producing.
[43] 2021 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. (BLM Share of 2020 Annual Global and U.S. GHG Emissions), Table 7-1.
[44] **Exhibit 18**, 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).
[45] **Exhibit 19**, 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).

analyzing direct, indirect, and cumulative impacts.[46]

A programmatic approach is compelled for the following reasons: 1) the fundamentally incremental nature of the climate crisis; 2) the small and shrinking window that remains to avoid the most catastrophic effects of climate change, a reality that was not reflected in the Department's Report on the Federal Oil and Gas Leasing Program;[47] 3) the importance of completing an analysis BLM 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.

a. BLM Must Complete the Analysis Begun in the Specialist Reports.

A programmatic review is particularly critical following the release of the BLM Specialist Reports and Interior Report. The former constitutes—in large part—the quantification and context of federal mineral estate-associated GHG emissions. 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 yet undeveloped federal lands, as well as national and global emissions. Failure to do so will represent 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 Reports, 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. 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. 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.

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.[48] Thus 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

[46] **Exhibit 20**, Memorandum for Heads of Federal Departments and Agencies, *Effective Use of Programmatic NEPA Reviews*, Counsel on Environmental Quality, December 18, 2014 (emphasis added).
[47] **Exhibit 21**, *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.)
[48] *See, Effective Use of Programmatic NEPA Reviews*, Exhibit 20.

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. 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 prepare 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. Until a programmatic NEPA review analyzing the climate, fiscal, and taxpayer impacts of all federal fossil fuel development occurs, no additional fossil fuel leasing should occur. BLM and Interior are compelled to do so by statutory mandates under FLPMA.

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

As discussed above, BLM's proposed lease sales are part of a larger national initiative to implement the federal administration's "Energy Dominance" agenda and must be analyzed as such under NEPA. That means preparing an analysis to address the cumulative impacts of the tens of millions of acres that may be leased both onshore and offshore, including 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, health and environmental justice, cultural resources, and other relevant issues. And as 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), taking NEPA's requisite hard look at these impacts will require an EIS given the significance of leasing on such a scale. The agency must evaluate

cumulative impacts at the scale of the broader San Juan Basin, including air emissions, water contamination risks, waste generation and disposal, and infrastructure buildout. Segmenting analysis to discrete actions within or near the buffer fails to capture reasonably foreseeable development and results in an artificially narrow assessment of impacts under NEPA. The agency must analyze indirect impacts from development occurring outside the buffer, including horizontal drilling beneath protected areas and associated infrastructure, emissions, traffic, and noise. Without this analysis, the buffer risks being ineffective in practice.

B. BLM Must Consider a Range of Alternatives.

a. BLM Must Consider a No-Leasing Alternative.

BLM must analyze a no-leasing or no action alternative to adequately inform the public and the decision maker under statutory NEPA requirements. The no-action alternative should evaluate and discuss the cumulative effect of not leasing any of the proposed parcels 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.[49] 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. The impacts to GHG emissions and climate according to the no action alternatives considered must indicate the difference in estimated GHG emissions between the proposed alternatives and the no action alternatives.

b. BLM Must Consider an Alternative That Considers Adopting a Policy of Managed Decline of Fossil Fuel Production from the Entire Federal Mineral Estate.

In our scoping comments, we requested that BLM include an alternative that considers adopting a policy of managed decline of fossil fuel production from the entire federal mineral estate. BLM does not discuss this alternative, let alone analyze it in detail. We urge the agency to offer more than a cursory explanation for its dismissal of this and other alternatives. In other recent BLM lease sale EAs in other states, BLM has often failed to discuss—and thus, seemingly failed to consider— this and other proposed alternatives at all. Inconsistencies among BLM offices in determining the alternatives to consider exemplify the need to consider the proposed lease sales in a single impact statement rather than through individual EAs. They also underscore the need for a programmatic review of the BLM fossil fuel program. We request BLM explain the basis for how and why it determines whether to consider proposed alternatives, and we request that BLM consider an alternative involving a policy of managed decline of fossil fuel production from the entire federal mineral estate.

c. BLM Must Consider an Alternative That Protects Groundwater.

BLM must consider alternatives that would protect usable groundwater. Specifically, BLM should consider not leasing parcels within areas where there is less than 2,000 feet of

[49] Interior Report at 4, 12, Exhibit 21.

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. BLM did not consider such an alternative.

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

BLM must include in their analysis an alternative that applies a stipulation that mandates the use of best available methane reduction technologies to parcels. Research has demonstrated that the use of technically proven and commercially available methane emissions reduction technologies can together capture more than 80 percent of the methane currently going to waste in the oil and gas sector's operations. Such technologies include: green completions to capture oil and gas well emissions; plunger lift systems or other well de-liquification methods to mitigate gas well emissions; tri-ethylene glycol (TEG) dehydrator emission controls to capture emissions from dehydrators; desiccant dehydrators to capture emissions from dehydrators; dry seal systems to reduce emissions from centrifugal compressor seals; improved compressor maintenance to reduce emissions from reciprocating compressors; low-bleed or no-bleed pneumatic controllers used to reduce emissions from control devices; pipeline maintenance and repair to reduce emissions from pipelines; vapor recovery units used to reduce emissions from storage tanks; and leak monitoring and repair to control fugitive emissions from valves, flanges, seals, connections and other equipment.

In addition to these best available methane reduction technologies, 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. Although BLM has completed a rulemaking effort pursuant to its authority to prevent waste under 30 U.S.C. §§ 187, 225, BLM's proposed rule does not go nearly far enough to prevent waste from routine flaring on BLM managed leases on Tribal and federal public lands, and is slated for suspension, revision, or recission under the Interior's Sec. Order 3418. Until methane waste is adequately addressed, BLM should not be holding lease sales or issuing leases, much less granting applications for permits to drill. Failing this, however, BLM must, at a minimum, use its existing authority under Notice to Lessees 4a (Jan. 1, 1980) ("NTL-4A) and the Inflation Reduction Act to condition such leases as it does issue to limit the environmental and human health harms caused by routine venting and flaring and to safeguard Tribal and publicly held resources from unreasonable and undue waste. 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 NTL-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 use 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.

Again, BLM attempts to defer a hard-look analysis of methane waste impacts, or consideration of alternatives that eliminate or mitigate those impacts, to the APD stage.

We also recommend that BLM consider in this alternative a stipulation limiting flaring to situations where it is infeasible or unsafe to capture the gas and not allowing routine flaring where there is simply inadequate pipeline capacity or timing issues. Similar approaches to flaring have been adopted through regulations by New Mexico and Colorado.[50]

e. BLM Must Consider an Alternative that Provides for Meaningful And Measurable Mitigation Actions in the Context of Cumulative Climate Change Resulting from Global Emissions

Under FLPMA, BLM has an array of responsibilities, implicated by the impacts of climate change, that it must consider 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

[50] *See, e.g.*, 2 Colo. Code Regs. § 404-1:903; N.M. Admin. Code § 19.15.27.8.

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.

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 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 perform its NEPA analyses in a way that correctly reflect its legal duties and authorities. In addition to NHPA compliance, the agency must ensure that its actions prevent unnecessary or undue degradation under FLPMA. This requires a landscape-level assessment of impacts and cannot be satisfied through narrow, buffer-limited analysis.

C. BLM Must Take a Hard Look at Reasonably Foreseeable Climate Consequences.

As described in a number of contexts below, BLM has failed to take the requisite "hard look" at the reasonably foreseeable environmental consequences of the proposed lease sales.

a. Federal Fossil Fuel Emissions Are Significant Under NEPA.

i. EPA GHG Equivalency Calculator

BLM evaluated GHG emissions estimated from the proposed lease sale 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 the lease sale in terms of the GHG emissions produced from gas-fueled vehicles driven for one year, or the emissions that could be avoided by operating wind turbines as an alternative energy source or offset by the carbon sequestration of forest land. However, we request BLM contextualize the GHG emissions of the 2025 lease sales by using the EPA GHG equivalency calculator to consider the GHG emissions over the average 30-year production life of the leases. We also request BLM contextualize the cumulative GHG emissions from the federal fossil fuel program using EPA's GHG equivalency calculator. BLM cannot fulfill its NEPA obligations with this type of comparison, which artificially minimizes significance and tells the public nothing about the actual impacts of emissions.

ii. Social Cost of Greenhouse Gases

BLM failed to use the social cost of greenhouse gases (SC-GHG) as another tool to assess GHG emissions and climate change effects from the proposed lease sales. The social cost of greenhouse gases provides an estimate of the monetized global damages associated with the incremental increases of GHGs.[51] BLM should not only provide the SC-GHG, but also an analysis of the decision making pursuant to those numbers.

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 BLM Specialist Reports, 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 cost 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 proposed 2025 lease sales.

As discussed elsewhere in these comments, there *are* scientifically established standards and findings that can inform BLM's analysis; BLM *must* analyze the significance of new emissions and put them into context. The agency should use existing, accepted methodologies, tools, and information such as the social cost of greenhouse gases and carbon budgeting, and the findings of the IPCC in the recently-released AR6, and develop a cumulative significance threshold for reasonably foreseeable greenhouse gas emissions from projects authorized by BLM.

Although the President's January 20, 2025, Executive Order directs agencies to rescind any social cost of carbon guidance issued by the Interagency Working Group, it does not absolve the BLM of its duty under NEPA and APA to meaningfully analyze the GHG emissions

[51] We urge BLM to apply the Social Cost of Greenhouse Gas values contained in EPA's September 2022 Report on the Social Cost of Greenhouse Gases: Estimates Incorporating Recent Scientific Advances. Due to their incorporation of recent scientific data, as well as reliance on lower discount rates, the EPA estimates represent a more accurate and up-to-date estimate of the costs of greenhouse gas production and consumption than the 2021 Interim Estimates of the Social Cost of Carbon, Methane, and Nitrous Oxide produced by the Interagency Working Group.

associated with proposed projects. Even in the absence of a mandated social cost of carbon metric, BLM must still apply a methodology that adequately quantifies and contextualizes GHG emissions to satisfy its legal obligations under NEPA and the APA. The analysis herein regarding the requirements of an agency to rationally contextualize GHG emissions related to a project applies throughout this entire Comment.

iii. Carbon Budgeting

In addition to SC-GHG, BLM must use 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. BLM may not improperly omit a carbon budget analysis of the United States' share of the global carbon budget, as 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.

In addition to the tools BLM may use 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 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 analysis of the proposed lease sales must acknowledge that anthropogenic GHG emissions over the past 60 years have resulted in impacts associated with the change in global climate. In fact, the 2021 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."[52] The IPCC AR6 report indicates that the globally averaged combined land and ocean surface temperature data, as calculated by a linear trend, show shows human caused warming of 1.07 ± 0.23°C over the period 1850 to 2019.[53] Warming of 1.07 C is over half the warming the 1.5 C of warming the U.S. has committed to avoid, and scientists are increasingly able to show the significant impacts of just 1.07 C of warming in terms of the intensification of wildfires, hurricanes, drought, and other weather-related phenomena.[54] We request BLM consider, discuss, and evaluate the climate science regarding past and present impacts from climate change to further contextualize the climate

[52] 2022 BLM Specialist Report at Section 4.2, *citing* IPCC, 2023: Climate Change 2023.
[53] *Id.*
[54] 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 The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* (2021), Exhibit 14; **Exhibit 22**, Swain, Daniel L. *et al.*, *Attributing Extreme Events to Climate Change: A New Frontier in a Warming World*, One Earth (Jun. 2, 2020); **Exhibit 23,** 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.

impacts from the cumulative emissions of GHGs associated with the proposed lease sales and the federal fossil fuel program.

b. The BLM Must Analyze the Global and National Over-Commitment of Fossil Fuels Relative to Global Carbon Budgets Necessary to Avoid 1.5°C Warming.

