August 25, 2016

New Mexico Bureau of Land Management

Via email to NMleasesalecomments@blm.gov

Comments of WildEarth Guardians on the Environmental Assessment for the BLM New Mexico January 2017 Oil and Gas Lease Sale

To Whom It May Concern,

The following are the comments of WildEarth Guardians Climate and Energy Program on the Environmental Assessment ("EA") for the Bureau of Land Management ("BLM") New Mexico January 2017 oil and gas lease sale. January 18, 2017, Competitive Oil and Gas Lease Sale Environmental Assessment ("EA"). Please provide notice to me at tream@wildearthguardians.org if further action, including but not limited to issuance of a finding of no significant impact, is taken on this lease sale. Please also provide notice when any period for a formal protest or pre-decisional objection is set or changed. Finally, if BLM ever analyzes site-specific climate emissions of an application for permit to drill, please inform me.

For many years, the Bureau of Land Management has prioritized coal, oil, and gas leasing and related development over other uses of public land, such as protecting wildlife, watersheds, and public recreation. The error of this approach is increasingly obvious. In this NEPA document and throughout the agency's work, BLM fails to recognize that already existing federal coal, oil, and gas leases, if fully developed, would result in climate emissions that far exceed a safe and livable global temperature rise and would render our oceans too acidic for much existing marine life. BLM is choosing, contrary to federal law and without legally required disclosure, an unsafe climate for us and for future generations.

After years of waiting, the Secretary of the Interior has finally taken initial action with respect to the federal coal program. The Secretary, following on the heels of the President's 2016 State of the Union address, noted the tremendous impacts to taxpayers and the planet stemming from its coal leasing program. She ordered a programmatic environmental impact review of the coal program and shut down most new leasing until that review is complete. The exact same solution is needed for the public lands oil and gas program.

Instead, with every new set of oil and gas leases, like the one proposed here, BLM further breaks the global carbon budget for a livable climate, signals that other countries can behave just as irresponsibly, and increases the intensity of current and future catastrophic

climate impacts. *See* The Potential Greenhouse Gas Emissions of U.S. Federal Fossil Fuels, Ecoshift (August 2015) Ex. 1. As BLM dithers, solutions forced on the next generation become more onerous and more expensive.

It should be noted: even a complete end to new leasing would leave massive public lands acreage in the hands of oil and gas companies. The Obama Administration has leased more than 10 million aces of public land (and 19.4 million acres in our oceans) to oil and gas companies. Approximately 61% of this land is not producing any oil or gas. In fact, using the government's own projections for public lands and oceans oil and gas production, even with an end to leasing today, the backlog of existing leases would allow several decades of continual oil and gas production. Ex. 1A - Over-Leased: How Production Horizons of Already Leased Fossil Fuels Outlast Global Carbon Budgets, EcoShift (2016) at 1.

As detailed below, the problems with this proposed lease sale and its compliance with the National Environmental Policy Act ("NEPA") are such that BLM should adopt a no action alternative. In any case, it is clear that this NEPA analysis is inadequate to support project approval without supplemental analysis.

BLM Again Fails to Follow the Council on Environmental Quality Guidance on Climate Change and NEPA

Well before this document was completed, a December 2014 release of the Council on Environmental Quality's ("CEQ") "Revised Draft Guidance for Greenhouse Gas Emissions and Climate Change Impacts" ("Draft Guidance") was provided to BLM. Ex. 2. That guidance has now been updated and was finalized on August 1, 2016 as the "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" ("Final Guidance"). Ex. 2A. In most important respects, the Final Guidance adheres to the principles laid out in the Draft Guidance. BLM continues to ignore most of the requirements set forth in either version. That such behavior is widespread throughout BLM's oil and gas program suggests a failure of leadership at the highest levels of the Department and the Administration.

<u>A programmatic EIS is necessary</u>

Put simply, BLM is failing to describe or to analyze climate impacts from its oil and gas program and this NEPA document is no exception. The repeated pattern and practice of such failure suggests that only a programmatic analysis at the national level can address this shortcoming. In fact, a programmatic analysis is exactly what the CEQ Guidance calls for. The Draft Guidance suggested that for "long-range energy" actions, "it would be useful and efficient to provide an aggregate analysis of [greenhouse gas] emissions or climate change effects in a programmatic analysis and then incorporate by reference that analysis into future NEPA review." Draft Guidance at 29. The Final Guidance repeats that call. Final Guidance at 31. The final guidance suggests that "[examples of project- or site-specific actions that may benefit from being able to tier to a programmatic NEPA review include: . . . issuing leases for oil and gas drilling." Final Guidance at 32. The lack of climate analysis of

this long-range energy action demonstrates that this office, along with other state offices as demonstrated in other recent oil and gas leasing EAs, is incapable or unwilling to undertake adequate review of greenhouse gas ("GHG") emissions or climate change effects. This is exactly why the CEQ Guidance is correct in calling for programmatic analysis of climate emissions and effects for programs like the BLM oil and gas leasing program.[1] Thus, the CEQ Guidance creates an expectation that BLM would undertake a programmatic EIS of its oil and gas program, which it has thus far failed to do.

Earlier this year, BLM stated the following:

> CEQ recommends that an agency select the appropriate level of action for NEPA review at which to assess the effects of GHG emissions and climate change, either at a broad programmatic or landscape-scale level or at a project-specific level, and that the agency set forth a reasoned explanation for its approach. A specific example CEQ cited of a project-specific action that can benefit from a programmatic NEPA review is authorizing leases for oil and gas drilling. Given the aggregate nature of GHG contributions to global climate change, and the aggregate nature of climate change impacts to area-specific impacts analyzed in a field office NEPA document, it is readily apparent that the type of analysis suggested in the comments is more appropriate at a programmatic level, preferably at the regional or larger scale.

