CENTER *for* BIOLOGICAL DIVERSITY

FAX COVER SHEET

Date: May 7, 2018

To: BLM—Nevada

Fax #: 775-861-6606

# of Pages: 66 (including cover)

Please find attached our Protest Letter Re June 2018 Competitive Oil and Gas Lease Sale, Battle Mountain District- DOI-BLM-NV-B020-2018-0017-EA.

Thank you,

Elise Ferguson, paralegal
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CENTER *for* BIOLOGICAL DIVERSITY *Because life is good*

May 7, 2018

Marci Todd
Acting State Director
Bureau of Land Management - Nevada
1340 Financial Blvd
Reno, NV 89520

Via Facsimile: 775-861-6606

RE: Center for Biological Diversity et al. Protest of the June 2018 Competitive Oil and Gas Lease Sale, Battle Mountain District - DOI-BLM-NV-B020-2018-0017-EA

Dear Ms. Todd:

The Center for Biological Diversity, Sierra Club, Western Watersheds Project, WildEarth Guardians, Nevada Conservation League, and the Las Vegas Water Defenders (collectively, "Protestors") hereby file, this Protest of the Bureau of Land Management's ("BLM") planned June 12, 2018 Competitive Oil and Gas Lease Sale and Environmental Assessment DOI-BLM-NV-B020-2018-0017-EA, pursuant to 43 C.F.R. § 3120.1-3. We formally protest the inclusion of each of the 166 parcels, covering 313,715.310 acres in the Battle Mountain District Office. The "specific serial numbers" of the parcels protested are:

NV-18-06-001	NV-18-06-013	NV-18-06-026
NV-18-06-001	NV-18-06-014	NV-18-06-027
NV-18-06-002	NV-18-06-015	NV-18-06-028
NV-18-06-003	NV-18-06-016	NV-18-06-029
NV-18-06-004	NV-18-06-017	NV-18-06-030
NV-18-06-005	NV-18-06-018	NV-18-06-031
NV-18-06-006	NV-18-06-019	NV-18-06-032
NV-18-06-007	NV-18-06-020	NV-18-06-033
NV-18-06-008	NV-18-06-021	NV-18-06-034
NV-18-06-009	NV-18-06-022	NV-18-06-035
NV-18-06-010	NV-18-06-023	NV-18-06-036
NV-18-06-011	NV-18-06-024	NV-18-06-037
NV-18-06-012	NV-18-06-025	NV-18-06-038

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NV-18-06-039	NV-18-06-079	NV-18-06-119
NV-18-06-040	NV-18-06-080	NV-18-06-120
NV-18-06-041	NV-18-06-081	NV-18-06-121
NV-18-06-042	NV-18-06-082	NV-18-06-122
NV-18-06-043	NV-18-06-083	NV-18-06-123
NV-18-06-044	NV-18-06-084	NV-18-06-124
NV-18-06-045	NV-18-06-085	NV-18-06-125
NV-18-06-046	NV-18-06-086	NV-18-06-126
NV-18-06-047	NV-18-06-087	NV-18-06-127
NV-18-06-048	NV-18-06-088	NV-18-06-128
NV-18-06-049	NV-18-06-089	NV-18-06-129
NV-18-06-050	NV-18-06-090	NV-18-06-130
NV-18-06-051	NV-18-06-091	NV-18-06-131
NV-18-06-052	NV-18-06-092	NV-18-06-132
NV-18-06-053	NV-18-06-093	NV-18-06-133
NV-18-06-054	NV-18-06-094	NV-18-06-134
NV-18-06-055	NV-18-06-095	NV-18-06-135
NV-18-06-056	NV-18-06-096	NV-18-06-136
NV-18-06-057	NV-18-06-097	NV-18-06-137
NV-18-06-058	NV-18-06-098	NV-18-06-138
NV-18-06-059	NV-18-06-099	NV-18-06-139
NV-18-06-060	NV-18-06-100	NV-18-06-140
NV-18-06-061	NV-18-06-101	NV-18-06-141
NV-18-06-062	NV-18-06-102	NV-18-06-142
NV-18-06-063	NV-18-06-103	NV-18-06-143
NV-18-06-064	NV-18-06-104	NV-18-06-144
NV-18-06-065	NV-18-06-105	NV-18-06-145
NV-18-06-066	NV-18-06-106	NV-18-06-146
NV-18-06-067	NV-18-06-107	NV-18-06-147
NV-18-06-068	NV-18-06-108	NV-18-06-148
NV-18-06-069	NV-18-06-109	NV-18-06-149
NV-18-06-070	NV-18-06-110	NV-18-06-150
NV-18-06-071	NV-18-06-111	NV-18-06-151
NV-18-06-072	NV-18-06-112	NV-18-06-152
NV-18-06-073	NV-18-06-113	NV-18-06-153
NV-18-06-074	NV-18-06-114	NV-18-06-154
NV-18-06-075	NV-18-06-115	NV-18-06-155
NV-18-06-076	NV-18-06-116	NV-18-06-156
NV-18-06-077	NV-18-06-117	NV-18-06-157
NV-18-06-078	NV-18-06-118	NV-18-06-158

Center for Biological Diversity et al. Protest of the June 2018 Competitive Oil and Gas Lease Sale, Battle Mountain District – DOI-BLM-NV-BO20-0018-EA

NV-18-06-159	NV-18-06-162	NV-18-06-165
NV-18-06-160	NV-18-06-163	NV-18-06-166
NV-18-06-161	NV-18-06-164	

PROTEST

I. Protesting Parties: Contact Information and Statement of Interests:

This Protest is filed on behalf of Protestors by their authorized representative:

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The Center for Biological Diversity is a non-profit environmental organization dedicated to the protection of native species and their habitats through science, policy, and environmental law. The Center also works to reduce greenhouse gas emissions to protect biological diversity, our environment, and public health. The Center has over 1.6 million members and on-line activists, including those living in Nevada who have visited these public lands in the Battle Mountain District 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.

Sierra Club was founded in 1892 and is the nation's oldest grass-roots environmental organization. It is a national nonprofit organization of over 800,000 members, and has chapters across the United States, including the Toiyabe Chapter of the Sierra Club, representing about 6,500 members in Nevada and the Eastern Sierra. Sierra Club's purpose 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; to educate and enlist humanity to protect and restore the quality of the natural and human environment; and use all lawful means to carry out these objectives.

Western Watersheds Project is a non-profit organization with more than 5,000 members and supporters. Our mission is to protect and restore western watersheds and wildlife through education, public policy initiatives and legal advocacy. Western Watersheds Project and its staff and members use and enjoy the public lands and their wildlife, cultural and natural resources for health, recreational, scientific, spiritual, educational, aesthetic, and other purposes. Western

Watersheds Project also has a direct interest in mineral development that occurs in areas with sensitive wildlife populations and important wildlife habitat.

WildEarth Guardians is a nonprofit environmental advocacy organization dedicated to protecting the wildlife, wild places, wild rivers, and health of the American West. On behalf of our members, Guardians has an interest in ensuring the BLM fully protects public lands and resources as it conveys the right for the oil and gas industry to develop publicly-owned minerals. More specifically, Guardians has an interest in ensuring the BLM meaningfully and genuinely takes into account the air, water, and climate implications of its oil and gas leasing decisions and objectively and robustly weighs the costs and benefits of authorizing the release of more pollutants known to cause health impacts and greenhouse gas emissions known to contribute to climate change.

Nevada Conservation League is the leading independent political voice for Nevada's conservation community. NCL works to maintain and enhance the natural character of Nevada and the quality of life for Nevadans through effective advocacy, the election of pro-conservation candidates and building collaboration with diverse stakeholders in Nevada's environment.

Las Vegas Water Defender promotes water conservation and sustainability in southern Nevada by challenging water managers to adjust to the realities of our geography. Las Vegas Water Defender works to restore inundated river canyons, wetlands and the delta; repeal antiquated laws and promote the public trust doctrine; reduce water and energy use and their impacts on the river; recruit constituents to aid in reviving the Colorado River watershed; train affiliates to expand our effectiveness and meet growing demands; organize to increase resources and grow a movement; and advocate to strengthen our credibility and effectiveness. Its central goal is long-term sustainability of the Colorado River watershed of southeast Nevada in the counties of Clark, Nye and Lincoln. Las Vegas Water Defender, a Colorado Riverkeeper Affiliate, is a project of Living Rivers. Living Rivers empowers a movement to instill a new ethic of achieving ecological restoration, balanced with meeting human needs.

The mailing addresses for individual protestors are as follows:

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II. Statement of Reasons as to Why the Proposed Lease Sale Is Unlawful:

BLM's Final Environmental Assessment ("EA") and proposed decision to lease the parcels listed above are substantively and procedurally flawed for numerous reasons, detailed below. We hereby incorporate by reference our comments on the draft EA for the planned June 12, 2018 sale, and all documents referenced therein.[1] The principal flaws in BLM's analysis and proposed action are as follows:

1. BLM has completely failed to engage in any site-specific analysis of the foreseeable consequences of leasing for a number of important physical and biological resources, including surface and ground water, greater sage-grouse, mule deer, springsnails, and native fish.

2. BLM's EA fails to take a hard look at the potential impacts of its action on Nevada populations of the greater sage-grouse, a BLM sensitive species.

3. BLM's proposed action is arbitrary and capricious because the proposed speculative leasing of over 317,000 acres of Nevada public land, despite the lack of development interest or activity on hundreds of thousands of acres of pre-existing Nevada oil and gas leases, lacks any reasonable justification or relationship to a legitimate purpose or need.

4. BLM has never, under decades-old resource management plans, evaluated the site-specific impacts of large-scale oil and gas development, including hydrologic fracturing, on non-mineral resources within the Battle Mountain District, including listed and sensitive species, big game, surface and ground waters and springs, and soils and steep slopes.

5. BLM's EA and proposed FONSI, in violation of law, fail to comply with Section 7 of the Endangered Species Act, which requires that agencies insure that their actions will not jeopardize the continued existence of species listed under the Endangered Species Act. Despite the acknowledged presence of numerous listed species, BLM improperly attempts to postpone its consideration of oil and gas activities to the drilling stage.

6. BLM has both failed to consider the climate and greenhouse gas emission impacts of its oil and gas leasing decisions, and has arbitrarily rejected alternatives, including no leasing and no fracking alternatives, that would mitigate the adverse climate impacts of its actions.

A. BLM's EA Violates the National Environmental Policy Act ("NEPA") By Failing to Take a "Hard Look" at Foreseeable Impacts of the Proposed Action

1. BLM Unlawfully Deferred Site-Specific Analysis

[1] *See* Center for Biological Diversity et al., Comments on the BLM Battle Mountain District June 2018 Competitive Oil and Gas Lease Sale, Draft Environmental Assessment, No. DOI-BLM-NV-B020-2018-0017-EA (Feb. 14, 2018).

NEPA requires agencies to undertake thorough, site-specific environmental analysis at the earliest possible time and prior to any "irretrievable commitment of resources" so that the action can be shaped to account for environmental values. Pennaco Energy, Inc. v. United States DOI, 377 F.3d 1147, 1160 (10th Cir. 2004). Oil and gas leasing is an irretrievable commitment of resources. S. Utah Wilderness All. v. Norton, 457 F. Supp. 2d 1253, 1256 (D. Utah 2006).

Thus, NEPA establishes "action-forcing" procedures that require agencies to take a "hard look," at "all foreseeable impacts of leasing" before leasing can proceed. Center for Biological Diversity v. United States DOI, 623 F.3d 633, 642 (9th Cir. 2010); N.M. ex rel. Richardson v. BLM, 565 F.3d 683, 717 (10th Cir. 2009). Chief among these procedures is the preparation of an environmental impact statement ("EIS"). Id. BLM, however, did not prepare an EIS.

In order to determine whether a project's impacts may be "significant," an agency may first prepare an Environmental Assessment ("EA"). 40 C.F.R. §§ 1501.4, 1508.9. If the EA reveals that "the agency's action may have a significant effect upon the . . . environment, an EIS must be prepared." Nat'l Parks & Conservation Ass'n v. Babbitt, 241 F.3d 722, 730 (9th Cir. 2001) (internal quotations omitted). If the agency determines that no significant impacts are possible, it must still *adequately* explain its decision by supplying a "convincing statement of reasons" why the action's effects are insignificant. Blue Mountains Biodiversity Project v. Blackwood, 161 F.3d 1208, 1212 (9th Cir. 1998) (emphasis added). However, BLM's EA and draft FONSI fail to provide any reasonable "convincing statement of reasons" for a finding of no significant impact. BLM moreover failed to include any analyses for site-specific impacts. BLM claims:

> The sale of parcels and issuance of oil and gas leases is strictly an administrative action. There would be no direct impacts from issuing leases because leasing does not directly authorize ground disturbing activities; no authorization for surface disturbance would be granted. However, if a lease is sold, the lessee retains certain irrevocable rights. For example, according to 43 CFR § 3101.1-2, once a lease is issued to its owner, that owner has the "right to use as much of the lease lands as is necessary to explore for, drill for, mine, extract, remove and dispose of the leased resource in the leasehold" subject to specific nondiscretionary statutes and lease stipulations. Thus, a lease sale makes the offered parcels available to indirect effects (occurring at a later time). This chapter addresses those indirect effects. Additional site-specific, project-specific NEPA analysis would address direct and indirect effects of any future exploration, development or production.[2]

Despite this argument, BLM failed both of NEPA's "twin aims": not only did BLM fail to ensure that the agency takes a "hard look" at the environmental consequences of its proposed action, it also failed to make information on the environmental consequences available to the public, which may then offer its insight to assist the agency's decision-making through the comment process. *See, e.g.*, Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 349 (1989). NEPA's procedural requirement is not merely a formality, but is there to allow the agencies and the public to understand the consequences of the proposed lease auction. Not only did BLM fail to provide an adequate environmental analysis of the foreseeable impacts of the

[2] Revised EA at 13-14.

proposed lease sale, but furthermore failed to provide the public adequate notice of the foreseeable environmental impacts.

BLM's deferral of site-specific analysis until the APD stage is unlawful under NEPA, its implementing regulations, and legal precedents. Courts have repeatedly rejected BLM's claim that it is not required to conduct any site-specific environmental review until after the parcels are leased and a proposal is submitted by industry. *See, e.g.*, Center for Biological Diversity & Sierra Club v. BLM, 937 F. Supp. 2d 1140, 1158 (N.D. Cal. 2013) ("... BLM asserts the now-familiar argument that there is no controversy because any degradation of the local environment from fracking should be discussed, if ever, when there is a site-specific proposal. But the Ninth Circuit has specifically disapproved of this as a reason for holding off on preparing an EIS."); Conner v. Burford, 848 F.2d 1441, 1450 (9th Cir. 1988) ("The government's inability to fully ascertain the precise extent of the effects of mineral leasing ... is not, however, a justification for failing to estimate what those effects might be before irrevocably committing to the activity.").

BLM is required under NEPA to perform and disclose an analysis of environmental impacts of the 106 parcels offered for lease *before* there are any "irreversible and irretrievable commitments of resources." Center for Biological Diversity, 937 F. Supp. 2d at 1152 (citing Conner v. Burford, 848 F.2d at 1446 ("Our circuit has held that an EIS must be prepared *before* any irreversible and irretrievable commitment of resources.") (emphasis added). "[N]on-NSO leases, even if subject to substantial government regulation, do constitute an 'irretrievable commitment of resources.' As a result, unless the lease reserves to the agencies an '*absolute right* to deny exploitation of those resources,' the sale of [] non-NSO leases ... constitutes the go or no-go point where NEPA analysis becomes necessary." Id. at 1152. In other words, the specific environmental effects of oil and gas leasing in the project area must be analyzed and disclosed now, at the leasing stage.

Rather than perform the environmental review as required, BLM asserts that all significant impacts of the proposed action are covered by the environmental impact statements (EISs) for the 1997 Tonopah Resource Management Plan ("RMP"), the 1986 Shoshone-Eureka RMP, and the 2015 Nevada and Northeastern California Greater Sage-Grouse Approved RMP Amendment ("GRSG RMPA").[3] BLM then defers the site-specific analysis until after the parcels are leased.[4] This is unlawful. BLM is required to analyze all foreseeable human health and safety risks, and seismic risks, posed by unconventional extraction techniques before leasing. BLM's analyses on these issues are outdated and/or cursory at best. In Center for Biological Diversity & Sierra Club v. BLM, 937 F. Supp. 2d 1140, 1152 (N.D. Cal. 2013), BLM also attempted to defer NEPA analysis of hydraulic fracturing (hereinafter referred to as "fracking") on the parcels at issue until it received a site-specific proposal, because the exact scope and extent of drilling that would involve fracking was unknown. The district court held BLM's "unreasonable lack of consideration of how fracking could impact development of the disputed parcels went on to unreasonably distort BLM's assessment," and explained:

> "[T]he basic thrust" of NEPA is to require that agencies consider the range of possible environmental effects before resources are committed and the effects are

[3] *Id.* at 4-5.
[4] *Id.* at 13-14.

> fully known. "Reasonable forecasting and speculation is thus implicit in NEPA, and we must reject any attempt by agencies to shirk their responsibilities under NEPA by labeling any and all discussion of future environmental effects as 'crystal ball inquiry.'"

Center for Biological Diversity, 937 F. Supp. 2d at 1157 (citing City of Davis v. Coleman, 521 F.2d 661, 676 (9th Cir. 1975)).

As the courts have made clear time and again, NEPA requires that "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." N.M. ex rel. Richardson v. BLM, 565 F.3d 683, 717-18 (10th Cir. 2009) (citing 42 U.S.C. § 4332(2)(C)(v)); compare with Center for Biological Diversity, 937 F. Supp. 2d at 1152 (N.D. Cal. 2013) ("Agencies are required to conduct this review at the 'earliest possible time' to allow for proper consideration of environmental values. . . A review should be prepared at a time when the decisionmakers 'retain a maximum range of options.'"). In Richardson, BLM argued there also that it was not required to conduct any site-specific environmental reviews until the issuance of an APD. The court looked to the Ninth and D.C. Circuits in concluding that "NEPA requires BLM to conduct site-specific analysis before the leasing stage." Richardson, 565 F.3d at 688. Richardson then offered a two-part test to determine whether NEPA has been satisfied: First we must ask whether the lease constitutes an "irretrievable commitment of resources." The Tenth Circuit, again citing to the Ninth and D.C. Circuits, concluded that issuing an oil and gas lease without an NSO stipulation constitutes such a commitment. Second, the agency must ask whether all "foreseeable impacts of leasing" have been taken into account before leasing can proceed. Id. Given the utter lack of any site-specific review of the present surface-occupancy-permitting parcels, for this lease sale, such impacts have not been taken into account.

BLM must take a hard look at the specific parcels that it is offering for oil and gas leasing, and the foreseeable impacts to the resources on these parcels. BLM insists, however, on postponing any such analysis until it has already signed over drilling rights and is unable to preclude all surface disturbing activities to prevent critical environmental impacts that may arise after a proper NEPA analysis. This is a violation of NEPA.

2. The EA Does Not Support a Finding of No Significant Impact

As the time for NEPA analysis was triggered by the proposal for the sale of the lease, BLM had to analyze whether its decision to open up over 313,715 acres of land to development activities such as fracking might have significant environmental impact. Center for Biological Diversity v. BLM, 937 F. Supp. 2d 1140, 1153 (N.D. Cal. 2013). If BLM finds based on the EA that the proposed actions will not significantly affect the environment, BLM can issue a finding of No Significant Impact ("FONSI") in lieu of the EIS. Id. Here, however, BLM's Final EA does not support any reasonable finding that the environmental effects of its major action are insignificant.

In Center for Biological Diversity v. National Highway Traffic Safety Admin., 538 F.3d 1172 (9th Cir. 2008) the court took similar issues with the BLM's failure to explain why it chose not to prepare an EIS:

> Nowhere does the EA provide a 'statement of reasons' for a finding of no significant impact, much less a 'convincing statement of reasons.' For example, the EA discusses the amount of CO[2] emissions expected from the Rule, but does not discuss the potential impact of such emissions on climate change. In the "Affected Environment" section of the EA, NHTSA states that "[i]ncreasing concentrations of greenhouse gases are likely to accelerate the rate of climate change." The agency notes that "[t]he transportation sector is a significant source of greenhouse gas (GHG) emissions, accounting for approximately 28 percent of all greenhouse gas emissions in the United States." From this, NHTSA jumps to the conclusion that "[c]oupled with the effects resulting from the 2003 light truck rule, the effects resulting from the agency's current action are expected to lessen the GHG impacts discussed above."
>
> Id. at 1223 (internal citations omitted).

Similar to the National Highway Traffic Safety Admin case, the Final EA at issue here does not provide any clear or convincing statement of reasons for a finding of no significant impact. The EA discusses generally and vaguely the amount of surface disturbance that may result from leasing, the number of wells that might be drilled, the types of pollutants that may be emitted during development and production. It does not discuss the potential impacts of any of these on the specific lands, waters, and species present within the areas proposed for leasing. The BLM cannot simply jump to the conclusion that its stipulations and proposed mitigation measures will lessen the potential impacts to the level of insignificance.

