



**Northwest**  
1216 Lincoln Street  
Eugene, Oregon 97401  
(541) 485-2471

**Rocky Mountains**  
103 Reeder's Alley  
Helena, Montana 59601  
(406) 443-3501

**Southwest**  
208 Paseo del Pueblo Sur #602  
Taos, New Mexico 87571  
(575) 751-0351

**Defending the West** [www.westernlaw.org](http://www.westernlaw.org)

## Western Environmental Law Center

July 29, 2019

*Sent via e-Planning (comments) and Certified Mail (exhibits)*

Director (210)  
Attention: Protest Coordinator, WO-210  
P.O. Box 71383  
Washington, D.C. 20024-1383

**Re: Protest of the Uncompahgre Field Office's Proposed Resource Management Plan and Final Environmental Impact Statement**

Dear Uncompahgre RMP Project Manager:

The Western Environmental Law Center, along with Citizens for a Healthy Community, Center for Biological Diversity, Sierra Club, WildEarth Guardians, and High Country Conservation Advocates (together "Conservation Groups"), submit the following protest regarding the Bureau of Land Management ("BLM") Uncompahgre Field Office ("UFO") Resource Management Plan ("Draft RMP") and Environmental Impact Statement ("EIS"). The Uncompahgre RMP planning area includes 3,097,460 acres of federal, private, state, and city land in Delta, Gunnison, Mesa, Montrose, Ouray, and San Miguel Counties in southwestern Colorado. The Uncompahgre RMP planning area covers about 675,800 acres of BLM-administered public lands—including portions of the Dominguez Canyon Wilderness Area and four river systems (the Gunnison, San Miguel, Dolores, and Uncompahgre)—and 971,220 acres of federal subsurface mineral estate. Quantities of natural gas and oil production for the Uncompahgre Study Area are projected in the Reasonable Foreseeable Development Scenario. RFD at Tables 6a, 6b, 7a, 7b. BLM's preferred alternative, Alternative E, includes the following projected production volumes:<sup>1</sup>

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<sup>1</sup> U.S. Department of the Interior, Bureau of Land Management, *Inventory of Onshore Federal Oil and Natural Gas Resources and Restrictions to Their Development*, Phase III Inventory – Onshore United States (2008) found at:

[https://www.blm.gov/sites/blm.gov/files/EPCA\\_III\\_Inventory\\_Onshore\\_Federal\\_Oil\\_Gas.pdf](https://www.blm.gov/sites/blm.gov/files/EPCA_III_Inventory_Onshore_Federal_Oil_Gas.pdf).

These oil and gas volume estimates were derived from publicly-available Energy Policy and Conservation Act (EPCA) Phase III data developed by and for Department of Interior agencies. The purpose of this data is to estimate oil and gas volumes on public lands, as required by Section 604 of the EPCA, as amended by Section 364 of the Energy Policy Act of 2005. We

Oil Volume:

CSU: 5.404678 mmbbl  
NL: 0.974315 mmbbl  
NSO: 2.076926 mmbbl  
OPEN: 9.996115 mmbbl

Gas Volume:

CSU: 44.500764 bcf  
NL: 3.971663 bcf  
NSO: 12.867885 bcf  
OPEN: 61.360176 bcf

Estimated direct GHGs from development allowed in Alternative E is 2,512,570 tons of CO<sub>2</sub>e per year. FEIS at 4-22. Estimated indirect GHGs from the high production scenario is 129 million tons CO<sub>2</sub>e over a 30 year period. FEIS at 4-22. 37% of that 129 million tons would come from federally-managed minerals. *Id.*

Conservation Groups' mailing addresses are as follows:

Western Environmental Law Center  
120 Shelton McMurphey Blvd., Ste. 340  
Eugene, OR 97401  
(541) 485-2471

Citizens for a Healthy Community  
P.O. Box 1283  
Paonia, CO 81428  
(970) 399-9700

Center for Biological Diversity  
1536 Wynkoop St., Suite 421  
Denver, CO 80202  
(720) 925-2521

Sierra Club  
2101 Webster St., Suite 1300  
Oakland, CA 94612  
(415) 977-5500

WildEarth Guardians  
301 N. Guadalupe, Suite 201

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clipped the EPCA data by the project area boundary provided by BLM in a GIS format to generate project-specific oil and gas volume estimates.

Santa Fe, NM 87501  
(505) 988-9126

High Country Conservation Advocates  
P.O. Box 1066  
Crested Butte, CO 81224  
(970) 349-7104

This protest focuses on the BLM’s failure to adequately analyze and disclose the direct, indirect, and cumulative impacts of fossil fuel leasing and development authorized and made available by BLM in the Uncompahgre Draft Resource Management Plan and Environmental Impact Statement, and correspondingly, the impact that such development will have on air, water, human health, and climate change. Finalizing the Uncompahgre RMP, as proposed, would cement BLM’s place as dramatically out of step with the realities facing modern public lands management, including current science and national policy on climate change.

On behalf of members and supporters that live, work, and recreate in Colorado, the Conservation Groups call on the BLM to reconsider the wisdom of the fossil fuel leasing and development considered by the Uncompahgre RMP/EIS. Specifically, Conservation Groups request that BLM not finalize the Uncompahgre RMP/EIS until:

- BLM considers and analyze a “no-leasing” alternative that would bar new fossil fuel leases in the Uncompahgre planning area.
- BLM takes steps to reduce methane emissions from both oil and gas operations and coal mining, including (1) by undertaking a true hard-look analysis of methane waste and global warming potential; (2) by adopting enforceable mitigation requirements to minimize methane emissions and waste; and (3) by considering alternatives that require coal mines in the Uncompahgre planning area to capture or flare methane emissions.
- BLM addresses new scientific and economic information, including regarding (1) the impacts of climate change on the Uncompahgre planning area; (2) the social burden, or cost, of carbon and methane waste that would be authorized by the RMP; and (3) fossil fuel production and employment.
- BLM takes a hard look at impacts to air, water, and human health, which must include a detailed Health Impact Assessment.

## **I. Conservation Groups’ Statement of Interest in the Uncompahgre RMP**

Conservation Groups have participated in the planning process for the UFO RMP—specifically by submitting a comment letter on the Draft RMP/Draft EIS on November 1, 2016, as well as submitting two supplemental information letters with the BLM, on October 23, 2012 and February 3, 2014, all of which are incorporated herein by this reference—and have interests that are adversely affected by planning decisions made in the EIS. *See* 43 C.F.R. § 1610.5-2. Conservation Group, Citizens for a Healthy Community (“CHC”), also participated in the collaborative effort developing the North Fork Alternative Plan (“NFAP”), which was submitted

to BLM on December 2, 2013 and included as BLM Alternative B.1. Moreover, Conservation Groups contracted with air resources expert, Megan Williams, who submitted comments on the Bull Mountain Master Development Plan on April 14, 2015 [hereinafter Williams Comments]. The Williams Comments were attached as Exhibit 313 to Conservation Groups' comment on the Draft RMP/Draft EIS and are incorporated herein by this reference.