BLM Utah Environmental Assessment for the May 2016 Oil and Gas Lease Sale (DOI-BLM-UT-C020-2016-0002-EA) at 24.

It is a wonderful advancement in BLM's thinking in at least one office to acknowledge the CEQ Guidance and agree with Guardians and CEQ that programmatic analysis is necessary to take a "hard look" at climate emissions and impacts as required by NEPA. However, merely acknowledging this lack of analysis is not a substitute for it. In fact, it is an admission that the hard look required by NEPA has not yet been taken. Such a statement is an admission that BLM's current analysis is not legally sufficient to support project approval. We agree that it is necessary for proper implementation of NEPA for BLM State Offices to have a PEIS to tier to. Absent one, there are only two choices. Perform an equivalent analysis here or select the no action alternative. It would be reckless and illegal to do otherwise. BLM seems bent on continuing to choose the course of recklessness, both with regard to our climate and to the law.

BLM appears to misconstrue the CEQ Guidance to imply that if climate change analysis cannot be done at the field office level, it need not be done at all. This is a misreading. Site-specific analysis is still required. Where an agency has chosen to ignore programmatic analysis in favor of site-specific climate analysis, it is required to "set forth a reasoned

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[1] One purpose of the CEQ Guidance draft and final is to facilitate efficiency and consistency among and within Federal agencies analyzing climate impacts. Draft Guidance at 1, Final Guidance at 1. As a result of ignoring the CEQ Guidance, BLM has failed to achieve that consistency internally or in coordination with other agencies. Programmatic analysis could help cure this deficiency.

explanation" for that failure. Draft Guidance at 4, Final Guidance at 4. Such a reasoned is not present here. Absent programmatic analysis, BLM is still required to adequately analyze climate impacts and to "apply fundamental NEPA principles to the analysis of climate change through assessing GHG emissions" as per the Guidance and the law itself. Draft Guidance at 30. BLM has not done so in the relevant Resource Management Plan or in the NEPA documents under review. The failure to apply fundamental NEPA principles in analyzing climate emissions and effects in this NEPA document or in tiered documents are obvious and unfortunate.

BLM does not have the discretion to ignore existing information and tools and simply wave away emissions as insignificant

The touchstone of any NEPA analysis is to take a hard look at impacts and provide useful information to decision makers and the public; the analysis of climate impacts is no different. Draft Guidance at 2. Such analysis does not require the development of new information or tools for analysis, but does require that existing information and tools are applied appropriately. Draft Guidance at 4. (Examples include but are not limited to air pollution models, reasonably foreseeable development scenarios, and emissions factors for various systems.) BLM should heed CEQ's advice that providing climate change analysis will not only satisfy the critically important mandates of NEPA, but will also reduce the risk of litigation. Draft Guidance at 2.

It is true that agencies have discretion in how to apply available information and tools, but the depth of this discretion is a function of the agency's "expertise and experience" with climate change and its impacts. Draft Guidance at 5. It is clear that such expertise is largely absent in state BLM offices. Given this lack of experience and expertise at state offices, agency discretion to ignore the CEQ Guidance is at its low ebb. This is glaringly apparent at the district and field levels, again suggesting the need for national programmatic analysis of the BLM oil and gas leasing program. Slapping in some language from old EAs is not sufficient to meet NEPA requirements. "It is essential, however, that Federal agencies not rely on boilerplate text to avoid meaningful analysis, including consideration of alternatives or mitigation." Draft Guidance at 5-6.

Actual emissions, including from oil and gas use, must be analyzed for lease sales

The core of any climate change NEPA analysis is an actual analysis of emissions. The principle focus of the CEQ Guidance is to alert agencies to the need to "quantify a proposed agency action's projected direct and indirect GHG emissions." Final Guidance at 4. There is not free pass given to BLM to ignore indirect impacts to our climate from its oil and gas leasing program. It should be noted, all estimates of future project emissions are speculative to some degree, but nonetheless required by NEPA whenever reasonably foreseeable. To estimate emissions here would be quite simple and has been and is being done by other BLM offices. BLM has all the information and tools necessary to do such an analysis.

The repeated lack of analysis climate change analysis might be because BLM thinks that fossil fuel leasing is a special example that absolves it of this requirement to estimate emissions. CEQ, however, makes it a specific point to state that such estimates are required when leasing fossil fuels. For example, a federal lease sale for coal requires an estimate of resulting emissions, including "impacts associated with end-use of the fossil fuel." Final Guidance at 16, FN 42; Draft Guidance at 12. Moreover, not just emissions, but the reasonably foreseeable long-term climate effects of such an action must be analyzed to fulfill NEPA's mandate. Final Guidance at 18, Draft Guidance at 12.

Emissions estimates are not limited only to the climate pollution that results from construction and production of fossil fuel projects. The "reasonably foreseeable effects" on our climate that must be analyzed under NEPA include those that come from "using the resource." Final Guidance at 14, Draft Guidance at 12. Thus, the analysis of emissions from the burning of oil and gas must be included in oil and gas leasing NEPA analysis, which was not done here.

Thus, it is clear that BLM must estimate indirect effects, including GHG emissions that will result from burning the reasonably foreseeable oil and gas produced from project leases. That a small percentage of oil or gas might be used in production rather than combusted does not change this requirement. Simply subtract this small percentage from estimated emissions.