In evaluating the significance of the impact of the proposed action, the agency must consider both the context of the action as well as the intensity. The several contexts in which the significance of an action must be analyzed includes: "society as a whole (human, national), the affected region, the affected interests, and the locality." 40 C.F.R. § 1508.27. For site-specific actions, significance usually depends on the impact of the action on the locale, id., but in light of the recent Paris Agreement, it also depends on the impact on the world as a whole. Thus, to determine the significance of the action, BLM needed to look at not only the environmental impacts on the area to be leased, but also the analysis of the cumulative effects of oil and gas leasing on climate change.

Intensity is determined by scrutinizing the ten factors described in 40 C.F.R. § 1508.27:

1) Impacts that may be both beneficial and adverse. A significant effect may exist even if the Federal agency believes that on balance the effect will be beneficial.

2) The degree to which the proposed action affects public health or safety.

3) Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas.

4) The degree to which the effects on the quality of the human environment are likely to be highly controversial.

5) The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks.

6) The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration.

7) Whether the action is related to other actions with individually insignificant but 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.

8) The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources.

9) The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973.

10) Whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment.

The presence of any *one* of these factors may be sufficient to require an EIS. Id. Several of these factors are implicated in the June 2018 proposed lease sale, and are incorporated into our discussion below.

3. BLM Must Prepare an Environmental Impact Statement ("EIS")

"[T]o prevail on a claim that the agency violated its statutory duty to prepare an EIS, a plaintiff need not show that significant effects will in fact occur. It is enough for the plaintiff to raise substantial questions whether a project *may have* a significant effect on the environment." Center for Biological Diversity & Sierra Club v. BLM, 937 F. Supp. 2d 1140, 1154 (N.D. Cal. 2013) (emphasis added). The significance of the impact of the proposed action depends on both the context of the action as well as the intensity.

This trigger requiring production of an EIS is met here. Numerous environmental harms may result from unconventional methods used by the industry to extract oil and gas, including hydraulic fracturing and horizontal drilling, as well as concerns relating to climate change. BLM declined to look at these issues until it received an APD proposal from the industry. As we have already explained above, this is unlawful. The impact of fracking alone raises substantial questions on whether the proposed project may have significant effects on the environment.

Additionally, Protestors raise several highly controversial issues below. An EIS is required when an agency did not adequately consider "the degree to which the effects on the quality of the human environment are likely to be highly controversial." Town of Cave Creek v.

FAA, 325 F.3d 320, 331 (D.C. Cir. 2003), *citing* 40 C.F.R. § 1508.27(b)(4). "The term 'controversial' refers to cases where a substantial dispute exists as to the size, nature, or *effect* of the major federal action rather than to the existence of opposition to a use." *Found. for N. Am. Wild Sheep v. U.S. Dep't of Agric.*, 681 F.2d 1172, 1182 (9th Cir. 1982) (emphasis in original; internal quotations omitted). The Battle Mountain lease sale raises substantial disputes with regards to its nature and effects. In some cases this is because BLM attempts to evade analysis, such as with the impacts of fracking.[5] At other times this is due to BLM's efforts to defer analysis until some unenforceable time in the future.[6] Like in Blue Mountains, this project's EA and RMPs contain "virtually no references to any material in support of" its conclusions that significant impacts will not occur and an EIS is unnecessary. 161 F.3d 1208, 1214. The complete lack of analysis raises substantial questions over what the nature and effects of the proposed project may be.

For these reasons and others, BLM's FONSI is inadequate. The agency must fulfill its NEPA duty prepare an EIS for this proposed action.

4. BLM Unlawfully Relied on Outdated RMPs

Rather than perform the "hard look" environmental review requires, BLM leans on "current resource and land use information and the management framework developed in the applicable Resource Management Plan" ("RMPs").[7] The applicable RMPs—Tonopah and Shoshone-Eureka—date from 1986 and 1997 respectively.[8]

As recently as 2017, BLM acknowledged that revisions and updates to these RMPs are long overdue because resources are "not adequately protected under either or both current RMPs."[9] In 2010, BLM acknowledged the need to replace the two decades-old RMPs with a single, updated RMP for the Battle Mountain District.[10] Doing so "would allow management to reflect the changing needs of the planning area."[11] One glaring omission, for example, is that the RMPs fail to consider the foreseeable and significant impacts from fracking on resources such as springs, surface waters, and shallow aquifers, as discussed further below.

Rather than make these facts clear to the public as part of the 2018 lease sale, however, BLM fails to mention that the RMPs are in desperate need of updates. Instead, the agency broadly contends that the 2018 June lease sale is "in conformance" with the Tonopah and Shoshone-Eureka RMPs, and that the Battle Mountain District Office "may recommend" that a parcel be deferred if a resource conflict is known.[12] BLM's pledge to possibly defer individual parcel leasing is unenforceable at best, and skirts the agency's "hard look" obligation under

[5] *See* Revised EA at 133, "Appendix E: Hydraulic Fracturing White Paper."
[6] *See, e.g.*, Revised EA at 168 (deferring site-specific analysis on endemic fish); *Id.* at 48 (noting that none of the parcels have been surveyed to determine the existence of paleontological resources, and that this "may" take place in the future).
[7] *Id.* at 3.
[8] *Id.* at 4-5.
[9] U.S. Bureau of Land Management, Revised Environmental Assessment DOI-BLM-NV-B020-2017-0002-EA (June 2017 Competitive Oil and Gas Lease Sale) at 17 ("June 2017 Final EA").
[10] *Id.*
[11] *Id.*
[12] Revised EA at 8.

NEPA. N.M. ex rel. Richardson v. BLM, 565 F.3d at 717-18 ("[A]ssessment of a given environmental impact must occur as soon as that impact is 'reasonably foreseeable.'").

Furthermore, BLM's estimates of surface disturbance is based on historic information from the RMPs.[13] In other words, BLM does not take into account the recent sharp increase in leasing nominations and the advent of fracking in Nevada.[14] BLM should have considered the increased industry interest in Nevada oil and gas, and the potential for drilling levels to increase, should oil prices rise or well stimulation techniques change the production potential of Nevada hydrocarbon-bearing formations.

5. BLM Failed to Consider the Environmental Impacts from Unconventional Drilling Techniques, such as Hydraulic Fracturing

BLM acknowledges that oil and gas wells in the June 2018 lease sale area may be fracked.[15] Despite this foreseeable activity, BLM fails to take a "hard look" at what impacts fracking is likely to cause on resources such as ground and surface water, air quality, seismicity, light and noise pollution, vegetation, and wildlife.

Fracking is a method of oil and gas extraction that involves injecting fluid into subterranean rock formations at high pressure in order to allow fossil fuels to flow into a wellbore and be extracted at the surface.[16] EPA identifies 1,173 chemicals associated with fracking fluids—many of which are toxic and/or carcinogenic.[17]

It is well understood that fracking poses numerous significant risks to public health and safety, as well to wildlife and habitat viability. The Protestors incorporate by reference the harms attributed to fracking outlined in their February 14, 2018 letter and its associated references.[18] As an overview, however, fracking's environmental and health impacts include:

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[13] *Id.* at 147-48.

[14] *See* U.S. Bureau of Land Management, Nevada, 2015-2018 Expressions of Interest, *available at* https://nflss.blm.gov/eoi/list; *see also* DeLong, Jeff, "Fracking Hits Home in Nevada," Reno Gazette-Journal, April 15, 2014,*available at:* https://www.rgj.com/story/tech/environment/2014/04/13/fracking-hits-home-nevada/7649293/; State of Nevada Comm'n on Mineral Resources, Division of Minerals, "Facts on the use of Hydraulic Fracturing in Nevada" 1 (Apr. 10, 2017), *available at:* http://minerals.nv.gov/uploadedFiles/mineralsnvgov/content/Programs/OG/HF_Facts_4-10-2017.pdf.

[15] U.S. Bureau of Land Management, Draft Finding of No Significant Impact DOI-BLM-NV-B020-2018-0017-EA (June 2018 Competitive Oil and Gas Lease Sale) at 3 (noting that fracking is "one extraction technique that could potentially be used.") ("Draft FONSI"), Revised EA at 22 (fracking "is one of these methods that may be reasonably foreseeable for leases proposed for this sale.").

[16] U.S. Environmental Protection Agency, Hydraulic Fracturing for Oil and Gas: Impacts from the Hydraulic Fracturing Water Cycle on Drinking Water Resources in the United States ES-5 (Dec. 2016) ("Fracking's Impacts on Water Resources, EPA Report").

[17] Yost, Erin E. et al., Estimating the Potential Toxicity of Chemicals Associated with Hydraulic Fracturing Operations Using Quantitative Structure-Activity Relationship Modeling, 50 Environmental Science and Technology 1 (2016).

[18] *See* Center for Biological Diversity et al., Comments on the BLM Battle Mountain District June 2018 Competitive Oil and Gas Lease Sale, Draft Environmental Assessment, No. DOI-BLM-NV-B020-2018-0017-EA (Feb. 14, 2018).

- Potentially severe harms to drinking and other water resources due to draws from, and contamination of, ground and surface water;[19]
- Increased seismicity (earthquakes) due to underground injection of oil and gas wastewater, enhanced oil recovery, and fluid extraction;[20]
- Air quality degradation and associated health harms from the release of volatile organic compounds ("VOCs"), particulate matter, nitrogen oxide ("NOx"), and other pollutants from road and pipeline construction, well drilling and flaring, and fossil fuel processing, transportation, and storage;
- Wildlife mortality and habitat degradation caused by spills and leaks, wastewater storage pits, water and food contamination, and fragmentation;[21] and
- Public health risks including increased incidences of cancer, asthma attacks, birth defects, and other ailments.[22]

Each of these impacts is a concern, and should have been extensively analyzed by BLM in an EIS for the June 2018 lease sale. This didn't happen. Instead, BLM issued a FONSI, asserting that the leasing of over 317,000 acres will "not significantly affect the quality of the human environment and [an EIS] is not required."[23]

BLM attempts to prop up its EA with two documents that merely stand-in for meaningful analysis.

First, the EA tiers to two RMPs (Tonopah and Shoshone-Eureka) that do not even mention fracking, let alone analyze its impacts (and recent use) in the Battle Mountain District. The Battle Mountain District covers 10.5 million acres spanning Lander, Eureka, Esmeralda, and parts of Nye Counties.[24] According to the Nevada Division of Minerals, as of April 2017 five wells have been fracked in the state: three in Elko County, and one each in Nye and Eureka

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[19] U.S. Environmental Protection Agency, Hydraulic Fracturing for Oil and Gas: Impacts from the Hydraulic Fracturing Water Cycle on Drinking Water Resources in the U.S. (2016) at 10-3 (fracking may cause temporary to severe changes in water quality that can render drinking water unusable).

[20] Ellsworth, W.L., Injection-induced earthquakes, 341 Science (2013); Nicholson, C. et al., Triggered earthquakes and deep well activities, 139 Pure Applied Geophysics 3, 4 (1992); National Research Council, Induced Seismicity Potential in Energy Technologies, National Academies Press (2013).

[21] Yost, Erin E. et al., Estimating the Potential Toxicity of Chemicals Associated with Hydraulic Fracturing Operations Using Quantitative Structure-Activity Relationship Modeling, 50 Environmental Science and Technology 1 (2016); *see also* Stringfellow, William et al., Identifying chemicals of concern in hydraulic fracturing fluids used for oil production, 220 Environmental Pollution 1 (2017).

[22] PSE Healthy Energy, The Science on Shale Gas Development, *available at:* https://www.psehealthyenergy.org/our-work/publications/archive/the-science-on-shale-gas-development/; McKenzie, L.M. et al., Childhood hematologic cancer and residential proximity to oil and gas development, 12 PLoS One 2 (2017); Rasmussen, Sara G. *et al.*, Association Between Unconventional Natural Gas Development in the Marcellus Shale and Asthma Exacerbations, 176 JAMA Internal Medicine 9 (2016).

[23] U.S. Bureau of Land Management, Draft Finding of No Significant Impact DOI-BLM-NV-2018-0017-EA (June 2018 Competitive Oil and Gas Lease Sale) at 1 ("June 2018 Draft FONSI").

[24] U.S. Bureau of Land Management, Battle Mountain District Office, *available at:* https://www.blm.gov/office/battle-mountain-district-office (last visited May 3, 2018).

Counties—in other words, within the Battle Mountain District.[25] The June 2018 lease sale proposes to expand oil and gas operations—including possibly fracking—in parts of Nye, Eureka, and Lander Counties.[26] That the RMPs fail to even mention fracking not only means that the EA and draft FONSI are not tiered to reality, but they violate NEPA's requirement that an EA evaluate a proposed action's relationship to related past, existing, and future activities. *See* Kern v. BLM, 284 F.3d 1062, 1078 (9th Cir. 2002) (an EA must fully analyze site-specific impacts, including cumulative impacts); 40 C.F.R. § 1508.7 (a cumulative impact is an effect on the environment resulting from the "incremental impact of the action when added to other past, present, and reasonably foreseeable future actions"); 40 C.F.R. § 1508.27(b)(7) (an agency prepare an EIS when a proposed action "is related to other actions with individually insignificant but cumulatively significant impacts").

BLM's exclusion of information on fracking in the Battle Mountain District also fails NEPA's requirement that an agency provide and assess current scientific data. *See* Lands Council v. U.S. Forest Serv., 395 F.3d 1019, 1031 (9th Cir. 2004) (finding the lack of up-to-date evidence prevented the agency from making an accurate impact assessment and rejecting approval as arbitrary and capricious); Seattle Audubon Soc. v. Espy, 998 F.2d 699, 704-05 (9th Cir. 1993) (holding that a NEPA analysis that rested on "stale scientific evidence" and contained an incomplete discussion of environmental effects and false assumptions had to be reconsidered).

Second, the EA tacks on a Hydraulic Fracturing White Paper ("White Paper") in its appendix that merely introduces the general topic of fracking in Nevada.[27] The EA repeatedly refers the reader to the White Paper in lieu of meaningful analysis.[28] This presents a number of problems.

For example, the White Paper doesn't mention Battle Mountain. Nor does it mention or discuss landscapes such as Monitor Valley, Little Fish Lake Valley, Railroad Valley, or any area where the June 2018 lease parcels are located. Instead, the White Paper speaks in generalities. For example, it explains that groundwater contamination depends on "site-specific factors" such as physical properties, presence of fractures, and the stress in rock formations.[29] The White Paper does not, however, provide whether any of these risk factors occur in the Battle Mountain area or the June 2018 lease parcels. The White Paper also notes that "Nevada is the 3rd most tectonically active state in the union."[30] The EA, however, fails to identify active faults in close proximity to the lease sites, although doing so would help determine the seismic risks from fracking and injection in these areas. The EA should have analyzed whether beneficial water uses exist in proximity to the lease parcels, what water quality data reveals about groundwater that could

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[25] State of Nevada Comm'n on Mineral Resources, Division of Minerals, "Facts on the use of Hydraulic Fracturing in Nevada" 1 (Apr. 10, 2017), *available at:* http://minerals.nv.gov/uploadedFiles/mineralsnvgov/content/Programs/OG/HF_Facts_4-10-2017.pdf.

[26] Revised EA at 14.

[27] *Id.* at 133, "Appendix E: Hydraulic Fracturing White Paper" ("This White Paper on hydraulic fracturing is derived from the [HF] White Paper [BLM 2013] . . . . It has been modified to meet the criteria for the State of Nevada.").

[28] *See, e.g.*, *Id.* at 13 ("Please refer to the Hydraulic Fracturing White Paper [Appendix E] for additional information" on fracking fluid); *Id.* at 175 ("Analysis of the effects of [fracking] on human health and safety and air quality is provided in the [White Paper]").

[29] *Id.* at 139.

[30] *Id.* at 141.

potentially be impacted, and what human, wildlife, and plant communities could be affected if water sources are compromised.

The EA notes that fracking requires "[a]ppreciable amounts of water (800,000–10 million gallons)."[31] Neither the EA nor the White Paper identify the sources of water that would and/or could be drawn from to support hydraulic fracturing. Instead, the White Paper lists water sources that could potentially be used for fracking, though this includes only generic descriptions ("The landowner may have rights to surface water") without any meaningful information on how much water is available from each source and what the direct, indirect, and cumulative impacts would be associated with each option.[32]

Reliance on the white paper defies NEPA's mandate that an agency must do more than provide generic statements on possible environmental impacts. *See* Blue Mountains, 161 F.3d at 1213 (general statements about possible environmental effects fail the "hard look" test). Further, courts have recognized that fracking poses unique and unknown risks that warrant supplemental analysis in an EIS or EA. In Ctr. for Biological Diversity v. BLM, the agency attempted to defer NEPA analysis of fracking on the parcels at issue until it received a site-specific proposal, because the exact scope and extent of drilling that would involve fracking was unknown. 937 F. Supp. 2d 1140, 1157-59 (N.D. Cal. 2013). The district court found that BLM's "unreasonable lack of consideration of how fracking could impact development of the disputed parcels went on to unreasonably distort BLM's assessment" and violated NEPA. Id. at 1157 *(citing* City of Davis v. Coleman, 521 F.2d 661, 676 (9th Cir. 1975)).

6. BLM does not Consider Potential Impacts to Water Resources in the Proposed Sale Area

Water is one of Nevada's most precious resources. The EA fails to adequately consider potential impacts to water resources on and around the June 2018 lease sale parcels in several ways that violate NEPA.

a. BLM did not adequately survey and analyze water features occurring on and around the lease parcels

The Environmental Analysis inadequately analyzes potential impacts to water resources and the plant and wildlife communities that rely on them. In the EA, BLM acknowledges the diverse array of water features located within parcels proposed for leasing. This includes, but is not limited to, at least 34 springs and seeps, "a few miles of perennial streams and several hundred miles of small ephemeral drainages," 643 acres of freshwater lakes and ponds, and 13,485 acres of playa.[33] According to the EA, riparian/wetland ecosystems are "the most productive and important ecosystems on the Battle Mountain District," containing "the majority of the [area's] biodiversity."[34]

BLM acknowledges that it failed to survey and analyze potentially sensitive environmental resources, such as wetlands. The EA admits that the lease area "*may have*

[31] *Id.* at 134.
[32] *Id.* at 136.
[33] *Id.* at 22.
[34] *Id.*

associated riparian and wetland habitat" and "[u]nsurveyed features *most likely* exist" (emphasis added). [35] This is a critical deficiency in the EA.

b. The EA does not analyze impacts to water quantity

Although Section 3.2.4 of the EA is entitled, "Water Resources," the matter of impacts to water quantity is never addressed. This is a glaring omission in the EA's analysis.

The proposed lease areas are in arid environments, typically receiving less than ten inches of precipitation annually.[36] Oil and gas operations use upwards of 10 million gallons of water per well.[37] As noted earlier in this protest, it is foreseeable that lessees will utilize hydraulic fracturing ("fracking") for oil and gas extraction.[38] As such, it is incumbent upon BLM to analyze impacts to water quantity under the assumption that any development of the parcels would occur using fracking.

In addition to information about the quantities of water, an important piece of information in determining the impacts to water quantity is the number of anticipated wells. In this, the EA falls woefully short. The Reasonably Foreseeable Development (RFD) scenario is based exclusively on past development in Nevada, which has been miniscule compared to other Western States. It does not account for current or anticipated market trends, including the volatile price of oil. The RFD anticipates only 25 wells being developed in the Battle Mountain District.[39] Should the price of oil spike, this number could dramatically increase, potentially numbering in the thousands of wells being developed across Nevada.

Given the variability in both estimates of water consumption per well and in the number of anticipated wells, there is great uncertainty in attempting to evaluate the impacts of the proposed lease sale on quantities of water. However, this does not relieve BLM from their legal obligation to evaluate such impacts. The "uncertainty rule," found at 40 CFR §1502.22, indicates that agencies must include information on uncertain impacts if such information "is essential to a reasoned choice among alternatives, and the overall costs of obtaining it are not exorbitant." And indeed, these requirements are important for "impacts which have catastrophic consequences, even if their probability of occurrence is low."

The potential impacts to water quantity clearly meet this threshold. If hundreds or thousands of wells were developed, something that is not outside the realm of possibility should oil prices go back above $100 per barrel, and if those wells each required the high-end estimate of 10,000,000 gallons (30.3 acre-feet) to fracture, total water withdrawals for fractured wells from this lease sale could reach into the billions of gallons (tens of thousands of acre-feet).

Withdrawals on the level of tens of thousands of acre-feet have the potential to radically alter the hydrologic regime in the areas where such withdrawals are made. If the withdrawals are made from shallow alluvial aquifers, adjacent springs, wetlands, and other water features may

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[35] *Id.*
[36] U.S. Climate Data, Battle Mountain, *available at:* https://www.usclimatedata.com/climate/battle-mountain/nevada/united-states/usnv0006 (last visited May 3, 2018).
[37] *See, e.g.*, Revised EA at 134.
[38] 2018 Draft FONSI at 3.
[39] Revised EA at 148.

dry up.[40] If the withdrawals are made from the deeper regional aquifer, effects may be far reaching and drying could occur tens of miles away. Additionally, due to connections between local and regional aquifers, intensive pumping of alluvial aquifers may eventually impact regional aquifers.[41]

Therefore, BLM has neglected its duty under NEPA to analyze the impacts of withdrawals for HF on water resources and their dependent ecosystems. Further, an adequate "hard look" at such impacts would include a very broad area of analysis based on a detailed hydrologic characterization of the regional aquifers potentially affected. As will be detailed below, dozens of endemic, endangered, or threatened species rely on water features potentially affected by pumping. Thus there are significant ramifications from neglecting to analyze impacts to water quantity.

c. The EA does not adequately analyze impacts to wildlife that depend on water features

Water features such as springs, seeps, perennial creeks, wetlands, inundated playas, and spring mounds are critical to the existence of Nevada's remarkable biodiversity. Dozens of species endemic to such water features have been discovered and described, and it is likely that many more have yet to be discovered. In addition to endemic species, there are hundreds of other wildlife species which rely on water features to sustain life in such an arid environment.

