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Western Environmental Law Center

December 6, 2016

Sent via Overnight Express Delivery

Amy Lueders, New Mexico State Director
U.S. Bureau of Land Management
New Mexico State Office
301 Dinosaur Trail
Santa Fe, New Mexico 87508
Email: NMLeasesalecomments@blm.gov

Re: PROTEST: DOI-BLM-NM-F010-2016-0001-EA
Farmington Field Office, January 2017 Oil & Gas Lease Sale

Dear State Director Lueders:

The Western Environmental Law Center, along with Amigos Bravos, Center for Biological Diversity, Chaco Alliance, Diné Citizens Against Ruining Our Environment, Earthworks, Friends of the Earth, Natural Resources Defense Council, San Juan Citizens Alliance, Sierra Club, and WildEarth Guardians (together "Citizen Groups"), submit the following Protest regarding the Bureau of Land Management ("BLM") Farmington Field Office ("FFO") Environmental Assessment ("EA") and unsigned Finding of No Significant Impact ("FONSI") for the January 2017 Oil and Gas Lease Sale, which includes four parcels and approximately 843 acres of Federal mineral estate in the Greater Chaco area, south of Counselor, NM.

INTEREST OF PROTESTING PARTIES

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

Amigos Bravos is a statewide river conservation organization guided by social justice principles. Amigos Bravos' mission is to protect and restore the waters of New Mexico, and ensure that those waters provide a reliable source of clean water to the communities and farmers that depend on them, as well as a safe place to swim, fish, and go boating. Amigos Bravos works locally, statewide, and nationally to ensure that the waters of New Mexico are protected by the best policy and regulations possible.

The **Center for Biological Diversity** ("Center") is a non-profit environmental organization dedicated to the protection of native species and their habitats through science, policy, and environmental law. The Center also works to reduce greenhouse gas emissions to protect biological diversity, our environment, and public health. The Center has over one million members and activists, including those living in New Mexico who have visited these public lands in the FFO for recreational, scientific, educational, and other pursuits and intend to continue to do so in the future, and are particularly interested in protecting the many native, imperiled, and sensitive species and their habitats that may be affected by the proposed oil and gas leasing.

The **Chaco Alliance** is a grassroots citizens group dedicated to protecting and preserving Chaco Culture National Historical Park. We are interested in all threats to the park and its surrounding landscape, especially the threat created by energy development in the area.

Diné Citizens Against Ruining Our Environment ("Diné C.A.R.E.") is an all-Navajo organization comprised of a federation of grassroots community activists in Arizona, New Mexico and Utah who strive to educate and advocate for our traditional teachings derived from our Diné Fundamental Laws. Our goal is to protect all life in our ancestral homeland by empowering local and traditional people to organize, speak out, and determine the outlook of the environment through civic involvement and engagement in decision-making process relating to tribal development.

Earthworks is a nonprofit organization dedicated to protecting communities and the environment from the adverse impacts of mineral and energy development while promoting sustainable solutions. Earthworks stands for clean air, water and land, healthy communities, and corporate accountability. We work for solutions that protect both the Earth's resources and our communities.

Friends of the Earth is a 501(c)(3) organization with over 33,000 members and 496,000 activists nationwide. Friends of the Earth fights to create a more healthy and just world. Our current campaigns focus on promoting clean energy and solutions to climate change, ensuring the food we eat and products we use are safe and sustainable, and protecting marine ecosystems and the people who live and work near them. Friends of the Earth advocates for an end to all new federal fossil fuel lease sales like the one planned for January 2017 from the BLM Farmington Field Office. Our members and activists have submitted comments during NEPA reviews of dozens of proposed coal, oil and gas lease sales, and 41,761 members sent petitions to President Obama to demand executive action to stop all new federal fossil fuel lease sales to protect public lands and waters and combat climate change.

Natural Resources Defense Council ("NRDC") is a non-profit environmental membership organization with more than 440,000 members throughout the United States. Approximately 5,000 of these members reside in New Mexico. NRDC members use and enjoy public lands in New Mexico, including lands managed by the Bureau of Land Management within the Farmington Field Office planning area. NRDC members use and enjoy these lands for a variety of purposes, including: recreation, solitude, scientific study, and conservation of natural resources. NRDC has had a longstanding and active interest in the protection of public lands in New Mexico, the responsible development of oil and gas resources, and the protection of public health from environmental threats.

Founded in 1986, **San Juan Citizens Alliance** ("SJCA") organizes people to protect our water and air, our lands, and the character of our rural communities in the San Juan Basin. SJCA focuses on four program areas, including the *San Juan Basin Energy Reform Campaign*, which ensures proper regulation and enforcement of the oil, gas, and coal industry and transitioning to a renewable energy economy. SJCA has been active in BLM and National Forest oil and gas issues in the San Juan Basin since the early 1990s, and has commented on virtually every multi-well drilling program, lease sale, and programmatic environmental review conducted in the region by the federal land management agencies since the early 1990s. SJCA's members live, work, and recreate throughout the San Juan Basin and San Juan Mountains. SJCA's members' health, use and enjoyment of this region is directly impacted by the decisions identified in this protest.

Sierra Club was founded in 1892 and is the nation's oldest grassroots environmental organization. The Sierra Club is incorporated in California, and has approximately 600,000 members nationwide and is dedicated to the protection and preservation of the environment. The Sierra Club's mission is to explore, enjoy and protect the wild places of the earth; to practice and promote the responsible use of the earth's ecosystems and resources; and to educate and enlist humanity to protect and restore the quality of the natural and human environments. The Sierra Club has a New Mexico chapter, known as the Rio Grande chapter, with members that live in and use this area for recreation such as hiking, climbing, backpacking, camping, fishing and wildlife viewing, as well as for business, scientific, spiritual, aesthetic and environmental purposes.

WildEarth Guardians protects and restores wildlife, wild places, wild rivers, and the health of the American West. As part of its Climate and Energy Program, Guardians works to advance clean energy and expose the true cost of fossil fuels. Guardians works to protect and restore the San Juan Basin in northwestern New Mexico in order to safeguard its cultural heritage, natural values, communities, and open spaces.

Citizen Groups Protest All Four Parcels

Citizen Groups protest the inclusion of all four parcels to be offered in the January 2017 lease sale, as identified below by Lease Parcel Number:

NM-201701-001; NM-201701-002; NM-201701-003; NM-201701-004.

These four parcels all involve Navajo Allotment lands, with a federal mineral estate administered by the FFO. Citizen Groups' Protest is focused on potential impacts to the planning area from oil and gas development authorized by BLM action, and are specifically concerned with impacts to air quality, greenhouse gas ("GHG") emissions and waste, climate change, water resources, human communities, as well as other land use values in the planning area. Citizen Groups find it particularly troubling that, despite our extensive comments outlining deficiencies with the preliminary EA and the agency's failure to take a hard look at site-specific impacts, the final EA closely mirrors the draft. Accordingly, our Protest reiterates many of the same concerns expressed in our earlier comments.

The four Navajo Allotment parcels included in the sale and similar parcels that have already been deferred or postponed *three times* by the agency, having recognized the need for additional consultation and baseline landscape level review. These parcels were first included in the original group of 26 parcels proposed for BLM's October 2014 oil and gas lease sale, DOI-BLM-NM-F010-0154-EA, and were then amongst the five parcels included in the January 2015 lease sale, DOI-BLM-NM-F010-2014-0227-EA. Most recently, three parcels were included in the October 2016 lease sale, which was postponed this spring. Notably, these parcels were earlier "deferred until after the FFO Mancos Shale/Gallup Formation RMPA/EIS alternatives have been developed." Oct. 2014 Lease Sale EA at 14. Then, with the January 2015 lease sale, the parcels were deferred because "additional time is required to evaluate public comments regarding potential drainage, tribal consultation, and environmental justice." BLM Press Release, December 30, 2014. Critically, on October 21, 2016, BLM announced "the beginning of a scoping process to solicit public comments and to identify issues specifically related to analysis of Bureau of Indian Affairs (BIA) managed mineral leasing and associated activity decisions … as part of the EIS for the Farmington RMPA." 81 Fed. Reg. 72,819 (Oct. 21, 2016). In short, BLM reinitiated the scoping period for the Mancos Shale Resource Management Plan Amendment (" Mancos RMPA") and environmental impact statement ("EIS") specifically to solicit greater tribal involvement. This consultation bears directly on the four parcels at issue here, and, having just reinitiated scoping, BLM has yet to develop its range of alternatives—the precise reason these parcels have been previously deferred, starting back in 2014. As recognized by BLM, "[a]ll four parcels are located on surface administered by the Bureau of Indian Affairs (BIA) above federal minerals." EA at 5. It is without logic or coherent reasoning that BLM has chosen, nevertheless, to move forward with the sale of these four Navajo allotment parcels in the Greater Chaco region.

Accordingly, Citizens Groups hereby incorporate by reference our prior administrative comments, protests, and exhibits submitted for these prior lease sales, including October 2014 Scoping Comments (March 24, 2014), Draft Environmental Assessment Comments (May 28, 2014), and Protest (August 14, 2014), January 2015 Draft Environmental Assessment Comments (September 23, 2014) and Protest (November 19, 2014), October 2016 Scoping Comments (March 14, 2016), January 2017 Scoping Comments (June 17, 2016), and Draft Environmental Assessment Comments (September 2, 2016). Because the four parcels at issue here have previously been offered and deferred and/or postponed by the FFO, all prior administrative engagement is properly before the agency and should be considered and included in the administrative record for this lease sale. These incorporated comments and exhibits offer detailed

technical information, expert reports, and legal analysis that the agency is required to consider in its decisionmaking process for the proposed action. *See Forest Guardians v. U.S. Fish and Wildlife Service*, 611 F.3d 692, 717 (10th Cir. 2010) ("The purpose behind NEPA is to ensure that the agency will only reach a decision on a proposed action after carefully considering the environmental impacts of several alternative courses of action and *after taking public comment into account*.").

Because the Mancos RMPA remains incomplete, the applicable land use plan for this action is the 2003 Farmington RMP, with "the analysis of projected surface disturbance impacts … based on well densities listed in the Reasonable Foreseeable Development (RFD) Scenario included in the 2003 Farmington RMP." However, as will be explained in further detail, reliance on the 2003 RMP and RFD fails to demonstrate that impacts associated with the proposed leasing will not be significant, or that leasing will otherwise sufficiently protect resources in the FFO. This is due to the fact that, by the BLM's own admission, the RMP and RFD do not account for the environmental impacts of horizontal drilling and multi-stage hydraulic fracturing of the Mancos Shale formation. Yet by leasing these parcels, the BLM is poised to facilitate just this kind of unforeseen development, despite any analysis as to the actual environmental impacts on both project and programmatic level.

STATEMENT OF REASONS IN SUPPORT OF CITIZEN GROUPS' PROTEST OF BLM'S JANUARY 2017 COMPETITIVE OIL & GAS LEASE SALE

I. BLM Cannot Lease the Subject Parcels while the Mancos Shale/Gallup Formation RMP and EIS Remains Uncompleted.

As provided in Comments—and implicitly recognized by the agency's original decision to defer all the allotment parcels from the October 2014 lease sale—it is unlawful for the agency to move forward with the sale of oil and gas resources while work on the required Mancos RMPA and EIS is underway. *See* 40 C.F.R. § 1506.1(c). Specifically, the agency stated that allotment parcels—including the four parcels offered here—were being "deferred until after the FFO Mancos Shale/Gallup Formation RMPA/EIS alternatives have been developed." Oct. 2014 Lease Sale EA at 14. This decision is consistent with the agency's duty under NEPA "to stop actions that adversely impact the environment, that limit the choice of alternatives for the EIS, or that constitute an 'irreversible and irretrievable commitment of resources.'" *Conner v. Burford,* 848 F.2d 1441, 1446 (9th Cir. 1988). When an EIS is underway, as here, NEPA regulations established by the Council of Environmental Quality ("CEQ") prohibit an agency from taking any actions that could undermine that decision-making process. *See* 40 C.F.R. § 1506.1(c).

The FFO is now attempting to reverse course, and in so doing, violates NEPA. In deciding to proceed with the sale of these four parcels, the agency now claims "[t]hese parcels were considered for lease in the October 2014, January 2015, and October 2016 Competitive Oil and Gas Lease Sales, but deferred due to the need for additional Tribal consultation and Environmental Justice analysis." 2014 Draft EA at 4. BLM's recent re-initiation of the scoping

period for the Mancos RMPA—specifically to include BIA and increase tribal consultation, which specifically include these parcels—only underscores the erroneousness of the agency's decision to proceed with the January 2017 lease sale. *See* 81 Fed. Reg. 72,819.

Notably, that BLM is engaged in consultation does not obviate the agency's independent NEPA obligations for this sale. The whole point of NEPA is to study the impact of an action on the environment *before* the action is taken. *See Conner,* 848 F.2d at 1452 (NEPA requires that agencies prepare an EIS before there is "any irreversible and irretrievable commitment of resources"). Where "[i]nterim action prejudices the ultimate decision on the program," NEPA forbids it. 40 C.F.R. §§ 1506.1(c)(1)-(3). Action prejudices the outcome "when it tends to determine subsequent development or limit alternatives." *Id.* Proceeding with the sale of these four allotment parcels—or any other major Federal action impacting resources in the planning area—is impermissible due to the inherent prejudice that this action will cause to the pending Mancos RMPA and EIS, and will limit the choice of alternatives considered therein—including a decision not to lease additional lands for oil and gas.

The agency cites regulations at 43 C.F.R. § 3162.2-2 to justify the sale, claiming: "They are being reconsidered for sale as the parcels have been recently identified as being drained or to be drained by offending wells as early as July 2017. Drainage is the uncompensated loss of hydrocarbons, inert gases or geothermal resources from wells on adjacent non-jurisdictional lands or jurisdictional lands resulting in revenue losses to the Federal government." EA at 5. Critically, however, these regulations provide that where uncompensated drainage of Federal mineral resources may be occurring, offering unleased lands for sale is only one of several options. Other options include: the execution of an agreement under which the United States would be compensated for the drainage; entering into a communitization agreement; or approval of a unit agreement "that provides for payment of a royalty on production attributable to unleased mineral resources." *See* 43 C.F.R. § 3162.2-2 (b), (c), (d). In fact, BLM recognized: "Drainage of the federal mineral estate by producing wells adjacent to the federal mineral estate lands would result in the establishment of a Compensatory Royalty Agreement (CRA) to collect royalties, or in the absence of a CRA, the continuing loss of royalties to the United States and the State of New Mexico." EA at 11. Nevertheless, the agency suggests it is compelled to offer these lands for lease, and that this is the only option to ensure that royalty revenues are not lost. Indeed, these regulations do not mandate that the agency take any action at all, expressly qualifying every option as a step the agency *may* take. *See id.* Given the agency's NEPA obligation to avoid prejudice or limit alternatives, 40 C.F.R. § 1506.1(c), as well as myriad other resource concerns identified herein, offering these lands for lease is the one option the agency should avoid.

As acknowledged in the FFO's EA: "the lease purchaser has the exclusive right to use as much of the leased lands as is necessary to explore and drill oil and gas within the lease boundaries." EA at 11. Once oil and gas lease rights are conveyed, lessees have a right to drill, and the impact on the environment from the exercise of those rights cannot be undone, which is exactly the situation NEPA disallows—allowing new activity that limits alternatives in the future. For example, once this lease sale is held, the agency will no longer be able to consider an

alternative in the Mancos Shale RMP that disallows oil and gas development on these parcels, which the agency's subsequent analysis may deem as necessary.

Although the FFO consistently asserts that any impacts from the lease sale would be "linked to as yet undetermined future levels of lease development," it would be entirely disingenuous for the agency to attempt to segregate this lease sale from the "shale oil play" that has motivated the Mancos Shale RMPA and EIS. EA at 52. For one thing, by the BLM's own admission, the entire purpose of offering the proposed leases for sale is to facilitate their development in order to address drainage of the Mancos Shale that is occurring from neighboring drilling and production activities. *See* EA at 51. Clearly development of the proposed leases for the purpose of developing the Mancos Shale for oil is not speculative. Indeed, it is the entire purpose for undertaking proposed leasing.

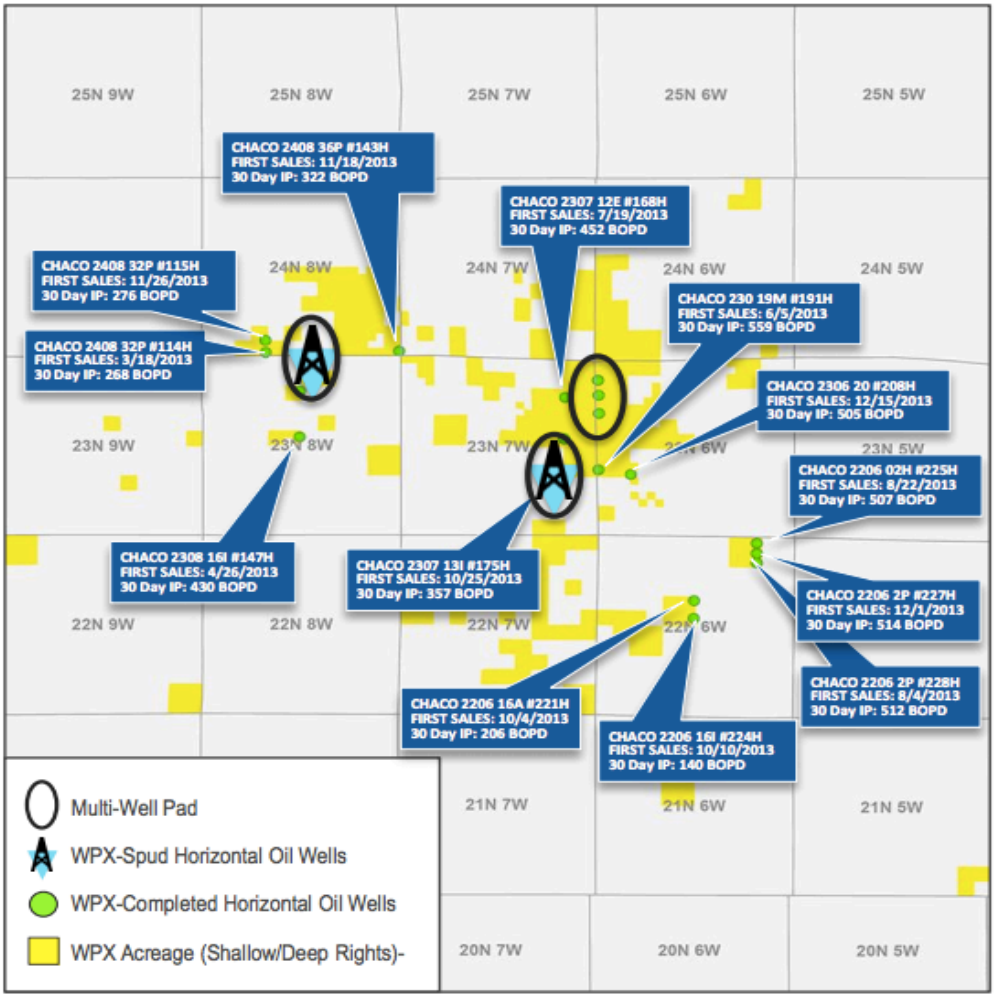
The agency's failure to anticipate the new "oil boom" in the San Juan Basin is precisely why updated planning documents are needed. The agency admits:

> [Oil and gas] development may include constructing a well pad and access road, drilling a well using conventional pit system or closed-loop system, hydraulically fracturing the well, installing pipelines and/or hauling produced fluids, regularly monitoring the well, and competing work-over tasks throughout the life of the well. In Farmington, typically, all of these actions are undertaken during development of an oil or gas well: it is reasonably foreseeable that they may occur on leased parcels.

EA at 17-18. By the agency's own admission it is foreseeable that the mere act of leasing these parcels will result in a significant levels of development. Moreover, all of these parcels are included in the planning area and reasonably foreseeable development analysis area for the Mancos RMPA. Therefore, proceeding with the leasing of these parcels will prejudice the pending Mancos Shale RMP and EIS process, in direct violation of NEPA.