Please note, the Guidance is applicable to site-specific actions, like an individual lease, but also to "Federal land and resource management decisions," like resource management plans. Final Guidance at 9, Draft Guidance at 8. Thus, GHG emissions and climate impacts should be analyzed in a Resource Management Plan, which was not done here, at the oil and gas leasing stage, which was not done here, and, at the application for permit to drill stage, which is generally not being done by BLM either. Put simply, NEPA analysis is required for all proposed Federal actions, 40 CFR § 1508.18, and the analysis of climate impacts is no different, Final Guidance at 9, Draft Guidance at 8.

There is a presumption that climate emissions are quantitatively analyzed; if BLM chooses to do otherwise, it must "explain its basis for doing so." Final Guidance at 4, Draft Guidance at 16. "Quantification tools are widely available, and already in broad use in the Federal and private sectors, by state and local governments, and globally." Final Guidance at 12. One basis for providing no more than a qualitative analysis is that the tools and information for producing quantitative analysis are not reasonably available. Final Guidance at 13, Draft Guidance at 15. If, however, such tools and information are available, BLM "should conduct and disclose quantitative estimates of GHG emissions." Draft Guidance at 15. Again, such emissions estimates must include those from fossil fuel combustion. Draft Guidance at 15. Where such tools are not reasonably available, BLM should "provide a qualitative analysis and its rationale for determining that the quantitative analysis is not warranted." Final Guidance at 13.

BLM has not done so here, despite the fact that BLM has the tools and information to estimate project emissions. For years, BLM state offices have estimated fossil fuel

production from lease sales so that they could tout the economic impacts of the proposed projects. BLM has shown it is capable of going one step further and converting production estimates into emissions estimates. *See, e.g.,* Ex. 3 – Utah BLM May 2015 Oil and Gas Lease Sale Environmental Assessment (December 2014) at 30-31. The U.S. Forest Service is also capable of estimating emissions from a BLM lease sale. *See, e.g.,* Ex. 4 – Pawnee National Grassland Oil and Gas Leasing Analysis Draft Environmental Impact Statement (August 2014) at 277-87 and Ex. 4A -- Previously Issued Oil and Gas Leases in the White River National Forest Draft Environmental Impact Statement, Bureau of Land Management (November 2015). BLM Miles City Field Office also created aggregated estimates of emissions from years of foreseeable projects. Ex. 4B -- Miles City Proposed Resource Management Plan and Final Environmental Impact Statement (2015) at Chapter 4. Finally, the Four Rivers Field Office of Idaho utilized an emission calculator developed by air quality specialists at the BLM National Operations Center in Denver and a 2013 report prepared for BLM by Kleinfelder to estimate likely greenhouse gases that would result from leasing five parcels. *See* Ex. 4C -- "Little Willow Creek Protective Oil and Gas Leasing," EA No. DOI-BLM-ID-B010-2014-0036-EA (February 10, 2015) and Ex. 4D -- Kleinfelder, "Air Emissions Inventory Estimates for a Representative Oil and Gas Well in the Western United States," report prepared for Bureau of Land Management (March 25, 2013).

Once BLM has an estimate of possible fossil fuels produced from a project, it is quite simple to calculate the climate emissions that will result from the combustion of those fuels. Likewise, BLM has the information to estimate construction and production emissions and can easily apply the existing and widely known scientific literature to estimate methane releases. If uncertainty must be handled by presenting a range of possible estimates, that is an acceptable practice under NEPA.

Please note, although the CEQ Guidance suggests agencies' should apply a rule of reason when determining the level of effort expended in analyzing GHG emissions, this is not a justification for avoiding a quantitative analysis for the project in question. First, as noted above, "[i]f tools or methodologies are available, . . . agencies should conduct and disclose quantitative emissions." Draft Guidance at 15. Second, the rule of reason means "reasonably proportionate to the importance of climate change related considerations to the agency action being evaluated." Draft Guidance at 14. Climate emissions from the BLM oil and gas leasing program have never been adequately evaluated at the programmatic, resource management plan, leasing, or applications for permit to drill levels. Onshore fossil fuels other than coal are currently responsible for a whopping 19% of federal leasing emissions. Ex. 5 - *Cutting Greenhouse Gas From Fossil-Fuel Extraction on Federal Lands and Waters* (CAP Report), Center for American Progress (March 19, 2015) at 4. That represents approximately 5% of all energy-related emissions in the U.S. *See* CAP Report at 1 noting total federal lands and waters energy-related emissions at 24% and multiplying by 19%. This is a huge and nationally important volume of emissions that has *never been analyzed under NEPA in any fashion*. Until BLM completes a quantitative analysis of emissions of its oil and gas leasing program at the programmatic level, there can be no doubt that emissions from individual federal lease sales warrant a quantitative estimate.

Finally, the rule of reason still demands that BLM "ensure the professional and scientific integrity of [its] decisions and analysis." Final Guidance at 30, FN 77; Draft Guidance at 14, citing 40 CFR § 1502.24. Some BLM offices still to this day often cannot admit of basic climate science conclusions. Calling climate science formative to dismiss the need for analysis, or claiming that the standard for such analysis is "certainty" lacks the required level of integrity.

Estimates of climate emissions need to be put in context and the social cost of carbon is an appropriate tool for doing so

An estimate of emissions presented, without any context, means little to decision makers or the public. A ton or a gigaton of carbon dioxide equivalent ("CO2e") has little meaning to all but those most deeply steeped in climate science. Thankfully, a simple tool that contextualizes emissions by translating tons of carbon into estimates of the costs to society of emitting that carbon is readily available. This social cost of carbon ("SCC") evaluation tool is discussed in more depth in later sections.