Yet, despite the clear possibility of significant impacts to water features from the proposed action, the EA does not substantively evaluate potential impacts to wildlife that rely on those features. The following is a non-comprehensive list of wildlife that could be significantly impacted by the proposed action:

Springsnails

There are five species of springsnails which occur in the Railroad Valley: Big Warm Spring pyrg (*Pyrgulopsis papillata*), Duckwater pyrg (*P. aloba*), Duckwater Warm Springs pyrg (*P. villacampae*), Lockes pyrg (*Pyrgulopsis lockensis*), and the Southern Duckwater pyrg (*P. anatina*).[42] The Center for Biological Diversity petitioned the US Fish and Wildlife Service to protect these species under the Endangered Species Act in 2009. The Service declined to list these species, citing restoration of habitat and remaining unallocated groundwater in the basin as reasons.[43]

The Service used oversimplified reasoning in their determination. They simply subtracted the current usage from the perennial yield of the basin to come up with an amount of remaining unallocated groundwater. However, determining the potential for impacts to water features from groundwater pumping is not that simple. Groundwater can behave in paradoxical ways, and drawdown of aquifers can occur even if a basin is not overallocated. Groundwater pumping forms a wide "cone of depression" surrounding the point of diversion, reducing aquifer levels

[40] Deacon, J.E., et al., Fueling population growth in Las Vegas: How large-scale groundwater withdrawal could bum regional biodiversity, 57 Bioscience 8: 688-698 (2007).
[41] U.S. Geological Survey, Ground Water and Surface Water: A Single Resource 1139 (1998).
[42] Revised EA at 28.
[43] Endangered and Threatened Wildlife and Plants; 90-Day Finding on a Petition to List 42 Great Basin and Mojave Desert Springsnails as Threatened or Endangered with Critical Habitat, 76 Fed. Reg. 56,608 (Sept. 13, 2011).

across the "area of influence," meaning the areal extent of the cone.[44] Thus while a basin may not be overallocated, any given pumping project can cause localized impacts across the area of influence.

Since the springsnails listed here occur in extremely isolated and singular habitats, generally just one spring, and since almost any impact to such springs would have the potential to wipe out these sensitive species, it is incumbent upon BLM to include an analysis of the potential impacts of groundwater withdrawals for HF in the Railroad Valley. This includes a detailed characterization of the aquifer and potential hydrologic connections between any area proposed for pumping and springs known to harbor springsnails.

Fish

The Great Basin is home to a wide array of fishes, many of which are endemic to specific habitats like springs. Like springsnails, these fishes are incredibly vulnerable to perturbations in their habitat. Thus it should come as no surprise that the majority of Nevada species protected under the Endangered Species Act are fishes.[45] There are several fishes which have the potential to be directly or indirectly affected by the proposed action. BLM needs to analyze the impacts to these species at a site-specific level now, before an irretrievable commitment of resources.

The Railroad Valley springfish (*Crenichthys nevadae*) is federally listed as threatened, and occurs in just six springs in two localities in Railroad Valley.[46] The Railroad Valley springs were designated as critical habitat by Fish and Wildlife Service in 1986. Groundwater pumping and/or contamination in such close proximity to the critical habitat of a threatened fish poses a dire threat to its continued viability of critical habitat. BLM needs to analyze the potential impacts of pumping and fracking in this area, and must complete a Section 7 consultation with FWS. The Railroad Valley tui chub (*Siphateles bicolor ssp. 7*), a BLM sensitive species, also occurs in isolated springs in Railroad Valley, and analysis of impacts to it should be included.

The Fish Creek Springs tui chub (*Siphateles bicolor euchila*) is endemic to the spring source and outflow channels of Fish Creek Springs, located in the Fish Creek Valley south of Eureka. This fish was considered for listing by the Fish and Wildlife Service during the 1980s, but was not listed to due a lack of immediate threats. Parcels 112, 114, 117, 123, 124, 125, and 147 are near Fish Creek Springs. BLM must analyze the impacts of the proposed action on the Fish Creek Springs tui chub.[47]

The Little Fish Lake Valley tui chub (*Siphateles bicolor spp. 6*) is a BLM Sensitive species occurring in aquatic habitats near Fish Spring. This is near parcels 018 and 019. The EA

[44] U.S. Geological Survey, Basic Groundwater Hydrology 2220 (2004).
[45] Nevada Natural Heritage Program, At Risk Plant and Animal Tracking List (2017).
[46] Revised EA at 28.
[47] Of note, In an APD filed for a proposed well in the Railroad Valley in 2016, the project proponent proposed utilizing surface flow from the adjacent Butterfield Spring for their drilling operations. This spring is home to the Railroad Valley tui chub. The proponent was to utilize up to 12,600 gallons of water every 24 hours, or some 8.75 gallons per minute, a substantial flow. The fish was protected by sealing the intake hose with ¼" grating. This is clearly an unacceptable set of circumstances for an endemic and BLM sensitive species. Given the very close proximity of Parcel 66 to Fish Creek Springs, it is entirely likely that an EOI was filed on this parcel with precisely the same arrangement in mind. Impacts from utilization and diversion of spring flow for pumping should be analyzed by BLM

notes that these parcels themselves "may also include potential habitat" for the fish.[48] Before conducting any lease sale BLM must discern what species and habitat occur on the parcels and provide the public and decisionmakers with this information. To do otherwise fails NEPA.

Birds

Numerous migratory birds utilize Nevada's springs, riparian areas, and phreatophytic vegetation for habitat. Notably, the federally endangered southwestern willow flycatcher (*Empidonax traillii extimus*) and the federally threatened Yellow-billed cuckoo (*Coccyzus americanus*) both utilize phreatophytic and riparian vegetation in their migratory paths across Nevada. While their critical habitat and most occurrences have been in far southern Nevada, they have been documented to occur in the Great Basin as well.

Even small perturbations in groundwater levels can cause a loss of phreatophyte productivity, a reduction in phreatophyte cover, and ultimately a wholesale conversion to non-phreatophytic upland vegetative communities.[49] And in wetland areas, drawdown of the aquifer can result in decreased productivity and eventual type-conversion to shrubland. As such, BLM is obligated to examine the impacts of the proposed action to groundwater-dependent plant communities and the bird species which depend upon them for survival.

Amphibians

The Columbia spotted frog (*Rana luteiventris*) is a BLM sensitive species located within the Assessment Area.[50] While the Fish and Wildlife Service declined to list the frog in 2015, it is still protected under Nevada state law, and is the subject of multi-agency conservation agreements/strategies.

The Railroad Valley toad and Hot Creek toad, two of three newly-identified toad species in Nevada's Great Basin, are found in small, isolated habitats in the Assessment Area.[51] It is possible that Hot Creek toads may occur within parcels proposed for leasing. While the EA cites NDOW's input that the "current range of these new species is severely restricted, suggesting their populations are especially vulnerable to environmental changes," the documents offer no further insights into how the proposed oil and gas leases could and/or would impact the species. This is inadequate under NEPA. The impacts to these endemic toads must be analyzed.

d. The Water Resources Stipulation (#NV-B-10-B-CSU) provides inadequate protection to critical water resources and the wildlife which depend on them.

BLM has elected to implement a water resources stipulation to protect against impacts to wetlands, playas, springs, floodplains and other water resources. Although we commend BLM's acknowledgment of its authority to consider and add lease stipulations at the leasing stage, the

[48] Revised EA at 28.
[49] Cooper, D.J. et al., Effects of long-term water table drawdown on evapotranspiration and vegetation in an arid region phreatophyte community, Journal of Hydrology 325 (2006).
[50] Revised EA at 28.
[51] *Id.* at 28; *see also* Wolterbeek, Mike, Rare discovery of three new toad species in Nevada's Great Basin by College of Science, Nevada Today, July 20, 2017, *available at:* https://www.unr.edu/nevada-today/news/2017/new-toad-species-discovered.

particular stipulation relied upon here would do little to protect water resources and the wildlife which depend on them. The stipulation is does not prohibit surface occupancy, it only offers inadequate proposed controls on surface use.

First, the stipulation only applies within 500 feet of wetland/riparian areas and 100 feet of the inner gorge of ephemeral channels. With regard to groundwater pumping, a 500 foot buffer is not nearly enough. If a well requires millions of gallons of water to fracture, the cone of depression will extend well beyond such a buffer. As the EA concludes, "any loss or diversion of water or instream flow can affect wetland and riparian health and impact these ecosystems."[52] Contamination of an aquifer due to fracking would affect the entire aquifer, causing impacts to water sources as far as miles away. Even relocation of operations "more than 200 meters" is no guarantee against the risks of spills, groundwater overdraft, subsurface contamination and other accidents that may impact water resources.

Second, while the ostensible point of the stipulation is to protect water resources, it provides only three mechanisms for protection: environmental review, engineering controls, and mitigation measures; and none of these mechanisms actually protect water resources. Environmental review is simply that- an administrative action that provides no protection to resources in and of itself. Engineering controls and other mitigation measures do not actually provide protection for resources, but simply reduce the harm of the proposed action to the resources.

Third, the stipulation provides that "[a]n exception may… be granted when areas cannot be avoided and when engineering, best management practices, and/ or design considerations are implemented to mitigate impacts to water resources." That is, the stipulation permits development on water resources, and only requires that "engineering, best management practices, and/ or design considerations" are implemented to mitigate – not avoid, because impacts cannot be avoided in such circumstances – the impacts to wetlands. The stipulation can also be waived if a BLM officer determines that the development will not impede certain peak flow events, that springs and wells will not be negatively impacted, and that wetlands could be "restored to their original function post occupancy." This effectively means that BLM can waive the stipulation for development in wetlands and ephemeral gorges that do not contain springs or wells, depriving those areas of any protection. The fact that the stipulation speaks to "restoration" of the wetland reveals that BLM acknowledges that waiver of the stipulation would result in impacts.

The EA acknowledges that siting and engineering controls, concluding that "[c]learing, grading, and soil stockpiling could alter short-term overland flow and natural groundwater recharge patterns, but in most cases, these potential impacts can be mitigated by better location siting and engineering controls."[53]

This stipulation contains no tangible protections for wetlands, the EA acknowledges that development on the wetlands will result in impacts that may not necessarily be mitigated. BLM therefore cannot reasonably conclude that the stipulation avoids all impacts of oil and gas development on and near water resources.

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[52] Revised EA at 24.
[53] Revised EA at 23, emphasis added.

7. BLM Has Failed to Analyze Impacts to Paleontological Resources

Despite NEPA's mandate that agencies make information on potentially significant environmental impacts available to the public and decision-makers, BLM admits that "[n]one of the proposed parcels have been surveyed to determine the boundaries and geographic extent of fossil resources or any paleontological localities."[54] When BLM intends to make this determination is unclear. The EA only provides that "[p]arcels identified as having moderate to high potential for containing significant paleontological resources may require a field determination to map locations," and this would be followed "by an analysis to determine what, if any, impacts there would be."[55]

This is unacceptable for an EA and cannot support a FONSI. BLM should have surveyed the parcels before issuing NEPA documents. Further, their statement that they "may" conduct a field determination is unenforceable. The public is left in the dark about this environmental impact, and that violates the statute. *See, e.g.*, Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 349 (1989) (NEPA's procedural requirement is not merely a formality, but is there to allow the agencies and the public to understand the consequences of the proposed lease auction).

8. The EA and FONSI's Reliance on the MBTA Stipulation Fails to Take a Hard Look at Harm to Migratory Bird Species

In concluding that there will be no significant impacts to migratory birds, the EA and FONSI rely on the assumption that the MBTA stipulation will ensure that site-specific mitigation measures are required through conditions of approval prior to any ground-disturbing activities. *See* EA at 30-31 ("[T]here may be indirect impacts from future ground disturbing activities on any leased parcels. … At [the time of leasing] additional site-specific mitigation measures and BMPs would be included in the proposal or attached as COAs for each proposed activity, which would be analyzed under project-specific NEPA analysis … The Standard Stipulations also outline requirements to protect migratory birds under the MBTA. …Based on the available resource protection measures in place, potential future exploration or development on leased parcels should not have any long-term or substantial impacts to wildlife resources."); FONSI at 1 ("The stipulations and lease notices serve to inform prospective lessees of important resource issues associated with each parcel, along with required measures to protect them. These reduce some of the uncertainty of waiting for the site- and project-specific NEPA analysis to identify resources of concern and define appropriate conditions of approval. They also serve to inform future BLM decision-makers of the resource issues and required protective measures, ensuring that those measures will be applied at the time of any proposal to conduct oil and gas activities on a leased parcel."), 2 ("The stipulations and lease notices provide adequate protection for all site-specific resources of concern that were identified via the EA process…"). The MBTA stipulation instructs: "Disturbance to nesting migratory birds should be avoided by conducting surface disturbing activities outside the migratory bird nesting season…If surface disturbing activities must be implemented during the nesting season, a preconstruction survey for nesting migratory birds should be performed by a qualified wildlife biologist, during the breeding season … an appropriately-sized no surface disturbance buffer determined in coordination with the

[54] Revised EA at 48.
[55] *Id.*

BLM biologist should be placed on [any] active nest until the nesting attempt has been completed."

The EA and FONSI ignore the reality that the Trump Administration recently issued an interpretation of the Migratory Bird Treaty Act that reverses the government's longstanding interpretation that incidental take is prohibited by the Act.[56] BLM should reassess whether it can rely on the MBTA stipulation in light of this drastic reversal of position, or whether the MBTA stipulation will likely be unenforceable, waived, or otherwise diminished in application due to the government's new and unprecedented departure from its prior interpretation of the MBTA. For example, it appears possible that BLM will, at the APD stage, assert that no "no surface disturbance buffer" is warranted because there is no MBTA violation per the new DOI interpretation of the MBTA. In short, the EA and FONSI cannot rely on the assumption that protections for migratory birds from incidental take will be imposed via the MBTA stipulation to conclude that harm to migratory birds will be minimized and mitigated to insignificant levels when the Trump administration has disavowed the applicability of the MBTA to incidental take. Consequently, the EA fails to properly analyze the indirect impacts of leasing on migratory bird populations that nest on the parcels within this proposed lease sale, in violation of NEPA.

9. BLM Fails to Analyze the Impacts of Lighting on Bats and Other Wildlife

In response to comments that bat populations may be harmed by attraction to artificial lighting on drilling rigs, the EA asserts that: "A statement has been added to the wildlife effects analysis to acknowledge potential effects of night lighting to wildlife including bats, which would be addressed at the time of additional project-specific NEPA analysis if and when a project is proposed on any leased parcel."[57] The statement provides: "Artificial lighting from drilling rigs and other structures can have potential adverse impacts to wildlife such as insectivorous bats and insects. Guidelines for lighting intensity, orientation, etc. would be recommended at the time of any project proposal to avoid, minimize, and mitigate such impacts."[58] Rather than analyzing the harm, the EA asserts that it will be assessed in future, and that future mitigation imposed during the APD stage will "avoid, minimize, and mitigate" impacts. There is no analysis at all of the extent to which BLM would actually have authority to impose limitations on artificial lighting, nor if the limitations that BLM could impose through its authority would be sufficient to reduce the harm from artificial lighting to a level that would be insignificant. BLM does not even refer to a stipulation that would help to ensure that BLM actually could impose measures to address impacts from artificial lighting on bats at the leasing stage. To acknowledge that harm may occur from artificial lighting, and then totally fail to analyze the extent of it or support the assertion that future mitigation will reduce that harm to insignificant levels violates NEPA.

10. The EA Fails to Take a Hard Look at Foreseeable Significant Impacts to Mule Deer, Pronghorn, and Desert Bighorn Sheep Habitat and Populations

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[56] *See* U.S. Department of Interior, Solicitor's Opinion M- 37050 (Dec. 22, 2017).
[57] Revised EA at 172.
[58] Revised EA at 31.

The EA acknowledges that the Assessment Area provides habitat for pronghorn, mule deer and bighorn sheep.[59] BLM's analysis of impacts, however, is utterly absent, explained away with the statement that "specific acres and types of habitat that would be disrupted cannot be determined, as the BLM would not receive any applications for exploration or development until after the lease sale."[60]

Research shows that residential and energy development has reduced all ungulates across the West. The low-elevation valleys and mountain foothills, once important habitat for ungulates, are filled with cities and towns.[61] The same is true particularly on winter ranges.[62] For example, between 1980 and 2010, western Colorado saw a 37% increase in residential land-use in mule deer habitat, primarily on their winter range.[63] The resulting lack of high-quality winter range is limiting robust mule deer population growth.[64]

A dearth of high-quality, long-term, and controlled studies makes it difficult to evaluate with precision the role of oil and gas development in mule deer habitat and population decline.[65] Clearly, mule deer demonstrate avoidance of roads and oil and gas infrastructure, with as-yet inadequately-understood consequences for migration, energy budgets, adult and fawn survival, and population.[66] Some of the best available long-term, controlled studies evaluate mule deer population density before and after oil and gas development in the Sublette mule deer herd near Pinedale, Wyoming.[67] The Sublette mule deer study compared mule deer density in control and development zones, and found mule deer densities declined 30% in the development area, as opposed to 10% in the control area.[68] Sawyer and Strickland found that "the observed decline of mule deer in the treatment area was likely due to gas development, rather than drought or other environmental factors that have affected the entire Sublette Herd unit."[69]

The Sublette example is particularly important when considering energy development's effects on mule deer populations, their winter range, and their migration patterns in sagebrush habitats of the west. For example, even in its relatively early stages compared to Wyoming, the most recent spatial analysis of already-occurring effects on mule deer in western Colorado finds

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[59] Revised EA at 28.
[60] Revised EA at 30.
[61] Polfus, J. L. and P. R. Krausman., Impacts of residential development on ungulates in the Rocky Mountain West, 36 Wildlife Society Bulletin 647-657 (2012).
[62] Johnson, H.E. et al., Increases in residential and energy development are associated with reductions in recruitment for a large ungulate, Global Change Biology, doi: 10.1111/gcb.13385 (2016) ("Johnson et al. 2016").
[63] Johnson et al. 2016.
[64] Bergman, E. J. et al., Density dependence in mule deer: a review of evidence, 21 Wildlife Biology, 18-29 (2015); Johnson et al. 2016.
[65] Hebblewhite, Mark, Effects of Energy Development on Ungulates, Energy Development and Wildlife Conservation in Western North America 71-94 (2011).
[66] Hebblewhite 2011; Sawyer, H. et al., A framework for understanding semi-permeable barrier effects on migratory ungulates, 50 Journal of Applied Ecology, doi:10.1111/1365-2664.12013 (2013); Lendrum, P.E. et al., Habitat selection by mule deer during migration: effects of landscape structure and natural-gas development, 3 Ecosphere 9:82 (2012).
[67] Sawyer, H. et al., Sublette Mule Deer Study (Phase II): Final Report 2007, Western Ecosystems Technology, Inc. Cheyenne, Wyoming, USA (2009).
[68] *Id.*
[69] *Id.*

energy development has the second-largest effect on deer recruitment, exceeded only by residential development.[70]

Most recently, Hall Sawyer and colleagues published their conclusions from seventeen years of telemetry data on mule deer exposed to energy development in the gas fields of Wyoming, and found that, despite the using of timing stipulations and other, more aggressive, mitigation measures, development of oil and gas infrastructure within seasonal habitat and migration corridors has massive and long-term adverse effects on mule deer population levels:

> Mule deer consistently avoided energy infrastructure through the 15-year period of development and used habitats that were an average of 913 m further from well pads compared with predevelopment patterns of habitat use. Even during the last 3 years of study, when most wells were in production and reclamation efforts underway, mule deer remained >1 km away from well pads. The magnitude of avoidance behavior, however, was mediated by winter severity, where aversion to well pads decreased as winter severity increased. Mule deer abundance declined by 36% during the development period, despite aggressive onsite mitigation efforts (e.g. directional drilling and liquid gathering systems) and a 45% reduction in deer harvest. Our results indicate behavioral effects of energy development on mule deer are long term and may affect population abundance by displacing animals and thereby functionally reducing the amount of available habitat.[71]

Although the precise connections between energy development and population-level effects are still imperfectly understood, it is demonstrated that oil and gas development affects mule deer habitat use and migration patterns by causing site avoidance, particularly in daytime,[72] and creating "semi-permeable" barriers to migration routes.[73] CPW is currently engaged in multiple research efforts to evaluate energy development effects on migration, deer response to energy development, and fawn survival in developed and undeveloped areas.[74] Those studies have thus far documented how individual deer alter their migration speed and timing in response to development.[75] A 2015 Wildlife Research Report published by CPW found that, during an active drilling phase in the Piceance Basin, deer behavior was compromised by 25% (at nighttime) and by 50% (during day time) in critical mule deer winter range.[76]

In addition, it is well-documented that human development causes direct habitat loss and fragmentation through the construction of infrastructure, and indirect habitat loss through deer

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[70] Johnson et al. 2016.