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

**Citizens for a Healthy Community** ("CHC") is a grass-roots organization with more than 450 members formed in 2010 for the purpose of protecting communities (people and their environment) within the air-, water- and food-sheds of Delta County, Colorado from the impacts of oil and gas development. CHC's members and supporters include organic farmers, ranchers, vineyard and winery owners, sportsmen, realtors, and other concerned citizens impacted by oil and gas development. CHC members have been actively involved in commenting on BLM's oil and gas activities.

The **Center for Biological Diversity** is a non-profit environmental organization with over 48,500 members, many of whom live and recreate in western Colorado. The Center uses science, policy and law to advocate for the conservation and recovery of species on the brink of extinction and the habitats they need to survive. The Center has and continues to actively advocate for increased protections for species and their habitats in Colorado. The lands that will be affected by the proposed resource management plan include habitat for listed, rare, and imperiled species that the Center has worked to protect including rare, endangered and threatened species like the Gunnison Sage-Grouse and the Gunnison and Uncompahgre River's fish species such as the Colorado Pikeminnow and Razorback Sucker. The Center's board, staff, and members use the public lands in Colorado, including the lands and waters that would be affected by expanded fossil fuel development authorized by this resource management plan, for quiet recreation (including hiking and camping), scientific research, aesthetic pursuits, and spiritual renewal.

The **Sierra Club** is America's largest grassroots environmental organization, with more than 3.5 million members and supporters nationwide, including more than 22,000 members in Colorado. Sierra Club is dedicated to exploring, enjoying, and protecting the wild places of the Earth; to practicing and promoting the responsible use of the Earth's resources and ecosystems; to educating and enlisting humanity to protect and restore the quality of the natural and human environment; and to using all lawful means to carry out these objectives.

**WildEarth Guardians** ("Guardians") is dedicated to protecting and restoring the wildlife, wild places, wild rivers, and health of the American West. Guardians is a west-wide

environmental advocacy organization with thousands of members in Colorado and surrounding states. Guardians members live in and regularly use and enjoy lands in the Uncompahgre Field Office.

**High Country Conservation Advocates (HCCA)** is located in Crested Butte, Colorado and has over 900 members. HCCA was founded in 1977 to protect the health and natural beauty of the land, rivers, and wildlife in and around Gunnison County now and for future generations. For over 40 years HCCA has engaged on public lands issues, ranging from oil and gas development to travel planning to logging. HCCA is a grassroots organization that collaborates with local stakeholders and policymakers, applies sound science, educates, and upholds the environmental laws affecting our community.

## **II. Conservation Groups' Statement of the Issues Protested**

### ***A. The FEIS Violated NEPA in Adopting an Alternative Not Presented to the Public.***

In the FEIS, BLM includes for the first time a new alternative, Alternative E. While an agency can modify a proposed action in light of public comments, 40 C.F.R. § 1503.4(a), a supplemental EIS is required if BLM makes substantial changes that are relevant to environmental concerns, as it has in adopting the new Alternative E, 40 C.F.R. § 1502.9(c). Therefore, BLM must prepare a supplemental EIS.

In introducing this new Alternative as the Preferred Alternative only in the FEIS, BLM undermines the purpose of NEPA. While NEPA focuses on disclosure of impacts, the statute has an “action-forcing” purpose in two important respects. It ensures that the agency, in reaching its decision, will have available, and will carefully consider, detailed information concerning significant environmental impacts; it also guarantees that the relevant information will be made available to the larger audience that may also play a role in both the decisionmaking process and the implementation of that decision.” *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 349, 109 S. Ct. 1835, 1845 (1989) (internal citations omitted). In developing Alternative E internally, after the ordinary opportunity for the public to consider and comment on the agency’s proposal, BLM unlawfully subverts this process.

BLM’s approach is especially egregious, given the dramatic difference between what it presented to the public in the draft EIS as its Preferred Alternative, and what it now presents—after the opportunity for public participation has ended—as its true Preferred Alternative. In contrast to the Preferred Alternative in the draft EIS (alternative D), in Alternative E:

- 18,320 acres have been changed from “managed to protect wilderness characteristics” to “managed to minimize impacts on wilderness character, while managing for other uses.” FEIS at 2-6 to 2-7.
- 177,700 acres of “ecological emphasis areas” identified in Alternative D are zeroed out. FEIS at 2-7.
- Thousands of acres have been moved from more protective classes to less protective classes of visual resource management classification. FEIS at 2-6.

- There are hundreds of thousands fewer acres on which surface-disturbing activities are restricted. FEIS at 2-10.
- 3,950 more trails are open to cross-country motorized travel. FEIS at 2-12.
- 20,000+ fewer acres are protected as Areas of Critical Environmental Concern. FEIS at 2-12.

Alternative E does not present mere tweaks or minor improvements to Alternative D, developed in response to comments. On the contrary, the new Alternative E is directly contrary to the comments received, and represents a dramatic change from the project that commenters were able to comment on.

Moreover, Alternative E was presented in the FEIS without all supporting data and files being made publicly and timely available. GIS files for the new alternative were not made available when the protest period was initiated on June 28, 2019. The Proposed RMP/Final EIS states on page ES-1 that “(t)his website contains background information about the project, a public involvement and project timeline, maps and relevant GIS data of the Planning Area, and copies of public information documents released throughout the RMP/EIS process.” However, there were no GIS data files for the new Alternative E available until July 15, which shortened the meaningful time for comment. Further, the Proposed RMP/Final EIS maps in Volume II, Appendix A are at a scale that shows the entire UFO decision area across six counties. This scale does not permit effective review of proposed disposal parcels in context. Nor does this scale allow for examination of proposed actions and the proposed Alternative E in an informed manner. Additionally, the BLM did not make hard copies of the UFO RMP available for the public to review until well into halfway through the comment period, further frustrating public participation.

### ***B. BLM Failed to Consider “No Leasing” or “Limited Leasing” Alternatives.***

As Conservation Groups urged in their comments on the Draft RMP/Draft EIS (attached as Exhibit 1-1) at pp. 22-28, BLM must also consider “no leasing” or “limited leasing” alternatives in light of the best available information and science, and in consideration of national policy. BLM failed to do so. Instead, all of the final EIS alternatives, including the new “agency-proposed” alternative E, propose to leave available extensive lands for fossil fuel leasing and development. FEIS at 2-8. BLM’s range of alternatives fails to satisfy its statutory obligations under FLPMA and NEPA.<sup>2</sup>

Climate change has fundamentally altered the paradigm of public lands management—a reality reflected in state, national, and international policy and commitments, as well as the best available science—but ignored by the Uncompahgre RMP EIS. The business-as-usual approach reflected by BLM fails to meet the needs of present and future generations—the agency’s core mandate in managing public lands and minerals. 43 C.F.R. § 1702(c). Both science and common sense dictate that perpetuating a management approach which has substantially contributed to

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<sup>2</sup> Conservation Groups addressed BLM’s failure to consider an adequate range of alternatives in their November 1, 2016 comments at pp. 15-39

climate change is no longer sufficient. The agency must consider alternatives that are responsive to this reality, including not leasing fossil fuel minerals.