BLM has suggested in the past various reasons why the SCC is not an appropriate tool for contextualizing climate emissions. The CEQ Guidance recognizes that SCC estimates "vary over time, are associated with different discount rates and risks, and are intended to be updated as scientific and economic understanding improves." Final Guidance at 33, FN 86; Draft Guidance at 16. These shortcomings, however, do not disqualify the methodology from use under NEPA or otherwise render it useless. *Id.* The CEQ Guidance discusses SCC solely in terms of cost-benefit analyses. *Id.* This discussion does not, however, in any way suggest that the SCC is an inappropriate tool for other aspects of NEPA analysis.

These comments do not call for a cost-benefit analysis. Instead, we merely contend that once emissions estimates for a project exist, it is a simple calculation to cast those emissions estimates in terms of the costs to society from resulting climate change. Failure to do so is a failure to provide decision makers and the public with a critical context for understanding the importance of a particular amount of climate emissions.

In summary, the CEQ Guidance provides a meaningful roadmap for BLM offices that are clearly struggling with their ability to present meaningful analysis of the climate impacts of their fossil fuel projects. This guidance is not binding, but it is not without effect. It represents the Executive Branch's clearest and most extensive statement on what agencies must do to comply with NEPA standards. It is a benchmark, not an absolute standard. In that sense, the final guidance is of more significance than the draft. It is the more refined benchmark of the two. It is the best description of what agencies have always been responsible for doing, now made explicit. Unfortunately, BLM has failed to employ nearly every relevant point presented by CEQ. This alone renders the EA inadequate to meet the requirements of NEPA.

BLM Fails to Analyze Climate Emissions or Impacts

Here, BLM has failed to follow nearly every recommendation from the climate and NEPA experts at CEQ. The depth of that failure in the face of the enormity of the climate problem should be an embarrassment for all involved. On the other hand, BLM New Mexico is to be commended for at least attempting some level of climate change analysis and refraining from the kind of veiled climate change denial often seen in lease EAs from other BLM state offices. As shown below, BLM New Mexico is getting closer to providing analysis that complies with NEPA, but has failed to take several crucial steps toward that achievement.

First, as noted above, BLM has failed to perform a programmatic environmental review of climate impacts. Under such circumstances, BLM is expected to provide a reasoned explanation for this failure. That a state office does not know the origin of this failure does not satisfy NEPA, the CEQ Guidance, or the public's right to know. It is incumbent on state offices to ask the Washington Office to explain this failure and then provide that explanation to the public.

As a basis for climate analysis here, BLM makes several key, foundational acknowledgements that represent superior analysis relative to most BLM offices. BLM acknowledges the well-known basis for climate change; increasing emissions of GHGs results in increase climate impacts. EA at 20. BLM acknowledges that these parcels almost certainly contain commercial quantities of oil. For example, BLM claims that the parcels are being drained or will be drained as early as 2017. EA at 4, 10. BLM states that well development on parcels included in this project is "reasonably foreseeable." EA at 16. BLM acknowledges that "a significant amount of methane," a key GHG, is emitted during construction and production of wells in this area. EA at 19.

BLM also makes some key estimates that are prerequisites to adequate climate analysis. Unlike most BLM offices, BLM New Mexico correctly utilizes its reasonably foreseeable development scenario to estimate that 12 wells are reasonably foreseeable as a result of accepting the action alternative. EA at 46; *see also* EA at 6. BLM then logically, and again in a manner superior to most other BLM offices, applies well production decline curve analysis to estimate the reasonably foreseeable total production from the action alternative: 2,940,000 barrels of oil equivalent. EA at 46. BLM uses this number to describe the effects of selecting the no action alternative by applying it to determine lost revenue and royalties. This calculation again makes clear that this level of production is reasonably foreseeable.

Sadly, this is where logic stops and this BLM office is gripped by the same malady that afflicts most other BLM offices. BLM New Mexico is incapable of taking the information before it and engaging in a couple simple calculations to estimate project climate emissions and impacts.

Instead, BLM refuses to convert production volumes into emissions estimates. EA at 46. BLM flatly states that leasing will have no "impact" on any resources. EA at 47. As BLM well knows, "impact" and "effect" are frequently used interchangeably in the NEPA context. Under NEPA, direct, indirect, and cumulative impacts must be disclosed. It is nonsense that

leasing where development is reasonably foreseeable has no indirect effects. As the CEQ guidance makes clear, burning oil and gas is an indirect effect of leasing. Instead, BLM directly and explicitly contradicts the CEQ Guidance by claiming effects of the action must "occur at the same time and place as the action." EA at 50. This represents a fundamental and blatant misreading of NEPA in any context. The otherwise promising analysis goes completely off the rails when BLM claims, as other offices also falsely do, that it will study climate impacts at the last possible moment, when applications for permit to drill ("APDs") are examined. EA at 51.

This is problematic for several reasons. First, NEPA requires that impacts from actions be studied at the earliest possible time, not the latest as is being done here. Second, BLM believes that a lease is an irretrievable commitment of resources. Once a parcel is leased, BLM is legally unable to add stipulations that would significantly reduce GHGs. Effects of an action are not to be analyzed only after an irretrievable commitment of resources. Finally, actual NEPA analysis of APDs by BLM New Mexico at this time is no better than the analysis found here.

BLM's ePlanning system provides the most recent NEPA analysis of APDs performed by BLM New Mexico. (Although BLM inexplicably is not bothering to date its APD NEPA analysis, higher numbers reflect later projects.) The three latest APD EAs all failed to estimate production volumes and then convert that into an estimate of indirect emissions. *See* DOI-BLM-NM-P020-2016-1508-EA, DOI-BLM-NM-P020-2016-1509-EA, DOI-BLM-NM-P020-2016-1531-EA.