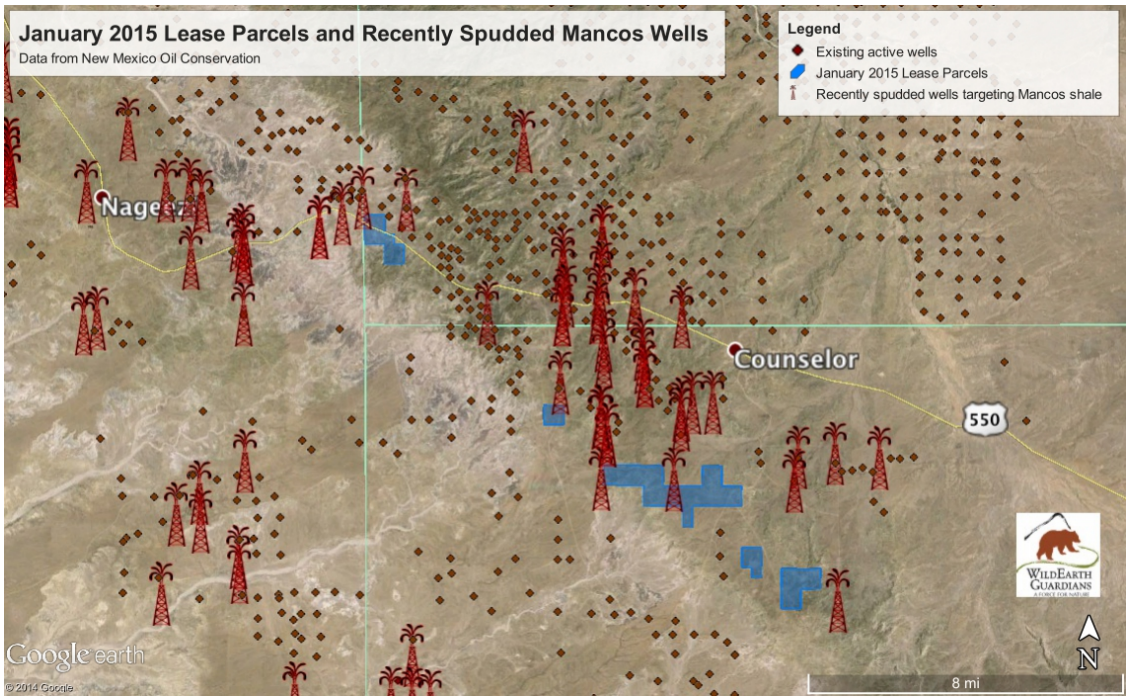
The potential for foreseeable development is underscored by the fact that the BLM has already approved over 365 APDs in the area that clearly authorized the tapping of the Mancos Shale, and is weighing approval of many additional APDs in this area. Even the companies themselves are touting their development of the Mancos shale. Although now outdated, WPX also confirmed in a recent presentation that it has completed and spudded numerous Mancos shale wells using horizontal drilling in the area of the proposed leases.[1] The map below, from page 11 of WPX's presentation, illustrates the extent of Mancos shale development in the area:

[1] *See* WPX Energy, *Operational update*, available at: http://www.wpxenergy.com/media/YE2013_EarningsPresentation_Final.pdf.



WPX Energy Map of Mancos Shale Development in the Area of the Proposed Leasing.

A simple map of this area prepared by WildEarth Guardians confirms that a number of wells that appear to clearly target the Mancos shale have been drilled in the vicinity of the proposed lease parcels. The map shows the lease parcels in blue and the proximity of wells that have been recently drilled by Encana, WPX, and LOGOS. This map further underscores that development of the proposed leases is not remotely speculative, and that the BLM has the means to fully analyze and assess impacts associated with Mancos shale drilling.



Map of Proposed Lease Parcels and Recently Drilled Mancos Shale Wells.
Map prepared using Google Earth using BLM and NMOCD Data.

As provided, while CEQ regulations require a moratorium on any further leasing until the Mancos RMPA and EIS are completed, such a decision is also well within the discretion of the FFO. As provided in BLM Instruction Memorandum No. 2010-117 (May 17, 2010):

> As outlined in the Land Use Planning Handbook (H-1601-1), the Resource Management Plan (RMP) underlies fluid minerals leasing decisions. Through RMP effectiveness monitoring and periodic RMP evaluations, state and field offices will examine resource management decisions to determine whether the RMPs adequately protect important resource values in light of changing circumstances, updated policies, and new information (H-1601-1, section V, A, B). The results of such reviews and evaluations may require field office resource information updates and land use plan maintenance, amendment, or revision. In some cases state and field office staff may determine that the public interest would be better served by further analysis and planning prior to making any decision whether or not to lease.

(emphasis added). There can be no better example than the present situation of where the public interest would be better served by completing the Mancos Shale RMP and EIS *before* deciding whether it is appropriate to lease additional public lands. According to BLM oil and gas statistics, there are currently 5,027,750 acres of leased land that is "in effect" in New Mexico; but only approximately 70% of which is in production. *See* BLM, Oil and Gas Statistics by Year for Fiscal Years 1988–2012 (previously included as Scoping Exhibit 120). Indeed, 90% of available public lands in the FFO have already been leased. Before additional public lands are

sold to oil and gas industry and committed to development, the agency must understand the additional impacts of developing the Mancos Shale/Gallup formation.

II. BLM Cannot Rely on the 2003 RMP EIS to Justify the Proposed Leasing or a Finding of No Significant Impact

While the FFO is to be commended for acknowledging the inability of the 2003 RMP/EIS and RFD to continue serving their necessary planning function, at the same time, the BLM cannot simultaneously rely on the 2003 RMP/EIS and RFD to justify the January 2017 lease sale. Indeed, BLM's EA explicitly tiers to the analysis contained in the 2003 RMP/EIS, *see* EA at 7, which, as explained in the agency's Federal Register Notice for the Mancos Shale RMP, is no longer capable of guiding such decision-making:

> As full-field development occurs, especially in the shale oil play, additional impacts may occur that previously were not anticipated in the RFD or analyzed in the current 2003 RMP/EIS, which will require an EIS-level plan amendment and revision of the RFD for complete analysis of the Mancos Shale/Gallup Formation.

79 Fed. Reg. 10548 (Feb. 25, 2014). However, the inability of the current RMP/EIS and RFD to support the proposed leasing, or to provide any reasonable analysis from which to tier, is further underscored by the details of its shortcomings.

For one thing, the 2003 Farmington RMP never contemplated commercially viable development of the Mancos Shale, whether for oil or gas, utilizing horizontal drilling techniques. This is significant because all indications are that the proposed leases are meant to facilitate horizontal drilling of the Mancos shale. The RFD (which was actually prepared in 2001, two years prior to the adoption of the RMP) stated:

> Horizontal drilling is possible but not currently applied in the San Juan Basin due to poor cost to benefit ratio. If horizontal drilling should prove economically and technically feasible in the future, the next advancement in horizontal well technology could be drilling multi-laterals or hydraulic fracturing horizontal wells. Multilaterals could be one, two or branched laterals in a single formation or single laterals in different formations. Hydraulic fracturing could be a single fracture axial with the horizontal well or multiple fractures perpendicular to the horizontal well. These techniques are currently complex and costly, and therefore typically inappropriate for most onshore U.S. reservoirs. Comprehensive engineering and geologic research will be required in the near future in order for these techniques to become viable within the 20-year time frame anticipated by this RFD.[2]

[2] BLM, *Oil and Gas Resource Development for the San Juan Basin, New Mexico, a 20-year, Reasonably Foreseeable Development (RFD) Scenario Supporting the Resource Management Plan for the Farmington Field Office, Bureau of Land Management* (July 2, 2001) at 8.3.

In other words, at the time the RFD was prepared and the RMP finalized, horizontal drilling and fracking was not viable.

Although the RFD makes clear that viable shale gas and oil development using horizontal drilling would not occur within 20 years, the RFD nevertheless contemplated 300 Mancos shale gas and oil wells, including development and exploration wells. *See* RFD at 5.27. However, the RFD contemplated "behind pipe" access to Mancos shale reserves through vertically drilled wells into the Dakota formation. RFD at 5.27. In other words, the RFD considered access to the Mancos shale only as an afterthought to drilling vertical Dakota wells, and certainly did not contemplate horizontally drilled wells into the Mancos shale. To the extent that the RFD contemplated development only of the Mancos shale, it was only in a region called the "fractured Mancos oil play" in the southeastern portion of the Basin, which was described only as "probable" development. RFD at 5.27. Again, the RFD did not contemplate horizontal drilling, whether for development or exploration.

The company, WPX (formerly Williams Production), a major oil and gas producer in the San Juan Basin, has confirmed that the RFD never contemplated the impacts of horizontal drilling of the Mancos shale, whether for exploration or development. The company recently stated in its Middle Mesa development proposal that, "When the [RMP] FEIS was prepared, horizontal drilling had been attempted as an experimental technique in the San Juan Basin, but faced technical problems and not yet been proven economically viable[.]"[3] The BLM has concurred, noting that only the recent advancement in horizontal drilling technology that "has made Mancos stand-alone wells economically viable," explaining:

> [A]t the time of the RFD[S] report, horizontal drilling and multi-stage hydraulic fracturing was in its infancy, since then, the technology has evolved to be more efficient and less costly as in the past. Horizontal drilling and multi-stage fracturing is a common practice throughout the U.S. even though the RFD[S] only hinted at its future success and usage.[4]

Here, "hinting" at environmental impacts does not suffice to demonstrate that such impacts were fully analyzed and assessed as required under NEPA or that the RFD sufficiently considered the impacts of this practice or demonstrated that there would be no significant impacts. The RFD simply does not suffice to demonstrate that the BLM has adequately considered the cumulative impacts of Mancos shale oil or gas development, and in particular horizontal drilling and fracking to develop Mancos shale, in the FFO. In light of the shortcomings of the RFD, as well as significant new information demonstrating that the Mancos shale is being targeted for horizontal drilling for gas and oil, it is clear that both the RMP and EIS are now inadequate under NEPA.

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[3] Williams Production Co., *Proposal for Rosa Middle Mesa Development* at 3 (previously included as Exhibit 1).

[4] BLM, *Unconventional gas reservoirs, hydraulic fracturing, and the Mancos Shale* (Nov. 30, 2011) at 6 (previously included as Exhibit 2).

Taken together with BLM's clear concession that the current RMP/EIS does not address the latest surge in Mancos shale development, it is clear that unless and until the RMP Amendment and EIS are completed, there exist no sufficient environmental considerations of horizontal drilling and fracking of the Mancos shale.[5] To this end, the BLM cannot rely on the 2003 RMP/EIS to support approval of the proposed leases or any determination that impacts will not be significant.

III. BLM Should Prepare a Programmatic EIS of its Oil and Gas Leasing Program and Use Its Broad Discretion Not to Lease the Proposed Parcels.

Several Citizens Groups, including WildEarth Guardians and Center for Biological Diversity, have submitted petitions to the U.S. Department of the Interior calling for an oil and gas leasing moratorium and programmatic review of the oil and gas leasing program.[6] Moreover, the White House Council on Environmental Quality ("CEQ"), the federal agency tasked with managing the federal government's implementation of NEPA, released *Final Guidance for Federal Department and Agencies on Consideration of Greenhouse as Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews* (hereafter, "Final Guidance") (previously included as Draft Exhibit 3). CEQ's Final Guidance also states that "[i]n the context of long-range energy, transportation, and resource management strategies…it would be useful and efficient to provide an aggregate analysis of GHG emissions or climate change effects in a programmatic analysis and then incorporate by reference that analysis into future NEPA reviews." In particular, CEQ identifies "issuing leases for oil and gas drilling" as a "site-specific action[] that may benefit from being able to tier to a programmatic NEPA review."

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[5] In light of this, we would submit that BLM must presume that the lands proposed for leasing are not "available" due to the failure of the current RMP/EIS to account for the significant impacts of horizontal drilling and fracking of Mancos shale. In this case, the BLM clearly made lands available for leasing based on its understanding of environmental considerations at the time the RMP/EIS was adopted. Given that horizontal drilling and fracking techniques were not accounted for, it would be absurd to believe that the RMP decision made lands available for leasing for the purpose of horizontal drilling of the Mancos Shale. Indeed, BLM's Handbook on the issuance of oil and gas leases explicitly states that eligible lands are available for leasing only when all statutory requirements and reviews, "including compliance with the National Environmental Policy act (NEPA) of 1970," have been met. BLM Handbook, H-3101-1, Section I.A.1.

[6] *See* UC Irvine School of Law Environmental Law Clinic, on Behalf of WildEarth Guardians, *Petition Requesting a Programmatic Environmental Impact Statement Addressing the Bureau of Land Management's Oil and Gas Leasing Program and Formal Adoption of the Council on Environmental Quality's Guidance for Greenhouse Gas Emissions and Climate Change Impacts*, January 20, 2016 (previously included as Draft Exhibit 1); Center for Biological Diversity, *Petition for a Moratorium on the Leasing of Federal Public Land Fossil Fuels Under the Mineral Leasing Act, 30 U.S.C §§ 226, 241*, July 12, 2016 (previously included as Draft Exhibit 2).

Within this context, the BLM FFO has broad discretion and remove the four parcels from nomination. Given the proximity of these parcels to already deferred areas—which are not divided by geography as much as they are by field office boundaries—deferral is the only reasonable option. As was true with the Taos Field Office parcels, the agency's chosen path of opening this area up to oil and gas development would threaten the water resources serving both the communities and the surrounding area—which is particularly true given the unique geology and hydrologic movement underlying the planning area—a fact entirely absent from the EA, and with BLM offering no evidence of agency comprehension. Quite simply, developing this area for oil and gas represents an unnecessary and avoidable risk that would threaten the area's other important multiple use resources, not least of which are local populations already forced to endure human health impacts and environmental degradation from existing oil and gas development and other extractive practices, as well as the areas rich cultural resources and heritage sites.

BLM has broad discretion—and often the responsibility, though too often ignored—not to lease public lands for minerals development to safeguard other multiple use, environmental, and human health resources and values. *See, e.g., Udall v. Tallman*, 380 U.S. 1 (1965); *Rocky Mountain Oil & Gas Association v. U.S. Forest Service*, 157 F.Supp.2d 1142 (D. Mont. 2000). BLM's authority to open these four parcels to oil and gas development is derived from the Mineral Leasing Act of 1920, 30 U.S.C. § 181 *et seq.* Nowhere does the Mineral Leasing Act ("MLA") mandate that any particular lands be offered for lease. Rather, the Act states generally that "[a]ll lands subject to disposition under this chapter which are known or believed to contain oil or gas deposits *may* be leased by the Secretary." 30 U.S.C. § 226(a) (emphasis added). The Ninth Circuit has held that the "permissive word 'may' in § 226(a) allows the Secretary to lease such lands, but does not require him to do so…. [T]he Secretary has discretion to refuse to issue any lease at all on a given tract." *Burglin v. Morton*, 527 F.2d 486, 488 (9th Cir. 1975). The Supreme Court reached the same conclusion in *Udall v. Tallman*, 380 U.S. 1, 4 (1965), in which the Court declared that the Mineral Leasing Act "left the Secretary discretion to refuse to issue any lease at all on a given tract." *See also Bob Marshall Alliance v. Hodel*, 852 F.2d 1223, 1230 (9th Cir. 1988) (providing that refusal to issue leases constitutes a "legitimate exercise of the discretion granted to the Interior Secretary"); *McDonald v. Clark*, 771 F.2d 460, 463 (10th Cir. 1985) ("While the statute gives the Secretary the authority to lease government lands under oil and gas leases, this power is discretionary rather than mandatory."); *McTiernan v. Franklin,* 508 F. 2d 885, 887 (10th Cir. 1975) (under § 226(a), the government "may refuse to issue any lease at all on a given tract"); *Pease v. Udall,* 332 F.2d 62, 63 (9th Cir. 1964) (Mineral Leasing Act "has consistently been construed as leaving to the Secretary, within his discretion, a determination as to what lands are to be leased thereunder"); *Pacific Legal Foundation v. Watt,* 529 F.Supp. 982, 991 n.14 (D. Mont. 1982) (under § 226(a), "the Secretary has discretion either to issue or refuse to issue oil and gas leases").

Indeed, BLM's discretion over oil and gas leasing is so great that courts have held that the agency may decide not to allow leasing even after the lands have been offered for lease and a qualified applicant selected. In *McDonald,* the Tenth Circuit Court of Appeals provided: "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."

McDonald, 771 F.2d at 463. The Court continued, saying "the Secretary may withdraw land from leasing at any time before the actual issuance of the lease, even if the offer was filed long before the determination not to lease was made." *Id.* (citing *Arnold v. Morton,* 529 F.2d 1101, 1106 (9th Cir. 1976); *Schraier v. Hickel*, 419 F.2d 663, 665-67 (D.C. Cir. 1969)).

Moreover, nothing in the Federal Onshore Oil and Gas Leasing Reform Act ("FOOGLRA") requires BLM to open lands at the behest of the oil and gas industry. The MLA, as amended by FOOGLRA in 1987, 30 U.S.C. § 181 *et seq*., simply requires BLM to *consider* oil and gas leasing on land consistent with the RMP. As identified above, just because land is identified for leasing does not mean that it must be leased. If review of a potential lease proposed for sale reveals problems, or that other resources and values should be protected, the agency can decide not to lease, period, and in fact, may be duty-bound, pursuant to laws such as FLPMA, not to lease to ensure that other resources and values are protected. For example, in *Marathon Oil Co.*, 139 IBLA 347 (1997), BLM removed parcels from a competitive lease sale for environmental reasons, even after they had been offered for sale pursuant to industry nomination. In that case, the IBLA held that "BLM enjoys considerable discretion to depart from its RMP in any specific case, and it may well be able to justify excluding these parcels from leasing for environmental purposes." *Id.* at 356.

The MLA and FOOGLRA do not in any way restrict the factors that BLM may consider when exercising its considerable discretion under § 226(a). Therefore, even if the BLM bases its decision entirely on the public's overwhelming opposition to oil and gas development in this area, it has the authority to do so. Indeed, it would be irresponsible for BLM's FFO to propose these four lease parcels for sale without first performing the necessary due diligence and environmental review to determine, on a site-specific basis, whether these lands should be conserved as is.

Based on this expansive authority and discretion, we implore BLM FFO to reconsider its assent to the nomination of the four parcels in January 2017 Oil and Gas Lease Sale, and remove these parcels from consideration.

IV. BLM is Required to Prepare an EIS, and Failed to Provide a Convincing Statement of Reasons Why the Lease Sale will Impact the Environment No More than Insignificantly.

As Citizen Groups have consistently maintained, an EIS should be prepared before subject parcels can be offered at the January 2017 oil and gas lease sale. An EIS is required when a major federal action "significantly affects the quality of the human environment." 42 U.S.C. § 4332(2)(C); 40 C.F.R. § 1502.4. A federal action "affects" the environment when it "will or *may* have an effect" on the environment. 40 C.F.R. § 1508.3 (emphasis added); *Airport Neighbors Alliance v. U.S.,* 90 F.3d 426, 429 (10th Cir. 1996) ("If the agency determines that its proposed action *may* 'significantly affect' the environment, the agency must prepare a detailed statement on the environmental impact of the proposed action in the form of an EIS.") (emphasis added). Similarly, according to the Ninth Circuit:

> We have held that an EIS *must* be prepared if 'substantial questions are raised as to whether a project ... *may* cause significant degradation to some human environmental factor.' To trigger this requirement a 'plaintiff need not show that significant effects *will in fact occur*,' [but instead] raising 'substantial questions whether a project may have a significant effect' is sufficient.

Idaho Sporting Cong. v. Thomas, 137 F.3d 1146, 1149-50 (9th Cir. 1998) (citations omitted) (emphasis original). Given the magnitude of the proposed action and possible direct, indirect and cumulative impacts to both the natural environment and human communities, BLM's FONSI is completely unsupportable.

Critically, the FFO has also failed to "put forth a convincing statement of reasons' that explains why the project will impact the environment no more than insignificantly. This account proves crucial to evaluating whether the [agency] took the requisite 'hard look.' " *Ocean Advoc. v. U.S. Army Corps of Engrs*., 402 F.3d 846, 864 (9th Cir. 2005). Nowhere in BLM's EA and unsigned FONSI does there exist a convincing statement explaining the insignificance of impacts from this sale. To the contrary, BLM suggests that any real analysis of impacts can be pushed off until the APD stage—which, as described above, is wholly deficient. If BLM proceeds in its refusal to perform an EIS, it must provide a detailed accounting of each NEPA significance factor, as provided in 40 C.F.R. § 1508.27, explaining why the project will impact the environment no more than insignificantly. The cursory and evasive manner in which BLM has addressed these significance factors in the EA unsigned FONSI is insufficient to meet the agency's NEPA mandate.

V. BLM Impermissibly Relies on Mitigation Measures to Avoid a Finding of Significance.

Although it is possible that "some or all of the environmental consequences of oil and gas development may be mitigated through lease stipulations, it is equally true that the purpose of NEPA is to examine the foreseeable environmental consequences of a range of alternatives *prior* to taking an action that cannot be undone." *Montana Wilderness Ass'n v. Fry*, 310 F.Sup.2d 1127, 1145 (D.Mont., 2004) (citation omitted) (emphasis added); 40 C.F.R. § 1501.2. "[M]itigation measures, while necessary, are not alone sufficient to meet the [Agency's] NEPA obligations to determine the projected extent of the environmental harm to enumerated resources *before* a project is approved." *Northern Plains Resource Council v. Surface Transportation Board,* 668 F.3d 1067, 1085 (9th Cir. 2011) (emphasis in original). Consequently, if BLM discovers significant impacts at the APD stage, it may no longer be able to prevent them.