[71] Sawyer, H. et al., Mule Deer and Energy Development—Long-term trends of habituation and abundance, Global Change Biology 1-9 (2017), *available at:* http://onlinelibrary.wiley.com/doi/10.1111/gcb.13711/epdf.

[72] Lendrum 2012.

[73] Sawyer et al. 2013.

[74] Anderson, C. R., Population Performance of Piceance Basin Mule Deer in Response to Natural Gas Resource Extraction and Mitigation Efforts to Address Human Activity and Habitat Degradation.in C. D. o. P. a. Wildlife, editor., Colorado (2015) ("Anderson 2015"); Anderson, C.R. 2016.; Anderson, C.R. and Bishop, C.J., Migration Patterns of Adult Female Mule Deer in Response to Energy Development. Transactions of the 79th North American Wildlife and Natural Resources Conference 47-50 (2014); Lendrum, P.E., et al., Migrating Mule Deer: Effects of Anthropogenically Altered Landscapes, 8 PlosOne 5:e64548 (2013).

[75] Lendrum 2012; Lendrum et al. 2013.

[76] Anderson 2015.

avoidance of infrastructure and related activities; these consequences likely reduce the carrying capacity of the landscape.[77] A recent study shows that oil and gas development causes significant habitat loss in the Piceance Basin of Colorado:

> Energy development drove considerable alterations to deer habitat selection patterns, with the most substantial impacts manifested as avoidance of well pads with active drilling to a distance of at least 800 m. Deer displayed more nuanced responses to other infrastructure, avoiding pads with active production and roads to a greater degree during the day than night. In aggregate, these responses equate to alteration of behavior by human development in over 50% of the critical winter range in our study area during the day and over 25% at night.[78]

Additionally, mule deer may suffer higher mortality rates in developed landscapes because of increased vehicle collisions and accidents (i.e., entrapment in fences); moreover, increased road densities expose mule deer to more hunters, poachers and predatory domestic pets.[79]

Mule deer also need migration corridors that are protected from human development. An ongoing mule deer study by members of the Wyoming Migration Initiative has found that mule deer migration patterns are altered by human development – herds will move faster, stop less to feed, and detour around developed portions of their route.[80] Moreover, herds that can't migrate in search of the most nutritious grasses just end up smaller in number, plain and simple.[81] As a result, Wyoming Game and Fish Department is working to further protect migration routes in the state, for instance, no more than four oil and gas well pads allowed in a migration corridor and no development allowed in corridors narrower than a quarter mile.

None of the proposed lease parcel stipulations for protecting big game habitat limit the density of development or obstruction of migration routes, but only limit timing, and there is ample evidence that timing limitations are insufficient to avoid impacts to big game. Thus, BLM cannot assume that the added stipulations in the new preferred alternative will eliminate impacts to mule deer behavior, distribution, survival and population. Nonetheless, the EA fails to provide any disclosure or analysis whatsoever of migration routes that may be affected by development on the proposed leases, and the FONSI arbitrarily concludes there will be no impacts.

B. BLM Failed to Consider Impacts to Endangered and Threatened Species and to Insure that Its Action Will Not Jeopardize Their Continued Existence

BLM's Revised EA acknowledges the presence in the Battle Mountain District of numerous listed (endangered, threatened, and candidate) species that may be affected by the proposed action, including:

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[77] Johnson et al. 2016.

[78] Northrup, J. M. et al., Quantifying spatial habitat loss from hydrocarbon development through assessing habitat selection patterns of mule deer, Global Change Biology (2015), *available at*: http://onlinelibrary.wiley.com/doi/10.1111/gcb.13037/epdf.

[79] Johnson et al. 2016.

[80] Sawyer 2013.

[81] Edwards, M., Mule Deer Struggling To "Surf The Green Wave" Of Migration (2015) *available at*: http://wyomingpublicmedia.org/post/mule-deer-struggling-surf-green-wave-migration.

- Spring-loving centaury (*Centarium namophilum),* Threatened
- Ash Meadows mousetails *(Ivesia kingii var. eremica),* Threatened
- Armagosa niterwort *(Nitrophila mohavensis),* Endangered
- Whitebark pine *(Pinus albicaulis),* Candidate
- Western yellow-billed cuckoo *(Coccyzus americanus occidentalis),* Threatened
- Southwestern willow flycatcher *(Empidonax trailli extimus),* Endangered
- Ridgway's rail *(Rallus obsoletus yumanensis),* Endangered
- Desert Tortoise *(Gopherus agassizii),* Threatened
- Railroad Valley springfish *(Crenichthys nevadae),* Threatened
- Lahontan cutthroat trout *(Oncorhynchus clarkii henshawi),* Threatened

The EA and proposed FONSI, however, illegally forego any consideration or analysis of the effects of oil and gas drilling and development on these affected species by deferring those required analyses to the permitting stage. BLM acknowledges in the Revised EA numerous adverse impacts, particularly from effects to water and wetlands, but illegally assumes that those impacts can and will be mitigated at a later stage. BLM must not only evaluate the indirect and cumulative effects on special status species under NEPA, it must also (a) consult with the Fish and Wildlife Service under Section 7 regarding the effects of oil and gas development and water use on listed species and critical habitat, and (b) evaluate the effects on sensitive species under its own sensitive species policy.[82]

Congress enacted the Endangered Species Act (ESA) in 1973 to provide for the conservation of endangered and threatened fish, wildlife, plants and their natural habitats. 16 U.S.C § 1531, 1532. The ESA imposes substantive and procedural obligations on all federal agencies with regard to listed and proposed species and their critical habitats. *See id.* §§ 1536(a)(1), (a)(2) and (a)(4) and § 1538(a); 50 C.F.R. § 402. Under section 7 of the ESA, federal agencies must "insure that any action authorized, funded, or carried out by such agency ... is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species which is determined ... to be critical."16 U.S.C. § 1536(a)(2).

The definition of agency "action" is broad and includes "all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by Federal agencies," including programmatic actions. 50 C.F.R. § 402.02. Likewise, the "action area" includes "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action." *Id.*

The duties in ESA section 7 are only fulfilled by an agency's satisfaction of the consultation requirements that are set forth in the implementing regulations for section 7 of the ESA, and only after the agency lawfully complies with these requirements may an action that "may affect" a protected species go forward. Pac. Rivers Council v. Thomas, 30 F.3d 1050, 1055-57 (9th Cir. 1994). The action agency must initially prepare a biological assessment (BA) to "evaluate the potential effects of the proposed action" on listed species. 50 C.F.R. § 402.12. If

[82] *See* U.S. Bureau of Land Management, List of Nevada BLM Sensitive species, Revised EA at 128-32.

the action agency concludes that the proposed action is "not likely to adversely affect" a listed species that occurs in the action area, the Service must concur in writing with this determination. *Id.* §§ 402.13(a) and 402.14(b). If the Service concurs in this determination, then formal consultation is not required. *Id.* § 402.13(a). If the Service's concurrence in a "not likely to adversely affect" finding is inconsistent with the best available data, however, any such concurrence must be set aside. *See id.* § 402.14(g)(8); 5 U.S.C. § 706(2). If the action agency concludes that an action is "likely to adversely affect" listed species or critical habitat, it must enter into "formal consultation" with the Service. 50 C.F.R. §§ 402.12(k), 402.14(a). The threshold for triggering the formal consultation requirement is "very low"; indeed, "any possible effect ... triggers formal consultation requirements."[83]

Formal consultation commences with the action agency's written request for consultation and concludes with the Service's issuance of a "biological opinion." 50 C.F.R. § 402.02. The biological opinion states the Service's opinion as to whether the effects of the action are "likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of critical habitat." *Id.* § 402.14(g)(4).[84] When conducting formal consultation, the Service and the action agency must evaluate the "effects of the action," including all direct and indirect effects of the proposed action, plus the effects of actions that are interrelated or interdependent, added to all existing environmental conditions – that is, the "environmental baseline." *Id.* §§ 402.14 and 402.02. The environmental baseline includes the past and present impacts of all Federal, state, and private actions and other human activities in the action area...."*Id.* The effects of the action must be considered together with "cumulative effects," which are "those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation." *Id.*

If the Service concludes in a biological opinion that jeopardy is likely to occur, it must prescribe "reasonable and prudent alternatives" to avoid jeopardy. *Id.* § 402.14(h)(3). If the Service concludes that a project is not likely to jeopardize listed species, it must nevertheless provide an incidental take statement (ITS) with the biological opinion, specifying the amount or extent of take that is incidental to the action (but which would otherwise be prohibited under Section 9 of the ESA), "reasonable and prudent measures" (RPMs) necessary or appropriate to minimize such take, and the "terms and conditions" that must be complied with by the action agency to implement any reasonable and prudent measures. 16 U.S.C. § 1536(b)(4); 50 C.F.R. § 402.14(i).

The ESA requires federal agencies to use the best scientific and commercial data available when consulting about whether federal actions will jeopardize listed species. *See* 16 U.S.C. § 1536(a)(2). Accordingly, an action agency must "provide the Service with the best scientific and commercial data available or which can be obtained during the consultation for an adequate review of the effects that an action may have upon listed species of critical habitat." 50 C.F.R. § 402.14(d). Likewise, "[i]n formulating its biological opinion...the Service will use the

[83] *See* Interagency Cooperation Under the Endangered Species Act, 51 Fed. Reg. 19,926 (June 3 1996).

[84] To "jeopardize the continued existence of" means "to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species." *Id.* § 402.02.

best scientific and commercial data available." *Id.* § 402.14(g)(8). However, if the action agency failed "to discuss information that would undercut the opinion's conclusions," the biological opinion is legally flawed, and the ITS will not insulate the agency from ESA Section 9 liability. *See* Ctr. for Biological Diversity v. BLM, 698 F.3d 1101, 1127-28 (9th Cir. 2012).

Section 7(d) of the ESA provides that once a federal agency initiates consultation on an action under the ESA, the agency, as well as any applicant for a federal permit, "shall not make any irreversible or irretrievable commitment of resources with respect to the agency action which has the effect of foreclosing the formulation or implementation of any reasonable and prudent alternative measures which would not violate subsection (a)(2) of this section." 16 U.S.C. § 1536(d). The purpose of section 7(d) is to maintain the environmental status quo pending the completion of consultation. Section 7(d) prohibitions remain in effect throughout the consultation period and until the federal agency has satisfied its obligations under section 7(a)(2) that the action will not result in jeopardy to listed species or adverse modification of critical habitat.

BLM must use the existing available data to identify which sensitive species that are of critical concern with regards to the lands included in, or in immediate proximity to, the proposed sale parcels. BLM's EIS must disclose any potential direct, indirect or cumulative impacts to such species, such as the Railroad Valley springfish.

In addition, BLM must consult with the Service regarding the impacts of the lease sale on affected listed species, in compliance with its section 7 obligations under the ESA. To the extent that BLM relies on its section 7 programmatic consultations for the several management plans governing the lease sale, that reliance is not proper for any of the listed species affected by BLM's action. The potential for fracking and horizontal drilling and its associated impacts within the planning area constitutes "new information reveal[ing] effects of the [RMPs] that may affect listed species or critical habitat in a manner or to an extent not previously considered [in the prior section 7 programmatic consultations]." 50 CFR § 402.16(b). BLM must therefore reinitiate consultation on all of the planning documents for these areas. In any case, it must formally consult over the lease sale's potential adverse effects on listed species and consider the full scope of fracking and other drilling activities that could affect these species.

C. BLM's Treatment of Impacts to Greater Sage-Grouse Violates FLPMA and NEPA

The greater sage-grouse, a BLM sensitive species, is deeply imperiled because of the loss, fragmentation, and degradation of its native sagebrush habitats across the Interior West. Multiple peer-reviewed studies have found that infrastructure and human activity associated with oil and gas development adversely affect greater sage-grouse and their habitat through direct mortality, habitat loss, displacement and behavioral effects, noise, spread of invasive plants, disease transmission, and other means. BLM directly manages approximately 45% of all remaining occupied greater sage-grouse habitat, as well as managing mineral leasing for substantial additional areas of occupied habitat on Forest Service and split estate (private surface and federal minerals) lands.

In September 2015, all BLM resource management plans for Nevada and Northeastern California, including Battle Mountain, were amended as part of an effort to secure adequate regulatory mechanisms to prevent the listing of the greater sage-grouse under the Endangered

Species Act.[85] Because oil and gas development and associated infrastructure has numerous well-documented adverse effects on GRSG survival, breeding, and behavior, these plan amendments prescribe management measures for BLM-permitted activities, including oil and gas leasing, within various categories (Sagebrush Focal Areas ("SFAs"), Priority Habitat Management Areas ("PHMAs"), General Habitat Management Areas ("GHMAs") and Other Habitat Management Areas ("OHMAs")) of sage-grouse habitat,[86] and prescribed stipulations for all new fluid mineral leases within those designated habitats.[87]

BLM, however, fails to provide any disclosure or analysis whatsoever of the impacts of the proposed action on the greater sage-grouse in the Final EA. Rather, the final EA contains only a cursory acknowledgment of the presence of multiple significant sage-grouse habitat features within the proposed lease area:

> ***Greater Sage-Grouse,*** a BLM Sensitive species, occur in Eureka, Lander and northern portions of Nye County on the District, in foothills, plains and mountain slopes where sagebrush and meadows are in close proximity. Areas used often vary by season (breeding, nesting, early and late brood rearing, and wintering), but may be year-round in some areas. The Assessment Area includes several parcels having PHMA, GHMA and OHMA habitat mapped under the GRSG Plan Amendment, as described under Regulatory Framework above (Figure 5). Available data indicate that nesting, brooding, summer, and winter habitat occurs not only in PHMA and GHMA, but also in many areas of OHMA. NDOW indicates that habitats of particular value include Little Fish Lake Valley, with 14 active, pending or historic leks throughout the proposed parcel group; and Monitor Valley, which supports a high concentration of leks and sage grouse that comprise a substantial portion of the statewide population. The Monitor Valley habitats are fairly contiguous and without many human disturbances, qualities that are essential in the management of sage grouse habitat. Parcel 013 is near a large (i.e. high male attendance) lek.

EA at 29. Despite acknowledgment of the presence of multiple active leks and habitat features, and despite detailed comments from both the Nevada Division of Wildlife and the United States Fish and Wildlife Service regarding specific parcels that should be treated as Priority Habitat Management Areas, BLM has failed to (a) analyze impacts to sage-grouse habitats and populations under NEPA, (b) to apply appropriate stipulations to address concerns raised by NDOW and USFWS, and (c) to comply with management direction in the governing Resource Management Plan requiring BLM to prioritize leasing and development outside of greater sage-grouse habitat. Protestors Center for Biological Diversity, Sierra Club, and Western Watersheds Project previously raised

[85] *See* U.S. Bureau of Land Management, Nevada and Northeastern California Greater Sage-Grouse Approved Resource Management Plan Amendment (2015) ("NV/CA ARMPA").
[86] NV/NE CA RMPA at 2-29 to 2-30.
[87] NV/NE CA RMPA Appendix G.

issues of failure to analyze impacts to greater sage-grouse and failure to comply with the ARMPA in a February 14, 2018 comment letter.[88]

1. BLM Must Defer Parcels NV-18-6-007, -008, -009, -012, and -017 to Address NDOW and USFWS Concerns

Under the 2015 Nevada/California sage-grouse plan amendments, Priority Habitat Management Areas, those areas that support the greatest density of breeding sage-grouse populations, must be leased for new fluid mineral leases only with stipulations prohibiting surface occupancy.[89] BLM indicates that the Nevada Division of Wildlife and United States Fish and Wildlife Service have identified five parcels – 007, 008, 009, 012, and 017 – that should be managed as PHMA under "more recent, improved information," including 2016 United States Geological Survey mapping.[90]

BLM, however, has improperly refused to either apply appropriate stipulations or to defer leasing in order to update the ARMPA to reflect accurate lek and PHMA data. BLM responds as follows:

> Parcels with Greater Sage-grouse habitats have the appropriate Fluid Minerals stipulations applied as per the GRSG Plan Amendment (BLM 2015; see Appendix B of this EA). NDOW expressed concern that even with timing stipulations applied, if the Monitor Valley area were developed into oil production, persistence and viability of its lek complex and subpopulation would be likely compromised. At the lease sale stage, BLM cannot apply stipulations beyond those specified by the GRSG Plan Amendment; but if parcels are leased, effects to the lek complex would be considered at the time of any future project proposal, potentially including additional mitigation measures as needed.[91]

First, BLM's contention that it cannot apply stipulations beyond those specified in the RMP is plainly erroneous. The Battle Mountain District Office just last year applied stipulations beyond those contained in the governing RMPs in order to adopt an "Additional Resource Protection Alternative" for its June 2017 oil and gas lease sale, concluding that "[i]nstead of deferring some parcels and parts of parcels from lease sale pending a future RMP update, new stipulations would be created and applied immediately to the same parcels (entire parcels) via this EA process."[92] Alternatively, if BLM now believes that it should not apply additional stipulations at the EA stage, BLM must instead either (a) defer the five proposed parcels in order to address NDOW and USFWS greater sage-grouse concerns with the five parcels, or (b) decline to issue a Finding of No Significant Impact and instead commence preparation of an Environmental Impact Statement, due to the fact that its proposed action will

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[88] Center for Biological Diversity et al., Comments on BLM Battle Mountain District June 2018 Competitive Oil and Gas Lease Sale Draft Environmental Assessment at 19-24.
[89] NV/CA ARMPA, Stipulation #NV-B-16-A-NSO.
[90] Final EA at 167 (summarizing NDOW and USFWS comments).
[91] Final EA at 30 (emphasis added); *see also* Final EA at 167.
[92] U.S. Bureau of Land Management, Environmental Assessment DOI-BLM-NV-B020-2017-0002-EA, June 2017 Competitive Oil and Gas Lease Sale, at 2.

have significant environmental impacts to a sensitive species that are not mitigated by BLM's proposed stipulations.

BLM's argument that "effects to the lek complex would be considered at the time of any future project proposal" fails to address NDOW and USFWS concerns, because their request mitigation – No Surface Occupancy stipulations for parcels that should be treated as PHMA – cannot, under BLM regulations, be imposed at the Condition of Approval stage. 43 C.F.R. § 3101.1-2; *see also Conner v. Burford*, 848 F.2d 1441, 1444 (9th Cir. 1988) (""mitigation stipulations," authorize the government to impose reasonable conditions on drilling, construction, and other surface-disturbing activities; unlike NSO stipulations, however, they do not authorize the government to preclude such activities altogether.").

2. **BLM's Final Environmental Assessment Does Not Adequately Disclose or Analyze Impacts to Greater Sage-Grouse**

Given the significance of the potential impacts that oil and gas development could have on the species, proper investigation here is crucial. BLM is required under NEPA to collect data particular to the region affected by the leases.[93] Despite the acknowledged presence of greater sage-grouse habitat within the areas proposed for leasing, the draft EA provides absolutely no discussion of the location, nature, or significance of impacts to sage-grouse populations within the project area. Simply providing habitat maps does not suffice as the disclosure and analysis of impacts. This approach clearly does not provide the "hard look" that NEPA requires.[94] The June 2018 Battle Mountain EA not only includes no site-specific analysis, it includes no analysis whatsoever of what sage-grouse populations and habitats will be affected, to what degree, and how those impacts may or may not be mitigated.

The EA omits local or even regional sage-grouse population information and thus does not provide the public with the information necessary to assess the likely impacts of oil and gas leasing on GRSG in the lease area. This is disturbing because Garton et al. (2015) found that the estimated minimum number of GRSG males declined 33% from 2007 to 2013 in the Southern Great Basin population of GRSG and that this estimated decline "exemplifies the observed declines over the last 2 decades." Garton et al. at 15-16.[95] Even if the public acquires recent Nevada GRSG population data on its own, it is still not possible to match that data to the lease parcels because the EA does not identify the parcels by Lek Names, Lek ID Numbers, or even GRSG Population Management Units. Because of these limitations on the public's ability to assess current numbers and recent trends in the local GRSG population, it is all the more problematic that BLM did not include site-specific GRSG population and population trends in its EA.

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[93] *See Center. for Biological Diversity*, 937 F. Supp. 2d at 1159 (Preparation of an EIS "is mandated where uncertainty may be resolved by further collection of data, or where collection of such data may prevent speculation on potential effects.").

[94] *Id.* (Held BLM did not provide the "hard look" that NEPA requires because it "never collected any data particular to the region affected by the leases, instead opting to summarize general data.").

[95] Garton, Edward O. et al., Greater Sage-Grouse Population Dynamics and Probability of Persistence: Final Report to Pew Charitable Trusts (2015).

Holloran (2005) found that sage grouse avoided habitats within 3.1 miles of active oil and gas drilling operations, and within 2 miles of roads or wellpads during the production phase of oil and gas extraction.[96] How many acres of habitat within 5.3 miles of a lek, the habitat where nesting occurs, occur on the leases in question? How many acres of identified sage–grouse winter range occurs on the leaseholds in question? The failure to consider the acreage of habitat lost due to abandonment of otherwise suitable habitats adjacent to roads and wellsites, and the failure to even quantify the amount of habitats critical to the life cycles of sage-grouse that occur on individual leases (much less evaluate the site-specific topography and how that might mitigate or exacerbate impacts of oil and gas development), constitute failures of NEPA's hard look requirements.