But there is no reason for BLM to wait for analysis of APDs to disclose reasonably foreseeable emissions estimates here. NEPA does not demand certainty. The production estimate BLM produced is easily converted to an emissions estimate. Barrels of oil equivalent is a reasonable estimate of barrels of oil. According to EPA, a barrel of oil, once burned, produces 0.43 tons of carbon dioxide equivalent. https://www.epa.gov/energy/ghg-equivalencies-calculator-calculations-and-references. Taking the estimate of 2,940,000 barrels times 0.43 tons of CO2e per barrel results in an estimate of 1,260,000 tons of CO2e.

This is an appropriate approximation to disclose to the public and the decision maker. It can be adjusted by including construction, production, and transportation emissions, including methane. It can be reduced slightly by estimates of the amount of oil or gas that is not burned but used as a production feedstock.

The resulting number would not be certain. That is not required. BLM has no problem handling uncertainties far greater than discussed here. For example, when calculating likely project revenues and royalties, BLM assumes oil will sell for $50 per barrel. This project could result in oil production for decades. Over the last three years alone, oil has sold for more than $120 per barrel and for less than $30. Obviously, BLM is content to report revenue numbers based on assumptions that could be wildly off. It is capable of making a far more accurate estimate of emissions than royalties, but failed to do so here.

Still, BLM appears to have estimated emissions in some sense but withheld that information from the public. BLM's claims, "The very small increase in GHG emissions that could result from project approval of the Proposed Action alternative would not produce climate impacts that differ from the No Action Alternative." EA at 67. How does BLM know that the increase in emissions is very small without estimating it? And why was that estimate withheld from the public?

BLM has the tools and information to estimate emissions more accurately than it estimated royalties, but inexplicably failed to do so. For these reasons, the EAs in question are legally insufficient.

The Social Cost of Carbon Has Been Ignored

The high costs to society from the leasing and subsequent burning of public lands fossil fuels must be properly analyzed and that analysis presented to the public and agency decision makers. Historically, BLM has ignored the costs of fossil fuel leasing on public lands, especially the costs to society that result from global warming, while touting economic benefits. Proper consideration of these social costs of carbon is simply good governance and good stewardship of public resources, and such consideration is legally required.

Global warming is responsible for extreme costs to society already, and it will only get worse in the future.

A recent consensus report, joined by more 190 countries, makes the basic science on global warming crystal clear. Global warming is unequivocal: since the 1950s the atmosphere and oceans have warmed, snow and ice have diminished, and seas have risen. Ex. 6, Climate Change 2013 – The Physical Science Basis - Summary for Policymakers, United Nation Intergovernmental Panel on Climate change (2013) ("AR5 summary") at 4. There is little doubt that pollution from human activities is the cause of this warming. *Id.* at 17. The U.S. government's own more recent report concludes that global warming is now affecting our country in far-reaching ways. Ex. 7, National Climate Assessment 2014 – Overview ("National Climate Assessment"). Climate pollution has warmed the U.S. almost 2°F, mostly since 1970, with another 2°F to 4°F expected in the next few decades. *Id.* Much greater warming in future decades is also possible, possibly up to an increase of 10°F above current temperatures by the end of the century. *Id.*

These are not the estimates of "environmentalists." This is the scientific consensus accepted both in the U.S. and around the world.

The situation has recently taken an even more dire turn for the worse. Both 2014 and 2015 set global records for the hottest year ever. Scientists are all but certain that 2016 will break these records as well. According to NOAA, every month for the last 14 in a row have set global monthly temperature records. It is possible, that climate change has entered a new accelerating state.

The burning of coal, oil, and gas is the principle source of the largest contributor to global warming, carbon dioxide. *Id.*; see also AR5 summary at 13. At this time, approximately 25% of the carbon dioxide from fossil fuels produced in the U.S. comes from public lands leases. Ex. 8, Greenhouse Gas Emissions from Fossil Energy Extracted from Federal Lands and Waters, Stratus Consulting (February 1, 2012) at 15; see also, Ex. 9, Sales of Fossil Fuels Produced from Federal and Indian Lands – FY 2003 through FY 2014, U.S. Energy Information Administration (June 2015) at 2. Fossil fuels extracted from public lands release more than one and one-half billion metric tons of carbon dioxide equivalent per year. *Id.* at 12. That is the equivalent of more than 31 million passenger cars' annual climate pollution, just from producing and burning fossil fuels from our public lands alone. Greenhouse Gas Equivalencies Calculator, U.S. Environmental Protection Agency at http://www.epa.gov/cleanenergy/energy-resources/calculator.html (last checked July, 9 2015).

BLM manages federal mineral rights, including the leasing and approval of extraction of public lands fossil fuels, on all federal lands. Therefore, BLM decision makers play a critical role in determining how much more climate pollution the U.S. will emit to the atmosphere, the extent that that pollution will exacerbate global warming, and the extent that society and future generations will have to bear the myriad related social costs of those decisions.