### Summary of Alternatives<sup>3</sup>

Resource	Alt. A	Alt. B	Alt. B.1	Alt. C	Alt. D	Alt. E*
Oil & Gas Open to Leasing (Acres)	871,810	696,450	609,360	871,810	865,970	871,810
Oil & Gas Closed to Leasing (Acres)	44,220	219,580	306,670	44,220	50,060	44,220
Coal Acceptable to Leasing (Acres)	144,780	320,440	320,440	405,230	371,400	371,250
Coal Unacceptable for Leasing (Acres)	0	96,650	96,650	11,860	45,690	44,570

(\*)Agency Preferred Alternative

For example, with respect to coal mining, the final EIS considers six alternatives with varying levels of lands open (“acceptable”) to coal leasing. But, as the table above demonstrates, the range is skewed toward leaving the vast majority of coal-bearing lands open for leasing.

Yet even under this lopsided “range” of alternatives, the likely amount of coal produced and burned is identical. *See* FEIS at 2-144 (“Coal production is expected to remain the same across all alternatives.”) A recent case from the District of Montana found that the range of coal-leasing alternatives in two RMPs in Montana and Wyoming was inadequate because the alternatives (five alternatives in one RMP, and four in the other) were identical. *W. Org. of Res. Councils v. U.S. Bureau of Land Mgmt.*, 2018 WL 1475470, at \*7-9 (D. Mont. Mar. 26, 2018), *appeal dismissed*, No. 18-35836, 2019 WL 141346 (9th Cir. Jan. 2, 2019) (“BLM’s failure to consider any alternative that would decrease the amount of extractable coal available for leasing rendered [the EISs] inadequate.”) So too here. BLM does not respond to the problem of identical coal alternatives other than to say generically that it has “developed and analyzed a reasonable range of alternatives” pursuant to its authorities. FEIS at R-495.

Notably, the final EIS indicates that nearly all of the coal production in the resource area will come from a 40,000 acre area that is almost entirely open to leasing under each alternative: the Somerset coal field. FEIS at 4-454; S-104-289 (“Coal production would not change across alternatives even though there are differences in the number of acres. That is because production is expected to come from one mine, and those acres of federal coal are currently leased.”) The only way to produce a range of alternative coal outcomes would be to analyze alternatives that placed significant portions of the Somerset area off-limits to coal mining—which BLM failed to do, in violation of NEPA. Conservation Groups here reiterate their previous request that BLM evaluate at least one alternative that will result in at least a 50% reduction in coal production in

<sup>3</sup> FEIS at 2-8.

the resource area over the 20-year life of the plan, and another that will eliminate new coal leasing.

Moreover, the “range” of alternatives regarding coal production is not reasonably broad based on its treatment of other coal producing regions within the Uncompahgre field office area. For example, the vast majority of the Tongue Mesa coal field is left open under each action alternative, despite the fact that “[t]he coal resources in the Tongue Mesa Coal Field are heavily faulted, with no rail access to the area, making it economically unviable to mine in the next 20 years.” FEIS at S-10. Similarly, while most of the Grand Mesa coal-field is open to coal leasing under all three action alternatives, coal there is also unlikely to be mined in the next two decades. *Id.* This begs the question: if no coal will be mined in the Tongue Mesa and Grand Mesa coal fields, why did BLM fail to consider an alternative that eliminates coal mining there? Although this question was posed by Conservation Groups in their comments on the DEIS, BLM fails to answer it in its final EIS.

BLM’s alternatives fail to account for current resource conditions, changes in circumstances, and new or revised state and national laws and policy, in particular with regard to climate change. Specifically, Colorado has adopted significant new laws and policies to reduce greenhouse gas pollution and climate change impacts to our state’s communities. The decades of continued fossil fuel expansion green-lighted under the UFO RMP would undermine those efforts.

In particular, HB 1261 enacts aggressive greenhouse gas emissions targets for the State—26% by 2025, 50% by 2030, and 90% by 2050. The foreseeable development scenarios for the UFO RMP move in the opposite direction, anticipating an additional 1200 oil and gas wells while making vast acreages available for new oil, gas, and coal leasing. Estimated direct GHGs from development allowed in Alternatives D and E are 2,497,194 tons of CO<sub>2</sub>e per year and 2,512,570 tons per year, respectively (approximately 75 million tons of CO<sub>2</sub>e over a 30-year period) (Vol I pg. 4-22 of the FEIS). Estimated indirect GHGs from the high production scenario is approximately 129 million tons CO<sub>2</sub>e over a 30 year period. (Vol 1 pg. 4-29 of the FEIS). Together, direct and indirect emissions across 30 years are equivalent to the annual emissions of 52 coal-fired power plants. Colorado’s climate goals and greenhouse gas reductions targets would be impossible to attain with BLM’s expansion of fossil fuel development for another 20 years under the UFO RMP.

SB 181, which was signed into law on April 16, 2019, requires prioritization of public health, safety, and the environment when necessary and reasonable over oil and gas development. It also allows for non-production of oil and gas minerals when necessary and reasonable to protect public health, safety, welfare, the environment and wildlife. The UFO RMP takes the opposite approach; it prioritizes oil and gas development over protection of public health, safety, the environment and wildlife, which directly conflicts with Colorado policy. SB 181 also seeks to put communities impacted by oil and gas on the same level footing as industry and local government. The BLM ignored 42,000 public comments (80% of the total comments received), including local government comments of frontline impacted communities, regarding the incompatibility of leasing 95% of BLM lands and minerals to oil and gas with protecting the

health, safety and welfare of the community. The UFO RMP undermines Colorado's goals to put protection of public health, safety, environment and wildlife first.

In addition, S.B. 19-181 provides local government jurisdictions the ability to develop oil and gas land use regulations that could be more restrictive than the State's permitting requirements. As the BLM is likely aware, Gunnison County has the authority to protect and promote the public health, welfare and safety of the people of Gunnison County, and the authority to regulate land use planning and quality and protection of the environment in the County. To this end, Gunnison County has adopted regulations to exercise such authorities including the review, approval or denial of proposed activities and uses of land and natural resources including oil and gas. It is critical for the BLM to include compliance with all Gunnison County regulations regarding oil and gas exploration, development, operation and upstream activities as a mandatory element of the Proposed RMP/Final EIS. In addition, the BLM should include a requirement that any lessee comply with any other land use or environmental regulation imposed by Gunnison County in any way relates to operations on an oil and gas leasehold, including but not limited to water quality, public roads, emergency response, wildlife concerns, agricultural uses and recreation uses.