BLM must analyze and evaluate the estimated GHG emissions from the lease sales and cumulative GHG emissions within the context of the widening production gap, or 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.[55] The most recent UN Production Gap Report raises the alarm that despite the most recent IPCC findings, the world is running out of time to limit long-term global warming to 1.5°C as 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.[56] We request BLM consider the United Nation production gap report discussed above, which indicates an imperative to rapidly transition away from fossil fuels using supply side policies.

BLM must also conduct an analysis of the monetized net harm to society associated with the cumulative increases in GHG emissions in the BLM Specialist Report. The 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. In its social cost analysis of the cumulative GHG emissions attributable to all federal fossil fuel development and production, BLM should acknowledge that the Interagency Working Group (IWG) has consistently indicated that its Social Cost of Greenhouse Gas estimates represent an underestimation of the actual social costs associated with a given ton of GHG pollution. This fact has been borne out by the Environmental Protection Agency's November 2023 Report on the Social Cost of Greenhouse Gases: Estimates Incorporating Recent Scientific Advances, which reflects "recent advances in the scientific literature on climate change and its economic impacts and incorporate recommendations made by the National Academies of Science, Engineering, and Medicine." The fact that the EPA's social cost estimates, which are scientifically rigorous and reflect the best and most up-to-date scientific and economic data, are significantly higher than those of the IWG further illustrates the extent to which the IWG interim numbers may be considered an underestimate. Nonetheless, the IWG numbers represent the most current official estimate of social costs, and therefore constitute an important starting point for BLM's analysis, which must include a discussion of the ways in which the IWG estimates are likely to undervalue future climate damages.

BLM's 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

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[55] *See* **Exhibit 24,** SEI, Climate Analytics, E3G, IISD, and UNEP, *The Production Gap: Phasing down or phasing up? Top fossil fuel producers plan even more extraction despite climate promises,* Stockholm Environment Institute, Climate Analytics, E3G, International Institute for Sustainable Development and United Nations Environment Programme (2023), https://doi.org/10.51414/sei2023.050.

[56] *See id*.

emissions.[57] The 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 decision-making as it is unclear what portion of the budget applies to emissions occurring in the United States, or how to account for BLM's authorized portion of projected U.S. emissions, and whether or not to account/deduct any fraction of federal minerals that are consumed in other countries via exports."[58] 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.[59] 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.[60] The carbon budget analysis in the 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.

c. The BLM Specialist Report Fails to Adequately Quantify and Assess All Related Past, Present, and Reasonably Foreseeable Future GHG Emissions and Climate Impacts.

The BLM must properly complete a cumulative impacts analysis of the proposed lease sales, including both an assessment of the cumulative impact of greenhouse gas emissions from the federal fossil fuel program and an analysis of greenhouse gas emissions from all federal, state, and private fossil fuel leasing and development projects. Given existing oil and gas-related air pollution in the region, the agency must evaluate whether additional development will exacerbate ozone precursors, hazardous air pollutants, and associated public health harms. Failure to do so risks understating impacts and undermines compliance with NEPA and applicable air quality obligations.

BLM must assess the cumulative greenhouse gas emissions from recent and reasonably foreseeable federal offshore oil and gas lease sales. BLM must also assess the cumulative greenhouse gas emissions from recent and reasonably foreseeable federal fossil fuel lease sales and similar federal actions, including the emissions from pending coal lease applications. And BLM must assess cumulative greenhouse gas emissions from recent and reasonably foreseeable

[57] **Exhibit 25,** 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).
[58] 2022 BLM Specialist Report at Section 9.1.
[59] *See, e.g.,* 2021 BLM Specialist Report, Exhibit 16, 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).
[60] *See, e.g.,* **Exhibit 26**, 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; **Exhibit 27,** 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.

non-federal oil and gas leasing and development projects. For example, in 2022, 10 states held 45 lease sales, and in 2023, 10 states held 40 lease sales, selling tens of thousands of acres for oil and gas development.[61]

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

BLM must take a hard look at the impacts of methane, preferably in both a programmatic NEPA review, and an aggregated EIS for the proposed lease sales as discussed above. Methane is an incredibly potent greenhouse gas. Methane has contributed to approximately 30% of the global rise in temperatures to date. [62] 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.[63] 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.[64]

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. This waste also means lost royalty revenues for taxpayers and Tribes. A recent analysis conducted by Synapse Energy Economics calculated natural gas methane emissions volumes from venting, flaring, and leaks in the production segment on federal and Tribal lands and determined the value of that lost gas in the form of (1) lost royalties, (2) lost state revenue from taxes, and (3) lost revenue from wasted natural gas that could be used for other purposes. It found that $63.3 million in royalties, $18.8 million in state revenue from taxes (from the top six states), and $509 million in gas value was lost due to venting, flaring, and leaks on federal and Tribal lands.[65] The report found that, in 2019, leaks accounted for 46% and flaring for 54% of lost gas.[66] This report also found that the six states with the highest volumes of gas lost from federal and Tribal lands are New Mexico, North Dakota, Wyoming, Utah, Pennsylvania, and Colorado.[67] The problem of flaring is particularly pernicious in North Dakota, which accounts for the vast majority of gas lost from

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[61] Past state oil and gas lease sale data available at https://www.energynet.com/page/Government_Sales_Results.
[62] **Exhibit 28**, 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.
[63] *Id.*
[64] *Id. See also* **Exhibit 29,** *The Imperative of Cutting Methane from Fossil Fuels*, International Energy Agency (Oct. 11, 2023), https://iea.blob.core.windows.net/assets/9efb310e-94d7-4c46-817b-9493fe5abb0a/Theimperativeofcuttingmethanefromfossilfuels.pdf.
[65] **Exhibit 30,** Olivia Griot et al., Onshore Natural Gas Operations on Federal and Tribal Lands in the United States: Analysis of Emissions and Lost Revenue, Synapse Energy Economics Inc., 3 (Jan. 20, 2023), https://blogs.edf.org/energyexchange/files/2023/01/EMBARGOED_EDF-TCS_Public_Lands_Analysis.pdf (hereinafter "Synapse").
[66] *Id.* at 23.
[67] *Id.* at 24.

flaring on federal and Tribal land and has the highest flaring intensity of any state in the U.S.[68]

Furthermore, further could worsen existing and disparate impacts to human health. According to a study conducted by HEI Energy in New Mexico, for example, samples show high levels of methane, ethane and other volatile organic compounds, indicating that the ozone comes from oil and gas production.[69] At a national level, such waste on federal and Tribal lands already has significant and disproportionate health and other impacts on minority and low-income communities, including Indigenous communities.[70] On federal and Tribal lands in the U.S., there are roughly 12,000 people living within a half mile of a well with flaring. This includes approximately 1,000 children under the age of five, more than 1,600 older Americans over the age of 65, 1,800 people living in poverty, and almost 6,000 people of color.[71] These groups live near flaring wells at much higher rates when compared to the nation at large. For example, Native Americans are 25% more likely to live within one mile of wells compared to the populations in the counties studied, while nationally they represent less than 2% of the country. [72] This proximity to oil and gas infrastructure creates disproportionate adverse health risks and impacts on Indigenous communities.[73] Moreover, the Indigenous people living on these lands are more likely to be living in poverty compared to the population of the encompassing state(s), which exacerbates the already disparate health burdens faced by these individuals and communities.[74] Waste from flared gas in particular has disparate health impacts on Indigenous people and other overburdened communities. Studies have found that "flaring is an

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[68] *Id.*; **Exhibit 31**, Rystad Energy, *Cost of Flaring Abatement: Final Report* 6 (Jan. 31, 2022), https://blogs.edf.org/energyexchange/files/2022/02/Attachment-W-Rystad-Energy-Report_-Cost-of-Flaring-Abatement.pdf (hereinafter "Rystad Report").

[69] *See* Jerry Redfern, *In This Tiny New Mexico Town, the Air Quality Is Worse Than in Downtown L.A*, Capital and Main (August 20, 2024), available at https://capitalandmain.com/in-this-tiny-new-mexico-town-the-air-quality-is-worse-than-in-downtown-l-a.

[70] **Exhibit 32** Jeremy Proville et al., *The demographic characteristics of populations living near oil and gas wells in the USA*, 44 Population and Environment 1 (2022), https://doi.org/10.1007/s11111-022-00403-2 (hereinafter "Proville, *The demographic characteristics*"); **Exhibit 33**, 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).; **Exhibit 34,** Caron-Beaudoin, *VOCs in indoor air and tap water samples*; **Exhibit 35**, Jill Johnston et al., *Environmental Justice Dimensions of Oil and Gas Flaring in South Texas: Disproportionate Exposure among Hispanic Communities*, Environ. Sci. Technol. (2020); **Exhibit 36**, 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).

[71] This data was compiled by analysts at Environmental Defense Fund (EDF). EDF used Enverus data to identify wells with reported flaring in 2019 for Texas, New Mexico, Colorado, North Dakota, Montana, Wyoming, and Mississippi. EDF then used GIS spatial files from BLM (oil and gas leases), U.S. Forest Service (mineral rights), and Bureau of Indian Affairs (surface ownership) to extract just those wells on federal and Tribal lands. (As there is not a comprehensive databased of tribal mineral ownership, surface ownership was used as a proxy for determining wells on tribal lands.) By identifying wells with flaring, we are also able to identify the local communities that are impacted by the air pollution from these wells. Using the methodology described in Proville, *The demographic characteristics*, Exhibit 53, U.S. Census Bureau's American Community Survey 5-year estimates for 2015–2019, and health data from the Centers for Disease Control and Prevention's Places dataset, we were able to estimate the populations living within a half mile radius of the previously identified wells using areal apportionment. *See* Centers for Disease Control and Prevention, PLACES: Local Data for Better Health, https://www.cdc.gov/places/index.html (last visited Jan. 30, 2023).

[72] Proville, *The demographic characteristics* at 10, Exhibit 34.

[73] *See, e.g.*, **Exhibit 37,** Clean Air Task Force, *Tribal Communities at Risk: The Disproportionate Impacts of Oil and Gas Air Pollution on Tribal Air Quality* 3, 2–5 (2018), https://www.catf.us/resource/tribal-communities-at-risk/.

[74] *Id*. at 4.

environmental justice issue."[75] The majority of lost gas on Tribal lands is flared.[76]

Flaring has significant health impacts, and those impacts are clearly in communities near oil and gas infrastructure. A recent study found that a 1% increase in flared natural gas in North Dakota increases the respiratory-related hospitalization rate by 0.73%, for example.[77] Such effects are clearly documented in communities living near oil and gas infrastructure. According to an Environmental Defense Fund (EDF) analysis, roughly 1,100 adults with asthma, 800 adults with chronic obstructive pulmonary disease, 700 adults with coronary heart disease, and 400 adults who have experienced a stroke live within a half mile of a flaring well.[78] Another study links flaring to shorter gestation and reduced fetal growth.[79] Indigenous communities bearing the brunt of excessive flaring therefore face significant adverse health impacts. Reducing waste from flaring on federal and Tribal lands would lessen these harms.

BLM must take a hard look at the direct, indirect, and cumulative methane emissions that will result from development of these leases and their commensurate impacts in accordance with 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.[80]

e. BLM Must Consider Flaring and its Impacts in the EA.