Global warming is exacting costs on society in numerous ways. Agricultural productivity, including crops, livestock, and fisheries have been negatively impacted by global warming. National Climate Assessment – Overview. This has resulted from extreme weather events, changes in temperature and precipitation, and increasing pressure from pests and pathogens. *Id.* Both water quality and water quantity are being affected by global warming. *Id.* The degradation has resulted from changes in snowpack, extreme weather events, coastal flooding affecting aquifers, and from changes in temperature and precipitation. *Id.* Heat-related deaths and illnesses have grown and are growing. *Id.* Impacts to forest resources from increased forest fires and the resulting impacts to air quality put additional costs on society. *Id.* A wide variety of critical ecosystem functions are degraded by global warming, including habitat for fish and wildlife, drinking water storage, soils, and coastal barriers. *Id.* Carbon dioxide pollution is also responsible for increasing ocean acidification. This list represents only a subset of the social costs of carbon pollution from burning fossil fuels extracted from our public lands. Nonetheless, "[l]ower emissions of heat-trapping gases and particles mean less future warming and less-severe impacts; higher emissions mean more warming and more severe impacts." *Id.*

BLM decision makers must consider the social cost of carbon from all proposed land management projects.

The requirement to analyze the social cost of carbon is supported by the general requirements of the National Environmental Policy Act ("NEPA") and specifically supported in federal case law. NEPA requires agencies to take a "hard look" at the consequences of proposed agency actions. 42 U.S.C. § 4321 *et seq*.; *Morris v. U.S. Nuclear Regulatory Commission,* 598 F.3d 677, 681 (10th Cir. 2010). Consequences that must be considered include direct, indirect, and cumulative consequences. 40 C.F.R. §§ 1502.16, 1508.7, 1508.8.

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. Analysis of site-specific impacts must take place at the lease stage and cannot merely be deferred until after receiving APDs to drill. *See New Mexico ex rel. Richardson v. Bureau of Land Management*, 565 F.3d 683, 717-18 (10th Cir. 2009); *Conner v. Burford,* 848 F.2d 1441 (9th Cir. 1988); *Bob Marshall Alliance v. Hodel,* 852 F.2d 1223, 1227 (9th Cir. 1988). Any NEPA analysis of a fossil fuel development project that fails to use the government-wide protocol for assessing the costs to society of carbon emissions from the proposed action has failed to take the legally required "hard look."

Courts have ordered agencies to assess the social cost of carbon pollution, even before a federal protocol for such analysis was adopted. In 2008, the Ninth Circuit Court of Appeals ordered the National Highway Traffic Safety Administration ("NHTSA") to include a monetized assessment of carbon emissions reductions in an EA prepared under NEPA. *Center for Biological Diversity v. National Highway Traffic Safety Administration*, 538 F.3d 1172, 1203 (9th Cir. 2008). NHSTA had proposed a rule setting corporate average fuel economy standards for light trucks. A number of states and public interest groups challenged the rule for, among other things, failing to monetize the benefits that would accrue from a decision that led to lower carbon dioxide emissions. NHTSA's EA had monetized the employment and sales impacts of the proposed action. *Id.* at 1199. The agency argued, however, that valuing the costs of carbon emissions was too uncertain. *Id.* at 1200. The court found this argument to be arbitrary and capricious. *Id.* The court noted that while estimates of the value of carbon emissions reductions occupied a wide range of values, the correct value was certainly not zero. *Id.* It further noted that other benefits were monetized by the agency although also uncertain. *Id.* at 1202.

More recently, a federal court has done likewise for a proposed coal lease modification. *High Country Conservation Advocates v. U.S. Forest Service*, 2014 WL 2922751 (D. Colo. 2014), Slip Op. at 3, citing 40 C.F.R. § 1502.23. That court began its analysis by recognizing that a monetary cost-benefit analysis is not universally required by NEPA. *High Country Conservation Advocates v. U.S. USFS*, ---F. Supp.2d---, 2014 WL 2922751 (D. Colo 2014), citing 40 C.F.R. § 1502.23. However, when an agency prepares a cost-benefit analysis, "it cannot be misleading." *Id.* at 3 (citations omitted). The quantification of the social cost of carbon was never prepared. BLM cannot rely on the stated benefits of the project in the RMP to justify project approval while wholly ignoring the costs to society that will accrue through climate change. This, the *High Country* court explained, was arbitrary and capricious. At 3. Any such approval would be based on a NEPA analysis with misleading economic assumptions, an approach long disallowed by courts throughout the country. *Id.* at 19-20.

The social cost of carbon will be significant whenever fossil fuel leasing, or mining, or drilling is proposed.

According to the U.S. Environmental Protection Agency ("EPA"), the social cost of carbon is "an estimate of the economic damages associated with a small increase" in emissions. Ex. 10, Social Cost of Carbon, U.S. Environmental Protection Agency. "This dollar figure also represents the value of damages avoided for a small emission reduction." *Id.* Thus, it would be incorrect to assert that the social cost of carbon cannot be calculated for a project that represents a tiny fraction of global or even a tiny fraction of U.S. emissions. Estimates of the social cost of carbon are designed to do exactly that. In fact, the social cost of carbon is generally expressed in terms of the costs tolled by emitting or the benefits realized by avoiding a single ton of carbon dioxide emissions.

However, it is very likely that the social cost of carbon protocol actually underestimates the true damages exacted on society by carbon pollution. *Id.* citing the IPCC Fourth Assessment Report. In particular, damages related to social and political conflicts, weather variability, extreme weather, and declining growth rates are either ignored or underestimated. Ex. 11, Omitted Damages: What's Missing from the Social Cost of Carbon, Peter Howard, the Cost of Carbon Project (March 13, 2014). In fact, more recent studies have reported significantly higher carbon costs. For instance, a report published last year found that current estimates for the social cost of carbon should be increased six times for a mid-range value of $220 per ton. *See* Ex. 12, Moore, C.F. and B.D. Delvane, "Temperature impacts on economic growth warrant stringent mitigation policy," *Nature Climate Change* (January 12, 2015) at 2. Thus, any application of the current social cost of carbon protocol is very likely a significant underestimate of the true cost of carbon pollution.