As noted in one recent peer-reviewed study analyzing sage-grouse persistence under mitigation measures in Wyoming similar to those in the BLM sage-grouse plans:

> Energy development has been shown to specifically impact male sage-grouse lek attendance, lek persistence, recruitment of yearling male and female grouse to leks, nest initiation and site selection, nest survival, chick survival, brood survival, summer survival of adult females, early brood-rearing habitat selection, adult female summer habitat selection, and adult female winter habitat selection[97].

Another recent study (Green et al. 2017), confirms that sage-grouse lek attendance remains stable only where no oil and gas development is present within 6,400m, a level of protection far greater than that provided by the BLM's 2015 NV/CA Sage-Grouse Plan Amendments.[98]

Most problematic are proposed leases within the Monitor and Little Fish Lake Valleys. These regions are known to be among the highest quality greater sage-grouse habitat within the southern Great Basin, and the vast majority of the lease parcels in these areas are Priority Habitat Management Areas (PHMA), as seen in the map below.

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[96] Holloran, Matthew, Greater Sage-Grouse (Centrocercus urophasianus) Population Response to Natural Gas Field Development in Western Wyoming (2005).

[97] Gamo, R. Scott & Beck, Jeffrey L., Effectiveness of Wyoming's Sage-Grouse Core Areas: Influences on Energy Development and Male Lek Attendance, 59 Environmental Management 189-203, doi:10.1007/s00267-016-0789-9 (2017).

[98] Green, Adam W. et al., Investigating Impacts of Oil and Gas Development on Greater Sage-Grouse, The Journal of Wildlife Management, doi: 10.1002/jwmg.21179 (2016).

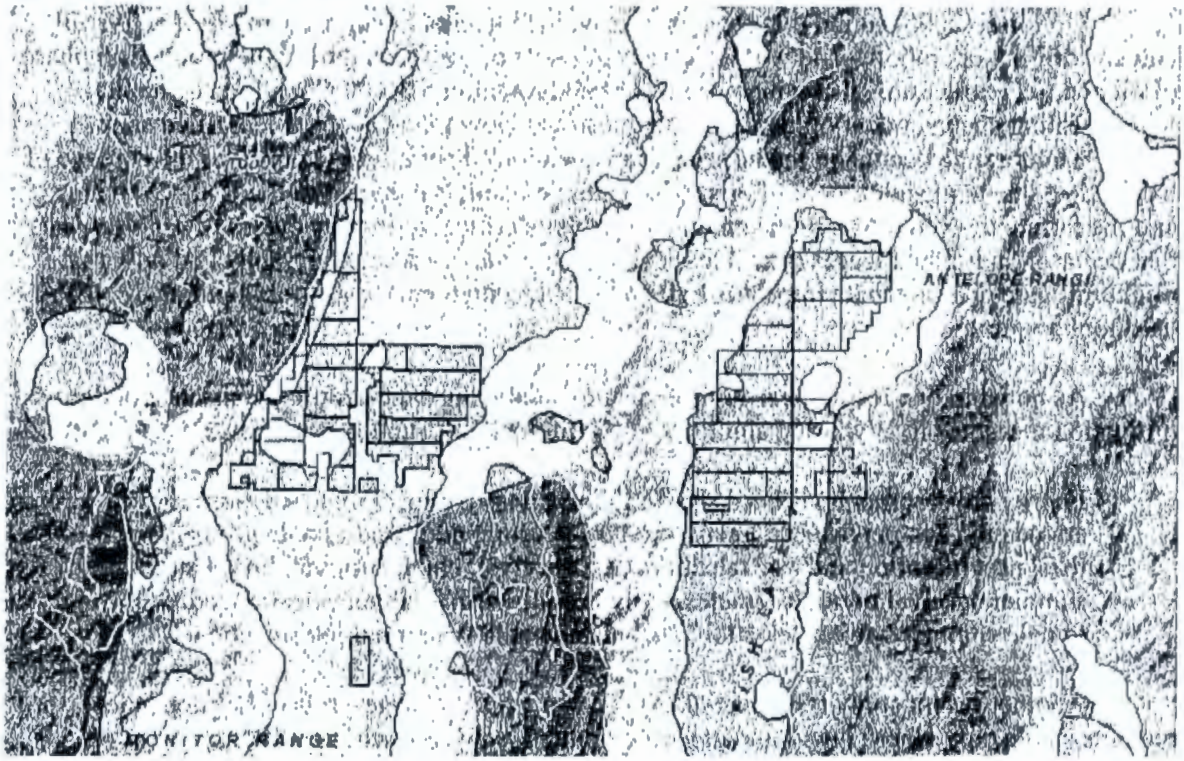

Figure 1: Map of Monitor and Little Fish Lake Valleys, with GRSG PHMA depicted in blue; lease parcels are overlain. The vast majority of lease parcels in both valleys are PHMA.

Both Monitor and Fish Lake Valleys are within the Monitor Population Management Unit (PMU). According to the Nevada Division of Wildlife, the Monitor PMU is one of the eight largest breeding populations in the state, which collectively account for about 50% of the sage-grouse population.[99]

The EA's complete lack of any greater sage-grouse analysis is also troubling because the BLM's approach to mitigating the effects of oil and gas development on GRSG is to attach stipulations to the leases. However, these stipulations are not absolute, but subject to waiver, exception, and modification. This is not a hypothetical concern. A 2017 General Accountability Office report found serious inconsistencies in BLM practice regarding exceptions to stipulations.[100] "The extent to which BLM approves requests for exceptions to environmentally related lease and permit requirements is unknown because BLM does not have comprehensive or consistent data on these requests. Additionally, BLM's processes for considering exception

[99] Nevada Division of Wildlife, Nevada Sage-grouse Population Distribution 2013, *available at:* http://sagebrusheco.nv.gov/uploadedFiles/sagebrusheconvgov/content/Meetings/Nevada%20GSG%20PopDensity.pdf.

[100] The GAO Report appears to include exceptions, modifications, and waivers of lease stipulations in the single term "exception." *See* U.S. GAO, Oil and Gas Development: Improved Collection and Use of Data Could Enhance BLM's Ability to Assess and Mitigate Environmental Impacts (2017).

requests and documenting its decisions vary across its field offices."[101] Furthermore, the GAO Report found that the public is unlikely to have an opportunity to provide input to the BLM's decisions whether to grant exceptions. "BLM consistently involved the public when developing lease requirements and to some extent when developing permit requirements. However, BLM generally did not involve the public when considering an operator's request for an exception to a lease or permit requirement."[102] In fact, the public might not even be able to find out whether an exception was granted because "BLM does not currently require field offices to make the results of its exception decisions available to the public. Without access to this information, the public may not be able to provide substantive input into BLM's future land use planning processes."[103]

BLM's Final EA also fails to provide any quantitative analysis of the extent of greater sage-grouse habitat affected, or the corresponding populations affected. This failure is critical, because analysis of available data reveals that the proposed leases, if developed, would impair over one million acres of current sage-grouse range, including 207,000 acres of lands classified as PHMA under the current NV/CA ARMPA. According to an analysis of BLM data by geographer Amy Haak, the proposed leases may affect 1,040,000 acres of current sage-grouse range within 4 miles of an occupied lek:

> Based on the findings and recommendations of the Sage-grouse National Technical Team (2011), I applied a 4-mile buffer to the proposed lease parcels to define the project impact area for my analysis. This accounts for not only the direct loss of habitat due to surface disturbances but also the abandonment of adjacent habitat by sage-grouse populations due to surface disturbances. The total impact area within this buffer is 1,551,000 acres. Figure 1 shows the 4-mile buffer around the lease parcels with the habitat designations and Table 1 summarizes the affected habitat by management designation. Nearly 70% of the project impact area is within the current range of sage-grouse.

Habitat Designation	Area within 4-mile buffer (acres)
Current sage-grouse range	1,040,000
FWS Priority Areas for Conservation (PACs)	380,000
ARMPA* Priority Habitat Management Area	207,000
ARMPA* General Habitat Management Area	195,000

[101] U.S. GAO Report at 11.
[102] U.S. GAO Report at 17.
[103] U.S. GAO Report at 35.

Table 1. Acreages of affected habitat within 4-mile buffer of lease parcels. [104]

BLM's failure to disclose that the intended and foreseeable indirect effects of the proposed lease sale may adversely impact at least 1,040,000 acres of occupied sage-grouse range, including 207,000 acres of Priority Habitat Management Areas, fails to provide either the public or the decision-maker with an adequate description of the environmental impacts of the proposed action.

3. The Proposed Lease Sale Does not Comply with the 2015 Nevada and Northeastern California Greater Sage-Grouse Approved Resource Management Plan Amendment (Sage-Grouse ARMPA)

BLM's EA and proposed stipulations fail to comply FLPMA's requirement that all implementing actions must conform to the terms of the governing Resource Management Plan.[105] The proposed action violates the 2015 ARMPA because (1) it fails to comply with Objective MR 1, requiring prioritization of leasing of fluid minerals outside Priority and General Habitats.

The Proposed Action does not comply with the 2015 Sage-Grouse ARMPA because BLM did not prioritize oil and gas development on sage-grouse non-habitat and habitat according to its own prior commitments. In fact the Final EA omits mention of the prioritization requirement altogether. Nevertheless, the Sage-Grouse ARMPA states, "Objective MR 1: Priority will be given to leasing and development of fluid mineral resources, including geothermal, outside of PHMAs and GHMAs. When analyzing leasing and authorizing development of fluid mineral resources, including geothermal, in PHMAs and GHMAs, that are subject to applicable stipulations for the conservation of GRSG, priority will be given to development in non-habitat areas first and then in the least suitable habitat for GRSG."[106]

Furthermore, the Proposed Action's lack of prioritization does not comply with the commitment to prioritization that BLM made in the Record of Decision and Approved Resource Management Plan Amendments for the Great Basin Region, Including the Greater Sage-Grouse Sub-Regions of Idaho and Southwestern Montana Nevada and Northeastern California, Oregon, Utah (Great Basin ROD). The Great Basin ROD explained why prioritization is necessary:

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[104] Haak, Amy, Analysis of Impacts to the Range-wide Conservation Portfolio of Greater Sage-grouse from Oil and Gas Development in Nevada (April 15, 2018) at 1 & Table 1 (Attachment A).

[105] On March 31, 2017, the U.S. District Court for the District of Nevada ruled that the BLM and Forest Service were required, under NEPA, to conduct supplemental NEPA analysis on the Nevada RMP Amendments. The court, in weighing its remedy, expressly declined to vacate the ARMPAs, and found "that protection of the greater sage-grouse weighs against vacatur of the RODs." *Western Exploration LLC v U.S. Dep't of the Interior*, No. 3:15-cv-491 (D. Nev. March 31, 2017). The Great Basin Record of Decision and Nevada and Northeastern California Greater Sage-Grouse Approved Resource Management Plan Amendment, therefore, remain in place until duly amended and govern BLM implementation actions under FLPMA. Although BLM released a Draft Environmental Impact Statement for amendments to the NV/CA ARMPA on May 2, 2018, those amendments have not been completed.

[106] NV/NE CA RMPA at 2-28.

> In addition to allocations that limit disturbance in PHMAs and GHMAs, the ARMPAs prioritize oil and gas leasing and development outside of identified PHMAs and GHMAs to further limit future surface disturbance and to encourage new development in areas that would not conflict with GRSG. This objective is intended to guide development to lower conflict areas and, as such, protect important habitat and reduce the time and cost associated with oil and gas leasing development. It would do this by avoiding sensitive areas, reducing the complexity of environmental review and analysis of potential impacts on sensitive species, and decreasing the need for compensatory mitigation.

Great Basin ROD at 1-23.

The BLM is subject to clear direction in the Great Basin RMP amendments that its greater sage-grouse RMP plans and conservation strategy rely not only on stipulations within designated habitats (stipulations acknowledged as insufficient to result in a net conservation gain for general habitat, *see* 2015 Great Basin ARMPA ROD at 1-23, but also on a larger strategy of prioritizing development outside of all sage-grouse habitats.

An apparent BLM policy of leasing virtually all nominated parcels within sage-grouse habitat is not only inconsistent with the RMPs and FLPMA's consistency requirement, it also undermines a fundamental assumption of the RMP Amendment EISs – as well as the U.S. Fish and Wildlife Service's determination that listing the greater sage-grouse under the Endangered Species Act was "not warranted." That assumption is that the measures adopted in the RMP Amendments will result in oil and gas development tending to occur outside of greater sage-grouse habitat. The BLM's Nevada field offices' ongoing pattern of offering leases encompassing Priority sage-grouse habitat strongly undermines that assumption. It further undermines the assumption in the Fish and Wildlife Service's "not warranted" finding for the greater sage-grouse that federal and state implementation of the core area strategy for fluid minerals will continue the 2012-15 pattern of reduced drilling within "core" or priority habitat areas. If BLM is not actually going to give meaningful content to its plan direction to prioritize leasing outside of sage-grouse habitats, it cannot rely on FEISs, such as the Nevada ARMPA FEIS, that assume the effectiveness of that plan direction.

The EA further fails entirely to analyze or acknowledge the cumulative effects of BLM's ongoing and proposed leasing, since the adoption of the ARMPAs, of tens of thousands of acres of sage-grouse general and priority habitat on BLM, and now also Forest Service, lands in Nevada. A proper cumulative impacts analysis must address not only BLM's recent, ongoing, and proposed leasing and development actions by BLM and other land management agencies.

The proposed EA further violates NEPA's requirement to consider all reasonable alternatives by failing to even consider any intermediate action between leasing all proposed parcels and no action. Given (a) the lack of current activity and speculative nature of oil and gas development in Nevada, (b) the large volume of unused and/or low-potential leases in the Battle Mountain District, (c) the ARMPA's requirement to prioritize leasing outside all sage-grouse habitat, and (d) the unexamined cumulative effects of large-scale leasing of GRSG habitat in

Nevada, BLM must at least consider an alternative that would exclude all GRSG habitat from its proposed lease sale.

C. BLM's Proposed Decision and FONSI Are Arbitrary and Capricious Because they Bear No Reasonable Relationship to a Legitimate Purpose or Need

BLM identifies the "purpose and need" for its action as follows:

> Oil and gas leasing is necessary to provide oil and gas companies with new areas to explore and potentially develop, and is recognized as an acceptable use of the public lands under FLPMA. Leasing is authorized under the Mineral Leasing Act of 1920, as amended and modified by subsequent legislation, and regulations found at 43 CFR part 3100. BLM authority for leasing public mineral estate for the development of energy resources, including oil and gas, is described in 43 CFR 3160.0-3.[107]

The mere fact that oil and gas is an "acceptable" use of the public lands, however, does not mean that BLM is obligated to lease over 317,000 acres of Nevada public lands—much of it bearing significant non-mineral resources values—in the absence of any significant existing production or interest in the area or reasonable basis to believe the leasing is necessary.

Oil and gas companies already have massive areas of public land at their disposal to "explore and potentially develop" in Nevada, but have shown very little interest in actually doing so. In June 2016, BLM offered some 74,662 acres for lease in the Battle Mountain district, and only 3,764 acres received bids at all, mostly for bids of $2-4 per acre.[108] Another 13,353 acres subsequently sold noncompetitively at the minimum price of $1.50/acre.[109] As the EA acknowledges, actual development activity within the area has been negligible, and the BLM has previously greatly overestimated the industry's interest in drilling in the Mount Lewis Field Office area in particular:

> 42 of the nominated lease sale parcels are located in the MLFO area, totaling approximately 82,124.70 acres, or 26.2% of the total nominated acreage.
>
> According to the 2006 EA for Oil and Gas Leasing and the 2008 EA for Oil and Gas Leasing within the Western Portion of the Shoshone-Eureka Assessment Area, the overall potential for oil and gas exploration and development in this area has been previously determined to be low to moderate. The western portion of the Assessment Area was considered to have a lower potential when compared to that of the eastern portion. The eastern portion of the Shoshone-Eureka Assessment Area was considered to have moderate potential because it is located on a strike between Pine Valley and Railroad Valley, the two major production areas in the State; and the geologic setting is similar to those areas. The RFDs for these EAs

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[107] Revised EA at 4.

[108] U.S. Bureau of Land Management, Nevada State Office, Competitive Oil and Gas Lease Sale Results Summary, Battle Mountain District Office (June 14, 2016), *available at:* https://edit.blm.gov/sites/blm.gov/files/uploads/NV_OG_BMDO_Sale_Competitve_Results_20160614.pdf.

[109] *Id.*

> estimated a total surface disturbance associated with oil and gas exploration/production of approximately 680 acres for the entire MLFO Assessment Area, which constitutes 4.5 million acres.
>
> Compared to actual acres of disturbance associated with oil and gas exploration/production within the MLFO during the projected period described below, those RFDs overestimated the amount of surface disturbance. While oil and gas interest has increased over the last 25 years in the MLFO area, very few exploratory wells have been drilled; an average of less than one exploration well was drilled per year between the years of 1980 and 2003. Exploration interest since this time has focused on the eastern portion of the MLFO, specifically in Eureka County, which is consistent with the geologic potential of the area. Since 2003, there have only been four exploration wells authorized in the MLFO. The last of these was drilled in 2013. All four wells have since been plugged. The potential for oil and gas exploration and production in the MLFO can also be considered low. Conservatively, over the next ten years, based on previous and anticipated activity and interest, about 5 exploration wells and 15-25 acres of surface disturbance associated with oil and gas exploration/production activity could be expected to occur in the MLFO, again estimating 3.3 acres disturbance per well (16.5 acres) and allowing for a range of variation.[110]

In light of the large areas already under lease or available for noncompetitive lease in Nevada, coupled with the low level of current drilling interest, BLM's ostensible "purpose and need" offers no reasonable justification for why the BLM should be offering hundreds of thousands of acres for speculative oil and gas acquisition. Indeed, BLM's apparent urgency in leasing, even prior to revision of the 1986 and 1997 RMPs, would appear to be against the public interest in encouraging competitive bidding and maximizing return, given that prior leases offered (and still available) in the area have generally failed to garner any competitive bids.

D. BLM Has Failed to Consider Climate Impacts or Analyze Reasonable Alternatives to Mitigate Those Impacts

The EA fails to fully quantify greenhouse gas emissions that would result from new oil and gas development, or that could result from leasing the offered parcels. The EA's greenhouse gas analysis omits emissions from transportation of extracted product to market or to refineries, refining and other processing, and combustion of the extracted end-use product, failing to disclose the full scope of greenhouse gas emissions that could result from new leasing. The EA acknowledges the existence of climate change and greenhouse gas emissions from oil and gas development but provides only incomplete analyses and crude estimates of direct and indirect emissions. The EA fails to analyze potential emissions that would result from developing all offered parcels; its analysis is limited to emissions that would result from developing 0 or 25 oil wells. For direct emissions, the EA states that those wells "would produce between 16,275 tons and 78,900 tons of greenhouse gas emissions in terms of short tons of CO2 equivalent (CO2e)." EA at 19. The EA estimates that 25 oil wells would produce between 0 and 215,000 tons per year of CO2. EA at 20. The EA, whose analysis of potential future emissions is limited to 10

[110] Revised EA at 148.

years, fails to estimate the lifespan of those 25 wells, or their potential lifecycle greenhouse gas emissions. The EA also fails to analyze or disclose the total volume of oil and gas that BLM's own data estimates to be associated with the parcels to be leased. Relatedly, the EA fails to analyze and disclose the potential lifecycle emissions that would be associated with developing those parcels' fossil fuels. Taken together, the EA's narrow, incomplete, and unclear analysis ultimately fails to meaningfully estimate, disclose or consider the potential direct, indirect and cumulative greenhouse gas emissions that could result from the lease sale.

Meaningful consideration of greenhouse gas emissions (GHGs) is clearly within the scope of required NEPA review. *Ctr. for Biological Diversity v. Nat'l Highway Traffic Safety Admin.*, 538 F.3d 1172, 1217 (9th Cir. 2008). As the Ninth Circuit has held, in the context of fuel economy standard rules:

> The impact of greenhouse gas emissions on climate change is precisely the kind of cumulative impacts analysis that NEPA requires agencies to conduct. Any given rule setting a CAFE standard might have an "individually minor" effect on the environment, but these rules are "collectively significant actions taking place over a period of time" *Ctr. for Biological Diversity v. Nat'l Highway Traffic Safety Admin.*, 538 F.3d 1172, 1216 (9th Cir. 2008)(quoting 40 C.F.R. § 1508.7).

The courts have ruled that federal agencies consider indirect GHG emissions resulting from agency policy, regulatory, and leasing decisions. For example, agencies cannot ignore the indirect air quality and climate change impact of decisions that would open up access to coal reserves. *See Mid States Coal. For Progress v. Surface Transp. Bd.*, 345 F.3d 520, 532, 550 (8th Cir. 2003); *High Country Conservation Advocates v. U.S. Forest Serv.*, 52 F.Supp. 3d 1174, 1197-98 (D.Colo. 2014).