Here, BLM has relies on future, unspecified and general mitigation to avoid a finding of significance, in violation of the agency's NEPA mandate. The EA generically offers: "Site specific mitigation measures and Best Management Practices (BMPs) would be attached as Conditions of Approval (COAs) for each proposed exploration and development activity authorized on a lease." EA at 11. Unfortunately, very little additional specificity is provided elsewhere in the EA. And while the agency does provide a list of lease stipulations by parcel, these are "[s]tandard terms and conditions as well as lease stipulations from the BLM FFO 2003

RMP … and Lease Notices development through the parcel review and analysis [which] would apply to address site specific concerns or new information not identified in the land use planning process." EA at 6. In other words, these stipulations are not specifically aimed at mitigating any direct, indirect, or cumulative impact from the proposed action, nor are they linked to site-specific concerns. In fact, the type of detailed mitigation that NEPA calls for would be impossible without first analyzing the site-specific impacts of leasing and development, which the FFO expressly acknowledges has not been done.

The mitigation measures proposed by the agency must be reasonably developed, which, here, is not the case. "A 'perfunctory description,' or 'mere listing of mitigation measures, without supporting analytical data,' is insufficient to support a finding of no significant impact." *National Parks & Conservation Ass'n v. Babbitt*, 241 F.3d 722, 735 (9th Cir. 2001). The court, when determining the sufficiency of the mitigation measures, considers "whether they constitute an adequate buffer against the negative impacts that may result from the authorized activity. Specifically, [the court] examine[s] whether the mitigation measures will render such impacts so minor as to not warrant an EIS." *Id.; see also, Hill v. Boy,* 144 F.3d 1446, 1451 (11th Cir.1998) (explaining that where an agency relies on an assumption to reach a FONSI, the assumption must be supported by substantial evidence). Moreover, the proposed mitigation underlying the FONSI "must be more than a possibility" in that it is "imposed by statute or regulation or have been so integrated into the initial proposal that it is impossible to define the proposal without mitigation." *Wyoming Outdoor Council v. U.S. Army Corps of Eng'rs,* 351 F.Supp.2d 1232, 1250 (D.Wyo. 2005). Here, the agency offers nothing more than the statement that site-specific mitigation measures and BPMs would be attached as COAs—and fail to even offer a list what these potential measures might be.

Similarly, with regard to cumulative impacts, the agency must provide *some* explanation of how or why compensatory mitigation will reduce the cumulative adverse impacts on the resources in question to insignificance. Bare assertions of mitigation are insufficient. *O'Reilly v. U.S. Army Corps of Eng'rs,* 477 F.3d 225, 235 (5th Cir.2007) ("[A] bare assertion is simply insufficient to explain *why* the mitigation requirements render the cumulative effects of this project less-than-significant, when considered with the past, present, and foreseeable future development in the project area." (emphasis in the original)). Here, in describing the fluctuating cumulative impacts of oil and gas development, the agency offers generally: "Conserving as much land as possible and applying appropriate mitigation measures will alleviate the cumulative impacts." EA at 66. The FFO offers *nothing* else to address cumulative impacts. This type of vague and conclusory statement is entirely insufficient and fails to meet the FFO's obligations under NEPA.

VI. BLM Failed to Consider Existing, New, and Revised National Policy on Climate Change.

The NEPA is our "basic national charter for the protection of the environment," achieving its purpose through "action forcing procedures. . . requir[ing] that agencies take a *hard look* at environmental consequences." 40 C.F.R. § 1500.1; *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 350 (1989) (citations omitted) (emphasis added). This includes the

consideration of best available information and data, as well as disclosure of any inconsistencies with federal policies and plans.

In 2014, President Obama described climate change as an "urgent and growing threat . . . that will define the contours of this century more dramatically than any other."[7] In that same year, the U.S. pledged to reduce its greenhouse gas ("GHG") emissions 26-28 percent below 2005 levels by 2020.[8] Since then, the President has also announced a new goal to cut methane emissions from the oil and gas sector by 40-45 percent below 2012 levels by 2025,[9] and set standards to reduce carbon dioxide emissions from the electricity sector by 32 percent from 2005 levels by 2030.[10] In 2015, President Obama recognized, "ultimately, if we're going to prevent large parts of this Earth from becoming not only inhospitable but uninhabitable in our lifetimes, we're going to have to keep some fossil fuels in the ground rather than burn them and release more dangerous pollution into the sky."[11] In his final State of the Union address, President Obama again noted the federal government's commitment to fighting climate change, vowing "to accelerate the transition away from old, dirtier energy sources," and making a powerful promise "to change the way we manage our oil and coal resources so that they better reflect the costs they impose on taxpayers and our planet."[12] These statements culminated in December, 2015 when the President joined with 194 other nations in recognizing "that climate change represents an urgent and potentially irreversible threat to human societies and the planet" and setting the goal of "holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C."[13] The

[7] The White House, Remarks by the President at U.N. Climate Change Summit (Sept. 23, 2014), available at: https://www.whitehouse.gov/the-press-office/2014/09/23/remarks-president-un-climate-change-summit.

[8] U.S.-China Joint Announcement on Climate Change (Nov. 11, 2014), available at: https://www.whitehouse.gov/the-press-office/2014/11/11/us-china-joint-announcement-climate-change (attached as Exhibit 46).

[9] The White House, Climate Action Plan: Strategy to Reduce Methane Emissions (March 2014), available at: https://www.whitehouse.gov/blog/2014/03/28/strategy-cut-methane-emissions (attached as Exhibit 1).

[10] Environmental Protection Agency, Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, 80 Fed. Reg. 64662 (Oct. 23, 2015).

[11] The White House, Statement by the President on the Keystone XL Pipeline (Nov. 6, 2015), available at: https://www.whitehouse.gov/the-press-office/2015/11/06/statement-president-keystone-xl-pipeline.

[12] President Barack Obama, State of the Union (Jan. 12, 2016), available at: https://www.whitehouse.gov/sotu.

[13] United Nations Framework Convention on Climate Change, Conference of the Parties (Nov 30-Dec. 11, 2015), Adoption of the Paris Agreement, Art. 2, U.N. Doc. FCCC/CP/2015/L.9 (Dec. 12, 2015), available at: http://unfccc.int/resource/docs/2015/cop21/eng/l09.pdf ("Paris Agreement") (attached as Exhibit 2).

President ratified the Paris Agreement, along with China, on September 3, 2016.[14] The President has also recognized that "the Paris Agreement alone will not solve the climate crisis. Even if we meet every target embodied in the agreement, we'll only get to part of where we need to go."[15]

Although national policy and statements addressing climate change have accelerated in recent years—as they should given the narrowing window of time to take meaningful action—the federal government's recognition of climate change is not new. The Secretary of the United States Department of the Interior stated, in Secretarial Order 3226, *Evaluating Climate Change Impacts in Management Planning* (January 19, 2001), that "[t]here is a consensus in the international community that global climate change is occurring and that it should be addressed in governmental decision making." Order 3226 established the responsibility of agencies to "consider and analyze potential climate change impacts when undertaking long-range planning exercises, when setting priorities for scientific research and investigations, when developing multi-year management plans, and/or when making major decisions regarding potential utilization of resources under the Department's purview."

In a 2007 report entitled *Climate Change: Agencies Should Develop Guidance for Addressing the Effects on Federal Land and Water Resources,* the GAO concluded that the Department of the Interior had not provided specific guidance to implement Secretarial Order 3226, that officials were not even aware of Secretarial Order 3226, and that Secretarial Order 3226 had effectively been ignored. This report led to Secretarial Order 3289, *Addressing the Impacts of Climate Change on America's Water, Land, and Other Natural and Cultural Resources* (September 14, 2009), which reinstated the provisions of Order 3226, and recognized that "the realities of climate change require us to change how we manage land, water, fish and wildlife, and cultural heritage and tribal lands and resources we oversee," and acknowledged that the Department of the Interior is "responsible for helping protect the nation from the impacts of climate change." A month later, in Executive Order No. 13514, *Federal Leadership in Environmental, Energy, and Economic Performance* (Oct. 5, 2009), President Obama called on all federal agencies to "measure, report, and reduce their greenhouse gas emissions from direct and indirect activities." 74 Fed. Reg. 52,117 (Oct. 8, 2009). This directive was followed by Executive Order No. 13693, *Planning for Federal Sustainability in the Next Decade* (March 25, 2015), which reaffirmed the federal government's commitment to reducing GHG emissions. 80 Fed. Reg. 15,871 (March 25, 2015).

In 2009, the Environmental Protection Agency ("EPA") issued a finding that the changes in our climate caused by elevated concentrations of greenhouse gases in the atmosphere are reasonably anticipated to endanger the public health and welfare of current and future generations. 74 Fed. Reg. 66496 (Dec. 15, 2009). In 2015, EPA acknowledged more recent

[14] The White House, President Obama: The United States Formally Enters the Paris Agreement (Sept. 3, 2016), available at: https://www.whitehouse.gov/blog/2016/09/03/president-obama-united-states-formally-enters-paris-agreement.

[15] The White House, Office of the Press Secretary, Remarks by the President on the Paris Agreement (Oct. 5, 2016), available at: https://www.whitehouse.gov/the-press-office/2016/10/05/remarks-president-paris-agreement ((attached as Exhibit 3).

scientific assessments that "highlight the urgency of addressing the rising concentrations of CO_2 in the atmosphere." 80 Fed. Reg. 64661 (Oct. 23, 2015).

Earlier this year, the White House Council on Environmental Quality ("CEQ")—the federal agency tasked with managing the federal government's implementation of NEPA—recognized the unique nature of climate change and the challenges it imposed on NEPA compliance. On August 1, 2016, CEQ released *Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews* (hereafter, "Final Climate Guidance") (attached as Exhibit 4). The Final Guidance applies to all proposed federal agency actions, "including land and resource management actions." *Id*. at 9. Notably, while CEQ's final guidance post-dates the initiation of BLM's NEPA process, (draft guidance was published December 18, 2014), it is intended to "facilitate compliance with existing NEPA requirements." *Id.* at 1. In other words, the Final Guidance is meant to underscore BLM's existing legal obligations to disclose and consider the foreseeable effects that, for example, coal, oil and gas leasing and development has on climate change. BLM still has ample time to incorporate this Guidance into the Final RMP and EIS. In its Final Guidance, the CEQ recognized that:

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

Id. at 10-11. CEQ's Final Guidance also explains the application of NEPA principles and practices to the analysis of GHG emissions and climate change, including: (1) that agencies quantify a proposed action's projected direct and indirect GHG emissions, taking into account available data and GHG quantification tools; (2) that agencies use projected GHG emissions as a proxy for assessing potential climate change effects when preparing a NEPA analysis; (3) where GHG emission tools, methodologies, or data inputs are not reasonably available, that agencies include a qualitative analysis in the NEPA document and explain the basis for determining that quantification is not reasonably available; (4) that agencies analyze foreseeable direct, indirect, and cumulative GHG emissions and climate effects; (5) that agencies consider reasonable alternatives and the short- and long-term effect and benefits in the alternatives and mitigation analysis; (6) that agencies consider alternatives that would make the actions and affected

communities more resilient to the effects of a changing climate; and (7) that agencies assess the broad-scale effects of GHG emissions and climate change, either to inform programmatic decisions, or at both the programmatic and project-level. *See id.* at 4-6.

A. BLM Failed to Consider Recent Climate Science and Carbon Budgeting.

Since the dawn of the industrial revolution a century ago, the average global temperature has risen some 1.6 degrees Fahrenheit. Most climatologists agree that, while the warming to date is already causing environmental problems, another 0.4 degree Fahrenheit rise in temperature, representing a global average atmospheric concentration of carbon dioxide ("CO_2") of 450 parts per million ("ppm"), could set in motion unprecedented changes in global climate and a significant increase in the severity of natural disasters—and could represent the point of no return.[16] In August 2016, the atmospheric concentration of CO_2 was approximately 402.25 ppm, up from 398.93 ppm the same month a year earlier.[17]

Climate change has been intensively studied and acknowledged at the global, national, and regional scales. Climate change is being fueled by the human-caused release of greenhouse gas emissions, in particular carbon dioxide and methane. The Intergovernmental Panel on Climate Change ("IPCC") is a Nobel Prize-winning scientific body within the United Nations that reviews and assesses the most recent scientific, technical, and socio-economic information relevant to our understanding of climate change. In its most recent report to policymakers in 2014, the IPCC provided a summary of our understanding of human-caused climate change. Among other things, the IPCC summarized:[18]

- Human influence on the climate system is clear, and recent anthropogenic emissions of greenhouse gases are the highest in history. Recent climate changes have had widespread impacts on human and natural systems.

- 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, and sea level has risen.

- Anthropogenic greenhouse gas emissions have increased since the pre-industrial era, driven largely by economic and population growth, and are now higher than ever. This has led to atmospheric concentrations of carbon dioxide, methane, and

[16] *See* David Johnston, *Have We Passed the Point of No Return on Climate Change?*, Scientific American (April 2015), available at: http://www.scientificamerican.com/article/have-we-passed-the-point-of-no-return-on-climate-change/.
[17] NOAA, Earth System Research Laboratory, *Trends in Atmospheric Carbon Dioxide*, available at: http://www.esrl.noaa.gov/gmd/ccgg/trends/.
[18] IPCC AR5*, Summary for Policymakers* (March 2014) available at: http://www.ipcc.ch/pdf/assessment-report/ar5/syr/AR5_SYR_FINAL_SPM.pdf (attached as Exhibit 5).

nitrous oxide that are unprecedented in at least the last 800,000 years. Their effects, together with those of other anthropogenic drivers, have been detected throughout the climate system and are extremely likely to have been the dominant cause of the observed warming since the mid-20th century.

- In recent decades, changes in climate have caused impacts on natural and human systems on all continents and across the oceans. Impacts are due to observed climate change, irrespective of its cause, indicating the sensitivity of natural and human systems to changing climate.

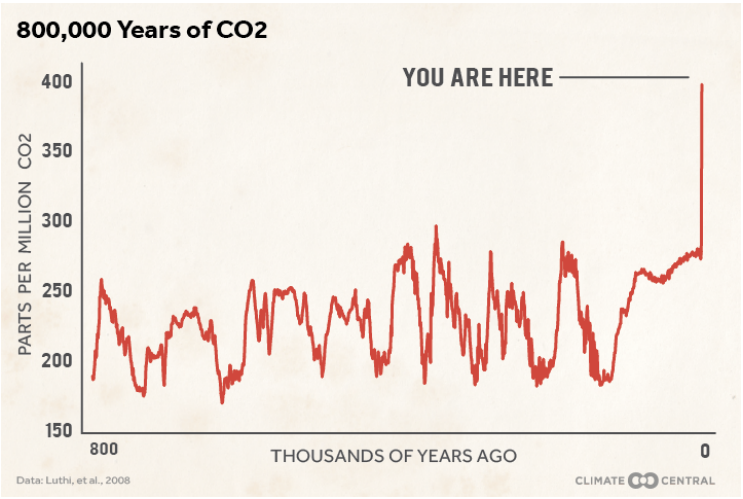
- Continued emission of greenhouse gases will cause further warming and long-lasting changes in all components of the climate system, increasing the likelihood of severe, pervasive, and irreversible impacts for people and ecosystems. Limiting climate change would require substantial and sustained reductions in greenhouse gas emissions which, together with adaptation, can limit climate change risks.

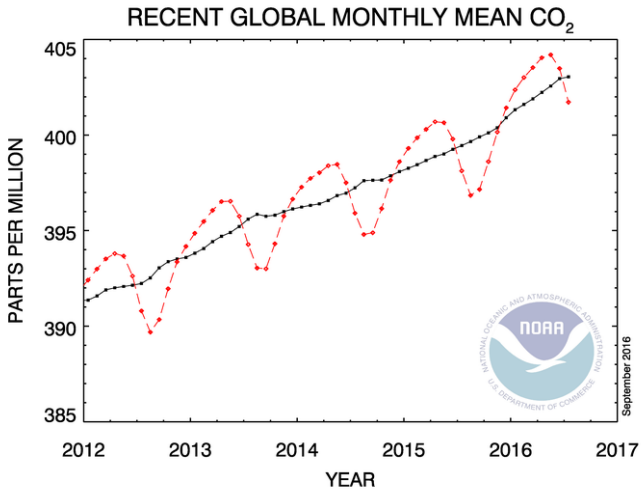
- Surface temperature is projected to rise over the 21st century under all assessed emission scenarios. It is very likely that heat waves will occur more often and last longer, and that extreme precipitation events will become more intense and frequent in many regions. The ocean will continue to warm and acidify, and global mean sea level to rise.

Carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride are recognized as the key greenhouse gases contributing to climate change. In 2009, the EPA found that these "six greenhouse gases taken in combination endanger both the public health and the public welfare of current and future generations."[19] The D.C. Circuit has upheld this decision as supported by the vast body of scientific evidence on the subject. *See Coal. for Responsible Regulation, Inc. v. EPA.*, 684 F.3d 102, 120-22 (D.C. Cir. 2012).

According to the National Oceanic and Atmospheric Administration ("NOAA"), "[t]he combined average temperature over global land and ocean surfaces for August 2016 was the highest for August in the 137-year period of record, marking the 16th consecutive month of record warmth for the globe."[20] The global climate crisis is happening and it may well be accelerating quickly.

[19] Environmental Protection Agency, *Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act* 74 Fed. Reg. 66,496 (Dec. 15, 2009).
[20] NOAA, Global Analysis – August 2016, available at: https://www.ncdc.noaa.gov/sotc/global/201608.





The graphs show globally averaged historic and monthly mean carbon dioxide.

The IPCC in 2013 affirmed: "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 concentrations of greenhouse gases have increased" causing "widespread impacts on human and natural systems."[21] This is consistent with the findings of the United States' 2014 Third National Climate Assessment, stating: "That the planet has warmed is 'unequivocal,' and is corroborated through multiple lines of evidence, as is the conclusion that the causes are very likely human in origin."[22] With particular regard to the Southwest Region—which includes Colorado, New Mexico, Utah, Arizona, Nevada, and California—the National Climate Assessment included in the following overview:[23]

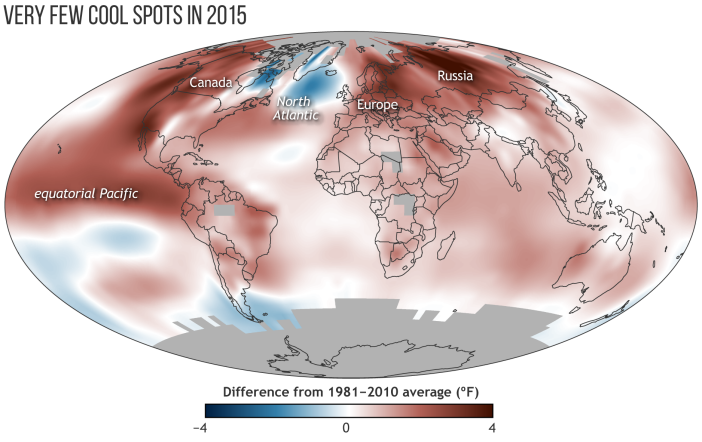
- Snowpack and streamflow amounts are projected to decline in parts of the Southwest, decreasing surface water supply reliability for cities, agriculture, and ecosystems.
- The Southwest produces more than half of the nation's high-value specialty crops, which are irrigation-dependent and particularly vulnerable to extremes of moisture, cold, and heat. Reduced yields from increasing temperatures and increasing competition for scarce water supplies will displace jobs in some rural communities.
- Increased warming, drought, and insect outbreaks, all caused by or linked to climate change, have increased wildfires and impacts to people and ecosystems in the Southwest. Fire models project more wildfire and increased

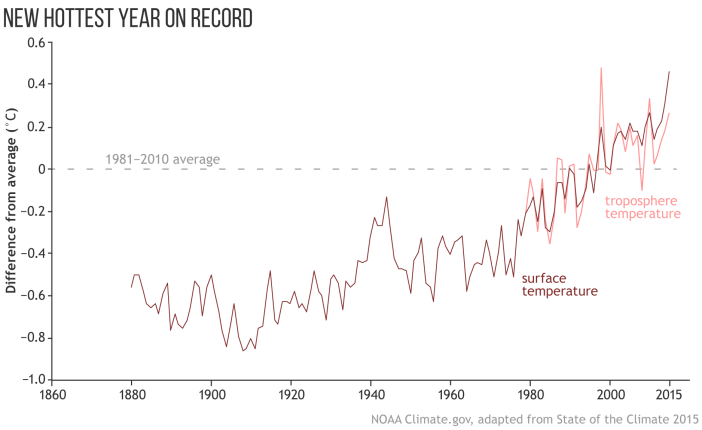
[21] IPCC AR5 Synthesis Report at 2 (attached as Exhibit 5).
[22] Jerry M. Melillo, *et al.*, Climate Change Impacts in the United States: The Third National Climate Assessment (2014) at 61, available at: http://nca2014.globalchange.gov (attached as Exhibit 6).
[23] *See id.* at 463-86.

risks to communities across extensive areas.