Acknowledging the known tendency to underestimate costs, the federal government has been using its cost-benefit assessment tool since February 2010. *See* Ex. 13, Technical Support Document: Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis - Under Executive Order 12866 - Interagency Working Group on Social Cost of Carbon, United States Government (May 2013, Revised July 2015). In the last several years, the Departments of Agriculture, Energy, Transportation, and Housing and Urban Development and the Environmental Protection Agency and National Highway Traffic Safety Administration have all utilized the Social Cost of Carbon Protocol in public decision making documents.

Although often utilized in the context of agency rulemakings, the protocol has been recommended for use and has been used in project-level decisions. For instance, the EPA recommended that an EIS prepared by the U.S. Department of State for the proposed Keystone XL oil pipeline include "an estimate of the 'social cost of carbon' associated with potential increases of GHG emissions." Ex. 14, EPA, Comments on Supplemental Draft EIS for the Keystone XL Oil Pipeline (June 6, 2011). The BLM has also utilized the social cost of carbon protocol in the context of oil and gas leasing. In recent Environmental Assessments for oil and gas leasing, the agency estimated "the annual SCC [social cost of carbon] associated with potential development on lease sale parcels." Ex. 15, BLM, "Environmental Assessment DOI-BLM-MT-C020-2014-0091-EA, Oil and Gas Lease Parcel, October 21, 2014

Sale" (May 19, 2014) at 76. In conducting its analysis, the BLM used a "3 percent average discount rate and year 2020 values," presuming social costs of carbon to be $46 per metric ton. *Id*. Based on its estimate of greenhouse gas emissions, the agency estimated total carbon costs to be "$38,499 (in 2011 dollars)." *Id*.

The U.S. Government Accountability Office reviewed the process employed to develop the federal government's assessment of the social cost of carbon. Ex. 16, Regulatory Impact Analysis – Social Cost of Carbon Estimates (July 2014). The GAO found that the process employed to develop the 2013 social cost of carbon estimates "used consensus-based decision making," "relied on existing academic literature and models," and "took steps to disclose limitations and incorporate new information." *Id.* In short, while the social cost of carbon protocol, like other economic models, provides only estimates and is subject to further updates as new information becomes available, the federal government's social cost of carbon protocol is a legitimate tool for performing a thorough and honest assessment of both costs and benefits of proposed actions as required under NEPA.

EPA lists the current social costs of carbon in the following format:

Social Cost of CO2, 2015-2050 a (in 2007 Dollars per metric ton CO2)

Source: Technical Support Document (PDF, 21 pp, 1 MB): Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order 12866 (May 2013, Revised July 2015)

	Discount Rate and Statistic			
Year	**5% Average**	**3% Average**	**2.5% Average**	**3% 95th percentile**
2015	$11	$36	$56	$105
2020	$12	$42	$62	$123
2025	$14	$46	$68	$138
2030	$16	$50	$73	$152
2035	$18	$55	$78	$168
2040	$21	$60	$84	$183
2045	$23	$64	$89	$197
2050	$26	$69	$95	$212

a The SC-CO2 values are dollar-year and emissions-year specific.

Ex. 10 at 3.

As the table above makes clear, the social costs of carbon pollution are anything but trivial. For example, a project that released a mere 25,000 tons of carbon dioxide in 2025 would be responsible for costs to society, through global warming, of between $375,000 and more

than $3.75 million for that year's emissions alone. And again, this is very likely an underestimate of true costs.

If the economy returns to fast-paced growth and global warming impacts are currently foreseen and properly estimated, the higher discount rates, 5%, and the lower social cost of carbon estimates will be most appropriate. If the economy grows long-term at slower rates and global warming impacts are currently foreseen and properly estimated, the higher social cost of carbon figures, the 2.5 % column, will be better estimates. A middle discount rate value, 3%, for mid-range growth estimates is also available. If, on the other hand, global warming impacts are greater or more costly than current mid-range estimates, the social cost of carbon would be better estimated by the 95th percentile figures. That means that the lowest social cost of carbon numbers are best-case scenarios for both the economy and global warming impacts. The highest numbers are for mid-range economic projections and close to worst-case estimates for global warming impacts.

A recently completed BLM APD EA provides an instructive example. *See* Ex. 17 -- Environmental Assessment for Anschutz State Federal APD's (March, 2016), DOI-BLM-CO-F02-2016-0014 EA at 37. There, a small 12-well project was estimated to emit about two million tons of CO2e per year. If project emissions begin in 2020, those 12 wells will cost society an estimated $92 million per year at mid-range estimates. By the end of the estimated 25-year life of the project, costs will have risen to an estimated $152 million per year. That amounts to $3.8 billion over the life of the 12-well project. If costs are at the upper end of economists' projections, the numbers rise to the range $400 million per year, or a staggering $10 billion dollars over the life of the project. Clearly, if such numbers were provided to decision makers and to the public, different choices might well be made about whether to lease public land for drilling.

BLM's NEPA documents for the January 2017 Oil and Gas Lease Parcel Sale Fails to Estimate the SCC of the Proposed Project

BLM fails to draw the necessary connection between the proposed project and increased climate impacts and costs. BLM improperly declines to assess the impacts of climate change, promising to assess them at some unknown time in the future. This violates NEPA's hard look doctrine. Court's have made clear that the leasing stage is an appropriate time to assess impacts that will not be mitigated by lease stipulations, as carbon emissions surely will not. These EAs fail the hard look requirement. In addition, the project fails to take a hard look at climate impacts to society as contextualized in the social cost of carbon protocol.