BLM is well-aware that flaring results in waste of federal and tribal minerals, loss of revenue, and social and environmental impacts. Yet, BLM has repeatedly ignored flaring in its NEPA analyses for oil and gas lease sales. We urge BLM to correct this deficiency and consider flaring and its impacts in the EA for these lease sales. BLM must:

- Consider the direct, indirect, and cumulative socioeconomic impacts of flaring. A recent analysis conducted by Synapse Energy Economics calculated natural gas methane emissions volumes from venting, flaring, and leaks in the production segment on federal and tribal lands and determined the value of that lost gas in the form of (1) lost royalties, (2) lost state revenue from taxes, and (3) lost revenue from wasted natural gas that could be used for other purposes.
- Consider the direct, indirect, and cumulative human health impacts of flaring. For example, a recent study found that a 1% increase in flared natural gas in North Dakota

[75] Lara J. Cushing, et al., *Up in Smoke* at 7, Exhibit 33; *see* **Exhibit 38,** Wesley Blundell & Anatolii Kokoza, *Natural gas flaring, respiratory health, and distributional effect*, 208 Journal of Public Economics 104601, at 4, 10 (2022), https://doi.org/10.1016/j.jpubeco.2022.104601 (hereinafter "Blundell, *Natural gas flaring, respiratory health*").
[76] *Synapse* at 27, Exhibit 30.
[77] Blundell, *Natural gas flaring, respiratory health* at 1, Exhibit 38.
[78] *See supra* footnote discussing data compiled by analysts at Environmental Defense Fund (EDF).
[79] Cushing South Texas study at 077003-1, Exhibit 36.
[80] **Exhibit 39**, EDF, Flaring Aerial Survey Results (2021), *available at* https://www.permianmap.org/flaring-emissions/; *see also* **Exhibit 40**, 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); Cushing et al., *Up in Smoke*, Exhibit 33.

increases the respiratory-related hospitalization rate by 0.73%.[81] BLM must examine how flaring affects people living in the region.

- Consider the direct, indirect, and cumulative environmental justice impacts of flaring, as well as means of mitigating any adverse effects.

I. Federal Land and Policy 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. FLPMA instead requires that where oil and gas development would threaten the quality of critical resources, conservation of these resources should be the preeminent goal.

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 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. Accordingly, and of foundational importance, is the question of 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.

As discussed above, BLM has endeavored to satisfy the requirement to consider the cumulative climate impacts of its leasing decisions by preparing the 2020 and 2021 Specialist Reports. Setting aside the deficiencies of the Specialist Report, discussed above, the underlying conclusions are chilling. BLM must apply this analysis to its substantive duty to avoid unnecessary and undue degradation under FLPMA. 43 U.S.C. § 1732(b). 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.

BLM must define 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—and explain why its chosen alternative will not result in such degradation, as required by FLPMA, 43 U.S.C. § 1732(b).

[81] Blundell, *Natural gas flaring, respiratory health* at 1, Exhibit 38.

B. BLM is Required by FLPMA to Take Every Opportunity to Reduce Methane Emissions from Mineral Production on Federal Lands.

As discussed above, 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.

FLPMA's 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 proposed lease sales, to minimize, reduce, and mitigate methane impacts to the greatest extent possible.

C. BLM May Not Arbitrarily Assume the Potential Benefits of Leasing Outweigh the Social and Environmental Costs.

BLM fails to justify its decision to proceed with these lease sales, despite the enormous associated social and environmental costs. Offering hundreds of leases that will impose billions of dollars in social and environmental harms without offering any justification for such a decision would inconsistent with FLPMA.

D. BLM's Analysis of Uncertainty is Inadequate; the BLM must address whether and how the Congressional Review Act affects the validity of the governing Field Office RMPs.

Under FLPMA, the BLM decisions such as leases, permits, rights of way, and other authorizations must be issued "in accordance with" a valid land use plan. 43 U.S.C. § 1732(a). FLPMA's implementing regulations likewise provide that all "resource management authorizations and actions . . . shall conform to the approved [RMP]." 43 C.F.R. § 1610.5-3(a). Necessarily, BLM cannot issue new leases or authorizations or otherwise take actions predicated on a plan that was not validly approved before it was put into effect. Such action would violate FLPMA, the recently enacted 2025 Reconciliation Act[82] (and the Mineral Leasing Act (MLA),

[82] Pub. L. No. 119-21, § 50101(c)(2)(A), 129 Stat. 72, 138 (2025) ("[The BLM] shall offer . . . parcels . . . *under the applicable resource management plan in effect*" (emphasis added)); *id.* at 138–39 (directing that certain lands meeting certain conditions be made available for leasing "if the Secretary determines that the parcel of land is open to oil or gas leasing *under the approved resource management plan applicable to the planning area in which the parcel of land is located that is in effect*" (emphasis added)); *id.* at 139 (explaining that issued leases "shall be

30 U.S.C. §§ 181-287, which it amended), and the Administrative Procedure Act's (APA's), prohibition against agency action that is arbitrary and capricious or not in accordance with law, 5 U.S.C. §§ 551-559.

The Congressional Review Act (CRA) requires federal agencies to submit rules to Congress for review before they can take effect. 5 U.S.C. § 801(a)(1)(A). Historically, land management agencies like the BLM have not submitted their land or resource management plans to Congress, taking the position that such plans are not "rules" for CRA purposes. However, after the Government Accountability Office (GAO) determined, at the request of members of Congress, that three BLM RMPs *were* "rules" for purposes of the CRA,[83] Congress voted in October 2025 to disapprove those three RMPs under the terms of the CRA, subjecting such plans to the CRA's procedural requirements for the first time.[84] Following this legislative action, some stakeholders have questioned whether land or resource plans or amendments approved after passage of the CRA in 1996 are in effect if they have not been submitted to Congress pursuant to the CRA. *See* 5 U.S.C. § 801(a)(1)(A).

The BLM must address these questions before proceeding with this lease sale. The RMPs associated with this proposed lease sale were all implemented after 1996.[85] Since then, the BLM has not transmitted any of those RMPs to Congress under the CRA. Before proceeding with this lease sale BLM must address the impact of the CRA on the validity of the RMPs and how this sale is consistent with FLPMA, the 2025 Reconciliation Act, and the MLA.

E. Even assuming the RMPs are valid and in effect, BLM must evaluate whether they are inadequate to support leasing.

RMPs may grant the BLM authority to lease in certain areas. *See* 30 U.S.C. § 226(b)(1)(A); 43 C.F.R. § 3120.1-2(a). Before issuing leases, however, the agency must confirm that the applicable RMP is up to date and that the underlying environmental analysis will support a contemporary leasing decision. If an RMP is more than five years old, the BLM must reevaluate and confirm that the analysis and any underlying assumptions remain valid. *See* 42 U.S.C. § 4336b. An RMP would no longer support a new leasing decision if important new data, policies, or changed circumstances exist (such as changes in the law) that were not considered when it was approved. *See* H-1601-1 — LAND USE PLANNING HANDBOOK, SECTION VII.C, DETERMINING WHEN IT IS NECESSARY TO REVISE AN RMP; 43 C.F.R. § 1610.5-6. If an RMP is

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subject to the terms and conditions of the *approved resource management plan*" (emphasis added)).

[83] U.S. Gov't Accountability Off., *Applicability of the Congressional Review Act to Central Yukon Record of Decision and Approved Resource Management Plan*, B-337200, at 5–6 (June 25, 2025); *accord* U.S. Gov't Accountability Off., *Applicability of the Congressional Review Act to North Dakota Field Office Record of Decision and Approved Resource Management Plan*, B-337175 (June 25, 2025); U.S. Gov't Accountability Off., *Applicability of the Congressional Review Act to Miles City Field Office Record of Decision and Approved Resource Management Plan Amendment*, B-337163 (June 25, 2025).

[84] H.J. Res. 104, 119th Cong. (2025) (providing for CRA disapproval of the Miles City Field Office Record of Decision and Approved Resource Management Plan Amendment); H.J. Res. 105, 119th Cong. (2025) (providing for CRA disapproval of North Dakota Field Office Record of Decision and Approved Resource Management Plan); H.J. Res. 106, 119th Cong. (2025) (providing for CRA disapproval of Central Yukon Record of Decision and Approved Resource Management Plan).

[85] The White River Field Office RMP was approved in 1997. The White River Field Office RMP Amendment for oil and gas management was approved in 2015. The Grand Junction RMP was approved in 2015 and amended in 2024. The Kremmling RMP was approved in 2025. The Little Snake RMP was approved in 2011.

too old or stale to support a new leasing decision, the BLM must revise the RMP or undertake a new, thorough environmental analysis to support new leasing, such as an EIS.

Furthermore, Greater Sage-Grouse RMP Amendment relies on additional analysis at the lease sale or permitting stage, leaving the agency discretion to make decisions on whether to offer lands for lease and under what conditions. The plan amendment assumes additional density and disturbance impacts will be considered prior to authorizing development, which must be considered here. The underlying intent of the RMPA was to utilize the mitigation hierarchy to prioritize 1) avoiding, 2) minimizing, and 3) mitigating impacts to high priority wildlife. Given the importance of high priority habitat across the state, and the preference criteria established in the current oil and gas leasing regulations, the BLM can and should defer leasing in these parcels to prioritize leasing outside of important wildlife habitats. Absent deferral, BLM must fully analyze and disclose impacts or apply full No Surface Occupancy (NSO) stipulations to ensure significant impacts do not occur from the proposed decision.

Even where implicated RMPs were finalized within the last five years, the BLM must take a hard look at new resource inventories and stipulations to ensure that new leases comply with existing plans, reflect updated inventory data, and adequately protect sensitive resources. Failure to consider, analyze, and disclose these issues violates NEPA and FLPMA.

To the extent that BLM proceeds to sell the proposed parcels without deferral or additional analysis, the agency must attach full NSO stipulations to the leases to avoid making an irreversible and irretrievable commitment of resources as discussed in the "hard look" sections below.

F. The Trump Administration's energy dominance agenda cannot override the BLM's statutory obligations under FLPMA.

Under FLPMA, the BLM must manage public lands according to "multiple use" and "sustained yield" and "in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resources, and archeological values." 43 U.S.C. §§ 1701(a)(7) & (8), 1712(c)(1), 1732(a). Multiple use obligates the agency to make the "most judicious use" of public lands and their resources to "best meet the present and future needs of the American people." *Id.* § 1702(c). This requires taking "into account the long-term needs of future generations," ensuring "harmonious and coordinated management of the various resources without permanent impairment of the productivity of the land and the quality of the environment." *Id.* Sustained yield mandates "achiev[ing] and maint[aining] in perpetuity . . . a high-level annual or regular periodic output of the various *renewable* resources of the public lands consistent with multiple use." *Id.* § 1702(h) (emphasis added). The BLM must "take any action necessary to prevent unnecessary and undue degradation of the lands." *Id.* § 1732(b). "It is past doubt that the principle of multiple use does not require BLM to prioritize development over other uses. . . . Development is a possible use, which BLM *must* weigh against other possible uses including conservation to protect environmental values. . . ." *New Mexico ex rel. Richardson v. BLM*, 565 F.3d 683, 710 (10th Cir. 2009) (emphasis added).

The BLM is therefore not obligated to lease any *specific* parcel of public land for oil and gas development. The agency must retain the authority to defer lease sale parcels, even after

bidding has concluded.[86] Where conflicts exist, the agency cannot simply invoke one aspect of multiple use—mineral development based on an alleged national energy emergency—as a magic talisman to ignore other principal uses and the multiple use requirement. Moreover, where conflicts with other uses exist, the agency must affirmatively evaluate deferral of parcels in its alternatives analysis under NEPA.

G. New Leasing Locks in Permanent Impairment of Land Productivity and Future Uses

Leasing federal minerals for oil and gas development commits public lands to decades of extraction, infrastructure build-out, and associated greenhouse gas emissions that cannot be meaningfully reversed once development proceeds. This lock-in effect constitutes permanent impairment of land productivity and environmental quality within the meaning of FLPMA, particularly where future land uses, wildlife habitat connectivity, air quality, and water resources are foreclosed or substantially constrained. BLM must evaluate whether authorizing new leases—given existing leased but undeveloped acreage—would result in unnecessary or undue degradation and permanent impairment, independent of downstream combustion emissions and separate from NEPA's procedural requirements.

II. Endangered Species Act (ESA)

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

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 Fifth National Climate Assessment warns that "that "the effects of human-caused climate change are already far-reaching and worsening across every region of the United States."[87] 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.[88] Climate change is already affecting 82% of key ecological processes that underpin ecosystem function and support basic human needs.[89] Climate change-related local extinctions are widespread and have occurred in hundreds of species, including almost half of the 976 species surveyed.[90] Nearly half of terrestrial non-flying threatened mammals and nearly one-quarter of threatened birds are estimated to have been

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[86] *See McDonald v. Clark*, 771 F.2d 460, 463 (10th Cir. 1985) (holding that the "fact that land has been offered for lease does not bind the Secretary to actually lease the land, nor is the Secretary bound to lease the land when a qualified applicant has been selected"); *see also W. Energy All. v. Salazar*, No. 10-cv-0226, 2011 U.S. Dist. LEXIS 98380, at 9–23 (D. Wyo. June 29, 2011) (holding that BLM is not required to issue leases after offering them at auction; it only needs to make a decision within 60 days on *whether* to issue the leases).