Beyond the agency's failure to take a meaningful hard look at resource impacts from global warming, BLM failed in its basic obligation to consider all reasonable alternatives, including alternatives that would significantly reduce planning area greenhouse gas emissions, and in particular an alternative that considers not leasing public lands for fossil fuel development. 40 C.F.R. § 1502.14.

BLM claims that "a full closure to fluid mineral leasing alternative was not carried forward because the BLM has no suitable thresholds or standards to measure and compare the significance of impacts related to greenhouse gas emissions under that alternative relative to other alternatives." FEIS at 2-16. This excuse is inadequate under NEPA. BLM also does not address why it could not consider a "limited leasing" alternative.

In fact, as Conservation Groups have explained, there are multiple scientifically robust methods to meaningfully disclose the impact of greenhouse gas emissions. One such tool is the social cost of carbon, which was "designed to quantify a project's contribution to costs associated with global climate change." *High Country Conserv. Advocates v. U.S. Forest Serv.*, 52 F. Supp. 3d 1174, 1189-90 (D. Colo. 2014). Specifically, the social cost of carbon protocol is a valid, well-accepted, credible, and interagency-endorsed method of calculating the costs of greenhouse gas emissions and understanding the potential significance of such emissions.<sup>4</sup> The protocol is just the sort of tool that can be used as a proxy for understanding climate impacts and to compare alternatives, as required by NEPA. *See* 40 C.F.R. § 1502.22(a) (stating agency "shall" include all "information relevant to reasonably foreseeable significant adverse impacts [that] is essential to a reasoned choice among alternatives").

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<sup>4</sup> *See* Interagency Working Group on the Social Cost of Carbon, United States Government, *Technical Support Document: Technical Update on the Social Cost of Carbon for Regulatory Impact Analysis – Under Executive Order 12866* (May 2013) at 2 (hereinafter 2013 TSD) (previously attached as Exhibit 109).

In rejecting a “no leasing alternative,” BLM also states that “The Mineral Leasing Act (30 US Code 226) gives BLM the authority to lease and manage federal fluid mineral estate.” But BLM fails to acknowledge that it also has legal authority under FLPMA, the MLA and NEPA to adopt a no-leasing alternative as necessary to respond to the threats posed by climate change. BLM has broad discretion in determining when, how, and if fossil fuel resources are made available for leasing.

With regard to oil and gas, the MLA states: “All lands subject to disposition under this Act which are known or believed to contain oil or gas deposits *may* be leased by the Secretary.” 30 U.S.C. § 226(a) (emphasis added); *see also Udall v. Tallman*, 30 U.S. 1, 4 (1965) (MLA “left the Secretary discretion to refuse to issue any lease at all on a given tract”); *Burglin v. Morton*, 527 F.2d 486, 488 (9th Cir. 1975) (“The permissive word ‘may’ in Section 226(a) allows the Secretary to lease such lands, but does not require him to do so.”); *Pease v. Udall*, 332 F.2d 62, 63 (9th Cir. 1964) (“[T]he Mineral Leasing Act has consistently been construed as leaving to the Secretary, within his discretion, a determination as to what lands are to be leased thereunder.”).

Although the MLA states that, for oil and gas, “[l]ease sales shall be held for each State where eligible lands are available at least quarterly and more frequently *if* the Secretary of the Interior determines such sales are necessary,” quarterly leasing is *not required* if no lands are “eligible” and “available” due to factors including withdrawal from the operation of the MLA under FLPMA, allocation decisions under an applicable land management plan, need for additional environmental review, or exercise of Secretarial discretion. 30 U.S.C. § 226(b)(1)(A); *see also* 43 C.F.R. § 3120.1-1; U.S. Bureau of Land Management, Oil and Gas Leasing Reform, Instruction Memorandum No. 2010-117 (“Eligible lands include those identified in 43 C.F.R. § 3120.1-1 as being available for leasing (BLM Manual 3120, Competitive Leases). They are considered available for leasing when all statutory requirements have been met, including compliance with the NEPA, appropriate reviews have been conducted, and *lands have been allocated for leasing in the RMP* (BLM Handbook H-3101-1, Issuance of Leases).”) (emphasis added). Thus, a decision to allocate an area as ineligible for leasing through the planning process is contemplated by BLM’s regulations, contradicting any perceived requirement that BLM must lease the area.

The Federal Onshore Oil and Gas Leasing Reform Act (“FOOGLRA”)—while not altering the fundamental leasing structure of the MLA—imposed a competitive bidding requirement on all offered leases. 30 U.S.C. §§ 188, 195, 226. Critically, FOOGLRA did not repeal or alter Secretarial discretion of *whether* to offer any particular lands for lease. *See Western Energy Alliance v. Salazar*, 709 F.3d 1040, 1044 (10th Cir. 2013) (“Before the MLA was amended by the [FOOGLRA]...it was well established that the Secretary had extremely broad discretion and was not obligated to issue any lease on public lands.... The MLA, as amended by the Reform Act of 1987, continues to vest the Secretary with considerable discretion to determine which lands are ‘to be leased’ under § 226(b)(1)(A).”). As held by the Court of Appeals in *Bob Marshall Alliance v. Hodel*:

the Mineral Leasing Act gives the Interior Secretary discretion to determine which lands are to be leased under the statute. 30 U.S.C. §226(a) (1982); *see*

*Mountain States*, 499 F.Supp. at 391-92. We have held that the Mineral Leasing Act “allows the Secretary to lease such lands, but does not require him to do so.... [T]he Secretary has discretion to refuse to issue any lease at all on a given tract.” *Burglin v. Morton*, 527 F.2d 486, 488 (9th Cir. 1975) (citing *Udall v. Tallman*, 380 U.S. 1, 4 (1965), *cert denied*, 425 U.S. 973 (1976)).

852 F.2d 1223, 1230 (9th Cir. 1988).

For coal, the Federal Coal Leasing Amendments Act (“FLCAA”) provides that the Interior Secretary “is authorized” to identify tracts for leasing and thereafter “shall, in his discretion ... from time to time, offer such lands for leasing ....” 30 U.S.C. § 201. *See also WildEarth Guardians v. Salazar*, 859 F. Supp. 2d 83, 87 (D.D.C. 2012) (“Under the [FLCAA], the Secretary is *permitted* to lease public lands for coal mining operations after conducting a competitive bidding process.”) (emphasis added). This discretion has been consistently upheld by the courts. *See, e.g., Krueger v. Morton*, 539 F.2d 235, 238-40 (D.C. Cir. 1976); *NRDC v. Hughes*, 437 F.Supp. 981, 983-85 (D.D.C. 1977). Further, the Secretary has discretion to reject lease applications on the grounds that “leasing of the lands covered by the application, for environmental or other sufficient reasons, would be contrary to the public interest.” 43 C.F.R. § 3425.1-8(a)(3).