- Flooding and erosion in coastal areas are already occurring even at existing sea levels and damaging some California coastal areas during storms and extreme high tides. Sea level rise is projected to increase as Earth continues to warm, resulting in major damage as wind-driven waves ride upon higher seas and reach farther inland.
- Projected regional temperature increases, combined with the way cities amplify heat, will pose increased threats and costs to public health in southwestern cities, which are home to more than 90% of the region's population. Disruptions to urban electricity and water supplies will exacerbate these health problems.

Immediate and substantial greenhouse gas reductions are required to avoid catastrophic impacts to people and communities. "Following the warmest year on record in 2014 according to most estimates, 2015 reached record warmth yet again, surpassing the previous record by more than 0.1°C."[24]





[24] American Meteorological Society, *State of the Climate in 2015*, Vol.97, No.8 (Aug. 2016), at S7 (attached as Exhibit 7).

As noted above, the Paris Agreement commits all signatories—including the United States—to a target holding long-term global average temperature "to well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels."[25] As articulated by a team of international climate scientists, including Dr. James Hansen, in a 2013 report: "The widely accepted target of limiting human-made global warming to 2 degrees Celsius (3.6 degrees Fahrenheit) above preindustrial level is too high and would subject young people, future generations and nature to irreparable harm…. Observational data reveal that some climate extremes are already increasing in response to warming of several tenths of a degree in recent decades; these extremes would likely be much enhanced with warming of 2°C or more."[26] "Runaway climate change—in which feedback loops drive ever-worsening climate change, regardless of human activities—are now seen as a risk even at 2°C of warming."[27] Indeed, the impacts of 2°C temperature rise have been "revised upwards, sufficiently so that 2°C now more appropriately represents the threshold between 'dangerous' and 'extremely dangerous' climate change."[28]

Although the Paris Agreement has underscored that immediate action is needed to avoid 'extremely dangerous' warming, meeting the voluntary commitments adopted in Paris alone will be insufficient to meet goal of limiting temperature change to between 1.5°C and 2.0°C above pre-industrial levels. As noted by a 2015 UNEP technical report:

> The emissions gap between what the full implementation of the unconditional [intended nationally determined contributions (INDCs)] contribute and the least-cost emission level for a pathway to stay below 2°C, is estimated to be 14 $GtCO_2e$ (range: 12-17) in 2030 and 7 $GtCO_2e$ (range: 5-10) in 2025. When conditional INDCs are included as fully implemented, the emissions gap in 2030 is estimated to be 12 GtCO2e (range: 10-15) and 5 $GtCO_2e$ (range: 4-8) in 2025.[29]

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[25] Paris Agreement at Art. 2 (attached as Exhibit 2).

[26] James Hansen, *et al., Assessing "Dangerous Climate Change": Required Reduction of Carbon Emissions to Protect Young People, Future Generations and Nature,* 8 PLoS ONE 8 e81648 (2013) (attached as Exhibit 8).

[27] Greg Muttitt, *et al.*, *The Sky's Limit: Why the Paris Climate Goals Require a Managed Decline of Fossil Fuel Production*, Oil Change International (Sept. 2016) at 6 (attached as Exhibit 9); *see also* David Spratt, *Climate Reality Check: After Paris, Counting the Cost* (March 2016) at 8 (attached as Exhibit 10) ("there is an unacceptable risk that before 2°C of warming, significant "long-term" feedbacks will be triggered, in which warming produces conditions that generate more warming, so that carbon sinks such as the oceans and forests become less efficient in storing carbon, and polar warming triggers the release of significant permafrost and clathrate carbon stores. Such an outcome could render ineffective human efforts to control the level of future warming to manageable proportions.").

[28] Kevin Anderson and Alice Bows, *Beyond 'Dangerous' Climate Change: Emission Scenarios for a New World*, Phil. Trans. R. Soc. (2011) (attached as Exhibit 11).

[29] United Nations Environment Programme (UNEP), *The Emissions Gap Report 2015: A UNEP Synthesis Report* (Nov. 2015) at xviii (attached as Exhibit 12).

In other words, far greater emissions reductions are necessary to stay below and 2.0°C, let alone aspire to 1.5°C of warming. If no further progress were made beyond the Paris Agreement, expected warming by 2100 would be 3.5°C.[30] In the alternative, if no action is taken and the status quo is maintained—a position reflected in BLM's draft EIS—estimated warming by 2100 is upwards of 4.5°C.[31]

With specific regard to United States commitments under the Paris Agreement, the U.S. INDC set specific greenhouse gas emissions reduction target for 2025 of a 26% to 28% reduction below the 2005 emission levels, producing a range in 2005 net GHG emissions from 6,323 to 7,403 $MTCO_2e$.[32] The difference between this target and the estimated 2025 emissions without INDC policies results in an 'emissions gap' ranging from 896 to 2,121 $MTCO_2e$.[33]

Both the IPCC and National Climate Assessment recognize the dominant role of fossil fuels in driving climate change:

> While scientists continue to refine projections of the future, observations unequivocally show that climate is changing and that the warming of the past 50 years is primarily due to human-induced emissions of heat-trapping gases. These emissions come mainly from burning coal, oil, and gas, with additional contributions from forest clearing and some agricultural practices.[34]
>
> ***
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> CO_2 emissions from fossil fuel combustion and industrial processes contributed about 78% to the total GHG emission increase between 1970 and 2010, with a contribution of similar percentage over the 2000–2010 period (*high confidence*).[35]

As summarized in a recent report:

> The Paris Agreement aims to help the world avoid the worst effects of climate change and respond to its already substantial impacts. The basic climate science

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[30] Spratt, *Climate Reality Check* at 2 (attached as Exhibit 10).
[31] *See* Climate Interactive, Climate Scorecard, available at: https://www.climateinteractive.org/programs/scoreboard/*; see also,* Andrew P. Schurer, *et al., Separating Forced from Chaotic Climate Variability over the Past Millennium*, Journal of Climate, Vol. 26 (March 2013) (attached as Exhibit 13).
[32] Jeffery Greenblatt & Max Wei, *Assessment of the climate commitments and additional mitigation policies of the Unites States*, Nature Climate Change (Sept. 2016), available at: http://www.nature.com/nclimate/journal/vaop/ncurrent/full/nclimate3125.html (attached as Exhibit 14).
[33] *Id.* at 2; *see also* UNEP, Emissions Gap Report (attached as Exhibit 12).
[34] Third National Climate Assessment at 2 (attached as Exhibit 6).
[35] IPCC AR5 Synthesis Report at 46 (attached as Exhibit 5).

> involved is simple: cumulative carbon dioxide (CO_2) emissions over time are the key determinant of how much global warming occurs. This gives us a finite *carbon budget* of how much may be emitted in total without surpassing dangerous temperature limits.[36]

According to the IPCC, as of 2011, the remaining carbon budget of cumulative CO_2 emissions from all anthropogenic sources must remain below 1,000 $GtCO_2$ to provide a 66% probability of limiting warming to 2°C above pre-industrial levels.[37] For years 2012-2014, approximately 107 $GtCO_2$ was emitted, averaging approximately 36 $GtCO_2$ per year, which left us at the start of 2016 with a carbon budget of only 850 $GtCO_2$.[38] These emissions were the highest in human history and 60% higher than in 1990 (the Kyoto Protocol reference year). Of course, the Paris Agreement aim of limiting global warming to 1.5°C requires adherence to a more stringent carbon budget of only 400 $GtCO_2$ from 2011 onward, of which about 250 $GtCO_2$ remained at the start of 2016.[39] "With global annual emissions amounting to 36 $GtCO_2$ in 2015, scientists predict that at current rates global emissions will exceed the carbon budgets necessary to stay under the 1.5°C target by 2021 and the 2°C target by 2036.[40]

The potential carbon emissions from *existing* fossil fuel reserves—the known belowground stock of extractable fossil fuels—considerably exceed both 2°C and 1.5°C of warming. "Estimated total fossil carbon reserves exceed this remaining [carbon budget] by a factor of 4 to 7."[41] "For the 2°C or 1.5°C limits, respectively 68% or 85% of reserves must remain in the ground."[42] The reserves in currently operating oil and gas field alone, even with no

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[36] *The Sky's Limit* at 6 (attached as Exhibit 9).
[37] IPCC AR5 Synthesis Report at 63-64 & Table 2.2 (attached as Exhibit 5). For an 80% probability of staying below 2°C, the budget from 2000 is 890 $GtCO_2$, with less than 430 $GtCO_2$ remaining. Malte Meinshausen *et al., Greenhouse-gas emission targets for limiting global warming to 2°C*, Nature (2009) at 1159 (attached as Exhibit 15).
[38] *See* Annual Global Carbon Emissions, available at: https://www.co2.earth/global-co2-emissions; *see also* C. Le Quéré, *et al., Global Carbon Budget 2015*, Earth Syst. Sci. Data (Dec. 2015) (attached as Exhibit 16).
[39] Dustin Mulvaney, *et al.*, *Over-Leased: How Production Horizons of Already Leased Federal Fossil Fuels Outlast Global Carbon Budgets,* EcoShift Consulting (July 2016) (attached as Exhibit 17) at 2 (citing Joeri Rogelj, *et al., Difference between carbon budget estimates unraveled*, Nature Climate Change (2016) (attached as Exhibit 18).
[40] Mulvaney at 2 (citing Oak Ridge National Laboratories, Carbon Dioxide Information Analysis Center (2015), available at: http://cdiac.ornl.gov/GCP/).
[41] IPCC AR5 Synthesis Report at 63 (attached as Exhibit 5).
[42] The Sky's Limit at 6 (attached as Exhibit 9); *see also* Kevin Anderson and Alice Bows, *Reframing the climate change challenge in light of post-2000 emission trends*, Phil. Trans. R. Soc. (2008) (attached as Exhibit 19) ("to provide a 93% mid-value probability of not exceeding 2°C, the concentration (of atmospheric greenhouse gases) would need to be stabilized at or below 350 parts per million carbon dioxide equivalent (ppm CO_2e)" compared to the current level of ~485 ppm CO_2e.).

coal, would take the world beyond 1.5°C.[43]

In order for the world to stay within a carbon budget consistent with Paris Agreement goals—"holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C"[44]—significant fossil fuel resources must remain in the ground. More specifically, to meet the target of 2°C, globally "a third of oil reserves, half of gas reserves and over 80 percent of current coal reserves should remain unused from 2010-2050."[45] Studies estimate that global coal, oil and gas resources considered currently economically recoverable contain potential greenhouse gas emissions of 4,196 $GtCO_2$,[46] with other estimates as high as 7,120 $GtCO_2$.[47]

Critically, the United States carbon quota—equivalent to 11% of the global carbon budget needed for a 50% chance of limiting warming to 2°C—allocates approximately 158 $GtCO_2$ to the United States as of 2011.[48] By way of comparison, federal and non-federal fossil fuel emissions together would produce between 697 and 1,070 $GtCO_2$.[49] Regarding just federal fossil fuel resources, the United States contains enough recoverable coal, oil and gas that, if extracted and burned, would result in as much as 492 $GtCO_2$, far surpassing the entire global carbon budget for a 1.5°C target and nearly eclipsing the 2°C target—to say nothing of the United States 'share' of global emissions.[50] Unleased federal fossil fuels comprise 91% of these potential emissions, with already leased federal fossil fuels accounting for as much as 43 $GtCO_2$.[51]

In 2012, "the GHG emissions resulting from the extraction of fossil fuels from federal lands by private leaseholders totaled approximately 1,344 $MMTCO_2e$."[52] Between 2003 and 2014, approximately 25% of all United States and 3-4% of global fossil fuel greenhouse gas emissions are attributable to federal minerals leased and developed by the Department of the

[43] The Sky's Limit at 5, 17 (attached as Exhibit 9).
[44] Paris Agreement at Art. 2 (attached as Exhibit 2).
[45] Christophe McGlade & Paul Ekins, *The geographical distribution of fossil fuels unused when limiting global warming to 2°C*, Nature (Jan 2015) (attached as Exhibit 20).
[46] Michael Raupach, *et al., Sharing a quota on cumulative carbon emissions*, Nature Climate Change (Sept. 2014) (attached as Exhibit 21).
[47] IPCC AR5, Mitigation of Climate Change, Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (2014) at Table 7.2 (attached as Exhibit 22).
[48] Raupach at 875 (attached as Exhibit 21).
[49] Dustin Mulvaney, *et al.*, *The Potential Greenhouse Gas Emissions from U.S. Federal Fossil Fuels*, EcoShift Consulting (Aug. 2015) at 16 (attached as Exhibit 23).
[50] *Id.*
[51] *Id.*
[52] Stratus Consulting, *Greenhouse Gas Emissions from Fossil Energy Extracted from Federal Lands and Waters: An Update* (Dec. 2014) at 9 (attached as Exhibit 24).

Interior.[53] Continued leasing and development of federal fossil fuel resources commits the world to 'extremely dangerous' warming well beyond the 2°C threshold. As one study put it, "the disparity between what resources and reserves exist and what can be emitted while avoiding a temperature rise greater than the agreed 2°C limit is therefore stark."[54] In short, *any* new leasing of federal fossil fuel resources is inconsistent with a carbon budget that would seek to avoid catastrophic climate change.

The production horizons for already leased federal fossil fuel resources underscore how unwarranted any additional leasing is, and in turn the reasonableness of the no action alternative. Comparing these production horizons to dates at which carbon budgets would be exceeded if current emission levels continue:

- Federal crude oil already leased will continue producing for 34 years beyond the 1.5°C threshold and 19 years beyond the 2°C threshold;
- Federal natural gas already leased will continue producing 23 years beyond the 1.5°C threshold and 8 years beyond the 2°C threshold;
- Federal coal already leased will continue producing 20 years beyond the 1.5°C threshold and 5 years beyond the 2°C threshold.[55]

Opportunities to reduce GHG emissions through the cessation of new leasing and non-renewal of non-producing leases must be prioritized by BLM.

If new leasing and renewal of existing non-producing leases continues, by 2040 it will contribute about two-thirds of expected federal fossil fuel production (forecast based on EIA and other sources).[56] On the other hand, if new leasing ceases and existing non-producing leases are not renewed, 40% of forecast coal production could be avoided in 2025 and 74% of coal production could be avoided in 2040. As for oil and gas, 12% of oil production could be avoided in 2025 and 65% could be avoided by 2040 while 6% of natural gas production could be avoided in 2025 and 59% could be avoided by 2040.[57]

This avoided production would significantly reduce future U.S. emissions. Cessation of new and renewed leases for federal fossil fuel extraction could reduce CO_2 emissions by about 100 Mt per year by 2030. Annual emission reductions could become greater than that over time as production declines on existing leases and maintaining or increasing production becomes

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[53] *See* Energy Information Administration, *Sales of Fossil Fuels Produced from Federal and Indian Lands, FY 2003 through FY 2014* (July 2015) (attached as Exhibit 25); *see also* Stratus Consulting (attached as Exhibit 24).
[54] McGlade at 188 (attached as Exhibit 20).
[55] Mulvaney (2016) at 5 (attached as Exhibit 17).
[56] Peter Erickson and Michael Lazarus, *How Would Phasing Out U.S. Federal Leases for Fossil Fuel Extraction Affect CO2 Emissions and 2°C Goals?,* Stockholm Environmental Institute (2016) at 12 (attached as Exhibit 323).
[57] Erickson and Lazarus at 16.

dependent on yet-to-be issued leases.[58]

A comparison with other measures shows that "no leasing" could be a very significant part of U.S. efforts to address climate change. The 100 Mt CO_2 emissions savings that could result from no leasing in 2030 compares favorably with EPA standards for light- and medium-vehicles that are expected to yield 200 Mt in CO_2 savings in 2030, and with standards for heavy-duty vehicles that are expected to yield 70 Mt in CO_2 savings in the same year. The 100 Mt CO_2 emissions reduction from leasing restrictions would be greater than either the emission reductions that the EPA expects to achieve through its existing regulation of oil and gas industry emissions or reductions the BLM expects to achieve from its proposed methane waste standards on oil and gas operations on federal land. Clearly, cessation of new and renewed leases could make an important contribution to U.S. climate change mitigation efforts.[59]

Also, importantly, avoided production through no new leasing and non-renewal of existing non-producing leases could help avoid further carbon lock-in in terms of investment in both fossil fuel-producing and fossil fuel-using infrastructure.[60]

Simply put, the timeframe to avoid catastrophic climate change is short, and the management of our federal minerals is dangerously out of step with this reality. BLM must adopt the no action alternative for the January 2017 lease sale.

VII. BLM Failed to Take a "Hard Look" by Predetermining its NEPA Analysis.

As detailed below, NEPA "requires ... that an agency give a 'hard look' to the environmental impact of any project or action it authorizes." *Morris v. U.S. Nuclear Regulatory Commission,* 598 F.3d 677, 681 (10th Cir. 2010). This examination "must be taken objectively and in good faith, not as an exercise in form over substance, and not as a subterfuge designed to rationalize a decision already made." *Forest Guardians,* 611 F.3d at 712 (quoting *Metcalf v. Daley,* 214 F.3d 1135, 1142 (9th Cir. 2000)); *see also* 40 C.F.R. § 1502.2(g) ("Environmental impact statements shall serve as the means of assessing the environmental impact of proposed agency actions, rather than justifying decisions already made."); *id.* § 1502.5 ("The statement shall be prepared early enough so that it can serve practically as an important contribution to the decision-making process and will not be used to rationalize or justify decisions already made.").

By failing to perform the necessary analysis, the agency, in effect, is presupposing that any site-specific impacts from oil and gas development can be mitigated without significant, unacceptable impacts at the APD stage before even knowing what those site-specific impacts are. The agency is also presupposing that oil and gas resources, if developed, outweigh non-oil and gas resources, like wildlife habitat, air quality, water quality protection, and human communities in the planning area.

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[58] *Id.* at 26.
[59] *Id.* at 27.
[60] *Id.* at 30.

As soon as BLM issues an oil and gas lease, that sale confers a guaranteed right to the leaseholder, which includes the right of occupancy. *See* EA at 11 ("the lease purchaser has the exclusive right to use as much of the leased lands as is necessary to explore and drill oil and gas within the lease boundaries."). Without analyzing impacts from the lease sale itself, any subsequent analysis intrinsically shifts from *preventing* impacts (and managing lands for other resource values) to merely *mitigating* impacts (and allowing oil and gas lessees to exercise their surface use rights to the lease at the expense of other resource values). This approach is fundamentally incongruous with NEPA's mandate. In *Northern Plains* the Ninth Circuit warned: "In a way, reliance on mitigation measures presupposes approval. It assumes that—regardless of what effects construction may have on resources—there are mitigation measures that might counteract the effect without first understanding the extent of the problem. This is inconsistent with what NEPA requires." *Northern Plains,* 668 F.3d at 1084-85. In the present case, this presupposition is precisely what BLM has done in determining that actual NEPA analysis can wait until some future date while relying on generic lease stipulations and future mitigation to avoid a finding of significance.

BLM, in making this predetermined conclusion, creates an un-level playing field that benefits oil and gas leasing and drilling at the expense of other multiple use resources. There is a long line of cases that warn agencies against making a predetermined decision with respect to NEPA analysis. The Tenth Circuit has cautioned: "[I]f an agency predetermines the NEPA analysis by committing itself to an outcome, the agency likely has failed to take a hard look at the environmental consequences of its actions due to its bias in favor of that outcome and, therefore, has acted arbitrarily and capriciously." *Forest Guardians,* 611 F.3d at 713 (citing *Davis v. Mineta,* 302 F.3d 1104 (10th Cir. 2002). The Tenth Circuit further stated that "[w]e [have] held that ... predetermination [under NEPA] resulted in an environmental analysis that was tainted with bias" and was therefore not in compliance with the statute. *Id.* (citing *Davis,* 302 F.3d at 1112–13, 1118–26)).