[87] **Exhibit 127,** U.S. Global Change Research Program, *Fifth National Climate Assessment,* (2023), https://nca2023.globalchange.gov.

[88] **Exhibit 128,** Rachel Warren et al., *Increasing impacts of climate change upon ecosystems with increasing global mean temperature rise*, 106 CLIMATIC CHANGE 141 (2011).

[89] **Exhibit 129,** Brett R. Scheffers*, The broad footprint of climate change from genes to biomes to people,* 354 SCIENCE 719 (2016).

[90] **Exhibit 130,** John J. Wiens, *Climate-related local extinctions are already widespread among plant and animal species*, 14 PLoS Biology e2001104 (2016).

negatively impacted by climate change in at least part of their range.[91] 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.[92] 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.[93]

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.[94] 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.[95] 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 emissions scenario[96]; the potential extinction of 10 to 14% of species by 2100[97]; global extinction of 5% of species with 2°C of warming and 16% of species with business-as-usual warming[98]; 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[99]; and the loss of a third or more of animals and plant species in the next 50 years.[100]

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

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[91] **Exhibit 131,** 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."

[92] **Exhibit 132,** Fiona E.B. Spooner et al., *Rapid warming is associated with population decline among terrestrial birds and mammals globally*, 24 GLOBAL CHANGE BIO. 4521 (2018).

[93] **Exhibit 133,** Camille Parmesan & Gary Yohe, *A globally coherent fingerprint of climate change impacts across natural systems*, 421 NATURE 37 (2003); **Exhibit 134,** 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), Exhibit 182; **Exhibit 135,** I-Ching Chen et al., *Rapid range shifts of species associated with high levels of climate warming*, 333 SCIENCE 1024 (2011); **Exhibit 136,** Ilya M. D. Maclean & Robert J. Wilson, *Recent ecological responses to climate change support predictions of high extinction risk*, 108 PNAS 12337 (2011); *Increasing impacts of climate change upon ecosystems with increasing global mean temperature rise*, Exhibit 128; **Exhibit 137,** Abigail E. Cahill et al., *How does climate change cause extinction?*, 280 PROCEEDINGS OF THE ROYAL SOCIETY B 20121890 (2012).

[94] **Exhibit 138,** IPBES, Global Assessment Report on Biodiversity and Ecosystem Services (E.S. Brondízio et al eds., 2019), https://ipbes.net/news/Media-Release-Global-Assessment.

[95] 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/, Exhibit 22.

[96] **Exhibit 139,** Chris D. Thomas et al., *Extinction risk from climate change*, 427 NATURE 145 (2004).

[97] *Recent ecological responses to climate change support predictions of high extinction risk*, Exhibit 136.

[98] **Exhibit 140,** Mark C. Urban, *Accelerating extinction risk from climate change*, 348 SCIENCE 571 (2015).

[99] **Exhibit 141,** Rachel Warren et al., *Quantifying the benefit of early climate change mitigation in avoiding biodiversity loss*, 3 NATURE CLIMATE CHANGE 678 (2013).

[100] **Exhibit 142,** Cristian Román-Palacios & John J. Wiens, *Recent responses to climate change reveal the drivers of species extinction and survival*, 117 PNAS 4211 (2020).

from methane's intensive near-term heating effects and ground-level ozone production.[101]

III. One Big Beautiful Budget Act (OBBBA)

The recently enacted OBBBA, Pub. L. No. 119-21, fundamentally alters the legal landscape governing federal oil and gas leasing in ways that heighten, rather than diminish, BLM's obligations to conduct thorough environmental review before proceeding with this sale. As amended by OBBBA, Section 17 of the Mineral Leasing Act now directs that leases "shall be subject to the terms and conditions of the approved resource management plan" and "may not require any stipulations or mitigation requirements not included in the approved resource management plan." *See* Pub. L. No. 119-21, § 50101(d)(1)(a)(2)(A). In other words, OBBBA strips BLM of the sale-specific discretion it has historically exercised to impose protective stipulations as conditions of individual lease sales. Under the prior statutory regime, BLM could and routinely did use such lease-level stipulations to address resource conflicts identified during NEPA review. That safety valve is now closed: the RMP is the ceiling, not a floor, for lease terms and conditions.

This structural change has direct and critical implications for the adequacy of existing RMPs as a legal predicate for leasing. Because BLM can no longer cure resource conflicts or environmental deficiencies through sale-specific stipulations, the burden of ensuring that leasing will not cause unnecessary and undue degradation, as FLPMA requires, falls entirely on the RMP itself. An RMP that assumed BLM retained later discretion to impose protective conditions can no longer serve as an adequate legal foundation for leasing decisions made under OBBBA's constrained framework. This is analogous to the need, described above, for a programmatic EIS: just as the incremental and cumulative nature of the climate crisis compels a comprehensive programmatic analysis rather than piecemeal lease-level review, OBBBA's elimination of lease-level mitigation discretion compels a comprehensive RMP revision before any additional leasing proceeds. BLM cannot simply tier to stale RMPs that were developed under a different statutory framework and then disclaim responsibility for impacts it can no longer address at the leasing stage.

Accordingly, before proceeding with this sale, BLM must revisit and, where necessary, revise the applicable RMPs to ensure they affirmatively incorporate the full suite of protective stipulations and mitigation measures that can no longer be imposed on a sale-by-sale basis. OBBBA further provides that "[t]he initiation of an amendment to an approved resource management plan shall not prevent or delay the Secretary from making the applicable parcel of land available for leasing," Pub. L. No. 119-21, § 50101(d)(1)(a)(2)(B), but this provision cannot be read to authorize leasing predicated on an RMP that is facially inadequate to support a lawful leasing decision under either FLPMA or NEPA. To do otherwise would be to proceed with leasing based on plans that were never designed to bear the full legal weight OBBBA now places upon them, an arbitrary and capricious result that cannot withstand scrutiny under the APA. *See* 5 U.S.C. § 706(2)(A).

[101] **Exhibit 143,** 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.

IV. BLM Must Take a Hard Look at Air Quality Impacts of Continued Leasing and Drilling in the Greater Chaco

BLM must take a hard look at the direct, indirect, and cumulative air quality impacts from oil and gas development in the Greater Chaco. As with other impacts, a ten-mile withdrawal alone will not sufficiently mitigate or eliminate these impacts across the Greater Chaco landscape and its people and communities. BLM does not analyze air quality in detail in the Withdrawal EA, and instead notes more generally the possibility of beneficial effects of a 10- mile withdrawal on air quality due to emissions reductions (EA at 1-8, Table 1-4). Yet oil and gas development is one of the largest sources of air pollution in the U.S.[102] It emits nitrogen oxides ("NOX") and volatile organic compounds ("VOCs") (both of which react to form ozone), as well as sulfur dioxide (SO2). As the Endocrine Disruption Exchange has noted:

> In addition to the land and water contamination issues, at each stage of production and delivery tons of toxic volatile compounds, including benzene, toluene, ethylbenzene, xylene, etc., and fugitive natural gas (methane), escape and mix with nitrogen oxides from the exhaust of diesel-driven, mobile and stationary equipment to produce ground-level ozone. Ozone combined with particulate matter less than 2.5 microns produces smog (haze). Gas field produced ozone has created a serious air pollution problem similar to that found in large urban areas, and can spread up to 200 miles beyond the immediate region where gas is being produced. Ozone not only causes irreversible damage to the lungs, it is equally damaging to conifers, aspen, forage, alfalfa, and other crops commonly grown in the West. Adding to this is the dust created by fleets of diesel-driven water trucks working around the clock hauling the constantly accumulating condensate water from well pads to central evaporation pits.[103]

Also critical to the BLM's analysis of air quality impacts is the relationship between air quality impacts and human health.BLM also cannot rely solely on the National Ambient Air Quality Standards (NAAQS), or on other indicators such as the Air Quality Index ("AQI") or *National Air Toxics* Assessment ("NATA") and assume that attainment of these standards alone would satisfy its hard look NEPA obligations with respect to the impacts of its decisions on air quality and human health. BLM must analyze impacts in the context of *poor baseline air quality* conditions due to historical and ongoing oil and gas development across the Greater Chaco landscape, and the cumulative risks and impacts related to air quality, that continued leasing and development poses.

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[102] Clean Air Task Force, *Fossil Fumes: A Public Health Analysis of Toxic Air Pollutants from the Oil and Gas Industry* (2016), http://www.catf.us/resources/publications/files/FossilFumes.pdf

[103] The Endocrine Disruption Exchange, *Chemicals In Natural Gas Operations: Health Effects Spreadsheet and Summary.*

BLM must also take into account the lack of adequate monitoring for certain pollutants in parts of the planning area– e.g., the paucity of PM2.5 monitoring in the southern part of the planning area.

Once BLM analyzes and discloses to the public the *relationship between a*ir quality and human health, it must take this into account when identifying and selecting among a reasonable range of alternatives—e.g., in updated RMPs for the Farmington and Rio Puerco Field Offices. BLM must take a hard look at the impacts of air pollutant emissions and possible NAAQS exceedances on human health and explain its decision-making and selection of alternatives accordingly. "The agency must examine the relevant data and articulate a satisfactory explanation for its action including a 'rational connection between the facts found and the choice made." *Motor Vehicle Mfrs. v. State Farm Ins.*, *463* U.S. 29, 43 (1983).

I. Cumulative Risks and Impacts Related to Air Quality

Here, as with greenhouse gas emissions, the point of a cumulative impacts analysis is not to break emissions down into annual fractions or component parts in order to dismiss them as incremental or insignificant. BLM's cumulative impacts analyses should analyze additive and/or multiplicative short and long-term emissions and effects– the impacts which result "from the incremental impact of the action when *added* to past, present, and reasonably foreseeable future actions" (and impacts). *Diné Citizens Against Ruining Our Env't v. Bernhardt*, 923 F.3d 831, 853–55 (10th Cir. 2019).

II. NAAQS and Criteria Pollutants

The current status of air quality in the planning area should be included in BLM's NEPA analyses of the air quality impacts of its oil and gas planning, leasing, and development decisions. Even if air monitoring data indicates that the region is not currently violating the NAAQS for a particular criteria pollutant, this does not mean that the NAAQS will never be violated or that emissions are never occurring at levels that are harmful to human health. Nor can the agency rely on current NAAQS attainment status to avoid further analysis and disclosure of impacts, or further consideration of alternatives that would reduce emissions and be more protective of public health. One court has already rejected a similar analysis prepared by the BLM in support of an oil and gas drilling plan in the Roan Plateau area of western Colorado. In that case, the BLM asserted that the lack of ozone violations indicated that future impacts would not be significant, and the court rejected this argument, stating: "The mere fact that the area has not exceeded ozone limits in the past is of no significance when the purpose of the EIS is to attempt to predict what environmental effects are likely to occur in the future[.]" *Colo. Envtl.Coal. v. Salazar*, 875 F. Supp. 2d 1233, 1257 (D. Colo. 2012).

A. Ozone

Background concentrations of ozone in areas of the Farmington Field Office are

already close to exceeding the National Ambient Air Quality Standards ("NAAQS"), leaving no room for increased emissions that will further contribute to these harmful levels of ozone – namely, nitrogen oxides ("NOX") and volatile organic compounds ("VOCs"). San Juan County, which is in the planning area, has consistently received a failing grade of "F" from the American Lung Association for high ozone levels in the area.[144] Any increase in emissions of ozone precursors will exacerbate the negative health effects of ozone in the region, and is almost certain to threaten compliance with EPA's ozone standard.