The Secretary of the Interior also has authority under FLPMA to “withdraw” an area of federal land from oil, gas or coal leasing to “maintain . . . public values” or for a “particular public purpose.” FLPMA defines a withdrawal as:

withholding an area of Federal land from settlement, sale, location, or entry, under some or all of the general land laws, for the purpose of limiting activities under those laws in order to maintain other public values in the area or reserving the area for a particular public purpose or program . . .

43 U.S.C. § 1702(j). FLPMA further provides that Congress declares that it is the policy of the United States that “the public lands [shall] be managed in a manner that will protect the quality of ... air and atmospheric ... values.” 43 U.S.C. § 1701(a)(8).

Under FLPMA’s “multiple use and sustained yield” management directive, *id.* § 1701(a)(7), the federal government must manage public lands and resources in a manner that “takes into account the long-term needs of future generations for renewable and nonrenewable resources, including, but not limited to, recreation, range, timber, minerals, watershed, wildlife and fish, and natural scenic, scientific and historical values; and harmonious and coordinated management of the various resources without permanent impairment of the productivity of the land[,]” *id.* § 1702(3). Further, “[i]n managing the public lands the Secretary shall ... take any action necessary to prevent unnecessary or undue degradation of the lands.” *Id.* § 1732(b).

Under these authorities, BLM is required not only to evaluate the impacts of federal fossil fuel leasing to public lands, water, and wildlife resources, but to avoid harm to those resources whenever possible.

Accordingly, the MLA and FLPMA provide BLM the legal authority to either decide not to lease particular lands, or to withdraw large tracts from leasing.<sup>5</sup>

Every ton of carbon dioxide added to the atmosphere worsens climate change. So any additional oil and gas or coal production permitted on BLM land managed by the Uncompahgre field office and the combustion of those fossil fuels will worsen climate change. Due to the urgent need to protect mankind and federal public lands from the potentially devastating impacts of catastrophic global warming, BLM must consider and analyze an alternative or alternatives that reduce or eliminate the number of new fossil fuel leases in the Uncompahgre area.

An alternative is “reasonable” if it falls within the agency’s statutory mandate, and meets at least a part of the agency’s purpose and need. *Westlands Water Dist. v. U.S. Dep’t of the Interior*, 376 F.3d 853, 866 (9th Cir. 2004); *Idaho Conservation League v. Mumma*, 956 F.2d 1508, 1520 (9th Cir. 1992). As described above, no-leasing and limited leasing alternatives fall within the agency’s statutory mandate.

They also meet the agency’s purpose and need. BLM defines a new purpose and need in the final EIS, as follows:

The resource management planning process is a key tool that the BLM uses, in collaboration with interested public parties, to ensure a coordinated and consistent approach to managing BLM-administered lands. An RMP is a set of comprehensive long-range decisions concerning the use and management of resources administered by BLM. In general, the purpose of an RMP is twofold:

1. It provides an overview of goals, objectives, and needs associated with public lands management.
2. It resolves multiple-use conflicts or issues associated with those requirements that drive the preparation of the RMP.

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<sup>5</sup> Even if BLM concludes that the agency lacks authority to bar new oil, gas, and coal leasing throughout the planning area, it should still consider such an alternative because it is otherwise reasonable. Federal courts hold that agencies have the duty to consider reasonable alternatives that are outside the jurisdiction of the agency or that require a change of law to implement. *See* 40 C.F.R. § 1502.14(c) (an EIS “shall” “[i]nclude reasonable alternatives not within the jurisdiction of the lead agency”); Council on Environmental Quality, Executive Office of the President, Publication of Memorandum to Agencies Containing Answers to 40 Most Asked Questions on NEPA Regulations, 46 Fed. Reg. 18,026–01 at 18,027 (1981) (“An alternative that is outside the legal jurisdiction of the lead agency must still be analyzed in the EIS if it is reasonable. A potential conflict with local or federal law does not necessarily render an alternative unreasonable”); *Muckleshoot Indian Tribe v. U.S. Forest Serv.*, 177 F.3d 800, 814 (9th Cir. 1999) (setting aside EIS for failure to address alternative requiring Congressional action).

Although the 1985 and 1989 RMPs have been subsequently amended, they do not satisfactorily address new and emerging issues. Laws, regulations, policies, and issues regarding management of BLM-administered lands have changed during the life of the plans. The BLM needs to revise the 1985 and 1989 RMPs to ensure compliance with current mandates and to address issues that have arisen since their preparation.

FEIS at 1-1. Barring new leases to achieve national, regional and local greenhouse gas reduction goals would “address” the “new and emerging issues” surrounding our understanding of climate change. A desired outcome for a reasonable alternative could be reducing the planning area’s contribution to climate pollution. It would establish that certain uses—oil, gas, and coal production—would be allowable only on current leases, and it would enable BLM to achieve a desired outcome of reducing the chance of catastrophic climate change and increasing the chance for the U.S. to reach its greenhouse gas reduction goals set by the Paris Agreement. Such management direction would adhere to the law and BLM’s multiple use mandate.

Additionally, a no-leasing or limited leasing alternative would “resolve[] multiple-use conflicts.” The principle of multiple use explicitly anticipates that some use would be prohibited on public lands. Further, the keystone of multiple use is to “take[] into account the long-term needs of future generations for renewable and nonrenewable resources.” 43 U.S.C. § 1702(3). There is no greater or more urgent threat to public land resources in the long-term than climate change. Taking action on climate change by limiting one use—fossil fuel extraction—to benefit all the others is the very essence of the kind of trade-off anticipated to be resolved by the multiple use mandate.

Further, the Tenth Circuit Court of Appeals has explicitly rejected the argument that FLPMA’s multiple use mandate requires that public lands be made available for fossil fuel extraction.

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

*New Mexico ex rel. Richardson*, 565 F.3d at 710 (emphasis in original).

As such, a no or limited fossil fuel leasing alternative would meet the purpose and need for the RMP.

**C. *BLM Failed to Explicitly Consider a Renewable Energy Alternative or Include Renewable Energy as a Priority Element in Each Alternative.***

None of the alternatives considered look specifically at renewable energy. However, a transition to clean energy is critical to avoiding climate disruption. Conservation Groups raised this issue in their comments on the DEIS, attached as Exhibit 1-1, at pp. 35-39.