While the threshold for finding agency predetermination is high—"occur[ing] only when an agency *irreversibly and irretrievably* commits itself to a plan of action that is dependent upon the NEPA environmental analysis producing a certain outcome, *before* the agency has completed that environmental analysis," *Forest Guardians*, 611 F.3d at 714 (emphasis in original)—here, BLM's misguided process has met that threshold. BLM made the express determination that an analysis of impacts is not necessary at the lease sale stage, which guarantees that a FONSI will be issued. That FONSI is based not on any actual analysis of impacts, but rather on the predetermined decision to perform the necessary NEPA analysis at a later stage. Indeed, by not performing any genuine analysis, it is impossible to reach any conclusion other than a FONSI. By playing this shell-game, BLM, at a minimum, creates an improper "inertial presumption" in favor of committing resources to oil and gas development before knowing the site-specific impacts. *Natl. Wildlife Fed. v. Morton*, 393 F.Supp 1286, 1292 (D.D.C. 1975).

By reaching, in effect, a predetermined decision—or at least creating a presumption in favor of oil and gas leasing and development—BLM not only violates NEPA, but also, by elevating development of oil and gas over other multiple use resources, violates the Federal Land Policy Management Act ("FLPMA"). As the Tenth Circuit has explained:

> 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, which are best assessed through the NEPA process.

New Mexico ex rel. Richardson, 565 F.3d at 710. BLM's presupposition of outcome is a direct affront to both NEPA and FLPMA, and cannot be sustained.

VIII. BLM Failed to Take a Hard Look at the Direct, Indirect and Cumulative Impacts of Oil and Gas Leasing and Development.

The National Environmental Policy Act ("NEPA"), 42 U.S.C. § 4321 *et seq*., and its implementing regulations, promulgated by the Council on Environmental Quality ("CEQ"), 40 C.F.R. §§ 1500.1 *et seq*., is our "basic national charter for the protection of the environment." 40 C.F.R. § 1500.1. Recognizing that "each person should enjoy a healthful environment," NEPA ensures that the federal government uses all practicable means to "assure for all Americans safe, healthful, productive, and esthetically and culturally pleasing surroundings," and to "attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences," among other policies. 43 U.S.C. § 4331(b).

NEPA regulations explain, in 40 C.F.R. §1500.1(c), that:

> Ultimately, of course, it is not better documents but better decisions that count. NEPA's purpose is not to generate paperwork – even excellent paperwork – but to foster excellent action. The NEPA process is intended to help public officials make decisions that are based on understanding of environmental consequences, and take actions that protect, restore, and enhance the environment.

Thus, while "NEPA itself does not mandate particular results, but simply prescribes the necessary process," *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 350 (1989), agency adherence to NEPA's action-forcing statutory and regulatory mandates helps federal agencies ensure that they are adhering to NEPA's noble purpose and policies. *See* 42 U.S.C. §§ 4321, 4331.

NEPA imposes "action forcing procedures … requir[ing] that agencies take a *hard look* at environmental consequences." *Methow Valley*, 490 U.S. at 350 (citations omitted) (emphasis added). These "environmental consequences" may be direct, indirect, or cumulative. 40 C.F.R. §§ 1502.16, 1508.7, 1508.8. A cumulative impact—particularly important here—is defined as:

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

40 C.F.R. § 1508.7.

Federal agencies determine whether direct, indirect, or cumulative impacts are significant by accounting for both the "context" and "intensity" of those impacts. 40 C.F.R. § 1508.27. Context "means that the significance of an action must be analyzed in several contexts such as society as a whole (human, national), the affected region, the affected interests, and the locality" and "varies with the setting of the proposed action." 40 C.F.R. § 1508.27(a). Intensity "refers to the severity of the impact" and is evaluated according to several additional elements, including, for example: unique characteristics of the geographic area such as ecologically critical areas; the degree to which the effects are likely to be highly controversial; the degree to which the possible effects are highly uncertain or involve unique or unknown risks; and whether the action has cumulatively significant impacts. *Id.* §§ 1508.27(b).

Furthermore, 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 the agency not elevate the development of oil and gas resources above other critical resource values in the planning area. To the contrary, FLPMA requires that where oil and gas development would threaten the quality of critical resources, that conservation of these resources should be the preeminent goal. As detailed, below, for several critical resource values in the planning area, the proposed action conflicts with the BLM's mandate under FLMPA.

A. Because an irretrievable commitment of resources will occur at the lease sale stage, BLM must consider impacts prior to the sale.

BLM has stated its intent to postpone NEPA analysis to determine whether significant impacts exist until the APD stage, claiming: "The act of leasing the parcel would, by itself, have no impact on any resources in the FFO. All impacts would be linked to as yet undetermined future levels of lease development." EA at 52.

BLM has previously relied on *Park County Resource Council v. U.S. Department of Agriculture*, 817 F.2d 609 (10th Cir. 1987), to support its contention that site-specific NEPA analysis is not required until the APD stage. In *Park County*, the Court provided that "*with appropriate lease stipulations* aimed at protecting the environment, lease issuance itself, essentially a paper transaction, does not *usually* require prior preparation of an EIS." *Park County*, 817 F.2d at 621 (emphasis added). *Park County*, however, does not stand for the proposition—as BLM has implied—that there is a categorical rule exempting BLM from ever performing site-specific analysis at the lease sale stage. Indeed, the Ninth Circuit has consistently held that the sale of oil and gas leases is an irretrievable commitment of resources for which an EIS must be prepared. *See, e.g., Conner v. Burford,* 848 F.2d 1441 (9th Cir.1988); *Bob Marshall Alliance v. Hodel,* 852 F.2d 1223, 1227 (9th Cir.1988). Further, *Park County* cannot be

understood in a vacuum; as the Tenth Circuit more recently explained:

> [T]here is no bright line rule that site-specific analysis may wait until the APD stage. Instead, the inquiry is necessarily contextual. Looking to the standards set out by regulation and by statute, assessment of all 'reasonably foreseeable' impacts must occur at the earliest practicable point, and must take place before an 'irretrievable commitment of resources' is made. 42 U.S.C. § 4332(2)(C)(v); *Pennaco Energy v. U.S. Dept. of Interior*, 377 F.3d 1147, 1160 (10th Cir. 2004); *Kern v. U.S. Bureau of Land Management*, 284 F.3d 1062, 1072 (9th Cir. 2002); 40 C.F.R. §§ 1501.2, 1502.22. Each of these inquiries is tied to the existing environmental circumstances, not to the formalities of agency procedures. Thus, applying them necessarily requires a fact-specific inquiry.

New Mexico ex rel. Richardson, 565 F.3d at 717-18. The Court has unambiguously stated that "[t]he operative inquiry [is] simply whether all foreseeable impacts of leasing [are] taken into account before leasing [can] proceed." *Id.* at 717.

Indeed, in *Pennaco Energy,* the Court found: "A plan-level EIS for the area failed to address the possibility of [coal-bed methane ("CBM")] development, and a later EIS was prepared only after the leasing stage, and thus 'did not consider whether leases should have been issued in the first place.'" *New Mexico,* 565 F. 3d. at 717 (citing *Pennaco Energy,* 377 F.3d at 1152). Moreover, the Court held that "[b]ecause the issuance of leases gave lessees a right to surface use, the failure to analyze CBM development impacts before the leasing stage foreclosed NEPA analysis from affecting the agency's decision." *Id.* (citing *Pennaco Energy,* 377 F.3d at 1160).

Unlike *Park County* where site-specific impacts were difficult to anticipate, here, like in *Pennaco Energy*, the impacts of leasing parcels are reasonably foreseeable—over 90% of the FFO planning area has already been leased and expansive oil and gas development has already occurred, including in the Mancos Shale oil play. Moreover, the agency has identified the reasonably foreseeable impacts of development stemming from the lease of these parcels. *See* EA at 16. Thus, as in *Pennaco Energy*, an EIS assessing the specific effects of oil and gas development from this lease sale is required before leases are conferred to industry.

Moreover, irrespective of BLM's ultimate conclusion with regard to stipulations, an irretrievable commitment of resources will be conferred at the lease sale stage; oil and gas leases confer "the right to use so much of the leased lands as is necessary to explore for, drill for, mine, extract, remove and dispose of all the leased resource in a leasehold." 40 C.F.R. § 3101.1-2; *Sierra Club v. Hodel*, 848 F.2d 1068, 1093 (10th Cir. 1988) (agencies are to perform hard look NEPA analysis "before committing themselves irretrievably to a given course of action so that the action can be shaped to account for environmental values"); *see also* EA at n/a ("Once sold, the lease purchaser has the exclusive right to use as much of the leased lands as is necessary to explore and drill oil and gas within the lease boundaries.").

Yet, even where an NSO stipulation covering an entire parcel exists, the mere issuance of

the lease confers a right to the resources thereunder. Whether through horizontal drilling or some other method of extraction, the leaseholder has an exercisable interest as soon as the lease is conferred, which it then relies upon in proceeding with its development plan. Therefore, significant environmental impacts, based on those lease rights, may also occur once a lease is issued, including, for example, impacts to air resources, climate change, and groundwater. Although it is true that "some or all of the environmental consequences of oil and gas development may be mitigated through lease stipulations, it is equally true that the purpose of NEPA is to examine the foreseeable environmental consequences of a range of alternatives *prior* to taking an action that cannot be undone." *Montana Wilderness Ass'n*, 310 F.Sup.2d at 1145; *see also* 40 C.F.R. § 1501.2.

Here, the BLM refused to perform site-specific analysis at the lease stage, and, once lease right are conferred, BLM's authority will thereafter be limited to imposing mitigation measures consistent with the terms of the lease. Consequently, if BLM discovers significant impacts at the APD stage, it may no longer be able to prevent them. Because BLM is irretrievably committing resources at the lease sale stage, it must consider the impacts of its decision to lease parcels before it can confer public resources to a private developer in a lease—analysis which would be inherently flawed if performed without the benefit of a completed Mancos Shale RMP and EIS.

While the EA purports to evaluate the sale of oil and gas lease parcels which will allow drilling, completion, and production components, the agency also contends that consideration of impacts from development stage activity will actually occur later once APDs are submitted. This is a classic example of segmentation that is prohibited by NEPA.

As NEPA provides, to adequately assess the environmental impacts of a proposed action, BLM must assess three types of actions: (1) connected actions, (2) cumulative actions, and (3) similar actions. 40 C.F.R. § 1508.25. Connected actions "are closely related and therefore should be discussed in the same impact statement. Actions are connected if they: (i) Automatically trigger other actions which may require environmental impact statements; (ii) Cannot or will not proceed unless other actions are taken previously or simultaneously; (iii) Are interdependent parts of a larger action and depend on the larger action for their justification." *Id.* Cumulative actions are those actions that "when viewed with other proposed actions have cumulatively significant impacts and should therefore be discussed in the same impact statement." *Id.* Similar actions are those actions that "when viewed with other reasonably foreseeable or proposed agency actions, have similarities that provide a basis for evaluating their environmental consequences together, such as common timing or geography. An agency may wish to analyze these actions in the same impact statement. It should do so when the best way to assess adequately the combined impacts of similar actions or reasonable alternatives to such actions is to treat them in a single impact statement." *Id.*

There are two steps necessary to drill this area: first, BLM's proposed action to lease the subject parcels, and, second, BLM's promise of separate NEPA for the review and approval of APDs. The second cannot be accomplished without the first, and the act of drilling does not have independent utility. Instead, they are, for all intents and purposes, interdependent parts of a single action—to drill this area for oil and gas—that has been improperly segmented into two pieces.

As detailed above, BLM knows enough about current oil and gas development in the southern San Juan Basin to look at the impacts that will occur if the lease sale occurs and oil and gas development commences. Among those impacts are immense amounts of nitrogen deliveries, the need for extensive storage, the need for ancillary development for oil that does not currently exist, flaring of natural gas and industrial infrastructure delivery development in rural, undeveloped areas, among others.

B. BLM failed to analyze or take a "hard look" at cumulative impacts of the January 2017 lease sale.

A cumulative impact is the "impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time." 40 C.F.R. § 1508.7. While BLM includes a "*Cumulative Impacts*" section in their EA, *see* EA at 50-52, BLM fails to actually conduct any cumulative analysis of those impacts. *See Natural Resources Defense Council v. Hodel*, 865 F.2d 288, 298 (D.C. Cir. 1988) (providing that section headings without the "requisite analysis" are insufficient); *see also* 40 C.F.R. § 1508.27(b)(7) (BLM must consider whether the proposed action is related to other actions that together may have cumulatively significant *impacts*. "Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts.").

Here, the FFO's cumulative impacts analysis is remarkably insufficient. This is an area besieged by fossil fuel development. The FFO has over 23,000 active oil and gas wells, as well as two massive mine-to-mouth coal-fired power plant complexes—the Navajo Mine and Four Corners Power Plant, and the San Juan Mine and San Juan Generating Station. The impact of such development on the area's air, water, land, and human communities cannot be overstated. Yet, the FFO dismissively provides that "[c]onserving as much land as possible and applying appropriate mitigation measures will alleviate the cumulative impacts." EA at 73. Although BLM includes a cursory section of resource values cumulatively effected by the proposed action, the agency consistently avoids any actual cumulative analysis by claiming the scope of the lease sale is de minimis given the scale of the resource considered. For example, for air quality, BLM offers: "The very small increase in emissions that could result from approval of the action alternatives would not result in any county in the FFO area exceeding the NAAQS for any criteria pollutants." EA at 75. With regard to climate change, BLM states:

> The very small increase in GHG emissions that could result from approval of the Proposed Action Alternative would not produce climate change impacts that differ from the No Action Alternative. This is because climate change is a global process that is impacted by the sum total of GHGs in the Earth's atmosphere. <u>The incremental contribution to global GHGs from the proposed action cannot be translated into effects on climate change globally or in the area of this site-specific action.</u> It is currently not feasible to predict with certainty the net impacts

from the proposed action on global or regional climate.

EA at 75. As stated by the CEQ in its Final Guidance:

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

Although BLM provides a generalized discussion of anticipated climate impacts within the region encompassing a given lease sale, the EA failed to estimated the contribution of GHG emissions from lease sale to cumulative GHG emissions from past, present, and reasonably foreseeable GHG-emitting oil and gas activities on public lands. Nor did BLM analyze the climate impacts of cumulative GHG emissions from these activities. Instead, as noted above, BLM declined to analyze cumulative impacts of GHG emissions at the leasing stage on the basis that "[i]t is currently not feasible to predict with certainty the net impacts from the proposed action on global or regional climate." EA at 75.

BLM cites state and national emissions levels to conclude emissions from this particular lease sale represents only a small fraction of these emissions, and are therefore insignificant. (Notably, BLM makes this assertion without actually estimating resulting emissions). In so doing, however, BLM is defining the cumulative impacts area with respect to GHG emissions at a state and national scale. Using this baseline, the appropriate scope of the BLM's cumulative analysis must similarly be at this scale, which would include disclosing and considering the cumulative emissions from BLM's Oil and Gas Leasing Program—including emissions from all active producible wells managed by BLM—and the incremental contribution to these emissions from the proposed lease sale. BLM must not only disclose and quantify these emissions, but also consider the effect that these emissions will have to resource values and communities across the planning area, and to our nation as a whole.

BLM's estimates the direct GHG emissions from the sale, which alone do not provide the decisionmaker or the public with a context for understanding the effects to climate from BLM's proposed sale either individually or in the aggregate. Climate data and GHG quantification tools and methodologies, such as the Social Cost of Carbon, are readily available to BLM, easy to

apply, and are already in widespread use throughout the Federal and private sectors, state and local governments, and globally. The Social Cost of Carbon estimates the cost to society of each additional ton of GHG pollution emitted into the atmosphere, thereby providing a fairly comprehensive estimate of climate change damage resulting from a project's GHG emissions.

There is no effort to identify, much less quantify, the myriad cumulative impacts that this lease sale will contribute to, as noted above. Indeed, such analysis is impossible while the Mancos RMPA and EIS remain uncompleted. As defined in the EA: "Cumulative impacts include the combined effect of past projects, specific planned projects and other reasonably foreseeable future actions." EA at 52 (emphasis added). And, as noted above, additional impacts from the shale oil play "were not anticipated in the RFD or analyzed in the current 2003 RMP/EIS." 79 Fed. Reg. 10548. Without the benefit of completed RMPA considering this new level of development, by BLM's own definition it is impossible to sufficiently determine what the cumulative impacts from the January 2017 lease sale might be.

Here, BLM attempts to satisfy their NEPA obligation for this resource solely by tiering to the Air Resources Technical Report for Oil and Gas Development ("ARTR"). Although the ARTR does broadly describe the air resource conditions and impacts for the New Mexico, Oklahoma, Texas and Kansas region, a document of this scope cannot satisfy the site-specific cumulative impacts to air resources stemming from this lease sale, which is the level of analysis NEPA demands. "Conclusory remarks," as are consistently provided throughout BLM's EA, "do not equip a decisionmaker to make an informed decision about alternative courses of action." *NRDC*, 865 F.2d at 298. "Perfunctory references do not constitute analysis useful to a decisionmaker in deciding whether, or how, to alter the program to lessen cumulative environmental impacts." *Id.* at 275. BLM's conclusory treatment of their cumulative impacts analysis fails to meet their hard look requirement under NEPA.

C. BLM failed to take a "hard look" at impacts to air quality.

The BLM failed to take a hard look at the air quality impacts from oil and gas leasing and development in the planning area, and failed to consider the Citizen Groups detailed Comments on air quality resources, incorporated herein. 40 C.F.R. § 1506.6.

The FFO's air resources analysis is tiered to the existing 2003 RMP and EIS, which, as detailed above and functionally admitted by BLM, is no longer capable of guiding agency decision-making. The 2003 RMP/EIS is also fatally flawed specifically with regards to air quality. Indeed, significant new information demonstrates that emissions associated with oil and gas development are significantly higher than what the 2003 Farmington RMP contemplated. According to recent inventory data prepared by the Western Regional Air Partnership ("WRAP"), the 2003 Farmington EIS underestimates emissions of VOCs from oil and gas operations by nearly 30-fold. In 2003, BLM estimated that within 20 years, VOC emissions would amount to 2,008.5 tons/year. According to the most recent WRAP inventory, VOC emissions from oil and gas activities in San Juan and Rio Arriba Counties were estimated to be

nearly 60,000 tons/year in 2006 and projected to be more than 55,000 tons per year by 2012.[61] The table below illustrates this discrepancy between the amount of VOC emissions projected in 2003 and the most recent estimates.

Source of Emission Inventory	VOC Emission Estimate (tons/year)
RMP 20-Year Projection (RMP EIS at J-11)	2,008.5
WRAP Phase III 2006 Inventory for San Juan/Rio Arriba Counties	59,933
WRAP Phase III 2012 Projection for San Juan/Rio Arriba Counties	55,049

This discrepancy is significant because it indicates that BLM cannot reasonably tier to the 2003 RMP/EIS to justify that air quality impacts will not be significant. If anything, BLM must either prepare an EIS to address the air quality impacts of the proposed leases, supplement the 2003 RMP/EIS prior to moving ahead with the proposed leases, or, as discussed above, defer further leasing and development until the Mancos Shale RMP and EIS are completed.

This discrepancy also indicates that the emissions data presented in the EA, which shows dramatically lower VOC emissions in San Juan and Rio Arriba Counties, is flawed. *See* EA at 50. The EA indicates that EPA emission inventory data from 2011 was utilized in reporting overall emissions in San Juan and Rio Arriba Counties. However the EPA's inventory data does not reflect the actual emission inventory data presented by the WRAP as it relies solely on point source inventory data submitted by the New Mexico Environment Department.[62] Yet, as the WRAP data indicates, the vast majority of oil and gas-related VOC emissions are non-point source emissions.

In other words, the emissions data BLM presents in the EA fails to accurately account for oil and gas emissions, raising further concerns that the EA is inadequate and fails to justify a finding of no significant impact. BLM's EA failed to analyze and assess impacts in terms of accurate emissions data for the oil and gas industry. Moreover, the agency admits that additional

[61] *See* ENVIRON, *Final Report: Development of 2012 Oil and Gas Emissions Projections for the South San Juan Basin* (Dec. 2009) (prepared for Western Regional Air Partnership) (previously included as Exhibit 3); ENVIRON, *Final Report: Development of Baseline 2006 Emissions from Oil and Gas Activity in the South San Juan Basin* (Nov. 2009) (prepared for Western Regional Air Partnership) (previously included as Exhibit 4).