NEPA requires "reasonable forecasting," which includes the consideration of "reasonably foreseeable future actions…even if they are not specific proposals" *N. Plains Res. Council, Inc. v. Surface Transp. Bd.*, 668 F.3d 1067, 1079 (9th Cir. 2011) (citation omitted). That BLM cannot "accurately" calculate the total emissions expected from full development is not a rational basis for cutting off its analysis. "Because speculation is . . . implicit in NEPA," agencies may not "shirk their responsibilities under NEPA by labeling any and all discussion of future environmental effects as crystal ball inquiry." *Id.* Indeed, the EA for a recent lease sale in Utah undercuts BLM's assertion here that GHGs cannot be quantified at the leasing stage[111]. *See High Country Conservation Advocates v. United States Forest Serv.*, 52 F. Supp. 3d 1174, 1196 (D. Colo. 2014) (decision to forgo calculating mine's reasonably foreseeable GHG emissions was arbitrary "in light of the agencies' apparent ability to perform such calculations").

The final CEQ *Guidance on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in NEPA review* is dispositive on the issue of federal agency review of greenhouse gas emissions as foreseeable direct and indirect effects of the proposed action. 81 Fed. Reg. 51,866 (Aug. 5, 2016). The CEQ guidance provides clear direction for BLM to

[111] U.S. Bureau of Land Management, Environmental Assessment for West Desert District, Fillmore Field Office, August 2015 Oil and Gas Lease Sale, pp. 57-58 (2015); U.S. Bureau of Land Management, Greenhouse Gases Estimate (West Desert District Nov 2015 Lease Sale), *available at:* http://www.blm.gov/style/medialib/blm/ut/natural_resources/airQuality.Par.38.

conduct a lifecycle greenhouse gas analysis because the modeling and tools to conduct this type of analysis are readily available to the agency:

> If the direct and indirect GHG emissions can be quantified based on available information, including reasonable projections and assumptions, agencies should consider and disclose the reasonably foreseeable direct and indirect emissions when analyzing the direct and indirect effects of the proposed action. Agencies should disclose the information and any assumptions used in the analysis and explain any uncertainties. To compare a project's estimated direct and indirect emissions with GHG emissions from the no-action alternative, agencies should draw on existing, timely, objective, and authoritative analyses, such as those by the Energy Information Administration, the Federal Energy Management Program, or Office of Fossil Energy of the Department of Energy. In the absence of such analyses, agencies should use other available information. 81 Fed. Reg. 51,866 at 16 (Aug. 5, 2016)(citations omitted).

CEQ's guidance even provides an example of where a lifecycle analysis is appropriate in a leasing context at footnote 42:

> The indirect effects of such an action that are reasonably foreseeable at the time would vary with the circumstances of the proposed action. For actions such as a Federal lease sale of coal for energy production, the impacts associated with the end-use of the fossil fuel being extracted would be the reasonably foreseeable combustion of that coal. *Id.* Although the 2016 CEQ guidance has been "withdrawn for further consideration," 82

Fed. Reg. 16,576 (April 5, 2017), the underlying requirement to consider climate change impacts under NEPA, including indirect and cumulative combustion impacts foreseeably resulting from fossil fuels leasing decisions, has not changed. *See Sierra Club v. FERC*, 867 F.3d 1357, 1375 (D.C. Cir. 2017); *WildEarth Guardians v. BLM*, 870 F. 3d 1222, 1236 (10th Cir. 2017); *S. Fork Band*, 588 F.3d at 725; *Ctr. for Biological Diversity*, 538 F.3d at 1214-15; *Mid States Coalition for Progress*, 345 F.3d at 550; *WildEarth Guardians*, 104 F. Supp. 3d at 1230; *Dine Citizens Against Ruining Our Env't*, 82 F. Supp. 3d at 1201; *High Country Conservation Advocates*, 52 F. Supp. 3d at 1174.

Despite the EA's failure to analyze and disclose the volume of potential emissions of oil and gas associated with the lease parcels, that information is knowable and accurately calculating the direct emissions impact from the parcels' development is quantifiable. Using BLM's own potential volume data for the this lease sale, the estimated oil volume of 8.508991 mmbbl represents lifecycle greenhouse gas emissions of up to 2,980,800.50 metric tons of CO2e and the estimated gas volume of 1.055236 Bcf represents lifecycle greenhouse gas emissions of up to 74,508.16 metric tons of CO2e.

Potential lifecycle greenhouse gas emissions for resultant oil and gas volumes were generated using a peer-reviewed carbon calculator and lifecycle greenhouse gas emissions model

developed by EcoShift consulting.[112] This model is not novel in its development or methodology. Numerous greenhouse gas calculation tools exist to develop lifecycle analyses, particularly for fossil fuel extraction, operations, transport and end-user emissions.[113] Indeed, the Department of Energy has historically utilized these types of lifecycle emissions analyses in NEPA review of oil and gas infrastructure projects.[114] Other federal agencies have begun to employ upstream, downstream and lifecycle greenhouse gas emissions analyses for NEPA review of energy-related projects.[115] Courts have upheld the viability and usefulness of lifecycle analyses, and adoption of

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[112] *See* Ecoshift Consulting, The potential Greenhouse Gas Emissions of U.S. Federal Fossil Fuels, Center for Biological Diversity and Friends of the Earth (2015), *available at:* http://www.ecoshiftconsulting.com/wp-content/uploads/Potential-Greenhouse-Gas-Emissions-U-S-Federal-Fossil-Fuels.pdf.

[113] *See* Council on Environmental Quality, Revised draft guidance for greenhouse gas emissions and climate change impacts (2014), *available at:* https://ceq.doe.gov/current_developments/GHG-accounting-tools.html.

[114] U.S. Department of Energy National Energy Technology Laboratory, Life Cycle Greenhouse Gas Perspective on Exporting Liquefied Natural Gas from the United States, DOE/NETL-2014/1649 (May 29, 2014) *available at:* http://energy.gov/sites/prod/files/2014/05/f16/Life%20Cycle%20GHG%20Perspective%20Report.pdf; *See also* U.S. Department of Energy National Renewable Energy Laboratory, Life Cycle Greenhouse Gas Emissions from Electricity Generation Fact Sheet, Pub No. NREL/FS-6A20-57817 (2013) *available at:* http://www.nrel.gov/docs/fy13osti/57187.pdf; U.S. Department of Energy National Energy Technology Laboratory Role of Alternative Energy Sources: Natural Gas Technology Assessment, Pub No. DOE/NETL- 2012/1539 (NETL, 2012) *available at:* https://www.netl.doe.gov/File%20Library/Research/Energy%20Analysis/Life%20Cycle%20Analysis/LCA-2012-1539.pdf; U.S. Department of Energy National Energy Technology Laboratory, Life Cycle Greenhouse Gas Inventory of Natural Gas Extraction, Delivery and Electricity Production, Pub No. DOE/NETL-2011/1522 (NETL, 2011) *available at:* http://www.fossil.energy.gov/programs/gasregulation/authorizations/2013_applications/sierra_club_13-69_venture/exhibits_44_45 pdf; U.S. Department of Energy National Energy Technology Laboratory, Life Cycle Analysis: Natural Gas Combined Cycle (NGCC) Power Plant, Pub No DOE/NETL-403-110509 (Sep 10, 2012) (NETL, 2010) *available at:* https://www.netl.doe.gov/energy-analyses/temp/FY13_LifeCycleAnalysisNaturalGasCombinedCycle(NGCC)PowerPlantFinal_060113 pdf.

[115] U.S. Bureau of Land Management, Final Supplemental Environmental Impact Statement for the Leasing and Underground Mining of the Greens Hollow Federal Coal Leas Tract, UTU-84102, 287 (Feb 2015) (BLM expressly acknowledged that "the burning of the coal is an indirect impact that is a reasonable progression of the mining activity" and quantified emissions from combustion without any disclaimer about other sources of coal. *Id.* at 286. In that same EIS, BLM also acknowledged that truck traffic to haul coal would be extended as a result of the proposed lease approval, and this would generate additional emissions.) *See also*, U.S. Forest Service, Record of Decision and Final Environmental Impact Statement, Oil and Gas Leasing Analysis, Fishlake National Forest, 169 (Aug 2013) (Table 3.12-7: shows GHG emissions from transportation, offsite refining and end use; and total direct and indirect emissions. *See also id.*, Appendix E/SIR-2 (more detailed calculations of direct and indirect emissions.)) U.S. Army Corps of Engineers, Final Environmental Impact Statement: Alaska Stand Alone Gas Pipeline, Volume 2 Sec. 5.20-70–71 (Oct. 2012) The Corps, in a 2012 EIS for an intrastate natural gas pipeline in Alaska, estimated downstream emissions from combustion of the natural gas that would be transported, and also discussed the potential for natural gas to displace other, dirtier fuel sources such as coal and oil.); U.S. Department of State, Final Supplemental Environmental Impact Statement for the Keystone XL Project, § 4.14.3, Appendix U (Jan. 2014) (The Department of State, as lead agency on the Keystone XL Pipeline Review conducted a relatively comprehensive life-cycle greenhouse gas analysis for the proposed pipeline, alternatives, and baseline scenarios that could occur if the pipeline was not constructed.); U.S. Environmental Protection Agency Region X, Letter from Dennis McLerran, Regional Administrator, to Randel Perry, U.S. Army Corps of Engineers Seattle District, re Gateway Pacific Projects (Jan 22, 2013) *available* at: http://www.eisgatewaypacificwa.gov/sites/default/files/content/files/EPA_Reg10_McLerran.pdf#overlay-context=resources/project-library. (EPA submitted comments on the scope of impacts that should be evaluated in the

this trend is clearly reflected in the CEQ Guidance on Climate Change . 81 Fed. Reg. 51, 866 at 11 (Aug. 5, 2016) ("This guidance recommends that agencies quantify a proposed agency action's projected direct and indirect GHG emissions. Agencies should be guided by the principle that the extent of the analysis should be commensurate with the quantity of projected GHG emissions and take into account available data and GHG quantification tools that are suitable for and commensurate with the proposed agency action").[116]

It is reasonably foreseeable, as opposed to speculative, that this lease sale will induce oil and natural gas production, transmission and ultimate end-user climate change impacts. The effects of this induced production must be considered in an EA, and in fact, necessitate a more robust review under an EIS. *See, e.g., N. Plains Res. Council, Inc. v. Surface Transp. Bd.*, 668 F.3d 1067, 1081-82 (9th Cir. 2011) (finding that NEPA review must consider induced coal production at mines, which was a reasonably foreseeable effect of a project to expand a railway line that would carry coal, especially where company proposing the railway line anticipated induced coal production in justifying its proposal); *Mid States Coal. for Progress v. Surface Transp. Bd.*, 345 F.3d 520, 549-50 (8th Cir. 2003) (environmental effects of increased coal consumption due to construction of a new rail line to reach coal mines was reasonably foreseeable and required evaluation under NEPA). The development of an area for lease and subsequent oil and gas production would certainly result in combustion of the extracted product. As courts have held in similar contexts, combustion emissions resulting from opening up a new area to development are "reasonably foreseeable," and therefore a "proximate cause" of the leasing. See *Mid States Coal. for Progress v. Surface Transp. Bd.*, 345 F.3d 520, 549 (8th Cir. 2003) (holding that agency violated NEPA when it failed to disclose and analyze the future coal combustion impacts associated with the agency's approval of a railroad line that allowed access to coal deposits); *High Country Conserv'n Advocates v. United States Forest Serv.*, 52 F. Supp. 3d 1174, 1197 (D. Colo. 2014) (same with respect to GHG emissions resulting from approval of coal mining exploration project).

In both *Mid States Coalition* and *High Country*, the courts rejected the government's rationale that increased emissions from combustion of coal was not reasonably foreseeable because the same amount of coal would be burned without opening up the areas at issue to new coal mining. Both courts found this argument "illogical at best" and noted that "increased availability of inexpensive coal will at the very least make coal a more attractive option to future entrants into the utilities market when compared with other potential fuel sources, such as

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coal terminal EIS that the Corps is preparing, in which it urged the Corps to conduct a lifecycle emissions analysis of GHG emissions from the coal that would be transported via the terminal.).

[116] *High Country Conservation Advocates v. United States Forest Serv.*, 52 F. Supp. 3d 1174 (D. Colo. 2014) (Court held that the agencies' failure to quantify the effect of greenhouse gas (GHG) emissions from the mining lease modifications was arbitrary in violation of NEPA because the social cost of carbon protocol tool existed for such analysis under 40 C.F.R. § 1502.23 but the agencies did not provide reasons in the final EIS for not using the tool; and that the agencies' decision to forgo calculating the foreseeable GHG emissions was arbitrary in light of their ability to perform such calculations and their decision to include a detailed economic analysis of the benefits.); *See also, Dine Citizens Against Ruining Our Env't v. United States Office of Surface Mining Reclamation & Enf't*, 82 F. Supp. 3d 1201, 1213-1218 (D. Colo. 2015) (Court held that the agency failed to adequately consider the reasonably foreseeable combustion-related downstream effects of the proposed action. Also, held that combustion emissions associated with a mine that fed a single power plant were reasonably foreseeable because the agency knew where the coal would be consumed).

nuclear power, solar power, or natural gas." See *High Country*, 52 F. Supp. 3d at 1197 (quoting *Mid States Coalition*, 345 F.3d at 549). "On similar grounds, the development of new wells over the proposed areas for lease will increase the supply of [oil and natural gas]. At some point this additional supply will impact the demand for [oil and gas] relative to other fuel sources, and [these minerals] that otherwise would have been left in the ground will be burned. This reasonably foreseeable effect must be analyzed, even if the precise extent of the effect is less certain." *Id. See also WildEarth Guardians v. United States Office of Surface Mining, Reclamation & Enf't*, 104 F. Supp. 3d 1208, 1229-30 (D. Colo. 2015) (coal combustion was indirect effect of agency's approval of mining plan modifications that "increased the area of federal land on which mining has occurred" and "led to an increase in the amount of federal coal available for combustion.")[117]

In September 2017, the Tenth Circuit Court of Appeals for the Tenth Circuit similarly reaffirmed in strikingly clear language that the National Environmental Policy Act does not allow the BLM to dismiss downstream combustion effects of fossil fuel leasing decisions based on the unsupported assumption that leasing actions will have no net effect on greenhouse gas emissions. In *Wildearth Guardians v. U.S. Bureau of Land Management*, the Court of Appeals ruled unanimously that BLM "failed to comply with the National Environmental Policy Act (NEPA) when it concluded that issuing the leases would not result in higher national carbon dioxide emissions than would declining to issue them."[118] The BLM cannot ignore basic economic principles and assume that there will be no net effect on oil and gas production, markets, price, and ultimate consumption when it opens new federal minerals to oil and gas exploration and development. In a similar context, the D.C. Circuit Court of Appeals recently rejected a Federal Energy Regulatory Commission NEPA review where the agency refused to study the market effects of the Sabal Trail natural gas pipeline. *Sierra Club v. FERC*, 867 F.3d 1357, 1375 (D.C. Cir. 2017) ("An agency decisionmaker reviewing this EIS would thus have no way of knowing whether total emissions, on net, will be reduced or increased by this project, or what the degree of reduction or increase will be. In this respect, then, the EIS fails to fulfill its primary purpose. In this respect, then, the EIS fails to fulfill its primary purpose.")

1. The Cumulative Effects of Federal Fossil Fuel Leasing and Production Contributes Significantly to Adverse Impacts of Climate Change

Expansion of fossil fuel production will substantially increase the volume of greenhouse gases emitted into the atmosphere and jeopardize the environment and the health and well being of future generations. BLM's mandate to ensure "harmonious and coordinated management of

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[117] *See also*, Council on Environmental Quality, Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews, 81 Fed. Reg. 51,866 at 14 (Aug. 5, 2016) (For example, NEPA reviews for proposed resource extraction and development projects typically include the reasonably foreseeable effects of various phases in the process, such as clearing land for the project, building access roads, extraction, transport, refining, processing, using the resource, disassembly, disposal, and reclamation. Depending on the relationship between any of the phases, as well as the authority under which they may be carried out, agencies should use the analytical scope that best informs their decision making.).

[118] *WildEarth Guardians v. BLM*, 870 F. 3d 1222, 1236 (10th Cir. 2017); *see also, MEIC v. OSM*, 2017 WL 3480262, —F.Supp.3d— (D. Mont. 2017).

the various resources *without permanent impairment of the productivity of the land and the quality of the environment*" requires BLM to limit the climate change effects of its actions.[119] Keeping all unleased fossil fuels in the ground and banning fracking and other unconventional well stimulation methods would lock away millions of tons of greenhouse gas pollution and limit the destructive effects of these practices. Specifically, BLM's consideration of large-scale leasing in previously-undeveloped areas of Nevada threatens to significantly increase oil and gas reserves and resulting emissions, but BLM has improperly evaded meaningful consideration of those impacts.

BLM failed to consider that an alternative ending new public lands fossil fuel leasing and fracking is in the interest of meeting the U.S.'s greenhouse gas reduction commitments. On December 12, 2015, 197 nation-state and supra-national organization parties meeting in Paris at the 2015 United Nations Framework Convention on Climate Change Conference of the Parties consented to an agreement (Paris Agreement) committing its parties to take action so as to avoid dangerous climate change.[120] The Paris Agreement commits the United States to critical goals—both binding and aspirational—that mandate bold action on the United States' domestic policy to rapidly reduce greenhouse gas emissions.[121]

The United States and other parties to the Paris Agreement recognized "the need for an effective and progressive response to the urgent threat of climate change on the basis of the best available scientific knowledge."[122] The Paris Agreement articulates the practical steps necessary to obtain its goals: parties including the United States have to "reach global peaking of greenhouse gas emissions *as soon as possible* . . . and to *undertake rapid reductions* thereafter in accordance *with best available science*,"[123] imperatively commanding that developed countries specifically "should continue taking the lead by undertaking economy-wide absolute emission reduction targets"[124] and that such actions reflect the "highest possible ambition."[125]

The Paris Agreement codifies the international consensus that climate change is an "urgent threat" of global concern,[126] and commits all signatories to achieving a set of global goals. Importantly, the Paris Agreement commits all signatories to an articulated target to hold the 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"[127] (emphasis added).

In light of the severe threats posed by even limited global warming, the Paris Agreement established the international goal of limiting global warming to 1.5°C above pre-industrial levels

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[119] *See* 43 U.S.C. §§ 1701(a)(7), 1702(c), 1712(c)(1), 1732(a) (emphasis added); *see also id.* § 1732(b) (directing Secretary to take any action to "prevent unnecessary or undue degradation" of the public lands).
[120] U.N. Framework Convention on Climate Change, Paris Agreement ("Paris Agreement"), Art. 2.
[121] Although not every provision in the Paris Agreement is legally binding or enforceable, the U.S. and all parties are committed to perform the treaty commitments in good faith under the international legal principle of *pacta sunt servanda* ("agreements must be kept); Vienna Convention on the Law of Treaties, Art. 26.
[122] *Id.*, Recitals.
[123] *Id.*, Art. 4(1).
[124] *Id.*, Art. 4(4).
[125] *Id.*, Art. 4(3).
[126] *Id.*, Recitals.
[127] *Id.*, Art. 2.

in order to "prevent dangerous anthropogenic interference with the climate system," as set forth in the UNFCCC, a treaty which the United States has ratified and to which it is bound.[128] The Paris consensus on a 1.5°C warming goal reflects the findings of the IPCC and numerous scientific studies that indicate that 2°C warming would exceed thresholds for severe, extremely dangerous, and potentially irreversible impacts.[129] Those impacts include increased global food and water insecurity, the inundation of coastal regions and small island nations by sea level rise and increasing storm surge, complete loss of Arctic summer sea ice, irreversible melting of the Greenland ice sheet, increased extinction risk for at least 20-30% of species on Earth, dieback of the Amazon rainforest, and "rapid and terminal" declines of coral reefs worldwide.[130] As scientists noted, the impacts associated with 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."[131] Consequently, a target of 1.5 °C or less temperature rise is now seen as essential to avoid dangerous climate change and has largely supplanted the 2°C target that had been the focus of most climate literature until recently.

Immediate and aggressive greenhouse gas emissions reductions are necessary to keep warming below a 1.5° or 2°C rise above pre-industrial levels. Put simply, there is only a finite amount of CO_2 that can be released into the atmosphere without rendering the goal of meeting the 1.5°C target virtually impossible. A slightly larger amount could be burned before meeting a 2°C became an impossibility. Globally, fossil fuel reserves, if all were extracted and burned, would release enough CO_2 to exceed this limit several times over.[132]

Oil and gas production operates in a global market where changes in U.S. production translate into shifts in global prices, global consumption, and associated greenhouse gas polllution. Analyses show that increasing U.S. oil and gas production lowers prices and increases global consumption, while leaving U.S. oil and gas undeveloped increases prices and decreases global consumption. In short, every barrel of oil, and unit of gas, that is left undeveloped results

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[128] *See* U.N. Framework Convention on Climate Change, Cancun Agreement, *available at:* http://cancun.unfccc.int/ (last visited Jan 7, 2015); United Nations Framework Convention on Climate Change, Copenhagen Accord, *available at*: http://unfccc.int/meetings/copenhagen_dec_2009/items/5262.php (last accessed Jan 7, 2015). The United States Senate ratified the UNFCC on October 7, 1992. *See* https://www.congress.gov/treaty-document/102nd-congress/38.

[129] *See* Paris Agreement, Art. 2(1)(a); U.N. Framework Convention on Climate Change, Subsidiary Body for Scientific and Technical Advice, Report on the structured expert dialogue on the 2013-15 review, No. FCCC/SB/2015/INF.1 at 15-16 (June 2015).