A Comparative Summary of Alternatives is presented in Table 2-1. FEIS 2-6. It shows that many resource uses were considered, including coal and fluid minerals, but, other than addressing ROWs and utility corridors generally, the table plainly illustrates how the Alternatives considered fail to incorporate renewable energy as a resource. The FEIS fails to even list renewable energy development as an Alternatives Considered but Eliminated from Detailed Analysis. FEIS 2-15 to 2-18. On the other hand, the FEIS provides an extensive look at coal and fluid minerals leasing. FEIS 4-236 to 4-273. The Uncompahgre Field Office also conducted an extensive Reasonable Foreseeable Development Scenario report for oil and gas development in 2012.<sup>6</sup>

The BLM conducted a study of renewable energy potential for the planning area in 2010.<sup>7</sup> The Reasonable Foreseeable Development Scenario for solar development states that:

The likelihood of future solar project development in the Uncompahgre RMP planning area can be estimated by considering the quality of solar resources, the acreage of lands with slope less than five percent (which is required for Central Generation Technology), existing solar projects in the area, the number of pending ROW applications within the UFO, the quality of solar resources in the UFO compared with other areas in the region, and expressions of interest by solar companies.<sup>8</sup>

However, the BLM failed to develop information about these factors to conduct a detailed analysis to determine the likelihood of future solar development.

Contradicting the lack of in-depth analysis of renewable energy potential, the BLM assumes that the demand for renewable energy ROWs “would increase over the life of this RMP.” FEIS 4-312. The basis for this assumption and the magnitude of this increase go unexplained. Yet, ultimately, BLM dismisses the potential for renewable energy development in

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<sup>6</sup> Uncompahgre Field Office, Reasonable Foreseeable Development Scenario for Oil and Gas for the Uncompahgre Field Office, Colorado, 2012, available at [https://eplanning.blm.gov/epl-front-office/projects/nepa/66641/81689/95910/UncompahgreRFD\\_Feb2012.pdf](https://eplanning.blm.gov/epl-front-office/projects/nepa/66641/81689/95910/UncompahgreRFD_Feb2012.pdf) (previously attached as Exhibit 40) (“UFO RFD”).

<sup>7</sup> Uncompahgre Field Office, “Renewable Energy Potential Report,” Resource Management Plan Revision and Environmental Impact Statement, May 2010, available at: [https://eplanning.blm.gov/epl-front-office/projects/lup/62103/78800/90467/UFO\\_RenewEnergy\\_05-25-2010\\_508.pdf](https://eplanning.blm.gov/epl-front-office/projects/lup/62103/78800/90467/UFO_RenewEnergy_05-25-2010_508.pdf) (previously attached as Exhibit 39).

<sup>8</sup> *Id.* at 3-5.

the planning area, stating that: “Although state of Colorado policies and financial incentives are classified as favorable for renewable energy development, the UFO does not rank nationally among the top 25 BLM field offices with potential.” FEIS 3-117. The FEIS further states that “the demand for renewable energy-related ROWs should increase nationally, although within the Planning Area, the potential for wind, solar, and biomass energy is considered to be low relative to other field offices in BLM.” FEIS 3-118. This dismissive approach ignores the high potential found for solar photovoltaic resources, and future economic conditions and energy demand in the planning area. The planning area’s national rank is immaterial to BLM’s requirement to adequately analyze the potential for renewable energy.

Importantly, the BLM also fails to consider the impacts of coal and oil and gas development on renewable energy resources and the potential incompatibility of these resource uses. Instead, the FEIS simply states generally that:

*Implementing management for the following resources would have negligible or no impact on renewable energy and are therefore not discussed in detail: air quality, climate, soils and water, vegetation, fish and wildlife, special status species, wild horses, wildland fire ecology and management, cultural resources, paleontological resources, lands with wilderness characteristics, forestry and woodland products, livestock grazing, energy and minerals, comprehensive trails and travel management, lands and realty, renewable energy, ACECs, wild and scenic rivers, national trails and byways, watchable wildlife viewing sites, Native American tribal uses, and public health and safety.*

FEIS 4-321 (emphasis added).

Nevertheless, the BLM recognizes that renewable energy facilities are usually sited based on resource potential and proximity to transmission lines or end uses. Oil and gas development that will impinge on these areas would create conflicts with renewable energy development that must be addressed. The discussion of cumulative impacts does identify the impacts of oil and gas on renewable energy development as follows, but no further analysis is conducted:

Past, present, and reasonably foreseeable future actions and conditions within the cumulative impact analysis area that have affected and will likely continue to affect renewable energy are energy and minerals development . . . .

FEIS 4-324. Given the urgent need to transition away from fossil fuels and toward renewable energy to address climate change, it is incumbent upon the BLM to ensure that renewable energy development, especially photovoltaic solar development, is not precluded in the planning area by new oil and gas development. Further, the BLM is required to include a renewable energy alternative or include renewable energy as a priority element in each alternative to ensure that a thorough analysis of this important public lands resource is conducted.

***D. BLM Failed to Consider Carbon Budgeting or Align Its Decision-making with Paris Agreement Goals.***

BLM failed to take a ‘hard look’ at the climate impacts of its preferred plan by refusing

to consider carbon budgeting as a means of informing the public and decisionmakers about the impact of continued fossil fuel development in the planning area.<sup>9</sup> BLM must disclose and assess the portion of the carbon budget that fossil fuel production under the UFO RMP will consume. 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 the Paris Agreement committing its parties to take action so as to avoid dangerous climate change. The Paris Agreement commits all signatories—including the United States—to a target holding long-term global average temperature “to well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels.”<sup>10</sup> Although President Trump announced on June 1, 2017 that the U.S. would withdraw from the Paris Agreement, the earliest possible effective withdrawal date is November 4, 2020, in accordance with Article 28 of the Agreement.

A 2018 report from the Intergovernmental Panel on Climate Change (IPCC), a group of scientists convened by the United Nations, finds that the risks and impacts of 2°C of warming are much greater than those of 1.5°C, including risks and impacts associated with extreme heat; heavy precipitation; drought; sea level rise; impacts on biodiversity and ecosystems, including species loss and extinction; and health, livelihoods, food security, water supply, human security, and economic growth (hereinafter, “IPCC 1.5°C Report”).<sup>11</sup> This report was written by 91 authors and 133 contributing authors, cites over 6,000 references, and involved 42,001 expert and government reviewers.<sup>12</sup> It was prepared in response to a request made during the 2015 United Nations Framework Convention on Climate Change decision adopting the Paris Agreement.<sup>13</sup>

As an initial matter, the report establishes that the world has already warmed by 1°C due to human activity.<sup>14</sup> This warming is already affecting people and ecosystems worldwide, with disproportionate effects on poor and vulnerable populations, small islands, megacities, coastal regions, and high mountain ranges.<sup>15</sup>

The IPCC 1.5°C Report projects that, if greenhouse gas emissions continue at the current rate, the atmosphere will warm by 1.5° Celsius above preindustrial levels between 2030 and

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<sup>9</sup> Conservation Groups addressed carbon budgeting at pp. 5-15 of their Nov. 1, 2016 comments (attached hereto as Exhibit 1-1).

<sup>10</sup> Paris Agreement at Art. 2 (previously attached as Exhibit 2).

<sup>11</sup> Intergovernmental Panel on Climate Change, *Global Warming of 1.5°C, an IPCC special report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty* (October 6, 2018) (hereinafter, “IPCC 1.5°C Report”) available at: <http://www.ipcc.ch/report/sr15/> (attached as Exhibit 1).