[62] *See* EPA, *2011 National Emissions Inventory, version 1, Technical Support Document DRAFT* (Nov. 2013) at 160, available at: http://www.epa.gov/ttn/chief/net/2011nei/2011_neiv1_tsd_draft.pdf (previously included as Exhibit 5).

near-field air quality modeling is needed. The agency states: "Due to the close proximity of occupied buildings and residences to potential well sites on these lease parcels, information about the air quality impacts at these locations needs to be determined and disclosed as part of the NEPA analysis prior to decision making on the APDs for wells on these parcels." EA at 60. The agency later continues: "At the time of the lease sale, there is still not enough information available about how the lease will be developed to accurately determine the near-field air quality impacts." EA at 60. The agency also admits "the lease purchaser has the exclusive right to use as much of the leased lands as is necessary to explore and drill oil and gas within the lease boundaries." EA at 11. In other words, regardless of what additional modeling tells us about impacts to air quality, once leases are sold, the agency cannot prevent development. This is precisely the type of scenario that NEPA forbids.

The FFO also incorporates in the EA broad technical information related to air resources from the ARTR for New Mexico, Oklahoma, Texas and Kansas, which is too general in scope to sufficiently analyze the site-specific impacts of oil and gas leasing and development from the proposed action. These documents, as well as the agency's assertion that "leasing the subject tracts would have no direct impacts to air quality[,]" and that "[a]ny potential effects to air quality from the sale of lease parcel would occur at such time that the lease is developed[,]" is the extent of BLM's analysis of air resources. EA at 54. With no analysis, quantified data, or reference to any of NEPA's significance factors, 40 C.F.R. § 1508.27, the agency has failed to satisfy their statutory mandate. The BLM's hard look analysis "must be taken objectively and in good faith, not as an exercise in form over substance, and not as a subterfuge designed to rationalize a decision already made." *Forest Guardians,* 611 F.3d at 712. What the agency offers in one-and-a-half pages fails to satisfy this obligation.

The EA also does not actually analyze or assess the impacts of developing the proposed leases to a number of national ambient air quality standards ("NAAQS"). We are especially troubled that the EA fails to analyze the direct, indirect, and cumulative air quality impacts in the context of NAAQS promulgated since the RMP was adopted. These NAAQS include the 1-hour nitrogen dioxide NAAQS (promulgated in 2010), the 1-hour sulfur dioxide NAAQS (also promulgated in 2010), the 8-hour ozone NAAQS (promulgated in 2008), the 24-hour $PM_{2.5}$ NAAQS (promulgated in 2006), and the annual $PM_{2.5}$ NAAQS (promulgated in 2012). We are particularly concerned over the impacts to the 1-hour NO_2 NAAQS given that short-term NO_2 concentrations are linked to near-field, near ground-level emissions, including compressor engines exhaust stacks and other combustion sources. Because the RMP does not analyze or assess impacts to these air quality standards, in particular the NO_2 NAAQS, the EA cannot reasonably tier to the analysis in the 2003 RMP/EIS or otherwise reasonably conclude that the direct, indirect, and cumulative impacts of the proposed leasing will not be significant.

The failure to analyze and assess impacts to air quality is especially hard to understand because the EA acknowledges the relevant NAAQS. *See* EA at 19 (Table 2). Yet nowhere in the EA does BLM attempt to analyze what the consequences of developing the proposed leases will be in terms of future air quality concentrations. Although the BLM cites current air quality monitoring data in support of its assertion that impacts to the NAAQS will not be significant, the fact that current monitoring does not indicate the region is violating any NAAQS does not mean

that the NAAQS will never be violated. Moreover, the U.S. District Court for the District of Colorado in fact 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. In her ruling, Judge Krieger stated: "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). This is particularly relevant here. BLM cites the "current design value of 0.068 ppm" for ozone as "below the attainment value of 0.070 ppm" to support a conclusion that emissions from the "proposed lease sale are not expected to impact" air quality respective to ozone. EA at 19. Notably, BLM failed to provide any site specific modeling of the cumulative effect that this sale would have to air quality in the region before reaching this conclusion.

Compounding BLM's failure in the EA to actually analyze and assess air quality impacts is that BLM entirely fails to even address emissions impacts. Although the EA discloses 2008 emission data for the San Juan Basin, there is no actual analysis or assessment as to how emission levels would be affected by development of the proposed leases. Simply disclosing the affected environment does not amount to an analysis or assessment of reasonably foreseeable impacts. Particularly when the BLM asserts that future emissions will not be significant, a lack of any actual analysis of emissions impacts is especially troublesome. The EA must be revised to include an actual analysis of how development of the proposed leases will impact emission levels.

D. BLM failed to take a "hard look" at climate change.

The BLM failed to take a hard look at the climate change impacts from oil and gas leasing and development in the planning area, and failed to consider the Citizen Groups detailed Comments on climate change and GHG emissions, incorporated herein. 40 C.F.R. § 1506.6. As detailed above, BLM failed to consider and account for significant new information and national policy dealing with GHG emissions and climate change, and failed to consider new scientific information, data, and carbon budgeting in their decisionmaking process, in violation of NEPA. Additionally, as with air quality, the FFO erroneously relies on the ARTR to satisfy the agency's NEPA obligations for climate change and GHG emissions. *See* EA at 54. As noted above, although the ARTR provides a broad overview of oil and gas emissions for a four state region, the document, in isolation, is incapable satisfying the type of site-specific NEPA analysis that is demanded here.

The agency begins with the recognition that "increasing concentrations of GHGs are likely to accelerate the rate of climate change." EA at 22. Yet, the FFO attempts to avoid performing any actual analysis and consistently ignores its obligation to consider the direct, indirect and cumulative impacts of GHG emissions, in violation of NEPA. 40 C.F.R. §§ 1502.16(a), (b); 1508.25(c). Although the agency concedes that production emissions would be a direct impact, the agency states: "[l]easing the subject tracts under the Proposed Action Alternative would have no direct impacts to climate change as a result of GHG emissions. Any potential effects to air quality from sale of a lease parcel would occur at such time that the lease

was developed." EA at 54. This type of evasive approach is inconsistent with the agency's obligations under NEPA and CEQ regulations. As noted above, this obfuscation contradicts the agency's earlier acknowledgment that full-scale oil and gas development "is reasonably foreseeable … [to] occur on leased parcels," EA at 17-18, which would otherwise compel the analysis of these reasonably foreseeable impacts. *See New Mexico ex rel. Richardson*, 565 F.3d at 718 (assessment of all "reasonably foreseeable" impacts must occur at the earliest practicable point). Perhaps more critically, however, is the scientific certainty that if we are to stem the impacts of climate change and manage for sustainable ecosystems, not only must the BLM take a hard look at GHG emissions from the proposed development, but its ultimate decision must be reflective of the challenges we face.

Here, the agency is perpetuating the inertial momentum of climate change by failing to take meaningful action on the site-specific contribution of GHG emissions from the proposed action. Although the agency does quantify the annual carbon dioxide equivalent ("CO_2e") emissions for the estimated 12 oil wells developed on lease parcels at 1,181 metric tons of CO_2e per year, the FFO attempts to diminish the significance of these emissions by comparing them on a scale to total U.S. GHG emissions, total U.S. emissions from oil and gas, and down the line to New Mexico and San Juan Basin GHG emissions from oil and gas. EA at 57.[63]

The only statement of assurance the FFO offers to mitigate these emissions is that "[t]he Field Office will work with industry to facilitate the use of the relevant BMPs for operations proposed on Federal mineral leases where such mitigation is consistent with agency policy." EA at 59. In other words, there is absolutely *no* commitment by BLM to do anything. Such a dismissive approach fails take these emissions in particular and, more broadly, the impacts climate change, seriously. These emissions contribution to climate change are precisely the type of "[cumulative] impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions" that must be considered by the agency. 40 C.F.R. § 1508.7; *Ctr. for Biological Diversity*, 538 F.3d 1172, 1217. Failure to do so would "impermissibly subject[s] the decisionmaking process contemplated by NEPA to 'the tyranny of small decisions.' " *Kern,* 284 F.3d at 1078 (citation omitted).

CEQ's Final Guidance explains the application of NEPA principals and practices to the analysis of GHG emissions and climate change, including, among others: (1) that agencies quantify a proposed action's projected direct and indirect GHG emissions, taking into account available data and GHG quantification tools; (2) that agencies use projected GHG emissions as a proxy for assessing potential climate change effects when preparing a NEPA analysis; (3) where GHG emission tools, methodologies, or data inputs are not reasonably available, agencies include a qualitative analysis in the NEPA document and explain the basis for determining that quantification is not reasonably available; (4) analyze foreseeable direct, indirect, and cumulative GHG emissions and climate effects; (5) consider reasonable alternatives and the short- and long-term effect and benefits in the alternatives and mitigation analysis; (6) consider alternatives that

[63] However, San Juan Basin emission estimates are quantified based on 14,995 wells, which is only about 65% of the more than 23,000 current wells in the basin.

would make the actions and affected communities more resilient to the effects of a changing climate; and (7) assess the broad-scale effects of GHG emissions and climate change, either to inform programmatic decisions, or at both the programmatic and project-level. BLM falls dramatically short of this level of analysis and consideration, as required by NEPA.

a. Social cost of carbon.

An EIS must do more than merely identify impacts. An EIS must also enable the agency and other interested parties to "evaluate the severity" of the effects. *See Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 352 (1989); *see also* 40 C.F.R. § 1508.27-(b) (a factor in assessing intensity or severity, and hence significance for NEPA purposes, is "the degree to which the proposed action affects public health or safety").

BLM's EA offers estimates of the amount of GHGs that will be emitted under the lease sale, but fails to include any meaningful discussion of the impacts of these emissions. Where information relevant to foreseeable adverse impacts is unavailable, agencies must nonetheless evaluate "such impacts based upon theoretical approaches or research methods generally accepted in the scientific community." 40 C.F.R. § 1502.22(b)(4).

One widely used approach to evaluating the impact of GHG emissions is to estimate the costs of those emissions to society. The federal Interagency Working Group on the Social Cost of Carbon has developed estimates of the present value of the future costs of carbon dioxide emissions as a proxy for the magnitude and severity of those impacts. The EPA has relied on a similar peer-reviewed estimate for the social cost of methane emissions, which adjusts the social cost of carbon dioxide to account for the different effects of methane on climate change and its greater global warming potential. These tools are easy to use by agencies, easy to understand by the public, and supported by years of peer-reviewed scientific and economic research. The EPA and other federal agencies have used these social cost protocols to estimate the effects of rulemakings on climate, and certain BLM field offices have used these tools in leasing level NEPA analysis. These protocols estimate the global financial cost of each additional ton of GHG pollution emitted to the atmosphere, taking into account factors such as diminished agricultural productivity, droughts, wildfires, increased intensity and duration of storms, ocean acidification, and sea-level rise.

Here, BLM included a social cost of carbon section in its EA, but states: "The BLM finds that including monetary estimates of the social cost of GHGs (SC GHG) in its NEPA analysis for this Proposed Action would not be useful. There is no court case or existing guidance requiring the inclusion of SCC in the NEPA context." EA at 59. The agency later continued: "Given the global nature of climate change, estimating SCC of an individual decision requires assessing the impact of the project on the global market for the commodity in question. While the BLM is able to estimate the GHG emissions associated with reasonably foreseeable oil and gas development, this EA does not estimate the net effect of this action on global GHG emissions or climate change." EA at 59. Although these statements attempt to insulate the agency from including such analysis, BLM misses the fundamental NEPA obligation that employing SCC would satisfy, which is acting as a proxy for the magnitude and severity of climate impacts. And, of course,

BLM's additional quantification does not change the fundamental assumption driving the agency's analysis, that "[l]easing the subject tracts under the Proposed Action Alternative would have no direct impacts to climate change as a result of GHG emissions." EA at 54.

Simple calculations applying the SCC to GHG emissions from this lease sale offer a straightforward comparative basis for analyzing impacts, and identifying very significant costs. The agency recognizes that "Total Potential GHG Emissions from Oil and Gas Field Production at Full Development (12 wells)" is 1,181 metric tons of CO_2e. EA at 57. Applying the IWG central value of $42 per ton of CO_2 results in a SCC of $49,602 for 12 wells.[64]

Notably, BLM recognizes that "methane has a global warming potential that is *21 to 25 times* greater than the warming potential of CO_2." EA at 55. However, BLM appears unable to make up its mind with regard to which warming potential for methane to use—and fails to actually disclose and justify the warming potential actually applied to form the basis of methane emission estimates. In addition to the above statement, elsewhere BLM provides that "one ton of methane would be equal to *25 tons of CO_2 equivalent*, because it has a global warming potential (GWP) 25 times that of CO_2." EA at 22. And just a few pages later offers that "[m]ethane is *34 times more potent* at trapping greenhouse gas emissions than CO2 when considering a time horizon of 100 years (Intergovernmental Panel on Climate Change, 2013)." EA at 24.[65] Moreover, BLM offers no justification for relying on a 100-year time horizon. According to the same IPCC report (which BLM cited but failed to apply), the 20-year GWP for methane—which is the relevant timeframe for consideration if we are to stem the worst of climate change—is 87.[66] While BLM fails to quantify what percentage of stated GHG emissions from the project are from methane, EPA estimates provide that approximately 97% of emissions from oil production in the San Juan Basin are from methane. Accordingly, if the updated GWP of 87 for methane is applied, emissions of CO^2e from the project increase dramatically, to **4,745 metric tons for the 12 wells, or a SCC of $199,290.**

In the final EA, at Citizen Groups urging, BLM does include estimated indirect GHG emissions from the lease sale by applying emissions factors to estimated well production, resulting in an estimated **601,813 $MTCO^2e$ of GHG emissions per year, or a SCC of $25,276,146**. EA at 57.[67]

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[64] It is important to note that, although the 2010 IWG SCC protocol did not address methane impacts, the 2013 IWG Technical Update explicitly addresses methane impacts. Thus, it is appropriate to calculate a SCC outcome that takes into account the full CO_2e emissions associated with the proposed leasing.

[65] It should be noted that the IPCC report cited by BLM actually identifies a GWP of 36 for methane from fossil fuel sources over a 100-year time horizon, rather than the GWP of 34 the agency cited. *See* INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, *Working Group I Contribution to the IPCC Fifth Assessment Report Climate Change 2013: The Physical Science Basis,* at 8-58 (Table 8.7) (Sept. 2013) (included previously as Scoping Exhibit 68).

[66] *See id*.

[67] Curiously, BLM reduces ultimate well recovery estimates from 245,000 barrels of oil equivalent in the draft EA at 46, to 140,000 bbls of oil per well in the final EA at 55. This change

Instead of considering these costs, the agency attempts to evade the necessary NEPA analysis of the magnitude and severity of GHG emission impacts by erroneously concluding that "[i]t is currently not feasible to predict with certainty the net impacts from the proposed action on global or regional climate" EA at 75. As noted by Judge Jackson, the SCC protocol provides such a tool. *See High Country Conservation Advocates v. U.S. Forest Service,* 52 F.Supp.3d 1174, 1190 (D.Colo. 2014). By failing to consider the costs of GHG emissions from the Proposed Action, the agency's analysis effectively assumes a price of carbon that is $0. *See id.* at 1192 (holding that although there is a "wide range of estimates about the social cost of GHG emissions[,] neither the BLM's economist nor anyone else in the record appears to suggest the cost is as low as $0 per unit. Yet by deciding not to quantify the costs as all, the agencies effectively zeroed out the cost in its quantitative analysis."). The agency's failure to consider the SCC is arbitrary and capricious, and ignores the explicit directive of EO 12866.

An agency must "consider every significant aspect of the environmental impact of a proposed action." *Baltimore Gas & Elec. Co. v. Natural Resources Defense Council*, 462 U.S. 87, 107 (1983) (quotations and citation omitted). This includes the disclosure of direct, indirect, and cumulative impacts of its actions, including climate change impacts and emissions. 40 C.F.R. § 1508.25(c). The need to evaluate such impacts is bolstered by the fact that "[t]he harms associated with climate change are serious and well recognized," and environmental changes caused by climate change "have already inflicted significant harms" to many resources around the globe. *Massachusetts v. EPA*, 549 U.S. 497, 521 (2007); *see also id.* at 525 (recognizing "the enormity of the potential consequences associated with manmade climate change."). Among other things, the agency's analysis must disclose "the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity[,]" including the "energy requirements and conservation potential of various alternatives and mitigation measures." 42 U.S.C. § 4332(c); 40 C.F.R. § 1502.16(e). As explained by CEQ, this requires agencies to "analyze total energy costs, including possible hidden or indirect costs, and total energy benefits of proposed actions." 43 Fed. Red. 55,978, 55,984 (Nov. 29, 2978); *see also* Executive Order 13514, 74 Fed. Reg. 52,117 (Oct. 5, 2009) (requiring government agencies to disclose emissions information annually from direct and indirect activities). Failing to perform such analysis undermines the agency's decisionmaking process and the assumptions made.

Moreover, BLM typically measures a project's GHG emissions against a baseline of national and/or global GHG emissions—thereby marginalizing the Proposed Actions contribution to our climate crisis while concluding the agency is powerless to avoid or mitigate such impacts. Here, the agency provides that "climate change is a global process that is impacted by the sum total of GHGs in the Earth's atmosphere. The incremental contribution to global GHGs from the proposed action cannot be translated into effects on climate change globally or in the area of this site-specific action." EA at 75. Indeed, the EPA has cautioned "against comparing GHG emissions associated with a single project to global GHG emission levels" because it erroneously leads to a conclusion that "on a global scale, emissions are not

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is unexplained, but results in a dramatic change in lease parcel production from 2,940,000 bbls to 922,000 bbls.

likely to change" as a result of the project.[68] As noted above, CEQ has offered similar guidance, recognizing that "the totality of climate change impacts is not attributable to any single action, but are exacerbated by a series of actions including actions taken pursuant to decisions of the Federal Government. Therefore, a statement that emissions from a proposed Federal action represent only a small fraction of global emissions is essentially a statement about the nature of the climate change challenge, and is not an appropriate basis for deciding whether or to what extent to consider climate change impacts under NEPA." Applying the SCC, as provided above, takes these abstract emissions and places them in concrete, economic terms. It also allows the agency to easily perform the cost-benefit analysis mandated by EO 12866, as well as BLM's own policy. Specifically, Instruction Memorandum No. 2013-131 (Sept. 18, 2013) is reflective of the BLM's attempt to internalize the costs of such emissions:

> All BLM managers and staff are directed to utilize estimates of nonmarket environmental values in NEPA analysis supporting planning and other decision-making where relevant and feasible, in accordance with the attached guidance. At least a qualitative description of the most relevant nonmarket values should be included for the affected environment and the impacts of alternatives in NEPA analyses….
>
> Nonmarket environmental values reflect the benefits individuals attribute to experiences of the environment, uses of natural resources, or the existence of particular ecological conditions that do not involve market transactions and therefore lack prices. Examples include the perceived benefits from hiking in a wilderness or fishing for subsistence rather than commercial purposes. The economic methods described in this guidance provide monetary estimates of nonmarket values. Several non-economic, primarily qualitative methods can also be used to characterize the values attributed to places, landscapes, and other environmental features. Guidance on qualitative methods for assessing environmental values, including ethnography, interviews, and surveys, is in preparation.
>
> Ideally, economic analysis for resource management should consider all relevant values, not merely those that are easy to quantify. Utilizing nonmarket values provides a more complete picture of the consequences of a proposed activity than market data alone would allow. The BLM's Land Use Planning Handbook, Appendix D encourages inclusion of information on nonmarket values, but does not provide detail.

The agency simply cannot continue to ignore its obligation to consider the costs of GHG emissions in its decisionmaking, as it has done here.

Here, the agency violated NEPA by relying on analysis that partially disclosed the amount of GHG pollution from foreseeable oil and gas development, while also failing to take

[68] *See* Light, 87 Tul. L. Rev. 511, 546.

the essential next step required for a hard look: disclosing the costs and impacts that such pollution would have. An economic cost-benefit must be performed before the agency authorizes the proposed development. Such an analysis will reveal dramatically greater costs to people and the environment than anticipated benefits from the project, which seriously undermines the economic logic of proceeding with the proposed sale. At the very least, however, failing to provide any cost-benefit analysis is impermissible according to the agency's multiple legal obligations, including NEPA, EO 12866, as well as BLM's own policy IM No. 2013-131.

b. Methane emissions and waste.

By making absolutely no commitment on mitigation measures and BMPs to address the GHG emissions from oil and gas leasing and development, the FFO is missing a critical opportunity and, indeed, obligation, to address the serious issue of methane ("CH_4") emissions and waste. *See* EA at 59 ("The Field Office will work with industry to facilitate the use of the relevant BMPs for operations proposed on Federal mineral leases where such mitigation is consistent with agency policy."). As detailed in Comments, incorporated herein, there readily available and cost-effective mitigation technologies that can drastically reduce the amount of methane lost during production. And, as introduced above, the IPCC's best available global warming potential ("GWP") estimates for methane—of 36 over a 100-year period, and 87 over a 20-year period[69]—underscores the importance of eliminating methane waste, which is a critical step the FFO can take *now* to reduce GHG emissions in the planning area. That the FFO failed to make the use of *any* methane mitigation technology a requirement for the future development of these parcels is inexcusable. Instead of making a specific commitment to address the serious waste of a harmful climate pollutant, BLM offers that "US EPA promulgated air quality regulations controlling VOC emissions at gas wells. These rules require air pollution mitigation measures that reduce the emissions of volatile organic compounds. These same mitigation measures have a co-benefit of reducing methane emissions." EA at 20.