[130] *See* Jones, C. et al, Committed Terrestrial Ecosystem Changes due to Climate Change, 2 Nature Geoscience 484, 484–487 (2009); Smith, J. B. et al., Assessing Dangerous Climate Change Through an Update of the Intergovernmental Panel on Climate Change (IPCC) 'Reasons for Concern', 106 Proceedings of the National Academy of Sciences of the United States of America 4133, 4133–37 (2009); Veron, J. E. N. et al., The Coral Reef Crisis: The Critical Importance of <350 ppm CO2, 58 Marine Pollution Bulletin 1428, 1428–36, (2009); Warren, R. J. et al., Increasing Impacts of Climate Change Upon Ecosystems with Increasing Global Mean Temperature Rise, 106 Climatic Change 141–77 (2011); Hare, W. W. et al., Climate Hotspots: Key Vulnerable Regions, Climate Change and Limits to Warming, 11 Regional Environmental Change 1, 1–13 (2011); Frieler, K. M. et al., Limiting Global Warming to 2°C is Unlikely to Save Most Coral Reefs, Nature Climate Change, Published Online (2013) doi: 10.1038/NCLIMATE1674; Schaeffer, M. et al., Adequacy and Feasibility of the 1.5°C Long-Term Global Limit, Climate Analytics (2013).

[131] Anderson, K. and A. Bows, Beyond 'Dangerous' Climate Change: Emission Scenarios for a New World, 369 Philosophical Transactions, Series A, Mathematical, Physical, and Engineering Sciences 20, 20–44 (2011).

[132] Cimons, Marlene, Keep It In the Ground (2016).

in a significant reduction in global oil and gas consumption with associated decreases in greenhouse gas pollution, as detailed below.

Contrary to the EA's assertion that "oil and gas production worldwide is largely demand driven, these cumulative impacts would be expected to continue to occur under any of the alternatives" (EA at 48), comprehensive analysis of the GHG consequences of ending new oil leasing on U.S. federal lands and waters, and avoiding renewal of existing leases for resources that are not yet producing, found that ceasing new leasing would result in large GHG and climate benefits.[133] This study accounted for the effects of substitution by other fuels for the oil that would be foregone by ending new leasing. The study estimated that for each unit (QBtu) of federal oil production cut, other oil supplies would substitute for about half a unit (0.56 QBtu) and net oil consumption would drop by nearly half a unit (0.44 QBtu). In short, every barrel of federal oil left undeveloped would result in nearly half a barrel reduction in net oil consumption, with associated reductions in GHG emissions. The analysis estimated that ending new federal oil leasing would reduce 2030 global CO_2 emissions from oil consumption by 54 Mt CO_2, with an increase in CO_2 emissions from other fuels of 23 Mt CO_2, for a net emissions benefit of 31 Mt CO_2. The analysis recommended that "policy-makers should give greater attention to measures that slow the expansion of fossil fuel supplies."

As summarized by the study authors, oil and gas production operates in a global market, where increases or decreases in U.S. production translate into changes in prices and consumption:

> [T]he oil market is also highly global, with oil readily traded among countries, and substantial infrastructure in place to do so. The US both imports and exports oil, and world and domestic oil prices very closely track each other (US EIA 2016).
>
> For this reason, we expect that changes in US oil production would affect an integrated global oil market, an assumption also made by many other analysts that have looked at changes in US oil supply (Bordoff and Houser 2015; Rajagopal and Plevin 2013; Allaire and Brown 2012; Metcalf 2007; IEC 2012). Though in the past the oil market could be strongly influenced by cartel behavior among a small number of producers, many analysts now see the market as more likely to behave competitively (The Economist 2016; US EIA 2016), meaning that increases or decreases in supply do translate into shifts in prices and, in turn, consumption.[134]

Similarly, an analysis published in the prominent journal *Nature Climate Change* concluded that increased oil production would significantly increase global oil consumption as the result of greater supplies and lower global oil prices.[135] Using publicly available global oil supply curves from the International Energy Agency and peer-reviewed elasticities, the analysis estimated that each barrel of increased oil production would result in an increase of 0.59 barrels

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[133] Erickson, P. and M. Lazarus, How would phasing out U.S. federal leases for fossil fuel extraction affect CO_2 emissions and 2°C goals?, Stockholm Environment Institute, Working Paper No. 2016-2 (2016).
[134] *Id.* at 23.
[135] Erickson, P. and M. Lazarus, Impact of the Keystone XL Pipeline on Global Oil Markets and Greenhouse Gas Emissions, 4 Nature Climate Change 778 (2016).

of global oil consumption. Although this study focused on the effects of increases in Canadian tar sands production, the lead author stated the results are applicable to U.S. oil production and that each barrel of oil not produced in the U.S. leads to substantially reduced oil consumption.[136]

An analysis of the effects of removing subsidies for U.S. oil and gas production found that decreases in the U.S. oil and gas supply would result in substantial decreases in global oil and gas consumption.[137] In the case of oil, the model estimated that a decrease of 600,000 barrels per day in U.S. oil supply, resulting from a drop in U.S. oil production due to subsidy removal, would lead to a decrease in global oil consumption of 300,000 to 500,000 barrels per day.[138] In the model, the decreased U.S. oil supply is only partially replaced by other sources of U.S., OPEC, and other rest-of-world supply. In short, each U.S. barrel not developed would result in a net reduction in global oil consumption of 0.5 barrels to 0.8 barrels. Similarly, for natural gas, a 1.06 to 1.32 Tcf per year decrease in U.S. natural gas supply would lead to a net reduction in global gas consumption of 0.94 to 1.06 Tcf per year,[139] which translates into a net reduction in global gas consumption of 0.7 to 1 unit for each unit of U.S. natural gas left undeveloped.

An analysis by experts at Columbia University and the Rhodium Group on the effects of lifting U.S. crude oil export restrictions shows that U.S. oil production affects global crude oil prices,[140] which is only possible without perfect substitution. As illustrated in Figure 23 of the study, when U.S. crude oil exports are permitted, as they were by the lifting of the crude oil export ban in December 2015, all modeling groups agreed that the international oil market will respond to changes in U.S. production. Specifically, all modeling groups projected that global crude prices will decrease as U.S. production increases, resulting in an increase in global crude oil demand: "a 1.2 million b/d increase in U.S. production due to removing current export restrictions could result in anywhere between a 0 and 1 million b/d increase in global crude demand."[141] In short, this study demonstrates that crude oil operates in a global market, where increasing U.S. supply increases global consumption and resulting greenhouse gas pollution.

Finally, the modeling results from a Bureau of Ocean Energy Management (BOEM) analysis of lifecycle GHG emissions that would result from the 2017–2022 OCS Oil and Gas Leasing Final Proposed Program[142] estimated that leaving U.S. oil and gas undeveloped under the no-leasing alternative would result in a significant decrease in global oil consumption with associated reductions in GHG pollution.[143] Importantly, BOEM's global market model,

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[136] Erickson, Peter, Stockholm Environment Institute, personal communication, November 1, 2017.
[137] Metcalf, G., The Impact of Removing Tax Preferences for U.S. Oil and Gas Production, Council on Foreign Relations, August 2016; Erickson, P., Rebuttal: Oil Subsidies—More Material for Climate Change Than You Might Think, November 2, 2017, *available at:* https://www.cfr.org/blog/rebuttal-oil-subsidies-more-material-climate-change-you-might-think.
[138] *Id.* at Table 2.
[139] *Id.* at Table 3.
[140] Bordoff, J. and T. Houser, Navigating the U.S. Oil Export Debate, Columbia University Center on Global Energy Policy and the Rhodium Group (2015).
[141] *Id.* at 57.
[142] Wolvovsky, E. and Anderson, W., OCS Oil and Natural Gas: Potential Lifecycle Greenhouse Gas Emissions and Social Cost of Carbon. BOEM OCS Report 2016-065. 44 pp (2016).
[143] Unfortunately, in direct contradiction to its global oil market model results, BOEM erroneously concludes in this report that producing 3.7 billion barrels of oil would make no difference for GHG emissions, and would even reduce GHG emissions compared to the No Action alternative of no new leasing, by failing to account for the large-scale

MarketSim, estimated that foreign oil consumption would be reduced under the No Action Alternative by "approximately 1, 4, and 6 billion barrels of oil for the low-, mid-, and high-price scenarios, respectively, over the duration of the 2017–2022 Program."[144] Under the mid-price scenario, the model projected that each barrel of oil left undeveloped under the No Action Alternative would result in approximately a half-barrel decrease in global oil consumption. Specifically, the choice to leave ~8 billion barrels of oil undeveloped under the No Action Alternative in the mid-price scenario[145] would result in a reduction in global oil consumption of 4 billion barrels of oil.[146]

Although BOEM did not calculate the GHG emissions reductions from the decrease in global oil consumption, energy experts at the Stockholm Environment Institute (SEI) calculated the GHG benefits. Using standard energy contents (from the US Department of Energy) and carbon contents (from the US Environmental Protection Agency), and discounting the oil used in products and not combusted (International Energy Agency), SEI estimated that the reduction in global oil consumption would result in a savings of 2.3 billion tonnes CO_2 in high-price scenarios for oil, 1.6 billion in mid-price scenarios, and 0.4 billion in the low-price scenarios.[147] As the SEI analysis points out, the decreases in global GHG emissions under the No Action Alternative are enormous:

> These *decreases* in rest-of-world emissions dwarf the official estimated *increases* in US emissions that BOEM's official Programmatic Environmental Impact Statement reports for its No Action Alternative (relative to the Proposed Program), which instead amount to just 0.13 billion, 0.12 billion and 0.013 billion tonnes CO_2 for the high, mid, and low-price scenarios, respectively. Those calculations *exclude* the far larger emissions attributable to the global market effect.[148]

If BOEM were to account for the effects of reducing U.S. oil production on international oil consumption, the global GHG impact of the No Action Alternative over the life of the 2017-2022 Program would be a decrease of up to 2.3 billion tonnes of CO_2 which is greater than a year's worth of emissions from the entire U.S. transportation section (i.e., 1.7 billion tonnes CO_2).

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decrease in global oil consumption and the resulting enormous decrease in GHG pollution under the No Action Alternative. BOEM acknowledged that its GHG analysis was limited in "not fully capturing global market and GHG implications" (at Forward) and in not including the GHG savings from reduced global oil and gas consumption in its emissions estimate for the No Action Alternative (at page 23).

[144] *Id.* at Table 6-2. Table 6-2 estimates production from the Final Proposed Program with a range of 2.2 billion barrels for the low price scenario, 3.7 billion barrels for the mid-price scenario and 5.9 billion barrels for the high price scenario.

[145] *Id. at* Table 6-2.

[146] *Id.* at 23.

[147] Erickson, Peter, Final Obama administration analysis shows expanding oil supply increases CO_2, Stockholm Environment Institute, January 30, 2017, *available at:* https://www.sei-international.org/fossil-fuels-and-climate-change/news-and-opinion/30--news-archive/3617-final-obama-administration-analysis-shows-expanding-oil-supply-increases-co2.

[148] *Id.*

In sum, numerous scientific and economic analyses, including those by federal agencies, show that the assumption of perfect substitution in GHG analyses for U.S. oil and gas production is unfounded and unreasonable, and dramatically misrepresents the GHG and climate impacts from oil and gas leasing.

2. BLM Failed to Consider A Ban on New Oil and Gas Leasing and Fracking in a Programmatic Review and Halt All New Leasing and Fracking in the Meantime.

Development of unleased oil and gas resources will fuel climate disruption and undercut the needed transition to a clean energy economy. As BLM has not yet had a chance to consider no leasing and no-fracking alternatives as part of any of its RMP planning processes or a comprehensive review of its federal oil and gas leasing program, BLM should suspend new leasing until it properly considers this alternative in updated RMPs or a programmatic EIS for the entire leasing program. BLM demonstrably has tools available to consider the climate consequences of its leasing programs, and alternatives available to mitigate those consequences, at either a regional or national scale.[149]

BLM is remiss to continue leasing when it has never stepped back and taken a hard look at this problem at the programmatic scale. Before allowing more oil and gas extraction in the planning area, BLM must: (1) comprehensively analyze the total greenhouse gas emissions which result from past, present, and potential future fossil fuel leasing and all other activities across all BLM lands and within the various planning areas at issue here, (2) consider their cumulative significance in the context of global climate change, carbon budgets, and other greenhouse gas pollution sources outside BLM lands and the planning area, and (3) formulate measures that avoid or limit their climate change effects. By continuing leasing and allowing new fracking in the absence of any overall plan addressing climate change BLM is running afoul of NEPA's letter and intent by blindly committing more fossil fuels to development and greenhouse gas pollution in the face of a worsening global climate crisis.

III. Conclusion

The expansion of fossil fuel leasing into vast areas of Nevada public lands, some of which are previously undisturbed, serves no legitimate public purpose, but threatens both the waters and native wildlife of the area and the climate at large. Unconventional oil and gas development not only fuels the climate crisis but entails significant public health risks and harms to the environment. Accordingly, BLM should cancel the lease auction, or else prepare an EIS that thoroughly analyzes the effects of the proposed lease auction, as compared to the alternative of no new fossil fuel leasing and no fracking or other unconventional well stimulation methods within the Battle Mountain planning area.

As authorized representative on behalf of Protestors:

[149] *See, e.g.*, U.S. Bureau of Land Management, Montana, North Dakota and South Dakota, Climate Change Supplementary Information Report (updated Oct. 2010) (conducting GHG inventory for BLM leasing in Montana, North Dakota and South Dakota).

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Attachment A:

Haak, Amy, Analysis of Impacts to the Range-wide Conservation Portfolio of Greater Sage-grouse from Oil and Gas Development in Nevada (2018)

References

Anderson, K. and A. Bows, Beyond 'Dangerous' Climate Change: Emission Scenarios for a New World, 369 Philosophical Transactions, Series A, Mathematical, Physical, and Engineering Sciences 20 (2011)

Anderson, Piceance Basin Mule Deer & Energy Development: Demographic Influences and Mitigation

Anderson, C.R. and Bishop, C.J., Migration Patterns of Adult Female Mule Deer in Response to Energy Development, Transactions of the 79th North American Wildlife and Natural Resources Conference (2014)

Anderson, C.R., Population Performance of Piceance Basin Mule Deer in Response to Natural Gas Resource Extraction and Mitigation Efforts to Address Human Activity and Habitat Degradation.in C. D. o. P. a. Wildlife, editor., Colorado (2015)

Bergman, E. J.et al., Density dependence in mule deer: a review of evidence, 21 Wildlife Biology (2015)

Bordoff, J. and T. Houser, Navigating the U.S. Oil Export Debate, Columbia University Center on Global Energy Policy and the Rhodium Group (2015)

Center for Biological Diversity et al., Comments on the BLM Battle Mountain District June 2018 Competitive Oil and Gas Lease Sale, Draft Environmental Assessment, No. DOI-BLM-NV-B020-2018-0017-EA (Feb. 14, 2018)

Cimons, Marlene, Keep It In the Ground (2016)

Cooper, D.J. et al., Effects of long-term water table drawdown on evapotranspiration and vegetation in an arid region phreatophyte community, Journal of Hydrology (2006)

Council on Environmental Quality, Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews, 81 Fed. Reg. 51,866 (Aug. 5, 2016)

Council on Environmental Quality, Revised draft guidance for greenhouse gas emissions and climate change impacts (2014), *available at:* https://ceq.doe.gov/current_developments/GHG-accounting-tools.html

Deacon, J.E. et al., Fueling population growth in Las Vegas: How large-scale groundwater withdrawal could burn regional biodiversity, 57 Bioscience 8 (2007)

DeLong, Jeff, "Fracking Hits Home in Nevada," Reno Gazette-Journal, April 15, 2014, *available at:* https://www.rgj.com/story/tech/environment/2014/04/13/fracking-hits-home-nevada/7649293/

Ecoshift Consulting, The potential Greenhouse Gas Emissions from U.S. Federal Fossil Fuels, Center for Biological Diversity and Friends of the Earth (2015), *available at:* http://www.ecoshiftconsulting.com/wp-content/uploads/Potential-Greenhouse-Gas-Emissions-U-S-Federal-Fossil-Fuels.pdf

Edwards, M., Mule Deer Struggling To "Surf The Green Wave" Of Migration (2015) *available at:* http://wyomingpublicmedia.org/post/mule-deer-struggling-surf-green-wave-migration

Ellsworth, W.L., Injection-induced earthquakes, Science 341, 1225942, doi: 10.1126/science.1225942 (2013)

Erickson, P., Final Obama administration analysis shows expanding oil supply increases CO_2, Stockholm Environment Institute, January 30, 2017, *available at:* https://www.sei-international.org/fossil-fuels-and-climate-change/news-and-opinion/30--news-archive/3617-final-obama-administration-analysis-shows-expanding-oil-supply-increases-co2

Erickson, P. and M. Lazarus, How would phasing out U.S. federal leases for fossil fuel extraction affect CO_2 emissions and 2°C goals?, Stockholm Environment Institute, Working Paper No. 2016-2 (2016)

Erickson, P. and M. Lazarus, Impact of the Keystone XL Pipeline on Global Oil Markets and Greenhouse Gas Emissions, 4 Nature Climate Change 778 (2016)

Erickson, P., Rebuttal: Oil Subsidies—More Material for Climate Change Than You Might Think, November 2, 2017, *available at:* https://www.cfr.org/blog/rebuttal-oil-subsidies-more-material-climate-change-you-might-think

Frieler, K. M. et al., Limiting Global Warming to 2°C is Unlikely to Save Most Coral Reefs, Nature Climate Change, Published Online, doi: 10.1038/NCIMATE1674 (2013)

Gamo, R. Scott & Beck, Jeffrey L., Effectiveness of Wyoming's Sage-Grouse Core Areas: Influences on Energy Development and Male Lek Attendance, 59 Environmental Management, doi 10.1007/s00267-016-0789-9 (2017)

Garton, Edward O. et al., Greater Sage-Grouse Population Dynamics and Probability of Persistence: Final Report to Pew Charitable Trusts (2015)

Green, Adam W. et al., Investigating Impacts of Oil and Gas Development on Greater Sage-Grouse, The Journal of Wildlife Management, doi: 10.1002/jwmg.21179 (2016)

Haak, Amy, Analysis of Impacts to the Range-wide Conservation Portfolio of Greater Sage-grouse from Oil and Gas Development in Nevada (April 15, 2018)

Hare, W.W. et al., Climate Hotspots: Key Vulnerable Regions, Climate Change and Limits to Warming, 11 Regional Environmental Change 1 (2011)

Hebblewhite, Mark, Effects of Energy Development on Ungulates, Energy Development and Wildlife Conservation in Western North America 71-94. Island Press, Washington D.C. (2011)

Holloran, Matthew, Greater Sage-Grouse (Centrocercus urophasianus) Population Response to Natural Gas Field Development in Western Wyoming (2005)

Johnson, Heather E. et al., Increases in residential and energy development are associated with reductions in recruitment for a large ungulate. Global Change Biology, doi: 10.1111/gcb.13385 (2016)

Jones, C. et al., Committed Terrestrial Ecosystem Changes due to Climate Change, 2 Nature Geoscience (2009)

Lendrum, P.E. et al., Habitat selection by mule deer during migration: effects of landscape structure and natural-gas development, 3 Ecosphere 9 (2012)

Lendrum, P.E., et al., Migrating Mule Deer: Effects of Anthropogenically Altered Landscapes, 8 PlosOne 5:e64548 (2013)

McKenzie, L.M. et al., Childhood hematologic cancer and residential proximity to oil and gas development, 12 PLoS One 2 (2017)

Metcalf, G., The Impact of Removing Tax Preferences for U.S. Oil and Gas Production, Council on Foreign Relations (2016)

National Research Council, Induced Seismicity Potential in Energy Technologies, National Academies Press (2013)

Nevada Division of Wildlife, Nevada Sage-grouse Population Distribution 2013, *available at:* http://sagebrusheco.nv.gov/uploadedFiles/sagebrusheconvgov/content/Meetings/Nevada%20GSG%20PopDensity.pdf

Nevada Sagebrush Ecosystem Program, 2014 Nevada Greater Sage-grouse Conservation Plan (2014)

Nevada Natural Heritage Program, At Risk Plant and Animal Tracking List, (2017)

Nicholson, C. et al., Triggered earthquakes and deep well activities, 139 Pure Applied Geophysics 3/4 (1992)

Northrup, J. M. et al., Quantifying spatial habitat loss from hydrocarbon development through assessing habitat selection patterns of mule deer, Global Change Biology (2015), *available at:* http://onlinelibrary.wiley.com/doi/10.1111/gcb.13037/epdf

Polfus, J. L., and P. R. Krausman, Impacts of residential development on ungulates in the Rocky Mountain West, 36 Wildlife Society Bulletin (2012)

PSE Healthy Energy, The Science on Shale Gas Development, *available at:* https://www.psehealthyenergy.org/our-work/publications/archive/the-science-on-shale-gas-development/

Rasmussen, Sara G. et al., Association Between Unconventional Natural Gas Development in the Marcellus Shale and Asthma Exacerbations, 176 JAMA Internal Medicine 9 (2016)

Sawyer, H. et al., A framework for understanding semi-permeable barrier effects on migratory ungulates, Journal of Applied Ecology 2013:50, doi:10.1111/1365-2664.12013 (2013)