Here, BLM simply dismisses out of hand, the need for using the SCC protocol. EA at 20. BLM invokes unspecified "technical constraints." EA at 20. As shown below, however, the calculations are well within BLM's technical abilities.

As shown above, it would have been a simple effort to estimate emissions more accurately than BLM's estimate of royalties. One simple calculation yields an estimate of 1.26 million tons of CO2e. If this project were approved, the oil would likely be produced over a decade

or longer. SCC estimates from 2020 probably provide a ballpark date for utilizing SCC figures. The SCC protocol numbers for 2020 show a low-range estimate of $12 per ton of CO2e, a high-range estimate of $123, and a mid-range estimate of $42.

Applying the low range SCC number, the proposed project would result in a cost to society from climate change of about $15.1 million. This is in the range of BLM's speculative royalty estimate of $18.4 million. If, however, the midrange estimate is used, this project could cost society closer to $52.9 million, dwarfing royalty benefits. If climate change impacts are worse than suspected, the costs to society could be $155 million. This kind of information is crucial to help the public and decision makers understand the implications of the decision that rests before BLM.

This project is one small piece resulting in tremendous cumulative impacts across the Department of the Interior fossil fuel leasing programs. Fossil fuels development on public lands and coastal waters results in more than one and one-half billion tons of carbon dioxide emissions per year. Using 2015 social cost of carbon values, the costs to society of the federal fossil fuel leasing program is between $18 and $177 billion per year. This same level of emissions in 20 years would incur costs from $20 billion to more than a quarter of a trillion dollars per year, depending on the growth of the economy and the intensity of global warming impacts at that time. These costs, of course, do not include costs from air quality issues like smog and mercury emissions, do not include lost opportunity costs from lost recreation, or costs from direct degradation of ecosystem services. Recall also, that it is very likely that these numbers represent an underestimate of the true costs to society from global warming.

These numbers, while shocking, do no more than reiterate what scientists have been telling us for years: extraction of fossil fuels are costing our society much more than they are providing in benefits. Of course numbers of such an alarming magnitude do not result from the approval of any single project. Instead, they represent the incessant accumulation of costs that result from BLM approving project after project while refusing to acknowledge that those projects have unspoken cumulative impacts on society, both individually and in the aggregate, that will continue to plague our country for many generations, in fact, for millenia. BLM must address the social costs of carbon that are likely to result from these projects.

BLM ignores the Department of the Interior's October 2015 Landscape-Scale Mitigation Policy, 600 DM 6

The new Departmental Landscape-Scale Mitigation policy applies to BLM. 600 DM 6.2. Its purpose is to "avoid, minimize, and compensate for impacts to Department-managed resources." 600 DM 6.1. The BLM is required to apply a "no net loss" policy to agency resources, including those impacted by oil and gas leasing and development. 600 DM 6.5. BLM is empowered to decline authorization of projects where mitigation and compensation cannot be achieved. 600 DM 6.6. Specifically, BLM is required to "[i]dentify and promote mitigation measures that help address the effects of climate change" and to

consider "greenhouse gas emissions in design, analysis, and development of alternatives." *Id.* These policies and principles should be employed "when developing and approving strategies and plans, reviewing projects, and issuing permits." 600 DM 6.8.

BLM has not undertaken to implement any aspect of this policy in the project at hand.

The EA must analyze impacts from fracking wastewater, including the possibility of earthquakes produced by underground injection

The EA is to be commended for at least acknowledging the possibility of an earthquake caused by fracking wastewater injection. BLM's conclusion, however, is incorrect. BLM claims that there is a less than one percent chance of fracking inducing an earthquake in the project area. EA at 34. BLM then concludes "there will be no induced seismic activity from the proposed action." EA at 35.

I wonder what the odds are of a fracking pad and related tanks blowing up and burning for days. My guess is that BLM New Mexico would put the odds of that happening at less than one percent. But it did. Last month. An induced earthquake near the Chaco ruins is a serious prospect that cannot be dismissed out of hand. Even less than one percent does not mean impossible. Mitigation of that possibility must be undertaken.

This itself renders the EA inoperable. Despite BLM ignoring the issue however, it is well known that much fracking wastewater is injected into underground wells. That practice is known or suspected of causing earthquakes in Kansas, Oklahoma, Texas, Ohio, Pennsylvania, California, and Canada and has been restricted for just that reason in some of those areas. BLM must, in a supplemental analysis, analyze the likelihood of such impacts before they occur and require mitigation before this project can proceed.

Saline, produced water from wells, when injected into deeper sedimentary formations, appears to lubricate active fault lines. Ex. 18, Oklahoma's recent earthquakes and saltwater disposal, Science Advances (June 18, 2015). In some areas with previously rare earthquake activity, rates have increased ten-fold. It appears that the likelihood of induced seismicity is directly related to the rate of injection. High-rate injection is associated with the increase in U.S. mid-continent seismicity, M. Weingarten, et al., Science (June 19, 2015) at http://www.sciencemag.org/content/348/6241/1336; *see also* Ex. 19, Potential Injection-Induced Seismicity Associated with Oil and Gas Development, States First (2015).

The EAs do not attempt to analyze the degree or frequency of waste water injection. Likewise, no stipulations on such practices are included in the proposed leases. This possible impact must be studied and appropriate stipulations included to prevent these impacts.

Conclusion

Thank you for the opportunity to provide comments on this project. For the reasons given above, BLM should withdraw its EA and either supplement it or forgo leasing altogether.

It is now clear that the extraction of fossil fuels from public lands is inconsistent with a livable world in the future. The sooner BLM transitions away from this activity, the better it will be for the land it manages and for the American people.

Sincerely,

/s/

Timothy J. Ream