To the agency's credit, BLM has finally acknowledged the methane "hot spot" that exists over the San Juan Basin, citing "pioneering research using space-borne (satellite and aircraft) determination of methane concentrations have indicated anomalously large methane concentrations may occur in the Four Corners region (Kort, Frankenberg, Costigan, Lindenmaier, Dubey, & Wunch, 2014)." EA at 24. Yet, in an apparent attempt to avoid taking action on the methane hot spot, BLM continues: "While space-borne studies can determine the pollutant concentration in a column of air, these studies cannot pinpoint the specific sources of air pollution. Further study is required to determine the sources responsible for methane concentrations in the Four Corners region; however, it is known that a significant amount of methane is emitted during oil and gas well completion (Howarth, Santoro, & A. Ingraffea, 2011)." EA at 24. This uncertainty is no longer the case. This summer, NASA released a study of methane emissions in the San Juan Basin identifying 250 large methane plumes emitted from well pads, storage tanks, pipelines, gas processing plants, and venting from the San Juan coal

[69] *See* IPCC, *Fifth Assessment Report Climate Change 2013* at 8-58.

mine.[70] Together these sources make up roughly half of all basin-wide methane emissions, and all but one of these sources is from the oil and gas industry.

To comply with NEPA, the BLM must take a hard look at direct, indirect, and cumulative impacts, as discussed above. 40 C.F.R. §§ 1502.16(a), (b); 1508.25(c). In evaluating impacts, the agency must discuss "[e]nergy requirements and conservation potential of various alternatives and mitigation measures," "[n]atural or depletable resource requirements and conservation potential of various alternatives and mitigation measures," and "[m]eans to mitigate adverse environmental impacts (if not fully covered under 1502.14(f))." 40 C.F.R. §§ 1502.16(e), (f), (h). The FFO's EA fails to provide any such analysis or comparison.

We emphasize, again, the "heart" of the NEPA process: BLM's duty to consider "alternatives to the proposed action" and to "study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources." 42 U.S.C. §§ 4332(2)(C)(iii), 4332(2)(E); 40 C.F.R. § 1502.14(a). Alternatives are critical because, "[c]learly, it is pointless to 'consider' environmental costs without also seriously considering action to avoid them." *Calvert Cliffs' Coordinating Comm., Inc. v. U.S. Atomic Energy Commn.*, 449 F.2d 1109, 1128 (D.C. Cir. 1971). Here, BLM considered only two alternatives: a "no action" alternative in which none of the nominated parcels would be offered for sale, and the "proposed action" where four allotment parcels covering 843 acres are offered with standard terms and conditions as well as lease stipulations dating back to the obsolete and ineffective 2003 RMP and EIS. *See* EA 9-10 (discussing alternatives). None of these existing measures or stipulations addresses GHG emissions or methane waste.

With no analysis or context, the EA includes a section on Design Features where the following statement is made:

> The FFO purchased an infrared camera designed to detect natural gas leaks on and around well pad and pipeline facilities. FFO inspection personnel have been trained to operate the camera and FFO is currently developing a strategy to implement the use of the camera in cooperation with oil and gas operators to detect and eliminate natural gas leaks in well pad and pipeline infrastructure.

EA at 12.

The infrared camera was purchased as part of the 2003 RMP settlement in 2010 by BLM and several of the organizations on this comment letter. The FFO has failed to develop a strategy to implement the infrared camera program while the infrared camera (purchased at considerable expense) is mothballed in a BLM closet. If BLM has any data that shows that the infrared camera has been used in the field, we would be interested in being apprised of how and when it has been

[70] Christian Frankenberg, et al., *Airborne methane remote measurements reveal heavy-tail flux distribution in Four Corners region*, PNAS, vol. 113 no. 25 (Aug. 30, 2016) (previously included as Exhibit 4).

utilized. In the absence of such a demonstration, the agency's reliance on an otherwise nonexistent infrared camera program, here, fails to assuage Citizens Groups' concerns regarding harmful fugitive emissions and waste from the proposed action. Without a strategy, data, and analysis demonstrating the benefits of employing this technology to address the considerable impacts and waste of methane and other pollutant emissions in the planning area, it is disingenuous at best, and deceptive at worse, to tout this as a design feature that would mitigate impacts when developing these parcels—and furthermore fails to satisfy NEPA's hard look mandate.

Moreover, the FFO's EA fails to quantify the magnitude of methane pollution from oil and gas emissions sources within the planning area—which, given the agency's admission that these parcels will be developed in a business-as-usual manner—is directly relevant to the proposed sale. Oil and natural gas systems are the biggest contributor to methane emissions in the United States, accounting for over one quarter of all methane emissions, or 129.9 million metric tons of CO_2e each year (which does not include CH_4 that has been flared, captured, or otherwise controlled).[71] However, methane emission rates can differ quite dramatically from one oil and gas field to the next, and, depending on the type of mitigation and emission controls employed, emissions can range anywhere from 1% to 12% of production.[72] In order to sufficiently understand the scope of methane emission impacts expected from the proposed action, BLM should quantify estimated emission rates and analyze alternatives that would mitigate these impacts. However, even without specific data from the proposed action, we can assume leakage somewhere between these two extremes and, even at the low end, emissions reductions would not be trivial, particularly in a region containing the largest methane plume in the country. The agency's refusal to consider any mitigation measures that would reduce these emissions fails to satisfy BLM's NEPA obligations.

Even setting aside the issue of climate change, every ton of methane emitted to the atmosphere from oil and gas development is a ton of natural gas *lost*. Every ton of methane lost to the atmosphere is therefore a ton of natural gas that cannot be used by consumers. Methane lost from federal leases will also not yield royalties otherwise shared between federal, state, and local governments. This lost gas reflects serious inefficiencies in how BLM oil and gas leases are developed. Energy lost from oil and gas production – whether avoidable or unavoidable – reduces the ability of a lease to supply energy, increasing the pressure to drill other lands to supply energy to satisfy demand. 40 C.F.R. §§ 1502.16(e)-(f). In so doing, inefficiencies create indirect and cumulative environmental impacts by increasing the pressure to satisfy demand with new drilling. 40 C.F.R. §§ 1508.7, 1508.8(b).

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[71] *See* U.S. EPA, *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2012*, at 3-63 (April 2014) (included previously as Exhibit 12).

[72] *See, e.g.,* David T. Allen, et. al., *Measurements of methane emissions at natural gas production sites in the United States*, PNAS (Aug. 19, 2013) (finding emissions as low as 1.5% of production at select cites) (included previously as Scoping Exhibit 66); Anna Karion, et. al., *Methane emissions estimate from airborn measurements over a western United States gas field*, GEOPHYSICAL RESEARCH LETTERS (Aug. 27, 2013) (finding emissions of 6 to 12 percent, on average, in the Uintah Basin) (included previously as Scoping Exhibit 67).

c. Managing for community and ecosystem resiliency.

Critically absent from the FFO's analysis is any mention of the climate change impacts already effecting the planning area. As provided in Comments, and according to experts at the Government Accountability Office ("GAO"), federal land and water resources are vulnerable to a wide range of effects from climate change, some of which are already occurring. These effects include, among others, "(1) physical effects, such as droughts, floods, glacial melting, and sea level rise; (2) biological effects, such as increases in insect and disease infestations, shifts in species distribution, and changes in the timing of natural events; and (3) economic and social effects, such as adverse impacts on tourism, infrastructure, fishing, and other resource uses."[73] There is absolution no mention, much less analysis, in the EA of these growing impacts or the necessity to employ climate mitigation measures to ensure landscape and human resiliency and their ability to adapt and respond to climate change impacts.

Beyond mitigating climate change by reducing contributions of GHG pollution to the atmosphere, the BLM can also help promote ecological resiliency and adaptability by reducing external anthropogenic environmental stresses (like oil and gas development) as a way of best positioning public lands, and the communities that rely on those public lands, to withstand what is acknowledged ongoing and intensifying climate change degradation. It is crucial for the BLM to close the gap in their decision-making regarding the cumulative contribution of oil and gas development authorized in the proposed action, particularly given the conflict between such authorization and the agency's responsibility to manage for healthy, resilient ecosystems. Although the FFO has recognized the threat of climate change, the agency's decision-making is not reflective of this harm and the agency fails to take the many necessary and meaningful steps to ameliorate the impacts to communities, landscapes, and species. The FFO's failure to even mention the relationship between climate change and these impacts is a fundamental deficiency in the EA.

E. BLM failed to take a "hard look" at hydraulic fracturing.

The BLM failed to take a hard look at hydraulic fracturing (or "fracking") impacts from oil and gas leasing and development in the planning area, and failed to consider the Citizen Groups detailed Scoping Comments on fracking, incorporated herein. 40 C.F.R. § 1506.6.

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[73] GAO Report, *Climate Change: Agencies Should Develop Guidance for Addressing the Effects on Federal Land and Water Resources* (2007) (included previously as Scoping Exhibit 35); *see also* Committee on Environment and Natural Resources, National Science and Technology Council, *Scientific Assessment of the Effects of Global Climate Change on the United States* (2008) (included previously as Scoping Exhibit 36); Melanie Lenart, et. al. *Global Warming in the Southwest: Projections, Observations, and Impacts* (2007) (included previously as Scoping Exhibit 37) (describing impacts from temperature rise, drought, floods and impacts to water supply on the southwest).

The agency's EA acknowledges that it is foreseeable that hydraulic fracturing will occur on leased parcels, and that "[h]ydraulic fracturing is a common process in the San Juan Basin and applied to nearly all wells drilled." *See* EA at 65. And that it is "anticipated that with more wells being drilled, there will be an increase in the amount of wells being hydraulically fractured and completed." EA at 54. In particular, the agency added in the final EA that, specifically, that the Mancos Shale in this area "has been developed by horizontal drilling and any future development is anticipated to be primarily horizontal drilling." EA at 55.

BLM also identifies general impacts from fracking, such as: "Volatile organic compounds are emitted during the completion of hydraulically fractured wells," EA at 54; "a higher probability of dust particulates in the atmosphere from the increase in vehicular traffic due to hydraulically fracturing wells," EA at 54; impacts to special status species and wildlife, EA at 69; as well as impacts to nearby residents, EA at 71. However, in each instance the FFO either relies on vague and undefined future mitigation, attempts to explain why these impacts actually aren't that big a deal, or ignores these impacts altogether—all without ever providing the hard look analysis that NEPA demands. Although BLM included additional information in Appendix 1: Phases of Oil and Gas Development, it offers little more than a factual background on the hydraulic fracturing process without actually analyzing impacts to people and resource values in the planning area. EA at 78. Critically, the agency failed to quality the types of impacts to specific resources anticipated from lease development, and in particular the greater magnitude of impacts to surface, air, and water resources from horizontal drilling and multi-stage hydraulic fracturing, which BLM admits will be the drilling technology employed on these parcels. As recognized in the attached expert declaration of petroleum engineer, Susan Harvey, the additional magnitude of impacts includes, among others, an average of 5.2 acres of land cleared per well; up to a 333% increase in air pollutant emissions, including an additional 11.88 more tons of VOCs per well and 1.13 more tons of HAPs per well; and 2,300 round trips of heavy truck traffic.[74] BLM failed to discuss altogether these and other foreseeable impacts from drilling.

With regard to VOC emissions from fracked wells, the EA cites EPA promulgated air quality regulations for completion of hydraulically fractured gas wells, and states that "[t]hese rules require air pollution mitigation measures that reduce emissions of volatile organic compounds during gas well completions." EA at 20. However, the EA fails to provide what these mitigation measures actually are, or quantify how such measures "constitute an adequate buffer against the negative impacts [and] whether the mitigation measures will render such impacts so minor as to not warrant an EIS." *National Parks*, 241 F.3d at 735.

Critically, the agency also acknowledges impacts to nearby residents, who "may be disturbed while hydraulic fracturing or other completion and stimulation operations are occurring, as these activities involve many vehicles, heavy equipment, and a workover rig." EA at 71. In response, the FFO callously provides that "[t]hese impacts would be limited to the period of time during which drilling operations associated with hydraulic fracturing occur." *Id*.

[74] Declaration of Susan L. Harvey, as submitted in *Diné CARE v. Sally Jewell*, Case No. 1:15-cv-0209 (D. N.M.) (attached as Exhibit 26).

Of course, these sensory impacts represent only some of the far broader effects that local residents will suffer from the proposed action, as detailed below. Plainly, however, the FFO cannot avoid a finding of significance simply because they allege that these impacts are limited in time, as the agency erroneously suggests. *See* 40 C.F.R. §§ 1508.8, 1508.27.

BLM does include a new lease stipulation, and provide that it was "developed to require modeling to determine 'near-field' air quality impacts (see Appendix 2). Due to the close proximity of occupied buildings and residences to potential well sites for these lease parcels, information about the air quality impacts at these locations needs to be determined and disclosed as part of the NEPA analysis prior to decision making on the APDs for wells on these parcels." EA at 71-72; Appendix 2 at 93. As noted above, however, a commitment to perform modeling at the drilling stage is too late, and a point where BLM is necessarily forced to mitigate impacts rather than preventing them altogether.

BLM and the New Mexico Oil & Gas Conservation Division's ("NMOCD") lack of inspection capacity also significantly undermines responsible oil and gas development in the state.[75] Currently, there are only 13 NMOCD field inspectors to oversee 53,000 producing wells—an impossible task.

F. BLM failed to take a "hard look" at impacts to water resources.

The BLM failed to take a hard look at water resource impacts from oil and gas leasing and development in the planning area, and failed to consider the Conservation Groups detailed Scoping Comments on both water quality and quantity, incorporated herein. 40 C.F.R. § 1506.6. In addition to the water resource concerns raised in the Comments of both the Citizen Groups and the Center for Biological Diversity, the BLM has failed to consider a significant potential impact to ground and/or surface water associated with Mancos Shale drilling. It is well established that the Mancos Shale formation, and groundwater associated with Mancos Shale beds, contains high concentrations of pollutants including nitrate, selenium, and uranium.[76] Prior to authorizing leases that will foreseeably result in Mancos Shale drilling, the BLM must analyze the potential for drilling and related operations—including produced water and frack fluid storage and disposal, drilling mud and cuttings storage and disposal, cross-contamination of aquifers from induced fractures and/or wellbore communication—to result in contamination of ground and/or surface waters with selenium, uranium, or other Mancos Shale contaminants.

a. Groundwater

BLM acknowledges: "Potential impacts to groundwater resources could occur from the proposed well bore, including groundwater depletion, contamination or cross-contamination of aquifers during drilling and completion phases." EA at 65. Nevertheless, BLM's chosen

[75] *See* Earthworks, *Enforcement Report: New Mexico Oil & Gas Conservation Division* (May 2012) (previously included as Exhibit 5).
[76] *See* U.S. Dep't of Energy, *Natural Contamination from the Mancos Shale*, LMS/S07480 (April 2011), http://energy.gov/sites/prod/files/S07480_NatContRpt.pdf.

approach is to postpone actual analysis of these impacts until the APD stage, where "a BLM geologist would identify all potential subsurface formations that would be penetrated by the wellbore. This includes all groundwater aquifers and any zones that would present potential safety or health risks that may need special protection measures during drilling, or that may require specific protective well construction measures," after which "BLM would review the company's proposed casing and cementing programs to ensure well construction design is adequate to protect the surface and subsurface environment." EA at 65-66. As with other resource values, BLM's shell-game approach to NEPA analysis fails to satisfy the agency's explicit mandate to analyze all reasonably foreseeable impacts at the earliest practicable point, which, here, clearly requires assessment prior to the January 2017 lease sale. *See New Mexico ex rel. Richardson*, 565 F.3d at 718. Unspecified mitigation and unsupported conclusions fail to demonstrate an "adequate buffer against the negative impacts" and fail to determine "whether the mitigation measures will render such impacts so minor as to not warrant an EIS." *National Parks*, 241 F.3d at 735.

The agency also states "there are no drinking water sources located in or near the proposed parcels." EA at 39. Elsewhere, however, the agency recognizes the need for additional near-field air quality modeling "[d]ue to the close proximity of occupied buildings and residences to potential well sites on these lease parcels." EA at 60. The agency fails to explain the apparent contradiction that an occupied building or residence wouldn't also require a source of drinking water. Given the agency's admission that groundwater contamination could occur—as well as a recently published study demonstrating drinking-water well contamination from fracking[77]—the agency's conclusion that there is no possibility of impacts to groundwater remains unsupported.

b. Surface Water

BLM is remarkably silent with regard to potential impacts to surface waters. Although the agency offers that "[d]uring operation, pipelines could potentially leak or rupture, which could impact groundwater quality," EA at 66, there is no mention of how such accidents would impact surface waters. In fact, all BLM offers is that, "[i]n the event of a leak or rupture, the BLM and NMOCD would work collaboratively to clean up the spill and protect groundwater." EA at 66. In other words, rather than taking steps to mitigate or avoid such accidents, BLM simply commits to cleaning it up once it happens. There is no discussion of mitigation or any other explanation of how these impacts are otherwise so insignificant as to not warrant an EIS. Such a cursory approach by the agency fails to their NEPA obligations seriously.

[77] *See* Thomas H. Darrah, et al., *Noble gasses identify the mechanisms of fugitive gas contamination in drinking-water wells overlying the Marcellus and Barnett Shales*, PNAS (Aug. 12, 2014) (previously included as Exhibit 13) (identifying "discrete clusters of fugitive gas contamination … that showed increased contamination through time" of drinking-water wells as a result of nearby hydraulic fracturing).

c. Water Quantity

The FFO's analysis of water quantity impacts is similarly devoid of detail. The limited extent of consideration in the EA provides: "The water used for hydraulic fracturing in the FFO generally comes from permitted groundwater wells, although surface water sources may occasionally be used. Because large volumes of water are needed for hydraulic fracturing, the use of groundwater for this purpose might contribute to the drawdown of groundwater aquifer levels. Groundwater use is permitted and managed by the NM OSE, and these water rights have already been designated." EA at 66. Whether or not BLM is responsible of allocation of water rights is beside the point of whether the agency has satisfied its obligations under NEPA. Here, the agency clearly has not. Notably, in an arid region already suffering from prolonged drought, substantial amounts of water—which will primarily come from groundwater sources—is required in developing these leases. "Approximately 1.02 million gallons (approximately 3.13 acre-feet) of water would be used for drilling and completions per well (Engler, et al., 2014)." EA at 66. Although BLM states that "[t]he use of groundwater for hydraulic fracturing is in compliance with all federal and state laws and regulations," EA at 66, BLM fails to take a hard look at how such water use will impact people and resources in the planning area, as NEPA requires. There is no discussion of how the groundwater drawdown from developing these oil wells will impact the land, wildlife, livestock, or human communities in the planning area, or how these impacts are further compounded in a drought-stricken southwest. There is no discussion of alternatives—such as the use of nitrogen fracking, which is already occurring in the area and which was referenced only in passing by BLM, EA at 64—or the tradeoff between water savings and air quality impacts of employing these technologies. There is no discussion of how impacts to groundwater will be mitigated, let alone with a sufficient enough buffer to avoid significance. Quite simply, the agency's EA does not satisfy the hard look NEPA demands.

G. BLM failed to take a "hard look" at induced seismic risks.

BLM arbitrarily and capriciously concluded that "there will be no induced seismic activity from the proposed action" without actually analyzing any existing subsurface conditions in the action area. EA at 40. For example, BLM did not look at whether there are active fault lines in the area, or fault lines that could be activated by wastewater injection. Instead, BLM summarily dismissed any such considerations and instead relied only on data regarding the number of past earthquakes in the area. Because there were not "any natural or induced earthquakes in the San Juan Basin from 1973-2012," EA at 39, BLM assumes that the chances of any earthquakes occurring in the action area, regardless of what activities may result directly or indirectly from the proposed action, are less than 1 percent. This assumption relies on a USGS map, Forecast for Damage from Natural and Induced Earthquakes in 2016, which merely looked at past activity rather than any site-specific existing subsurface conditions. In assuming so, BLM ignores USGS's disclaimer that "assessment of induced earthquake hazard was dependent on the assumption that past earthquake rates will remain constant over the next year of the forecast. While this assumption will not hold for areas of injection over long periods, recent studies…indicate that assessing earthquake rates observed over short time windows of a year or less are currently the best method available for forecasting the next year's rate of induced earthquakes. This model, however, does not account for increased, reduced, or new induced

activity in 2016."[78] BLM failed to consider the growing body of scientific evidence showing that increases in wastewater injections might increase seismic activity in the area.[79]

That the action area is more than 150 miles from the "three main areas in New Mexico (Dagger Draw, Raton, and Socorro) that have seismic activity," EA at 40, is irrelevant because even one new injection well could push stable faults past their tipping points and induce earthquakes.[80] Pore-pressure models have demonstrated that a combination of brine production and wastewater injection near faults in Azle, Texas, for example, generate subsurface pressures sufficient to induce earthquakes on near-critically stressed faults in the area.[81] But earthquake swarms have been observed to be associated with extraction as well, not just injection.[82] Induced seismicity is often associated with subsurface pressure changes, and extensional stresses will concentrate on the boundary of the fluid draw-down region, promoting normal faulting.[83] Contrary to BLM's assumptions, the fact that there has not yet been much seismic activity in the area does not preclude the possibility that more oil and gas activity will lead to earthquakes.