Ozone has long been recognized to cause adverse health effects. Exposure to ozone can cause or exacerbate respiratory health problems—including shortness of breath, asthma, chest pain and coughing—can decrease lung function, and can even lead to long-term lung damage. *See also* EPA's National Ambient Air Quality Standards for Particulates and Ozone, 62 FR 38,856 (July 18, 1997). Even short-term exposure to ozone causes multiple negative respiratory effects, from inflammation of airways to more serious respiratory effects that can lead to use of medication, absences from school and work, hospital admissions, emergency room visits, and chronic obstructive pulmonary disease ("COPD"). According to a report by the National Research Council ("NRC"), short-term exposure to current levels of ozone in many areas is likely to contribute to premature deaths.[104] Long-term exposure to elevated levels of ozone also results in numerous negative harmful effects, such as permanent lung damage and abnormal lung development in children. Long-term exposure may also increase risk of death from respiratory problems. Both short- and long-term exposure to elevated levels of ozone can harm people's hearts and cardiovascular systems. *See* 79 Fed. Reg. 75234-311. In recognition of these risks, EPA published a final rule on October 26, 2015 to revise the NAAQS for ozone to 70 parts per billion (ppb), from 75 ppb. *See* National Ambient Air Quality Standards for Ozone, 80 Fed. Reg. 65292 (Oct. 26, 2015). This decision was driven by significant recent scientific evidence that the standard of 75 ppb was not adequately protecting public health. *Id.* at 136. In fact, recent studies have documented decreased lung functioning and airway inflammation even in young, healthy adults at ozone concentrations as low as *60* ppb. *Id.* at 146. These adverse effects are likely to be even worse for very young and elderly people, or people with underlying health conditions.[105] Monitoring data collected according to an agreement between Navajo Nation EPA and Counselor Chapter shows measured ozone concentrations up to 67.5 ppb in 2016-2017, far exceeding the aforementioned concentration of 60 ppb at which adverse health effects are observed (and coming close to the 70 ppb NAAQS threshold as well).

In addition, climate change is likely to worsen ozone pollution, offsetting improvements in air quality and public health that would be expected from reductions in emissions of ozone precursors. As described by the EPA in its 2015 ozone rulemaking:

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[104] National Research Council, *Link Between Ozone Air Pollution and Premature Death Confirmed,* (April 2008), available at: http://www8.nationalacademies.org/onpinews/newsitem.aspx?RecordID=12198.
[105] U.S. CDC, "Outdoor Air Quality" at 3, *available at* https://www.cdc.gov/pictureofamerica/pdfs/Picture_of_America_Air_Quality_Final.pdf

> In addition to being affected by changing emissions, future O3 concentrations may also be affected by climate change. Modeling studies in the EPA's Interim Assessment (U.S. EPA, 2009a) that are cited in support of the 2009 Endangerment Finding under CAA section 202(a) (74 FR 66496, Dec. 15, 2009) as well as a recent assessment of potential climate change impacts (Fann et al., 2015) project that climate change may lead to future increases in summer O3 concentrations across the contiguous U.S. While the projected impact is not uniform, climate change has the potential to increase average summertime O3 concentrations by as much as 1-5 ppb by 2030, if greenhouse gas emissions are not mitigated. Increases in temperature are expected to be the principal factor in driving any O3 increases, although increases in stagnation frequency may also contribute (Jacob and Winner, 2009). If unchecked, climate change has the potential to offset some of the improvements in O3 air quality, and therefore some of the improvements in public health, that are expected from reductions in emissions of O3 precursors.

80 Fed. Reg. 65292, 65300 (October 26, 2015). For example, climate change impacts include an increase in the area burned by wildfires, which, in turn are sources of O3 precursors. *Id.* at 65371.

B. Particulate Matter

Particulate matter, especially PM2.5, is another source of health risks and impacts and other adverse impacts related to air pollution in the Greater Chaco, at which BLM must take a hard look in its NEPA analyses. PM2.5 can become lodged deep in the lungs or can enter the bloodstream, worsening the health of asthmatics and even causing premature death in people with heart and lung disease.[106] Even PM2.5 concentrations lower than the current NAAQS are a concern for human health.[107] And it is likely that current PM2.5 levels will increase with continued oil and gas development in the area. PM2.5 is of particular concern here given the lack of monitoring in the southern part of the Farmington Field Office. Further, even small PM2.5 increases are associated with higher COVID-19 death rates. Researchers at Harvard University have found that an increase of only 1 $\mu g/m^3$ in PM2.5 is associated with an 8% increase in the COVID-19 death rate (95% confidence interval [CI]: 2%, 15%). The results were statistically significant and robust to secondary and sensitivity analyses.[108] They concluded that:

> A small increase in long-term exposure to PM2.5 leads to a large increase in the COVID- 19 death rate. Despite inherent limitations of the ecological study design, our results underscore the importance of continuing to enforce existing air pollution

[106] Id at 6.
[107] Id at 7.
[108] Xiao Wu et al., *Exposure to Air Pollution and COVID-19 Mortality in the United States*, medRxiv 2 (Apr. 27, 2020) *available at* https://www.science.org/doi/epdf/10.1126/sciadv.abd4049 .

regulations to protect human health both during and after the COVID-19 crisis. The data and code are publicly available so our analyses can be updated routinely.[109]

Short-term exposure to PM2.5 is also dangerous, and can even lead to premature death[152]— and BLM should not dismiss such exposures as too "temporary" to be significant.

PM10 is also a criteria pollutant of concern in the region. While PM10 particles are larger than PM2.5 particles, they can still cause adverse respiratory health effects and exacerbate existing respiratory conditions. Monitoring data from Counselor Chapter, cited by BLM in Vol. I of its Farmington Draft RMPA/EIS at 3-14, Table 3-7, shows measured PM10 concentrations in 2016-2017 of up to 140.8 μg/m,^{3} which is about 94% of the 150 μg/m^3 24-hour NAAQS threshold, "not to be exceeded more than once per year on average over 3 years."[110]

C. Hazardous Air Pollutants

BLM must also analyze and disclose impacts from hazardous air pollutants associated with fracking, including 1,3-butadiene and secondary formaldehyde. The BLM has completed a more comprehensive analysis of HAPs in other NEPA analyses which resulted in significant impacts from HAPs. For example, in the Gasco EIS in Utah, BLM evaluated short-term and long-term impacts from numerous HAPs, including methanol, chlorinated solvents and acrolein.[111] The Gasco EIS analysis found elevated cancer risks for acetaldehyde, 1,3-butadiene, and ethylene dibromide. The Gasco EIS also reported acrolein emissions that exceeded the acute Reference Exposure Level (REL) and the Reference Concentration for Chronic Inhalation (RfC). Therefore, BLM can, and must, include a more comprehensive analysis of HAP impacts in future NEPA analyses involving oil and gas development (and the potential benefits of mineral withdrawal) in the Greater Chaco, and, in addition to the HAPs identified above, the BLM should also assess any HAP impacts associated with emissions from hydraulic fracturing fluids. It is important to continue to improve upon the HAP analyses conducted under NEPA in order to analyze and disclose to the public whether there are significant health impacts from near-field exposure to HAPs from additional oil and gas development in the Greater Chaco.

D. Regional Haze, Visibility, and Ecosystem Impacts

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[109] *Id.* at 2-3; *See also* HARVARD UNIVERSITY, *COVID-19 PM2.5 A National Study on Long-term Exposure to Air Pollution and COVID-19 Mortality in the United States,* https://projects.iq.harvard.edu/covid-pm/home (last visited Aug. 19, 2020); *See also* Liu, C., Chen, R., Sera, F., Vicedo-Cabrera, A. M., Guo, Y., Tong, S., . . . Kan, H. (2019). Ambient Particulate Air Pollution and Daily Mortality in 652 Cities. New England Journal of Medicine, 381(8), 705–715. https://doi.org/10.1056/NEJMoa1817364.

[110] https://www.epa.gov/criteria-air-pollutants/naaqs-table

[111] *See* BLM Gasco Energy Project FEIS, Table 4-12, Table 4-19 and Appendix H. April 2010.

Much of the air pollution from oil and gas development and operations degrades visibility. Section 169A of the Clean Air Act ("CAA"), 42, U.S.C. § 7401 *et seq.* (1970) sets forth a national goal for visibility, which is the "prevention of any future, and the remedying of any existing, impairment of visibility in Class I areas which impairment results from manmade air pollution." Congress adopted the visibility provisions in the CAA to protect visibility in "areas of great scenic importance." H.R. Rep. No. 294, 95th Cong. 1st Sess. at 205 (1977). In promulgating its Regional Haze Regulations, 64 Fed. Reg. 35,714 (July 1, 1999), the U.S. Environmental Protection Agency ("EPA") provided:

> Regional haze is visibility impairment that is produced by a multitude of sources and activities which emit fine particles and their precursors and which are located across a broad geographic area. Twenty years ago, when initially adopting the visibility protection provisions of the CAA, Congress specifically recognized that the "visibility problem is caused primarily by emission into the atmosphere of SO2, oxides of nitrogen, and particulate matter, especially fine particulate matter, from inadequate[ly] controlled sources." H.R. Rep. No. 95-294 at 204 (1977). The fine particulate matter (PM) (e.g., sulfates, nitrates, organic carbon, elemental carbon, and soil dust) that impairs visibility by scattering and absorbing light can cause serious health effects and mortality in humans, and contribute to environmental effects such as acid deposition and eutrophication.

The visibility protection program under sections 169A, 169B, and 110(a)(2)(J) of the CAA is designed to protect Class I areas from impairment due to manmade air pollution. The current regulatory program addresses visibility impairment in these areas that is "reasonably attributable" to a specific source or small group of sources, such as, here, air pollution resulting from oil and gas development and operations authorized by the RMPA. *See* 64 Fed. Reg. 35,714.

Moreover, EPA finds the visibility protection provisions of the CAA to be quite broad. Although EPA is addressing visibility protection in phases, the national visibility goal in section 169A calls for addressing visibility impairment generally, including regional haze. *See e.g., State of Maine v. Thomas*, 874 F.2d 883, 885 (1st Cir. 1989) ("EPA's mandate to control the vexing problem of regional haze emanates directly from the CAA, which 'declares as a national goal the prevention of any future, and the remedying of any existing, impairment of visibility in Class I areas which impairment results from manmade air pollution.' ") (citation omitted).

Here, there are numerous Class I areas within or near the Greater Chaco area, but outside of the existing 10-mile withdrawal area, that may be impacted by continued oil and gas development, including: Bandelier National Monument, Wheeler Peak Wilderness, San Pedro Parks Wilderness, Cruces Basin Wilderness, Chama River Canyon Wilderness and Pecos Wilderness in New Mexico, as well as Weminuche

Wilderness, La Garita Wilderness, South San Juan Wilderness, Great Sand Dunes National Park, and Mesa Verde National Park in Colorado.

4. BLM Must Take a Hard Look at Water Impacts of Continued Leasing and Drilling in the Greater Chaco

BLM must also analyze direct, indirect, and cumulative risks and impacts to water quality and quantity that will result from fracking and increased oil and gas development. A federal district court in New Mexico held that BLM was required to quantify reasonably foreseeable impacts to water quantity, including "mak[ing] estimates of potential water usage for the different methods of hydraulic fracturing[.]". *San Juan Citizens All. v. United States Bureau of Land Mgmt.*, 326 F. Supp. 3d 1227, 1245 (D.N.M. 2018); *Diné CARE v. Bernh*ardt, 923 F. 3d 831, 854, 857 (10th Cir. May 7, 2019)(holding that BLM failed to assess cumulative impacts to water resources, and stating, "[o]nce the 2014 RFDS [reasonably foreseeable development scenario] issued, it became reasonably foreseeable to the BLM that the projected wells would be drilled, so the BLM needed to consider the cumulative impacts of all those wells, even if the wells were not going to be drilled immediately."). Thus, BLM is required to analyze the impacts to water quality and quantity in compliance with NEPA.