<sup>12</sup> IPCC 1.5°C Report.

<sup>13</sup> *Id.*

<sup>14</sup> *Id.*

<sup>15</sup> *Id.* at 51.

2052.<sup>16</sup> Further, 1.5°C of warming would result in about 14% of the world population being exposed to severe heat waves at least once every five years;<sup>17</sup> more than 350 million people worldwide being exposed to severe drought;<sup>18</sup> mass mortalities of coral reefs worldwide;<sup>19</sup> 31 to 69 million people worldwide being exposed to flooding from sea level rise;<sup>20</sup> and the loss of biodiversity and biomass.<sup>21</sup>

In short, the world is already experiencing impacts from climate change, and those impacts are expected to intensify. A world that warms by 1.5° Celsius above preindustrial levels will be more livable than a world that warms by 2° Celsius, but even at 1.5° Celsius, the world will face staggering challenges and losses.

The report finds that, to stabilize global temperature, the world would need to achieve “net zero” emissions, meaning that the amount of carbon dioxide entering the atmosphere must equal the amount that is removed.<sup>22</sup> All 1.5°C-consistent pathways analyzed in the report use to some extent technologies that would *remove* carbon dioxide from the atmosphere, but the authors also note that ideas for CO<sub>2</sub> removal have not been proven to work at scale.”<sup>23</sup>

The IPCC 1.5°C report also finds that warming will not be limited to 1.5°C or 2°C unless “emissions decline rapidly across all of society’s main sectors,” including energy.<sup>24</sup> Current national commitments on emission reduction are not sufficient to bridge the emissions gap in 2030.<sup>25</sup> As noted by the United Nations Environment Programme:

Technically, it is still possible to ensure global warming stays well below 2°C and 1.5°C, but if countries do not scale up their ambitions before 2030, exceeding the 1.5°C can no longer be avoided. Now more than ever, unprecedented and urgent action is required by all nations. The assessment of actions by the G20 countries indicates that this kind of action is yet to happen; in fact, global CO<sub>2</sub> emissions increased in 2017 after three years of stagnation.<sup>26</sup>

In other words, far greater emissions reductions are necessary to stay below 2.0°C, let

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<sup>16</sup> *Id.*

<sup>17</sup> *Id.* at 191.

<sup>18</sup> *Id.* at 215.

<sup>19</sup> IPCC 1.5°C Report at 222.

<sup>20</sup> *Id.* at 231.

<sup>21</sup> *See, e.g., id.* at 254 (9% of insects are projects to lose over half their range at 1.5°C, which suggests a significant loss of functionality in associated ecosystems owing to the critical role of insects in nutrient cycling, pollination, and other important processes).

<sup>22</sup> *Id.* at 161.

<sup>23</sup> *Id.* at 114.

<sup>24</sup> *Id.* at 161.

<sup>25</sup> United Nations Environment Programme, *Emissions Gap Report 2018* at xiv, available at: [http://wedocs.unep.org/bitstream/handle/20.500.11822/26895/EGR2018\\_FullReport\\_EN.pdf?sequence=1&isAllowed=y](http://wedocs.unep.org/bitstream/handle/20.500.11822/26895/EGR2018_FullReport_EN.pdf?sequence=1&isAllowed=y) (attached as Exhibit 2).

<sup>26</sup> *Id.*

alone aspire to limit warming to 1.5°C. If no further progress were made beyond the goals stated in the Paris Agreement, expected warming by 2100 would be about 3°C.<sup>27</sup> UNEP found that “if the emissions gap is not closed by 2030, it is very plausible that the goal of a well-below 2°C temperature increase is also out of reach.”<sup>28</sup>

With specific regard to United States’ commitments, the U.S. set a 2020 target to reduce GHG emissions by 17 percent below 2005 levels and committed to reducing emissions by 26-28 percent below 2005 levels by 2025 in its Nationally Determined Contribution (“NDC”).<sup>29</sup> However, under its currently implemented policies, the U.S. is unlikely to meet its NDC target for 2025 and it is uncertain whether it will meet its 2020 target.<sup>30</sup>

The IPCC 1.5°C Report calculates a remaining carbon budget of 420 GtCO<sub>2</sub> from the start of 2018 for about a two-thirds chance of limiting warming to 1.5°C, but the uncertainties in this estimate are large – greater than the entire estimated remaining carbon budget.<sup>31</sup> In addition, the IPCC found that “[p]otential additional carbon release from future permafrost thawing and methane release from wetlands would reduce the budget by up to 100 GtCO<sub>2</sub> over the course of this century and more thereafter.”<sup>32</sup> Actions to reduce non-CO<sub>2</sub> GHGs could also alter the remaining budget by ±250 GtCO<sub>2</sub>. At current emission rates, the remaining budget of 420 GtCO<sub>2</sub> is being depleted by 42 ± 3 GtCO<sub>2</sub> per year,<sup>33</sup> meaning that at current emissions rates, we could reach 1.5°C by 2028.

The potential carbon emissions from *existing* fossil fuel reserves—the known belowground stock of extractable fossil fuels—considerably exceed both the 1.5°C and 2°C targets. According to one study, global coal, oil and gas resources considered currently economically recoverable contain potential greenhouse gas emissions of 4,196 GtCO<sub>2</sub>,<sup>34</sup> with other estimates as high as 7,120 GtCO<sub>2</sub>.<sup>35</sup>

According to one report, in the United States, the potential GHG emissions from federal

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<sup>27</sup> *Id.*; see also David Spratt, *Climate Reality Check: After Paris, Counting the Cost* (March 2016) at 8 (previously attached as Exhibit 10).

<sup>28</sup> UNEP Emissions Gap Report 2018 at xiv.

<sup>29</sup> *Id.* at 15.

<sup>30</sup> *Id.*

<sup>31</sup> IPCC 1.5°C Report at 96; see also Dustin Mulvaney, *et al.*, *Over-Leased: How Production Horizons of Already Leased Federal Fossil Fuels Outlast Global Carbon Budgets*, EcoShift Consulting (July 2016) (previously attached as Exhibit 17) at 2 (citing Joeri Rogelj, *et al.*, *Difference between carbon budget estimates unraveled*, Nature Climate Change (2016) (previously attached as Exhibit 18).

<sup>32</sup> IPCC, *Global Warming of 1.5°C: Summary for Policymakers* at 14 (attached as Exhibit 3).

<sup>33</sup> *Id.* at 14.

<sup>34</sup> Michael Raupach, *et al.*, *Sharing a quota on cumulative carbon emissions*, Nature Climate Change (Sept. 2014) (emphasis added) (previously attached as Exhibit 21).