Sawyer, H. et al., Mule Deer and Energy Development—Long-term trends of habituation and abundance, Global Change Biology 2017:1-9, *available at:* http://onlinelibrary.wiley.com/doi/10.1111/gcb.13711/epdf

Sawyer, H., et al., Sublette Mule Deer Study (Phase II): Final Report 2007. Western Ecosystems Technology, Inc. Cheyenne, Wyoming, USA (2009)

Schaeffer, M. et al., Adequacy and Feasibility of the 1.5°C Long-Term Global Limit, Climate Analytics (2013)

Smith, J. B. et al., Assessing Dangerous Climate Change Through an Update of the Intergovernmental Panel on Climate Change (IPCC) 'Reasons for Concern', 106 Proceedings of the National Academy of Sciences of the United States of America (2009)

State of Nevada Comm'n on Mineral Resources, Division of Minerals, "Facts on the use of Hydraulic Fracturing in Nevada" 1 (Apr. 10, 2017), *available at:* http://minerals.nv.gov/uploadedFiles/mineralsnvgov/content/Programs/OG/HF_Facts_4-10-2017.pdf

Stringfellow, William et al., Identifying chemicals of concern in hydraulic fracturing fluids used for oil production, 220 Environmental Pollution 1 (2017)

The South Central Planning Team, The South Central Nevada Sage Grouse Conservation Plan Draft 4.5 (2004)

U.N. Framework Convention on Climate Change, Cancun Agreement, *available at:* http://cancun.unfccc.int/ (last visited Jan 7, 2015)

U.N. Framework Convention on Climate Change, Copenhagen Accord, *available at:* http://unfccc.int/meetings/copenhagen_dec_2009/items/5262.php (last accessed Jan 7, 2015)

U.N. Framework Convention on Climate Change, Paris Agreement, Art. 2

U.N. Framework Convention on Climate Change, Subsidiary Body for Scientific and Technical Advice, Report on the structured expert dialogue on the 2013-15 review, No. FCCC/SB/2015/INF.1 at 15-16 (June 2015)

U.S. Army Corps of Engineers, Final Environmental Impact Statement: Alaska Stand Alone Gas Pipeline, Volume 2 Sec. 5.20-70–71 (Oct. 2012)

U.S. Bureau of Land Management, Battle Mountain District Office, *available at:* https://www.blm.gov/office/battle-mountain-district-office (last visited May 3, 2018)

U.S. Bureau of Land Management, Draft Finding of No Significant Impact DOI-BLM-NV-B020-2018-0017-EA (June 2018 Competitive Oil and Gas Lease Sale)

U.S. Bureau of Land Management, Environmental Assessment for West Desert District, Fillmore Field Office, August 2015 Oil and Gas Lease Sale (2015)

U.S. Bureau of Land Management, Final Supplemental Environmental Impact Statement for the Leasing and Underground Mining of the Greens Hollow Federal Coal Leas Tract, UTU-84102 (Feb 2015)

U.S. Bureau of Land Management, Greenhouse Gases Estimate (West Desert District Nov 2015 Lease Sale), *available at*: http://www.blm.gov/style/medialib/blm/ut/natural_resources/airQuality.Par.38

U.S. Bureau of Land Management, Montana, North Dakota and South Dakota, Climate Change Supplementary Information Report (updated Oct. 2010)

U.S. Bureau of Land Management, Nevada and Northeastern California Greater Sage-Grouse Approved Resource Management Plan Amendment (2015)

U.S. Bureau of Land Management, Nevada State Office, Competitive Oil and Gas Lease Sale Results Summary, Battle Mountain District Office (June 14, 2016), *available at:* https://edit.blm.gov/sites/blm.gov/files/uploads/NV_OG_BMDO_Sale_Competitve_Results_20160614.pdf

U.S. Bureau of Land Management, Nevada State Office, Non-Competitive Oil and Gas Lease Sale Results June 2016, Battle Mountain District Office Sale (2016)

U.S. Bureau of Land Management, Revised Environmental Assessment DOI-BLM-NV-B020-2017-0002-EA (June 2017 Competitive Oil and Gas Lease Sale)

U.S. Climate Data, Battle Mountain, *available at:* https://www.usclimatedata.com/climate/battle-mountain/nevada/united-states/usnv0006 (last visited May 3, 2018)

U.S. Department of Energy National Energy Technology Laboratory, Life Cycle Analysis: Natural Gas Combined Cycle (NGCC) Power Plant, Pub No DOE/NETL-403-110509 (Sep 10, 2012) (NETL, 2010) *available at:* https://www.netl.doe.gov/energy-analyses/temp/FY13_LifeCycleAnalysisNaturalGasCombinedCycle(NGCC)PowerPlantFinal_060113.pdf

U.S. Department of Energy National Renewable Energy Laboratory, Life Cycle Greenhouse Gas Emissions from Electricity Generation Fact Sheet, Pub No. NREL/FS-6A20-57817 (2013) *available at:* http://www.nrel.gov/docs/fy13osti/57187.pdf

U.S. Department of Energy National Energy Technology Laboratory, Life Cycle Greenhouse Gas Inventory of Natural Gas Extraction, Delivery and Electricity Production, Pub No. DOE/NETL-2011/1522 (NETL, 2011) *available at:* http://www.fossil.energy.gov/programs/gasregulation/authorizations/2013_applications/sierra_club_13-69_venture/exhibits_44_45.pdf

U.S. Department of Energy National Energy Technology Laboratory, Life Cycle Greenhouse Gas Perspective on Exporting Liquefied Natural Gas from the United States, DOE/NETL-2014/1649 (May 29, 2014) *available at:* http://energy.gov/sites/prod/files/2014/05/f16/Life%20Cycle%20GHG%20Perspective%20Report.pdf

U.S. Department of Energy National Energy Technology Laboratory Role of Alternative Energy Sources: Natural Gas Technology Assessment, Pub No. DOE/NETL- 2012/1539 (NETL, 2012) *available at:* https://www.netl.doe.gov/File%20Library/Research/Energy%20Analysis/Life%20Cycle%20Analysis/LCA-2012-1539.pdf

U S Department of the Interior, Solicitor's Opinion M-37050 (2017)

U.S. Department of State, Final Supplemental Environmental Impact Statement for the Keystone XL Project, § 4.14.3, Appendix U (Jan. 2014)

U.S. Environmental Protection Agency, Hydraulic Fracturing for Oil and Gas: Impacts from the Hydraulic Fracturing Water Cycle on Drinking Water Resources in the United States (2016)

U.S. Environmental Protection Agency Region X, Letter from Dennis McLerran, Regional Administrator, to Randel Perry, U.S. Army Corps of Engineers Seattle District, re Gateway Pacific Projects (Jan 22, 2013) *available at:* http://www.eisgatewaypacificwa.gov/sites/default/files/content/files/EPA_Reg10_McLerran.pdf#overlay-context=resources/project-library

U.S. Forest Service, Record of Decision and Final Environmental Impact Statement, Oil and Gas Leasing Analysis, Fishlake National Forest (Aug 2013)

U.S. GAO, Oil and Gas Development: Improved Collection and Use of Data Could Enhance BLM's Ability to Assess and Mitigate Environmental Impacts (2017)

U.S. Geological Survey, Basic Groundwater Hydrology 2220 (2004)

U.S. Geological Survey, Ground Water and Surface Water: A Single Resource (1998)

Veron, J. E. N. et al., The Coral Reef Crisis: The Critical Importance of <350 ppm CO2, 58 Marine Pollution Bulletin 1428 (2009)

Vienna Convention on the Law of Treaties, Art. 26

Warren, R. J. et al., Increasing Impacts of Climate Change Upon Ecosystems with Increasing Global Mean Temperature Rise, 106 Climatic Change (2011)

Wolterbeek, Mike, Rare discovery of three new toad species in Nevada's Great Basin by College of Science, Nevada Today, July 20, 2017, *available at:* https://www.unr.edu/nevada-today/news/2017/new-toad-species-discovered

Wolvovsky, E. and Anderson, W., OCS Oil and Natural Gas: Potential Lifecycle Greenhouse Gas Emissions and Social Cost of Carbon. BOEM OCS Report 2016-065 (2016)

Yost, Erin E. et al., Estimating the Potential Toxicity of Chemicals Associated with Hydraulic Fracturing Operations Using Quantitative Structure-Activity Relationship Modeling, 50 Environmental Science and Technology 1 (2016)

Attachment A

Analysis of Impacts to the Range-wide Conservation Portfolio of Greater Sage-grouse from Oil and Gas Development in Nevada

By Amy Haak, PhD, Conservation Geography
April 15, 2018

I was asked by the Center for Biological Diversity to conduct an analysis of the range-wide implications for Greater Sage Grouse conservation from the oil and gas lease sales planned for June 2018 in Nevada. My analysis draws on the findings of the unpublished white paper *Analysis of the Range-wide Conservation Portfolio for Greater Sage-Grouse Core Habitat Using the 3-R Framework* (Haak 2018) which is included with these comments.

The aforementioned paper describes the use of the 3-Rs (i.e. representation, resilience, and redundancy) to characterize the conservation portfolio of Greater Sage-grouse core habitat as defined by the Fish and Wildlife Service's Priority Areas for Conservation (PACs). The approach is founded in one of the basic tenets of conservation biology – that biological diversity provides stability (Primack 2002). The results of this study show the homogenization of sage-grouse habitat as lower elevations and unique habitats along the range margins have been diminished disproportionately to the overall range-wide contraction. The study also found that resilience to wildfire has been compromised due to habitat fragmentation and the spread of cheatgrass. My comments below describe the effect of the proposed lease sale on these two elements of the conservation portfolio: habitat representation and resilience.

Affected Habitat

Based on the findings and recommendations of the Sage-grouse National Technical Team (2011), I applied a 4-mile buffer to the proposed lease parcels to define the project impact area for my analysis. This accounts for not only the direct loss of habitat due to surface disturbances but also the abandonment of adjacent habitat by sage-grouse populations due to surface disturbances. The total impact area within this buffer is 1,551,000 acres. Figure 1 shows the 4-mile buffer around the lease parcels with the habitat designations and Table 1 summarizes the affected habitat by management designation. Nearly 70% of the project impact area is within the current range of sage-grouse.

Habitat Designation	Area within 4-mile buffer (acres)
Current sage-grouse range	1,040,000
FWS Priority Areas for Conservation (PACs)	380,000
ARMPA* Priority Habitat Management Area	207,000
ARMPA* General Habitat Management Area	195,000

Table 1 Acreages of affected habitat within 4-mile buffer of lease parcels.
*ARMPA: Approved Resource Management Plan Amendments

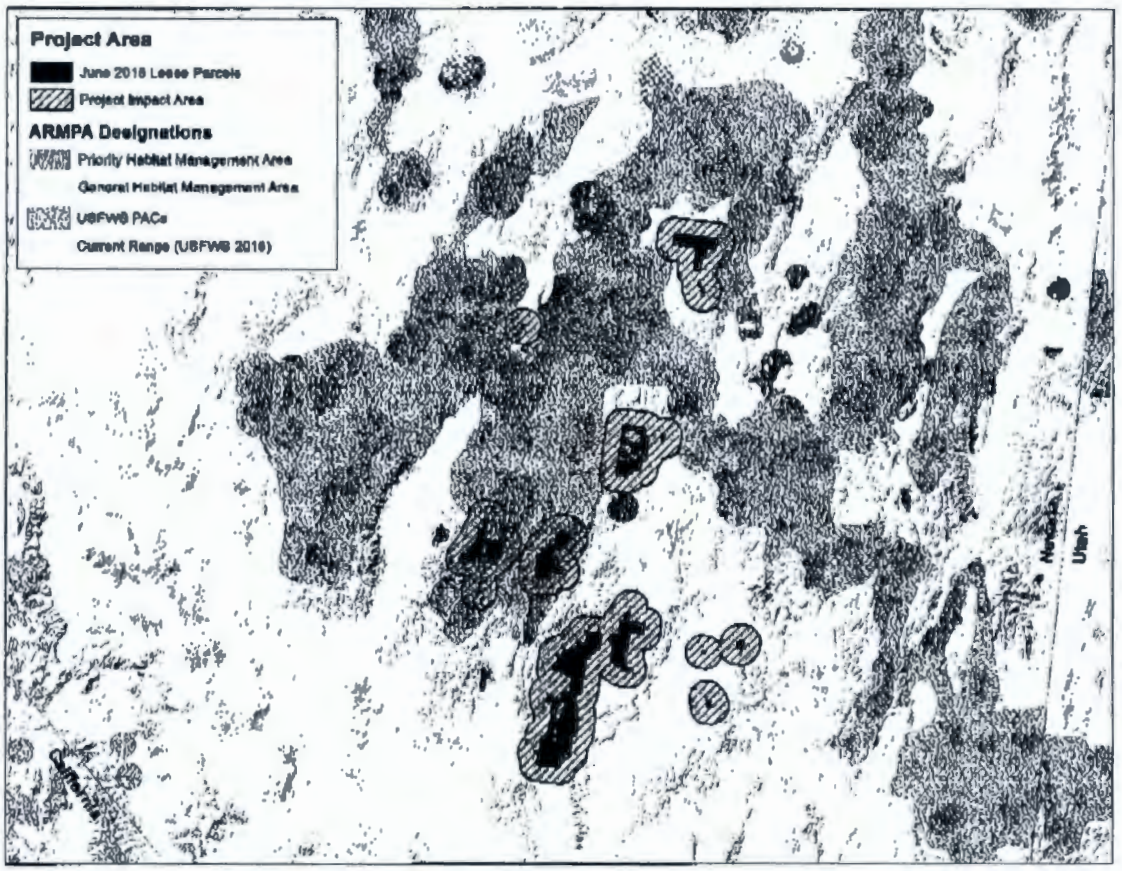

Figure 1. Lease parcels (red) and 4-mile impact area in cross-hatch. Management designations from the Adopted Resource Management Plan Amendments are also shown.

Representation

Based on the findings of the range-wide Representation analysis described in the attached white paper, I have identified the diversity represented by level IV ecoregions in that analysis as the habitat feature most vulnerable to this lease sale. Table 2 summarizes the level IV ecoregions highlighted in the portfolio analysis for historical rarity and/or disproportionate loss that are within the impact area of the proposed lease sale. Historical rarity for level IV ecoregions was defined in the portfolio analysis as those habitat types that comprised less than 5% of the total core habitat within a level III ecoregion within a Management Zone. Habitat types found at less than 10% of their historical extent were also identified as important to the range-wide portfolio for Representation.

Level IV Ecoregion	Contribution to Representation	Acres affected
Central Nevada Mid-Slope Woodland and Brushland	Historically rare	141,690
Central Nevada Bald Mountains	Historically rare	58,650
Salt Deserts	Historically rare and less than 2% of historical remains	43,050
Shadscale-Dominated Saline Basins	Less than 4% of historical remains	34,770
Tonopah Basin	Historically rare and less than 1% of historical remains	67,380
Lahontan and Tonopah Playas	Historically rare and only 3% of historical remains	8,400
Upper Lahontan Basin	Historically rare and only 7% of historical remains	3,800
Total		359,740

Table 2. Summary of rare and diminished habitats impacted by the proposed lease sale.

Nearly 25% of the affected area threatens rare and diminished habitat types important for maintaining habitat diversity within the range-wide portfolio. Although not all of these lands will be directly impacted by surface disturbance from development, increased fragmentation reduces their ecological value and abandonment of these sites by sage-grouse essentially removes them from the portfolio of diverse habitats available to local populations.

Six of the seven habitat types listed in Table 2 were rare historically. This is not surprising given that the affected area occurs along the southern edge of the historical range. These peripheral habitats, though often rare are increasingly recognized as important indicators of the adaptive capacity of a species since they often encompass a disproportionate amount of the range-wide genetic variability (Hampe and Petit 2005 and Araujo and Williams 2001).

Resilience

Rising temperatures, persistent drought and expansion of cheatgrass have contributed to a significant increase in the frequency and intensity of wildfires across the West with ramifications for sage-grouse. Habitat connectivity is essential for populations to withstand disturbance events so that they can move when the disturbance occurs and recolonize the habitat once it has recovered. Access to high quality resilient habitat is important to the long-term persistence of populations in fire-prone landscapes.

The proposed lease parcels are all associated with a single PAC found in the range-wide analysis to be moderately resilient to wildfire based on fire history since 1984, topographic variability, resistance to cheatgrass and patch size. The affected PAC is large and topographically diverse which reduce its vulnerability to complete loss from a wildfire. However, Chambers et al. (2017) found that the entire

region has little resilience to cheatgrass expansion based on the soil moisture and temperature regimes. Figure 2 shows wildfire perimeters since 1984. It is evident that many of the largest fires have occurred since 2010 and are evident to the north of the project area. As these wildfires move south they both follow and promote the spread of cheatgrass. Although this dynamic has not yet extended into the project area, surface disturbing activities also promote the spread of cheatgrass and may therefore also contribute to increased wildfire risk and habitat loss. The effect of wildfire on the local population will be further exacerbated by habitat fragmentation and displacement due to development activities that isolate sage-grouse on smaller habitat patches and limit their ability to move if a fire occurs.

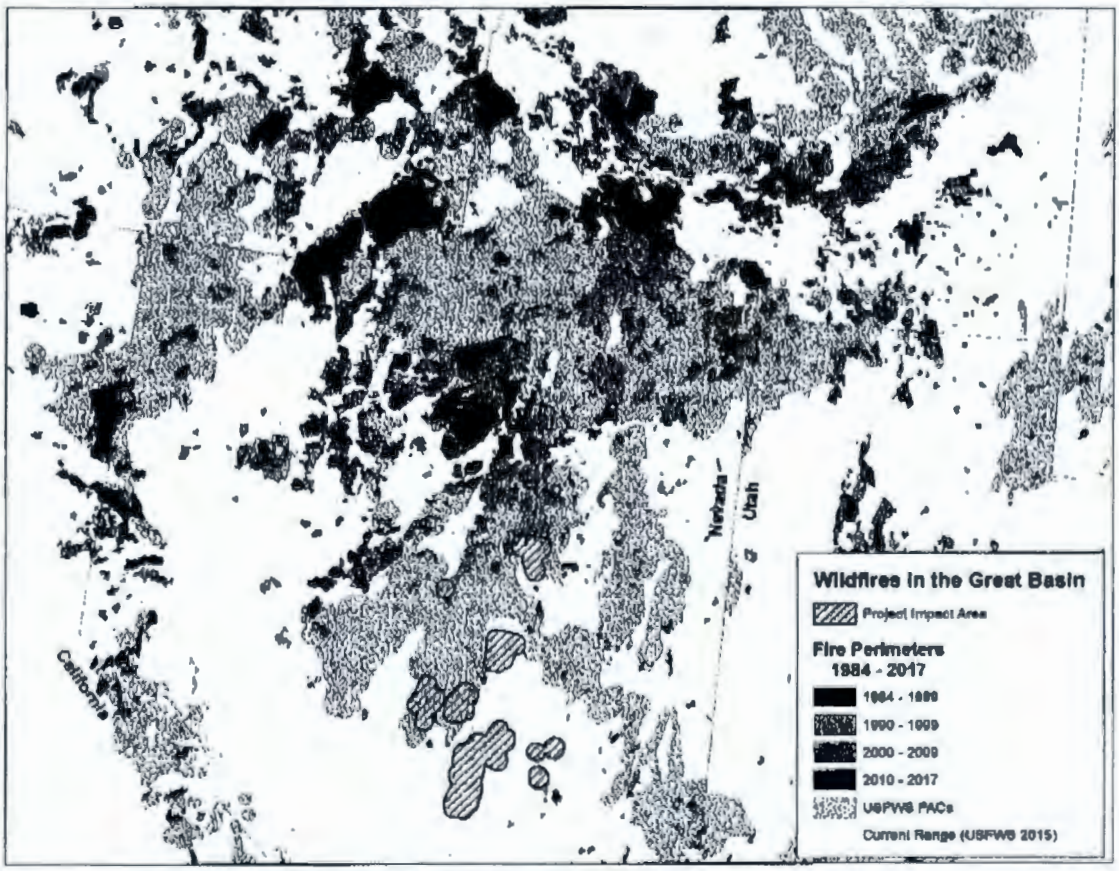

Figure 2. Wildfire perimeters in the Great Basin – 1984-2017.

References Cited

Araujo, M.B. and P.H. Williams. 2001. The bias of complementarity hotspots toward marginal populations. Conservation Biology 15: 1710-1720.

Chambers, J.C., J.D Maestas, D.A Pyke, C.S. Boyd, M. Pellant, and A. Wuenschel. 2017. Using resilience and resistance concepts to manage persistent threats to sagebrush ecosystems and Greater Sage-grouse. Rangeland Ecology & Management 70: 149-164.

Haak, A.L. 2018. Analysis of the Range-wide Conservation Portfolio for Greater Sage-Grouse Core Habitat Using the 3-R Framework. Unpublished white paper.

Hampe, A. and R.J. Petit. 2005. Conserving biodiversity under climate change: the rear edge matters. Ecology Letters 8:461-467.

Primack, R.B. 2002. Essentials of conservation biology, 3rd edition. Sinauer Associates Publishers, Sunderland, Massachusetts.

Sage-grouse National Technical Team. 2011. A Report on National Greater Sage-Grouse Conservation Measures.