Fracking consumes a massive amount of water. Anywhere between 1.5 million and 16 million gallons of water may be used to frack a single well, according to the United States Geological Survey (USGS), depending on a few factors, including the type of well and rock formation.[112] Water used for hydraulic fracturing is typically fresh water taken from groundwater and surface water resources. Although there are increasing efforts to use nonpotable water, some of these sources also supply drinking water. U.S. water consumption for fracking is still considered "negligible"[113] compared with other industrial water uses (such as the cooling of coal-fired power plants). But fracking operations can strain resources in areas where freshwater supplies for drinking, irrigation, and aquatic ecosystems are scarce (and often becoming scarcer thanks to climate change). Water used for fracturing is too contaminated to return to its source without extensive treatment and so typically is disposed of deep underground, where it is removed from the freshwater cycle. Oil and gas well development in the Greater Chaco area requires water to be trucked to the facility project area and also results in produced water (or wastewater), which often requires trucks to dispose of the byproduct of drilling/production/operation of BLM approved oil and gas facilities. BLM should have adequate information on this truck traffic associated with water needed for oil and gas operations approved by BLM. These impacts could be significant as the dirt roads in the region do not support extensive truck traffic and adversely impact communities.

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[112] Exhibit 144. NRDC, *Fracking 101* (April 2019), https://www.nrdc.org/stories/fracking-101 (hereinafter, "Fracking 101")(citing U.S. Geological Survey, *How much water does the typical hydraulically fractured well require?, available at:* https://www.usgs.gov/faqs/how-much-water-does-typical-hydraulically-fractured-well-require?qt- news_science_products=0#qt-news_science_products

[113] *Id.* (citing Andrew J. Kondash, et al., *The intensification of the water footprint of hydraulic fracturing,* Science Advances 15 Aug 2018:Vol. 4, no. 8, eaar5982, available at: https://advances.sciencemag.org/content/4/8/eaar5982.full.

Fracking operations not only strain water resources but risk polluting them as well.[114] A 2016 EPA analysis found that while large data gaps and uncertainties make it difficult to fully assess the impact on drinking water, fracking operations can—and do—affect drinking water resources.[115] The activities that pose the biggest threats include spills and leaks of fracking fluids, the injection of fluids into inadequately built wells, and poor wastewater management practices.

The amount of water used per fracking operation has grown over time, exacerbating fracking's impact on water supplies. In fact, a Duke University analysis found that while U.S. producers scaled back on the installation of new wells between 2011 and 2016, the amount of water used for hydraulic fracturing surged.[116] In the already drought-ridden Permian Basin region of West Texas, for example, water use for fracking during those years increased by as much as 770 percent.[117] Also concerning is the fact that the amount of wastewater generated during a well's first year of production increased by as much as 1,440 percent during the study period. The authors predicted fracking's water footprint—the amount of water used and discarded—could increase by up to 50-fold in some regions by 2030.[118] Such water use is especially unacceptable given that New Mexico recently experienced the driest winter in at least 131 years, with the lowest snowpack ever recorded.[119]

Spills and leaks can occur throughout the fracking process, including during the transportation of concentrated chemical additives; the mixing and pumping of fracturing fluids; and the storage, transportation, and disposal of used fracturing fluid and wastewater. Both human error and equipment failure can cause spills and leaks, and some spills are known to have reached surface water resources, according to the EPA.[120]The agency's analysis of spill reports from 11 states revealed 151 spills of fracking fluids or additives between 2006 and 2012, with nearly 10 percent of those spills (ranging from 28 to 7,350 gallons) ending up in creeks, streams, or other bodies of water. The full impact can be difficult to measure, however, for many reasons, including that the chemical makeup of the spilled fluid may be unknown or poorly described, and the ultimate fate of the spilled fluids and impacts of the spill are not typically studied.

Oil and gas wells must be properly constructed to withstand intense temperature and

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[114] Fracking 101, *supra* (citing NRDC, *Hydraulic Fracturing Can Potentially Contaminate Drinking Water Sources* (2012), https://www.nrdc.org/sites/default/files/fracking-drinking-water- fs.pdf.).
[115] Fracking 101, *supra* (citing 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 (Final Report)* (2016) , *available at*: https://cfpub.epa.gov/ncea/hfstudy/recordisplay.cfm?deid=332990).
[116] *Id.* (citing State Impact Pennsylvania, *Fracking industry water use rises as drills extend, study says*, https://stateimpact.npr.org/pennsylvania/2018/08/15/fracking-industry-water-use-rises-as-drills-extend-study-says/).
166 *Id.* (citing https://www.sciencedaily.com/releases/2018/08/180815141441.htm
[117] Id.
[118] Id.
[119] https://news.unm.edu/news/university-of-new-mexico-professor-explains-unusually-warm-dry-southwest-winter
[120] Fracking 101.

pressure fluctuations. Otherwise, a well may be damaged, possibly allowing oil, gas, and fracking fluid to leak. For example, the EPA faulted burst casings—the steel pipes used to construct wells—in the leakage of fracking fluids into wells used to monitor water quality in Killdeer, North Dakota, in 2010.[121] Another study, of 133 cases of suspected drinking water contamination in Pennsylvania and Texas, pointed to faulty well construction as the likely reason behind some cases of methane pollution.[122]

Every year, the oil and gas industry generates billions of gallons of wastewater, a potentially hazardous mixture of flowback (used fracking fluid), produced water (naturally occurring water that is released with the oil and gas), and any number of other naturally occurring contaminants ranging from heavy metals, salts, and toxic hydrocarbons like benzene to radioactive materials such as uranium.[123] This wastewater can enter and contaminate the environment in myriad ways: when transported (in 2015, for example, a broken North Dakota pipeline carrying produced water spilled about three million gallons of contaminants into a nearby creek), when stored (open pits that hold wastewater aboveground can spill, leak, and emit air pollution), or when treated (wastewater treatment facilities unable to properly handle pollutants found in fracking waste can release contaminants into surface waters).[124] Even the recycling of wastewater poses a threat as it generates concentrated waste products, including a by-product called TENORM (technologically enhanced naturally occurring radioactive material), which must then be properly managed. Recycled wastewater must also be appropriately treated for its intended end use, which can be challenging when companies do not fully disclose all the chemical contents.

Although industry often asserts that hydraulic fracturing is safe and doesn't result in contamination or harm to people and the environment, a *New York Times* investigation uncovered a 1987 U.S. Environmental Protection Agency ("EPA") report to Congress which found, among other things, that fracking can cause groundwater contamination, and cites as an example a case where hydraulic fracturing fluids contaminated a water well in West Virginia.[125] This EPA report was further summarized and reviewed in an Environmental Working Group report, and demonstrates the long-known dangers of employing this technology to extract mineral resources.[126] More recent accounts support this conclusion.[127]

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[121] I*d.* (citing https://www.epa.gov/sites/production/files/2015-06/documents/final_killdeer_nd_fact_sheet_6_03_508_km.pdf).

[122] Id.

[123] Id.

[124] Id.

[125] *See* EPA, Report to Congress, *Management of Wastes from the Exploration, Development, and Production of Crude Oil, Natural Gas, and Geothermal Energy* at Ch. IV (Dec. 1987);*see also* Drilling Down, *Documents: A Case of Fracking Related Contamination*, THE NEW YORK TIMES ONLINE, http://www.nytimes.com/interactive/us/drilling-down-documents-7.html?_r=1&.

[126] *See*, Environmental Working Group, *Cracks in the Façade: 25 Years ago, EPA Linked "Fracking" to Contamination* (Aug. 2011), https://static.ewg.org/reports/2011/Cracks-in-the-Facade.pdf

[127] *See, e.g.,* TEDX, *Scientific Literature*; *see also* BLM, *Hydraulic Fracturing on Federal and Indian Lands*, 80 Fed. Reg. 161,128 (Mar. 26, 2015).

These potential water quality and quantity impacts are also an environmental justice issue, and can exacerbate or contribute to health inequities, as demonstrated during the COVID-19 pandemic. Underlying inequities in access to safe, potable water amplify the health risks and cumulative impacts from spills and other water issues, and make it far more difficult to mitigate or avoid impacts or find alternative water supplies. For example, approximately 40% of families in the Navajo Nation already lack running water in their homes, and over half of households in some census block groups in the planning area lack complete plumbing.[128] BLM must take a hard look at this information when analyzing the significance of water quality and quantity impacts of fracking and evaluating alternatives and mitigation measures for its decisions, particularly in the environmental justice context.

BLM must also do more than merely *quantify* estimated water impacts–it must actually *analyze* them. *See High Country*, 52 F. Supp. 3d at 1190 ("Beyond quantifying the amount of emissions relative to state and national emissions and giving general discussion to the impacts of global climate change, [the agencies] did not discuss the impacts caused by these emissions."); *Klamath-Siskiyou Wildlands Ctr. v. Bureau of Land Mgmt.*, 387 F.3d 989, 995 (9th Cir. 2004) ("A calculation of the total number of acres to be harvested in the watershed is . . . not a sufficient description of the actual environmental effects that can be expected from logging those acres.")

BLM should also take into account impacts to specific aquifers and water resources in the Greater Chaco, and look to additional resources such as the Navajo Nation Aquifer Protection Plan[129] in doing so. The need to take a hard look at water resources also underscores the need for BLM to engage in meaningful, ongoing consultation and meaningful involvement with frontline communities who know firsthand the risks and impacts to their water resources.

5. Water Quantity and Health Impacts.

With respect to water quality and quantity and health impacts, in addition to the considerations discussed *infra*, BLM should also consider how the revocation and reasonably foreseeable development of the resulting leases could exacerbate water quality-related health impacts associated with PFAS contamination. For example, a 2023 report by Physicians for Social Responsibility (PSR) reveals the use of these health-harming "forever chemicals" in oil and gas operations in New Mexico and the staggering amounts of undisclosed chemicals used under trade protections that could be additional PFAS or other toxic substances.[113] BLM should take this report and the concerns it raises into account in its analysis and decision-making with respect to health impacts and potential impacts to groundwater and drinking water from PFAS "forever chemicals" used in oil and gas drilling and fracking.

[128] *See* Exhibit 153, Shiloh Deitz and Katie Meehan, *Plumbing Poverty: Mapping Hot Spots of Racial and Geographic Inequality in U.S. Household Water Insecurity*, Annals of the American Association of Geographers, Vol. 109, Issue 4 (March 8, 2019)

[129] *See* Navajo Nation Environmental Protection Agency, Public Water Systems Supervision Program, "Aquifer Protection Program," http://www.navajopublicwater.org/APP.html

6. BLM Must Take a Hard Look at Impacts to Human Health from Past, Present, and Future Leasing and Drilling in the Greater Chaco—Particularly Cumulative Impacts

Given the amount of historic, ongoing, and already-permitted oil and gas extraction and related activity, BLM must take a hard look at the health risks and impacts of the proposed revocation across the Greater Chaco landscape and its people and communities—particularly when it comes to cumulative risks and impacts, and particularly in light of unjust legacies of colonization, extraction, and environmental racism in the region. Commenters urge BLM to consider the health risks and impacts associated with the revocation in detail in the draft EA.

More broadly, BLM must analyze and attempt to mitigate reasonably foreseeable direct, indirect, and cumulative human health risks and impacts resulting from oil and gas leasing and development in its NEPA processes, including a landscape-level planning process and RMP update. 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. 42 U.S.C. § 4332(2)(c). 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." 42 U.S.C. § 4332(2)(C); formerly codified at 40 C.F.R. § 1508.1(g)(4) (rescinded Jan. 8, 2026); in pre-2020 regulations, 40 C.F.R. § 1508.8 (emphasis added). promote public policy attentive to the inexorable link between human well-being and environmental integrity.[237] One of NEPA's key authors 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." Commenters emphasize that the revocation of PLO 7923 would eliminate protections that currently reduce adverse health risks and impacts associated with fracking (and mining).

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

BLM must include an analysis of reasonably foreseeable human health impacts resulting from oil and gas leasing and development, including issues related to health and safety risks and impacts.