As the Center has already explained in its scoping comments, BLM is required to look at the region's fault environment by identifying and characterizing all faults in these areas based on sources including but not limited to the USGS Quaternary Fault and Fold database. In its analysis, BLM should assess its ability to identify all faults in these areas, including strike-slip faults and deep faults that can be difficult to detect. BLM should also consider the background seismicity of oil- and gas-bearing lands including the history of earthquake size and frequency, fault structure (including orientation of faults), seismicity rates, failure mechanisms, and state of stress of faults, as well as the geology of oil- and gas-bearing lands including pore pressure, formation permeability, and hydrological connectivity to deeper faults. As the Center has stated in its previous comments, BLM must analyze the potential for fracking and wastewater disposal to induce earthquakes, and the possible risks of induced seismicity in the specific areas for lease, including structures in the area that are at risk. Moreover, many of the archeological features in the region, including the delicately balanced walls of Pueblo Bonito and other Great Houses

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[78] USGS. 2016. One-Year Seismic Hazard Forecast for the Central and Eastern United States from Induced and Natural Earthquakes, Open-File Report 2016–1035 (2016) ("USGS 2016)" at 12, available at http://pubs.usgs.gov/of/2016/1035/ofr20161035.pdf.

[79] Ellsworth, W.L. Injection-Induced Earthquakes, 341 Science 1225942 (2013) ("Ellsworth 2013"); Keranen, Katie et al., Potentially Induced Earthquakes in Oklahoma, USA: Links Between Wastewater Injection and the 2011 Mw5.7 Earthquake Sequence, Geology doi:10.1130/G34045.1 (March 26, 2013) ("Keranen 2013").

[80] Lamont-Doherty Earth Observatory, Columbia University. Distant Quakes Trigger Tremors at U.S. Waste-Injection Sites, Says Study. July 11, 2013, available at: https://www.ldeo.columbia.edu/news-events/distant-quakes-trigger-tremors-us-waste-injection-sites-says-study .

[81] Hornbach, Matthew J. et al., Causal Factors for Seismicity near Azle, Texas, Nature Communications 6:6728 (April 21, 2015), 1, available at: http://www.nature.com/ncomms/2015/150421/ncomms7728/full/ncomms7728.html.

[82] *Id*. at 5-6.

[83] *Id*.

associated with Chaco Culture National Historical Park and outlying sites, are particularly susceptible to seismic activity. Limiting its analysis to only past seismic activity in the area, which provides no information at all on the potential impacts of the proposed action, does not meet NEPA requirements.

H. BLM failed to take a "hard look" at impacts to human health.

The BLM failed to take a hard look at human health impacts from oil and gas leasing and development in the planning area, and failed to consider the Conservation Groups detailed health concerns, as raised throughout the Scoping Comments, incorporated herein. 40 C.F.R. § 1506.6.

The FFO generally identifies health impacts throughout the EA, but fails to ever offer the hard look that NEPA demands. For example, health concerns due to air quality are raised in the discussion of the Air Quality Index ("AQI") and National Air Toxics Assessment ("NATA"), EA at 20, but the agency erroneously assumes its obligations are satisfied by these references alone, and fails to acknowledge their independent responsibility to analyze these impacts under NEPA before an irretrievable commitment of resources is made.

The consideration of impacts adverse to human health are also acknowledged in the affected environment section as an obligation with regard to the agency's environmental justice review, EA at 46, but there is, typically, *no* subsequent analysis of those impacts. *See* EA at 64. As with other resource values, BLM acknowledges the potential impacts to communities and human health without ever analyzing those impacts, as NEPA demands. EA at 71 ("While the act of leasing federal minerals itself would result in no social impacts, subsequent development of a lease may generate impacts to people living near or using the area in the vicinity of the lease. Oil and gas exploration, drilling, or production could create a disruption to these people due to increased traffic and traffic delays, air pollution, noise and visual impacts."); EA at 90 ("To ensure that hydraulic fracturing is conducted in a safe and environmentally sound manner, the BLM approves and regulates all drilling and completion operations, and related surface disturbance on Federal public lands. Operators must submit Applications for Permit to Drill (APDs) to the agency. Prior to approving an APD, a BLM Field Office geologist identifies all potential subsurface formations that would be penetrated by the wellbore. This includes all groundwater aquifers and any zones that would present potential safety or health risks that may need special protection measures during drilling, or that may require specific protective well construction measures.").

None of these references to the human health impacts of oil and gas leasing and development include any actual analysis. The FFO's shell-game approach to NEPA fails to satisfy the agency's explicit mandate to analyze all reasonably foreseeable impacts at the earliest practicable point, which, here, clearly requires assessment prior to the January 2017 lease sale. *See New Mexico ex rel. Richardson*, 565 F.3d at 718.

The EA's failure to take a hard look at the potential health impacts of oil and gas activities on these leases is especially concerning given the EA's acknowledgement of the likelihood that there will be "close proximity of occupied buildings and residences to potential

well sites on these lease parcels." EA at 12. In response, the agency has imposed a lease stipulation for the four parcels requiring no surface occupancy ("NSO") within 660 feet of occupied residences. EA at 12. This setback is insufficient to ensure that health impacts will be avoided, and, critically, the agency has failed to provide any justification or data supporting this decision. For example, Colorado's oil and gas commission recently passed new rules imposing a 500-foot setback for residences, but a buffer zone setback of 1,000-feet wherein mitigation and COGCC approval is required. *See* 2 C.C.R. § 404-1. Notably, however, current Colorado ballot Initiative 88 seeks a 2,000-foot setback from the nearest occupied structure. Here, the agency has failed to justify its decision and has failed to take a hard look, in violation of NEPA.

Scientific research continues to raise concerns about the health risks of living in close proximity to oil and gas wells. In addition to the information raised in the Comments, there are at least two notable scientific papers BLM should consider in this context. First, a recent review identified 15 different components of unconventional oil and gas development, everything from trucks and tanks to chemicals and venting, which can present a chemical, physical and/or safety hazard.[84] Second, a recent study found that babies whose mothers lived in close proximity to multiple oil and gas wells were 30% more likely to be born with defects in their heart than babies born to mothers who did not live close to oil and gas wells.[85] Rather than merely noting that health impacts may occur, BLM must now take a hard look at the reasonably foreseeable health impacts of its actions.

IX. BLM failed to take a "hard look" at impacts to human communities, cultural values, and environmental justice.

The FFO attempts to avoid taking a hard look while at the same time acknowledging impacts to human communities, providing: "While the act of leasing federal minerals itself would result in no social impacts, subsequent development of a lease may generate impacts to people living near or using the area in the vicinity of the lease." EA at 71. The agency recognizes a number of different impacts to local residents, including: "Oil and gas exploration, drilling, or production could create a disruption to these people due to increased traffic and traffic delays, air pollution, noise and visual impacts[;]" and that "nearby residents may be disturbed while hydraulic fracturing or other completion and stimulation operations are occurring, as these activities involve many vehicles, heavy equipment, and a workover rig[;]" and that "[c]reation of new access roads into an area could allow increased public access and exposure of private property to vandalism." EA at 71. Yet, the agency is dismissive of all these concerns, concluding that "[f]or leases where the surface is privately owned and the subsurface is BLM managed, surface owner agreements, standard lease stipulations, and BMPs could address many of the concerns of private surface owners." EA at 71. Not only does BLM's vague reference to non-

[84] John L. Adgate *et al.*, *Potential Public Health Hazards, Exposures and Health Effects from Unconventional Natural Gas Development*, 48 ENVIRONMENTAL SCIENCE & TECHNOLOGY 8307 (Feb. 24, 2014) (previously included as Exhibit 14).
[85] 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) (previously included as Exhibit 15).

specific mitigation measures fail to satisfy the agency's NEPA obligations for these identified impacts to communities, but the agency also ignores whole host of foreseeable impacts, the consideration of which should be fundamental to the agency's decision-making process for the subject lease sale—considerations that are particularly critical, here, given the Navajo allotted lands included in the sale. Critically, as noted above, occupied buildings and residences are in close proximity to well sites on these lease parcels, raising the specter impacts to human communities—not just from poor air quality, but myriad other impacts from hydraulic fracturing. Recently, on July 11, 2016, a massive fire broke out at a fracking site operated by WPX Energy that was approved by the FFO, setting off several explosions and closing Highway 550.[86] Approximately 36 storage tanks caught fire and burned, local residents were evacuated, and numerous domestic animals and livestock were killed. The massive fire took several days to burn itself out.[87]

Moreover, there are excellent sources the FFO should consider in their assessment and consideration of impacts to human communities and, particularly, native communities, many of which are outlined in a recent article in THE ATLANTIC.[88] Among the concerns and impacts to native communities raised in this article—and in particular the social and cultural impacts experienced on the Fort Berthold Indian Reservation, located in the heart of North Dakota's Bakken formation—include:

> [North Dakota's U.S. Attorney] noticed a peculiar pattern emerging from Fort Berthold. Many of his filings – a surprising number of them – involved non-Indian perpetrators. "We had five or six in a month," he told me. "Why was this? We realized it's non-enrolled folks moving to the oil patch."
>
> The immediate side-effects are the obvious ones, and they come with any boom: limited jail space, an overworked police force, a glut of men with cash in their pockets. In 2012, the tribal police department reported more murders, fatal accidents, sexual assaults, domestic disputes, drug busts, gun threats, and human trafficking cases than in any year before. The surrounding counties offer similar reports.
>
> But there is one essential difference between Fort Berthold and the rest of North Dakota: The reservation's population has more than doubled with an influx of

[86] Chow, L. Massive Fracking Explosion in New Mexico, 36 Oil Tanks Catch Fire, EcoWatch, July 13, 2016, available at http://www.ecowatch.com/massive-fracking-explosion-in-new-mexico-1919567359.html.

[87] *See* Letter from Diné CARE, *et al*., to Secretary Sally Jewell*, et al.*, RE: Mancos Shale Oil Drilling, Public Participation, and WPX Energy Explosion, July 26, 2016 (previously included as Exhibit 6).

[88] Sierra Crane-Murdoch, *On Indian Land, Criminals Can Get Away With Almost Anything*, THE ATLANTIC (Feb. 22, 2013), available at: http://www.theatlantic.com/national/archive/2013/02/on-indian-land-criminals-can-get-away-with-almost-anything/273391/ (previously included as Exhibit 16).

non-Indian oil workers – over whom the tribe has little legal control.

In 2011, the U.S. Justice Department did not prosecute 65 percent of rape cases reported on reservations. According to department records, one in three Native American women are raped during their lifetimes – two-and-a-half times the likelihood for an average American woman – and in 86 percent of these cases, the assailant is non-Indian.

Between 2009 and 2011, federal case filings on North Dakota reservations rose 70 percent.

With oil and gas industry predicting a new oil boom for the San Juan Basin[89]—with an estimated 30 billion barrels of oil trapped in the Mancos Shale—the impacts described above threaten to compound those already experienced by the native and non-native communities in the planning area. BLM's failure to articulate and analyze such impacts represents a fundamental deficiency of the EA, and overlooks critical information weighing on the conclusions reached therein, in violation of NEPA.

The BLM attempts to characterize impacts to National Forest land on the Taos Field office BLM boundary and on Navajo Allotments. These areas are rural, remote and undeveloped. The industrial activities needed to drill, operate and deliver oil and gas resources from these proposed lease parcels would fundamentally and significantly alter communities and public lands in the region. One only needs to visit the Jicarilla Ranger District of the Carson National Forest to see how oil and gas development has destroyed the forest. By necessity, these remote lease areas could be populated by man camps, itinerant workers, numerous contractors and subcontractors bound to facilitate development of the leases with unknown regard for the communities. BLM should clearly prepare an EIS to assess the significant impacts that could occur to landowners, allottees and the public if leasing for oil and gas occurs.

X. The BLM Failed to Sufficiently Analyze All Reasonable Alternatives.

Through the January 2017 lease sale NEPA process, the FFO required to "estimate and display the physical, biological, economic, and social effects of implementing each alternative considered in detail. The estimation of effects shall be guided by the planning criteria and procedures implementing [NEPA]." 43 C.F.R. § 1610.4-6. Incumbent to any NEPA process is a robust analysis of alternatives to the proposed action. Consideration of reasonable alternatives is necessary to ensure that the agency has before it and takes into account all possible approaches to, and potential environmental impacts of, a particular project. NEPA's alternatives requirement, therefore, ensures that the "most intelligent, optimally beneficial decision will

[89] Staci Matlock, *New oil boom coming to San Juan Basin*, THE NEW MEXICAN (March 13, 2014), available at: http://www.santafenewmexican.com/news/local_news/new-oil-boom-coming-to-san-juan-basin/article_665ff2f2-bd6c-54fd-9dd8-238092c73917.html (previously included as Exhibit 17).

ultimately be made." *Calvert Cliffs' Coordinating Comm., Inc. v. U.S. Atomic Energy Comm'n,* 449 F.2d 1109, 1114 (D.C. Cir. 1971).

"[T]he heart" of an environmental analysis under NEPA is the analysis of alternatives to the proposed project, and agencies must evaluate all reasonable alternatives to a proposed action." *Colorado Environmental Coalition*, 185 F.3d at 1174 (quoting 40 C.F.R. § 1502.14). An agency must gather "information sufficient to permit a reasoned choice of alternatives as far as environmental aspects are concerned." *Greater Yellowstone*, 359 F.3d at 1277 (citing *Colorado Environmental Coalition*, 185 F.3d at 1174); *see also Holy Cross Wilderness Fund v. Madigan*, 960 F.2d 1515, 1528 (10th Cir. 1992). Thus, agencies must "ensure that the statement contains sufficient discussion of the relevant issues and opposing viewpoints to enable the decisionmaker to take a 'hard look' at environmental factors, and to make a reasoned decision." *Izaak Walton League of America v. Marsh,* 655 F.2d 346, 371 (D.C. Cir.1981) (citing *Kleppe v. Sierra Club,* 427 U.S. 390, 410 n. 21 (1976)).

Here, BLM considered only two alternatives: a "no action" alternative in which none of the nominated parcels would be offered for sale, and the "proposed action" where four parcels covering 843 acres are offered with standard terms and conditions as well as lease stipulations dating back to the obsolete and ineffective 2003 RMP and EIS. *See* EA at 11 (discussing alternatives). In other words, the FFO failed to consider any alternative that would limit or mitigate the impacts of oil and gas development, or consider oil and gas development on equal footing to other multiple use values in the planning area.

FLPMA does not mandate that every use be accommodated on every piece of land; rather, delicate balancing is required. *See Norton v. S. Utah Wilderness Alliance*, 542 U.S. 55, 58 (2004). "'Multiple use' requires management of the public lands and their numerous natural resources so that they can be used for economic, recreational, and scientific purposes without the infliction of permanent damage." *Public Lands Council v. Babbitt*, 167 F.3d 1287, 1290 (10th Cir. 1999) (citing 43 U.S.C. § 1702 (c)). As held by the Tenth Circuit, "[i]f all the competing demands reflected in FLPMA were focused on one particular piece of public land, in many instances only one set of demands could be satisfied. A parcel of land cannot both be preserved in its natural character and mined." *Rocky Mtn. Oil & Gas Ass'n v. Watt,* 696 F.2d 734, 738 n. 4 (10th Cir.1982) (quoting *Utah v. Andrus,* 486 F.Supp. 995, 1003 (D.Utah 1979)); *see also* 43 U.S.C. § 1701(a)(8) (stating, as a goal of FLPMA, the necessity to "preserve and protect certain public lands in their natural condition"); *Pub. Lands Council,* 167 F.3d at 1299 (citing § 1701(a)(8)). As further provided by the Tenth Circuit:

> BLM's obligation to manage for multiple use does not mean that development *must* be allowed on [a particular piece of public lands]. Development is a *possible* use, which BLM must weigh against other possible uses – including conservation to protect environmental values, which are best assessed through the NEPA process. Thus, an alternative that closes the [proposed public lands] to development does not necessarily violate the principle of multiple use, and the multiple use provision of FLPMA is not a sufficient reason to exclude more protective alternatives from consideration.

New Mexico ex rel. Richardson, 565 F.3d at 710. This type of analysis is entirely absent from the FFO's EA, which has elevated oil and gas above the area's other multiple use resources, in violation of NEPA. *See* 43 C.F.R. § 1610.4-6.

XI. FLPMA: Unnecessary and Undue Degradation

Pursuant to the Federal Land Policy and Management Act ("FLPMA"), 43 U.S.C. § 1701 *et seq.*, "[i]n managing the public lands," the agencies "shall, by regulation or otherwise, take any action necessary to prevent unnecessary or undue degradation of the lands." 43 U.S.C. § 1732(b). Written in the disjunctive, BLM must prevent degradation that is "unnecessary" and degradation that is "undue." *Mineral Policy Ctr. v. Norton*, 292 F.Supp.2d 30, 41-43 (D. D.C. 2003). This protective mandate applies to agencies planning and management decisions, and should be considered in light of its overarching mandate that the FFO employ "principles of multiple use and sustained yield." 43 U.S.C. § 1732(a); *see also, Utah Shared Access Alliance v. Carpenter*, 463 F.3d 1125, 1136 (10th Cir. 2006) (finding that BLM's authority to prevent degradation is not limited to the RMP planning process). While these obligations are distinct, they are interrelated and highly correlated. The Bureau must balance multiple uses in its management of public lands, including "recreation, range, timber, minerals, watershed, wildlife and fish, and [uses serving] natural scenic, scientific and historical values." 43 U.S.C. § 1702(c). It must also plan for sustained yield—"control [of] depleting uses over time, so as to ensure a high level of valuable uses in the future." *Norton v. S. Utah Wilderness Alliance,* 542 U.S. 55, 58 (2004).

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

Here, that action is the oil and gas development authorized by the FFO through the January 2017 lease sale. The inquiry, then, is whether the agency has taken sufficient measures to prevent degradation unnecessary to, or undue in proportion to, the development the proposed action permits. *See Theodore Roosevelt Conservation Partnership*, 661 F.3d at 76. For example, methane waste and pollution may cause "undue" degradation, even if the activity causing the degradation is "necessary." Where methane waste and pollution is avoidable, even if in the

process of avoiding such emissions lessees or operators incur reasonable economic costs that are consistent with conferred lease rights, it is "unnecessary" degradation. 43 U.S.C. § 1732(b).

Therefore, drilling activities may only go forward as long as unnecessary and undue environmental degradation does not occur. This is a *substantive* requirement, and one that the BLM must define and apply in the context of oil and gas development authorized through the lease sale. In other words, the FFO must define and apply the substantive UUD requirements in the context of the specific resource values at stake.

Further, these UUD requirements are distinct from requirements under NEPA. "A finding that there will not be significant impact [under NEPA] does not mean either that the project has been reviewed for unnecessary and undue degradation or that unnecessary or undue degradation will not occur." *Ctr. for Biological Diversity,* 623 F.3d at 645 (quoting *Kendall's Concerned Area Residents,* 129 I.B.L.A. 130, 140 (1994)). In the instant case, BLM must specifically account for UUD in its NEPA analysis for the January 2017 lease sale, which is distinct from its compliance under NEPA, and is also actionable on procedural grounds.

XII. Conclusion

The Citizen Groups appreciate your consideration of the information and concerns addressed herein, as well as the information included in the attached exhibits. In general, we are alarmed at the fatal deficiencies of the EA analysis and the numerous issues overlooked and/or marginalized in the EA. The boilerplate EA continues the trend of BLM rushing oil and gas lease documents to meet prescribed lease sale schedules, rather than performing the analysis required by NEPA and its implementing regulations. These deficiencies fail to support a decision to proceed with the proposed lease sale. Accordingly, the no action alternative should be adopted.

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

Sincerely,

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