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."[130] 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."[131] This database is organized into several categories, and for the "Health" category alone, there are over 260 studies listed, including several recent studies from 2019-2022. 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.[132]

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[130] *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 4, 2022).
[131] *Id.*
[132] *See, e.g.,* **Exhibit 41**, 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 42**, 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 43**, Roxana Z. Witter, et al., *The Use of Health Impact Assessment for a Community Undergoing Natural Gas Development,* FRAMING HEALTH MATTERS (2013); **Exhibit 44**, 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 45**, John L. Adgate, et al., *Potential Public Health Hazards, Exposures and Health Effects from Unconventional Natural Gas Development*, ENVIRONMENTAL SCIENCE & TECHNOLOGY (2014); **Exhibit 46**, Christopher W. Moore, et al., *Air Impacts of Increased Natural Gas Acquisition, Processing, and Use: A Critical Review*, ENVIRONMENTAL SCIENCE & TECHNOLOGY (2014); **Exhibit 47**, Avner Vengosh, et al., *The effects of shale gas exploration and hydraulic*

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.[133] For example, one study found that babies whose parents lived in close proximity to multiple oil and gas wells were 30% more likely to be born with heart defects than babies born to parents who did not live close to oil and gas wells.[134] 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.[135]

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."[136]

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fracturing on the quality of water resources in the United States, PROCEDIA EARTH AND PLANETARY SCIENCE (2014); **Exhibit 48**, 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 49**, 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 50**, 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 51**, K.D. Retzer, *et al., Motor vehicle fatalities among oil and gas extraction workers,* ACCIDENT ANALYSIS & PREVENTION (2013); **Exhibit 52,** 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 53**, 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: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5289909/.

[133] *See, e.g.,* **Exhibit 54**, 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 55**, 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 56**, 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 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).

[134] *See* McKenzie *et al.*, *Birth Outcomes*, *supra* Exhibit 54.

[135] *See* **Exhibit 57,** 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).

[136] *Id*.

A 2023 review of literature on health impacts of fracking by Physicians for Social Responsibility ("PSR") concluded that:

> In sum, the vast body of scientific studies now published on hydraulic fracturing in the peer-reviewed scientific literature confirms that the climate and public health risks from fracking are real and the range of environmental harms wide. **Our examination uncovered no evidence that fracking can be practiced in a manner that does not threaten human health directly or without imperiling climate stability upon which human health depends.**
>
> The rapidly expanding body of evidence compiled here is massive, troubling, and cries out for decisive action. Across a wide range of parameters, the data continue to reveal a plethora of recurring problems that cannot be sufficiently averted through regulatory frameworks. The risks and harms of fracking are inherent in its operation. The only method of mitigating its grave threats to public health and the climate is a complete and comprehensive ban on fracking. Indeed, a fracking phase-out is a requirement of any meaningful plan to prevent catastrophic climate change.[137]

"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.[138] Many others call for setbacks of even greater distances. One study found adverse health impacts at distances of six miles.[139] 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.[140] 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

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[137] **Exhibit 58,** Physicians for Social Responsibility and Concerned Health Professionals of NY, Compendium of Scientific, Medical, and Media Findings Demonstrating Risks and Harms of Fracking, 9th Edition (2023). [Hereinafter PSR 2023].

[138] *See* Webb *et al*., *supra* Exhibit 56.

[139] **Exhibit 59**, 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).

[140] Mckenzie et al., *Birth Outcomes*, *supra*, Exhibit 54.

likelihood and severity/magnitude of health effects.[141] 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. 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[142] specifically in the oil and gas drilling context.[143]

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[141] *See, e.g.*, **Exhibit 60**, *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).

[142] *See, e.g.,* **Exhibit 61**, 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 62**, 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 63**, 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 64**, 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").

[143] *See, e.g.,* **Exhibit 65**, 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-

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.[144] 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).[145]

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 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.[146]

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

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topics-in-public-health/the-need-to-measure-and-manage-the-cumulative-impacts-of-resource-development-on-public-health-an-au; *See also* **Exhibit 66**, 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).

[144] Meleah et al., Exhibit 60.

[145] Meleah et al., Exhibit 60.

[146] 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.

vulnerable populations.[147] 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[148] and children.[149] 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.[150] BLM also cannot dismiss the potential for elevated pollution concentrations —and associated, potentially significant health risks and effects—in rural areas simply because those areas are sparsely populated. The potentially significant air pollutant emissions from those wells cannot be ignored simply because they are located in rural areas. BLM also acknowledges the potential for health and safety risks and impacts from increased vehicle traffic associated with oil and gas development in the region. That traffic, too, likely contributes to additional criteria pollutant emissions, particulate matter, and others.

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 that NEPA requires BLM to analyze here. 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, or a small percent of total air pollutant emissions. 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—as with GHG emissions, 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. And, as with GHG emissions, BLM must put these emissions into context and discuss their potentially significant *impacts*, including health risks and impacts.

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

[147] **Exhibit 67**, Brown, David et al., *Understanding Exposure From Natural Gas Drilling Puts Current Air Standards to the Test.* 29 REVIEWS ON ENVIRONMENTAL HEALTH 277 (2014).
[148] **Exhibit 68**, NRDC [Natural Resources Defense Council], Drilling in California: Who's At Risk?, October 2014 ("NRDC 2014"); **Exhibit 69**, 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 70**, McKenzie, Lisa M. et al., *Population Size, Growth, and Environmental Justice Near Oil and Gas Wells in Colorado*, 50 ENVIRONMENTAL SCIENCE & TECHNOLOGY 11471 (2016).
[149] **Exhibit 71**, Webb, Ellen et al*., Developmental and reproductive effects of chemicals associated with unconventional oil and natural gas operations*, 29 Rev Environ Health 307 (2014).
[150] NRDC 2014, Exhibit 68.

health and environmental justice issues, may endure long after the acute exposure source is gone. BLM should explain how HAP emissions from future lease sales, coupled with other reasonably foreseeable direct, indirect, and cumulative emissions and effects, could affect these populations, take this into account in its decision-making, and articulate a rational connection between the facts found and the choices made regarding leasing.

We request BLM consider, and disclose to the public directly in its NEPA documents, context for EPA's risk ranges, even as there is no singular "safe" threshold for HAPs. While BLM acknowledges that there are populations who could experience increased risks associated with HAPs exposure, the agency should take the next step and discuss how this informs a determination of significance and articulate a rational connection between the facts found and the leasing decisions made. BLM must ensure that the additional information informs its decision-making, and articulate a rational connection between the facts found and the choices made. This is particularly important given the potential for cancer risks to the most exposed.

BLM also cannot dismiss cumulative health impacts as "temporary," and thus avoid taking a hard look at cumulative impacts, by simply assuming that wells will be properly plugged and reclaimed "at the end of their useful lives, and thus cease to cause health risks and impacts at that time. For one, a well's time in production 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 areas *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 nearby Western states such as Colorado, New Mexico, and Wyoming.[151] These wells can leach toxic chemicals and contaminate water supplies, posing direct and cumulative health risks to nearby communities.[152] 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,[153] which can further compound existing health impacts, including cumulative impacts, and related health inequities.[154]

c. Health and Environmental Justice.

BLM must also take a hard look at the inexorable relationship between health and environmental justice. 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,

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[151] *See, e.g.,* **Exhibit 72**, 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.
[152] *Id*. Exhibit 72.
[153] *Id.* Exhibit 72; *See also* **Exhibit 73**, 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 74**, U.S. Gov't Accountability Office, Bureau of Land Management Should Address Risks from Insufficient Bonds to Reclaim Wells, GAO-19-615 (Sept. 2019).
[154] PSR 2023, Exhibit 58.

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.

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,[155] where available, or mapping of pollution exposure risks and demographic data——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, 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.[156] More broadly, a recent study found that if implemented, nationwide efforts to 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.[157]

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.[158] 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

[155] 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.

[156] **Exhibit 75**, 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); Webb, Ellen et al.; **Exhibit 76**, Clean Air Task Force, Fossil Fumes: A Public Health Analysis of Toxic Air Pollution From the Oil and Gas Industry, June 2016, *available at* http://www.catf.us/resources/publications/files/FossilFumes.pdf.

[157] **Exhibit 77**, 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 energy related 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).

[158] **Exhibit 78**, Theo Colborn *et al.*, *An exploratory study of air quality near natural gas operations*, HUM. ECOL. RISK ASSESS. (Nov. 9, 2012) [Hereinafter Colborn 2012].

effects.[159] 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.[160]

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.[161] 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."[162] Consequently, such thresholds may not apply to individuals experiencing "chronic, sporadic, low-level exposure," including sensitive populations such as children, the elderly, and pregnant women.[163] 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.[164] 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.[165]

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.[166] 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.[167]

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[159] *Id.* at pp. 21–22 (pages refer to page numbers in attached manuscript and not journal pages), Exhibit 78.
[160] *Id.* at 11, Exhibit 78.
[161] *Id.* at 10, Exhibit 78.
[162] *Id.* at 11–12, Exhibit 78.
[163] *Id.* at 12, Exhibit 78.
[164] *Id.* at 10–11, Exhibit 78.
[165] *Id.* at 12, Exhibit 78.
[166] **Exhibit 79**, Rasmussen, Sara G. *et al.*, *Association Between Unconventional Natural Gas Development in the Marcellus Shale and Asthma Exacerbations,* 176 JAMA INTERNAL MEDICINE 1334 (2016).
[167] **Exhibit 80**, Willis, Mary D. et al., *Unconventional natural gas development and pediatric asthma hospitalizations in Pennsylvania,* 166 ENVIRONMENTAL RESEARCH 402 (2018).

BLM should analyze these asthma-related effects in relation to existing asthma rates and hospitalizations and related impacts in Greater Chaco communities. For example, in San Juan and Rio Arriba Counties, child asthma hospitalizations exceed the New Mexico state average. Rio Arriba and McKinley Counties have some of the highest rates of asthma emergency department visits in Northern New Mexico, also in excess of the state average (and rates are likely underestimated in this data set because many asthma-related visits in the region are to IHS facilities, which were not included here). 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 adulthood), and resulting in significant funding losses for local schools. As the New Mexico Department of Health has noted, and nationwide studies confirm, "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. For example, from 2013-2017 (the most recent data available on NM Dept. of Health IBIS database), over 1/3 of San Juan County residents do not have a primary care provider, and over 16% of adults in San Juan County were unable to get needed care due to cost.

Ozone is a criteria pollutant of particular concern 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. Smog is also responsible for almost 9,000 missed school days in New Mexico. And San Juan and Sandoval County, specifically, received a failing grade of "F" from the American Lung Association for high ozone days. 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. 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.168

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.[169] Children are particularly vulnerable because their lungs are still developing until about age 18.[170] 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

[168] **Exhibit 86,** 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.
[169] *See* **Exhibit 87,** EPA, *Ozone – Good Up High Bad Nearby*, available at: http://www.epa.gov/oar/oaqps/gooduphigh/bad.html#7.
[170] *See* **Exhibit 88,** U.S. EPA, "Children are Not Little Adults," *https://www.epa.gov/children/children-are-not-little-adults.*

developing asthma. In a letter to former EPA Administrator Lisa Jackson, a group of five 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.[171]

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.[172] 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.[173] Other studies have found that residents living closer to drilling and fracking operations had higher hospitalization rates[174] and reported more health symptoms including upper respiratory problems and rashes.[175]

E. Prenatal and Child Health Impacts.

Numerous studies also suggest that higher exposure to fracking and drilling during pregnancy can increase the incidence of high-risk pregnancies, premature births, low-birthweight babies, and birth defects.[176] 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 for babies born to people living within 3 kilometers of fracking sites.[177] The study estimated that about 29,000 U.S. births each year occur within 1 kilometer of an active fracking site and "that these births therefore may be at higher risk of poor birth outcomes." A study of

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[171] *See* **Exhibit 89**, Letter from American Lung Association to U.S. EPA (November 30, 2011).
[172] **Exhibit 90**, 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).
[173] **Exhibit 91**, 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).
[174] **Exhibit 92**, Jemielita, Thomas et al., *Unconventional Gas and Oil Drilling Is Associated with Increased Hospital Utilization Rates.* 10 PLoS ONE e0131093 (2015).
[175] **Exhibit 93**, Rabinowitz, Peter M. et al., *Proximity to Natural Gas Wells and Reported Health Status: Results of a Household Survey in Washington County, Pennsylvania*, 123 ENVT'L HEALTH PERSPECTIVES 21.
[176] *See, e.g.,* PSR 2023 at 263–265, Exhibit 58.
[177] Currie, Janet et al., Exhibit 55.

9,384 pregnant people in Pennsylvania found that those 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.[178] Another Pennsylvania study found that pregnant people with greater exposure to gas wells during pregnancy—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.[179] In rural Colorado, those people with greater exposure to natural gas wells during pregnancy had a higher risk of having babies with congenital heart defects and possibly neural tube defects.[180] 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.[181] 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[182] (an exacerbating factor in the Eagle Ford Shale study), and social and structural inequities, such as limited access to prenatal care. 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.[183] 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, 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.[184] As summarized below:

Drilling and fracking jobs are among the most dangerous jobs in the nation with a

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[178] **Exhibit 95**, Casey, Joan A., *Unconventional Natural Gas Development and Birth Outcomes in Pennsylvania, USA*, 27 EPIDEMIOLOGY 163 (2016).
[179] **Exhibit 96**, Stacy, Shaina L. et al., *Perinatal Outcomes and Unconventional Natural Gas Operations in Southwest Pennsylvania*. 10 PLoS ONE e0126425 (2015).
[180] McKenzie, *Birth Outcomes* (2014), Exhibit 54.
[181] *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), Exhibit 36.
[182] *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.
[183] **Exhibit 97**, Esswein, Eric J. et al., *Occupational Exposures to Respirable Crystalline Silica During Hydraulic Fracturing*, 10 JOURNAL OF OCCUPATIONAL AND ENVIRONMENTAL HYGIENE 347 (2013); **Exhibit 98**, Esswein, Eric et al., *Evaluation of Some Potential Chemical Exposure Risks during Flowback Operations in Unconventional Oil and Gas Extraction: Preliminary Results*, 11 J. OF OCCUPATIONAL AND ENVT'L HYGIENE D174 (2014); **Exhibit 99**, 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 2023, Exhibit 58.
[184] **Exhibit 100** 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).

> 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.[185]

In addition, many oilfield workers may lack basic social and economic safety nets and lack support from their employer in mitigating risks and addressing harms such as those mentioned above. A recent survey of current and former oilfield workers in New Mexico's Permian Basin revealed that, there, about 57 percent of workers surveyed were not provided health insurance by their employer.[186] Just 21 percent got retirement benefits and 78 percent did not have access to unemployment, yet 69% reported being laid off or having their hours cut during dips in the volatile market.[187] Almost half of respondents (46%) said they had an accident on the job.[188] BLM should take information like this into account in its NEPA analysis of health risks and impacts, socioeconomics, and environmental justice, and in particular, should factor information like this into its consideration of any purported socioeconomic benefits of oil and gas development to individuals or communities associated with the proposed lease sales.

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.[189] BLM 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

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[185] PSR 2023 at 234, Exhibit 58.
[186] **Exhibit 101,** Sanchez *et al.*, *Southeastern New Mexico Oil and Gas Workforce Study* (January 2024), available at https://files.constantcontact.com/b6dfe469001/7eec220a-7cab-47d8-8370-62e981dc403a.pdf?rdr=true, *see especially* p. 16.
[187] *Id.*
[188] *Id.*
[189] *See, e.g.,* **Exhibit 102**, 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).

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.[190] Further, Alpha-emitting radioactive decay elements concentrate at the pipe scale, so the waste is much more radioactive than any of the constituent parts.[191] 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.

8. BLM Must Consider Potential Fracking Impacts to Landscape-Level Historic Properties, such as Chaco Culture National Historical Park, Pursuant to the NHPA and NEPA, and Must Engage in Proper Section 106 Consultation (in Addition to Ensuring Meaningful Involvement and Adhering to the Principles of FPIC, as Described Above)

Commenters emphasize again that BLM must go *beyond* minimum legal requirements of the NHPA with respect to consultation with Tribes and consulting parties in order to truly Honor Chaco.[330] PLO 7923 provides critical limitations on surface disturbances, protecting the more than 4,700 known archaeological, cultural, sacred, and historic sites in the withdrawal area from new mineral extraction activities. Revoking the withdrawal would immediately expose these irreplaceable resources to new leasing threats. Commenters also emphasize that BLM must approach NHPA Section 106 consultation and protection of cultural resources at the *landscape* level.

The National Historic Preservation Act ("NHPA") requires federal agencies to "take into account the effect[s] of [their] undertaking[s] on any district, site, building, structure, or object that is included in or eligible for inclusion in the National Register." 16 U.S.C. § 470f ("Section 106"). The regulations implementing Section 106 of the NHPA prescribe the steps agencies must follow to adequately evaluate the effects of undertakings on historic properties. These steps include identifying historic properties in the area of potential effect, assessing whether the undertaking will adversely affect eligible historic properties, and resolving any adverse effects to historic properties from the undertaking. 36 C.F.R. §§ 800.4, 800.5, 800.6. Throughout this process, federal agencies must consult with appropriate parties including the State Historic Preservation Officer ("SHPO") and or Tribal Historic Preservation Officer ("THPO"), Native American Tribes, consulting parties, and the public. 36 C.F.R. § 800.2(c).

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[190] *See* **Exhibit 103**, 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.

[191] **Exhibit 104**, 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.

Section 106 has been characterized as a "stop, look, and listen" statute. *Muckleshoot Indian Tribe v. U.S. Forest Service*, 177 F.3d 800, 805 (9th Cir. 1999). Section 106 consultation must be performed at a time when the full range of avoidance and mitigation measures is still available to a federal agency proposing an undertaking. 36 C.F.R. § 800.1(c). "[P]roject planning activities" that "restrict the subsequent consideration of alternatives to avoid, minimize or mitigate the undertaking's adverse effects on historic properties" can occur only after the Section 106 consultation is complete. *Id.* Therefore, BLM must conduct a Section 106 consultation concerning the effects of Mancos shale development on the Greater Chaco Landscape[331] at a time when the full range of development options, including withdrawing certain lands from leasing, are still available to BLM. *See Montana Wilderness Ass'n v. Fry*, 310 F. Supp. 2d 1127, 1152-3 (D. Mont. 2004).

Chaco Culture National Historical Park ("CCNHP" or "the Park") is located within the planning area covered by the BLM Farmington Field Office. The Park is listed on the National Register of Historic Places and is designated a World Heritage Site. The National Park Service has identified a variety of fundamental values associated with the Park that also apply to the Chaco Outliers and other cultural sites within the Greater Chaco Landscape, including:

- The physical surroundings that enfold the visitor, conveying both the vast immensity of the San Juan Basin and the dense core of Chacoan culture.
- Solitude, natural sounds, sandstone cliffs, natural events, landscape, and remote sites that are integral for visitor understanding of Chaco Canyon.
- The ability to view the seasonal patterns in the dark night sky including the stars, moon, and other celestial bodies – and the sun in the daytime sky.
- Unpolluted air is an important aspect of the biotic landscape.

NPS, Chaco Culture National Historical Park: Foundation for Planning and Management (Sept. 2007) (attached as Exhibit 164).

Recently, the International Dark-Sky Association ("IDA") designated the Chaco Culture National Historical Park as the newest "Dark Sky Park" for "its commitment to preserving its near-pristine night skies." IDA has conferred this designation on only eleven other parks scattered around the world.

Air and light pollution, noise, and vehicle traffic from Mancos shale development authorized by BLM all have the potential to adversely affect the fundamental values of the Greater Chaco Landscape, including the Park and Outliers. BLM must analyze whether and to what extent the Park, World Heritage Site, Chaco Outliers, and the North Road will be impacted by Mancos shale development. Such a "landscape level" impacts analysis is required before BLM can authorize *any* further Mancos shale development.

The Section 106 regulations dictate how BLM must assess adverse effects to historic properties from Mancos shale development. The regulations define an "adverse effect" as:

> when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association.

36 C.F.R. § 800.5(a)(1). This definition includes not only direct effects from the undertaking, but also "reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative." *Id*. Adverse effects to historic properties are not limited to direct effects which result in physical destruction or alteration of a property, but also include the following:

> (iv) Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance; [and]
>
> (v) Introduction of visual, atmospheric or audible elements that diminish the integrity of the property's significant historic features

Id. at § 800.5(a)(2). Mancos shale development has the potential to cause these types of adverse effects to the Park, World Heritage Site, Outliers, and the North Road. The "Petition to Designate the Greater Chaco Landscape as an ACEC" attached to prior earlier, scoping comments summarizes the air quality, visual, noise, and seismic effects that Mancos shale development could have on these fragile historic properties. BLM must consider all of these impacts, and determine whether they will adversely affect landscape-level historic properties that are part of the Greater Chaco Landscape.[335]

As discussed above, BLM cannot defer this analysis until drilling permit approvals (including approvals of permits on existing leases within the proposed withdrawal area) because that stage will be too late to adequately protect landscape-level historic properties located within the Greater Chaco Landscape. In *New Mexico ex. rel. Richardson v. Bureau of Land Mgmnt.*, 459 F. Supp. 2d 1102 (D.N.M. 2006), the court explicitly recognized that evaluating impacts to landscape-level historic properties cannot be put off until the APD stage:

> [Landscape-level cultural properties] may not be able to be adequately protected if the Section 106 consultation process is delayed until the APD stage, after land has already been leased for oil and gas development. BLM's argument focuses on historical sites covering relatively small areas, such as discrete archaeological sites. For such sites, mitigation of impacts can be accomplished simply by moving the proposed drill site to a

> different location on the lease parcel. For landscape- level [properties] that may or may not be located on the leased parcel itself, however, such movement may not be adequate mitigation.

Id. at 1124-25. Given that the Park, World Heritage Site, Chaco Outliers, and the North Road are landscape-level historic properties, evaluation of impacts to these properties at the drilling stage comes too late to afford any substantive protection. *New Mexico ex. rel. Richardson* stands for the principle that BLM cannot defer historic property impacts analysis to the APD stage and limit it only to historic properties (or portions of landscape-level historic properties) present on particular future lease parcels.

Again—particularly in light of recent oil and gas permitting, drilling, and related development that has continued to proceed without regard for environmental justice, meaningful Tribal consultation, meaningful involvement of frontline people and communities and consulting parties, or FPIC —we emphasize the importance not only of just outcomes, but also of just *processes*, beyond Section 106, beyond mere box-checking, and beyond "merely a right to be involved."

Conclusion

We strongly oppose the proposed revocation of PLO 7923 and urge BLM to maintain the full 10-mile mineral withdrawal protecting Chaco Culture National Historical Park and the surrounding Greater Chaco landscape. We urge BLM to engage in thorough analysis, disclosure, and mitigation or avoidance of the impacts of fracking, and fossil fuel extraction, and related development—including cumulative impacts and environmental justice impacts—*across* the Greater Chaco landscape—and to pause all new and pending oil and gas activities during any environmental review. We urge BLM to analyze, disclose, and seriously consider the severe harms to climate, health, environmental justice, cultural resources, air and water quality that would result from revoking the existing 10-mile, 20-year withdrawal. The withdrawal that PLO 7923 established represents the floor of protection, not the ceiling. Revoking it would expose the Greater Chaco landscape to immediate new leasing threats, undermine the Honoring Chaco Initiative, and breach the federal government's trust and consultation obligations to affected Tribal Nations and Pueblos. Thank you for your consideration of our comments and recommendations to maintain and expand protections for the broader Greater Chaco landscape, account for cumulative impacts, and ensure just treatment and meaningful involvement of frontline communities and Tribal Nations throughout the process.

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Exhibit List

All exhibits can be downloaded at this link:
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