<sup>35</sup> IPCC AR5, *Mitigation of Climate Change, Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* (2014) at Table 7.2 (previously attached as Exhibit 21).

and non-federal fossil fuels in the United States are 697-1,070 GtCO<sub>2</sub>.<sup>36</sup> As for federal fossil fuel resources, the United States contains enough recoverable coal, oil and gas that, if extracted and burned, would result in as much as 492 GtCO<sub>2</sub>, consuming all of the global carbon budget for a 1.5°C target.<sup>37</sup> Unleased federal fossil fuels comprise 91% of these potential emissions, with already leased federal fossil fuels accounting for as much as 43 GtCO<sub>2</sub>.<sup>38</sup>

New leasing of federal fossil fuel resources is inconsistent with a carbon budget that would seek to avoid catastrophic climate change. Nationwide emissions from fossil fuels extracted from Federal lands in 2014 were 1,332.1 million metric tons (MMT) of CO<sub>2</sub> equivalent<sup>39</sup> (CO<sub>2</sub>Eq).<sup>40</sup> Between 2005 and 2014, fossil fuel emissions from Federal lands accounted for, on average, 23.7 percent of national CO<sub>2</sub> emissions, 7.3 percent of national methane (CH<sub>4</sub>) emissions, and 1.5 percent of national nitrous oxide (N<sub>2</sub>O) emissions.<sup>41</sup> Continued leasing and development of fossil fuels commits the world to extremely dangerous warming well beyond the 2°C threshold. As one study put it, “the disparity between what resources and reserves exist and what can be emitted while avoiding a temperature rise greater than the agreed 2°C limit is therefore stark.”<sup>42</sup>

Based on the foregoing, the U.S. must halt new fossil fuel production and rapidly phase out existing production on federal lands to avoid the worst dangers of climate change. One study estimated the U.S. carbon budget consistent with a 1.5°C target at 25 GtCO<sub>2</sub>eq to 57 GtCO<sub>2</sub>eq on average,<sup>43</sup> depending on the sharing principles used to apportion the global budget across

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<sup>36</sup> Dustin Mulvaney, *et al.*, *The Potential Greenhouse Gas Emissions from U.S. Federal Fossil Fuels*, EcoShift Consulting (Aug. 2015) at 16 (previously attached as Exhibit 23).

<sup>37</sup> *Id.*

<sup>38</sup> *Id.*

<sup>39</sup> CO<sub>2</sub> equivalents allow direct comparison of warming caused by different GHGs and are calculated by multiplying the amount of GHG gas by its global warming potential (GWP). The USGS study uses an outdated value for the 100-year GWP of methane of 25, from the IPCC AR4 report. Using the current 100-year GWP for fossil methane of 36, from IPCC AR5, total 2014 emissions from fossil fuels extracted from public lands equals 1353 MMT CO<sub>2</sub>Eq.

<sup>40</sup> U.S. Geological Survey, *Federal Lands Greenhouse Gas Emissions and Sequestration in the United States: Estimates for 2005-2014* (2018), available at <https://pubs.er.usgs.gov/publication/sir20185131> (attached as Exhibit 4).

<sup>41</sup> *Id.*; see also Energy Information Administration, *Sales of Fossil Fuels Produced from Federal and Indian Lands, FY 2003 through FY 2014* (July 2015) (previously attached as Exhibit 24); Stratus Consulting, *Greenhouse Gas Emissions from Fossil Energy Extracted from Federal Lands and Waters: An Update* (Dec. 2014) (previously attached as Exhibit 24).

<sup>42</sup> Christophe McGlade & Paul Ekins, *The geographical distribution of fossil fuels unused when limiting global warming to 2°C*, *Nature* (Jan 2015) at 188 (previously attached as Exhibit 20).

<sup>43</sup> Robiou du Pont, Yann *et al.*, *Equitable mitigation to achieve the Paris Agreement goals*, *Nature Climate Change* 38 (2017), 7 and Supplemental Tables 1 and 2 (attached as Exhibit 5). Quantities measured in GtCO<sub>2</sub>eq include the mass emissions from CO<sub>2</sub> as well as the other well-mixed greenhouse gases (CO<sub>2</sub>, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and SF<sub>6</sub>) converted into CO<sub>2</sub>-equivalent values, while quantities measured in GtCO<sub>2</sub> refer to mass emissions of just CO<sub>2</sub> itself.

countries.<sup>44</sup> The estimated U.S. carbon budget consistent with limiting temperature rise to 2°C – a level of warming well above what scientists say is devastatingly harmful – ranges from 34 GtCO<sub>2</sub> to 123 GtCO<sub>2</sub>,<sup>45</sup> depending on the sharing principles applied. Under any scenario, the remaining U.S. carbon budget compatible with the Paris climate targets is extremely small.

Furthermore, research that models emissions pathways for limiting warming to 1.5°C or 2°C shows that a rapid end to fossil fuel extraction in the United States is critical. Specifically, research indicates that *global* fossil fuel CO<sub>2</sub> emissions must *end entirely* by mid-century and likely as early as 2045 for a reasonable likelihood of limiting warming to 1.5°C or 2°C.<sup>46</sup> Due to

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<sup>44</sup> Robiou du Pont et al. (2017) averaged across IPCC sharing principles to estimate the U.S. carbon budget from 2010 to 2100 for a 50 percent chance of returning global average temperature rise to 1.5°C by 2100, consistent with the Paris Agreement’s “well below 2°C” target, and based on a cost-optimal model. The study estimated the U.S. carbon budget consistent with a 1.5°C target at 25 GtCO<sub>2</sub>eq by averaging across four equity principles: capability (83 GtCO<sub>2</sub>eq), equal per capita (118 GtCO<sub>2</sub>eq), greenhouse development rights (-69 GtCO<sub>2</sub>eq), and equal cumulative per capita (-32 GtCO<sub>2</sub>eq). The study estimated the U.S. budget at 57 GtCO<sub>2</sub>eq when averaging across five sharing principles, adding the constant emissions ratio (186 GtCO<sub>2</sub>eq) to the four above-mentioned principles. However, the constant emissions ratio, which maintains current emissions ratios, is not considered to be an equitable sharing principle because it is a grandfathering approach that “privileges today’s high-emitting countries when allocating future emission entitlements.” For a discussion of sharing principles, see Kartha, S. et al., *Cascading biases against poorer countries*, 8 Nature Climate Change 348 (2018).

<sup>45</sup> Robiou du Pont et al. (2017) estimated the U.S. carbon budget for a 66 percent probability of keeping warming below 2°C at 60 GtCO<sub>2</sub>eq based on four equity principles (capability, equal per capita, greenhouse development rights, equal cumulative per capita), and at 104 GtCO<sub>2</sub>eq based on five principles (adding in constant emissions ratio, but see footnote above). For a 66 percent probability of keeping warming below 2°C, Peters et al. (2015) estimated the U.S. carbon budget at 34 GtCO<sub>2</sub> based on an “equity” approach for allocating the global carbon budget, and 123 GtCO<sub>2</sub> under an “inertia” approach. The “equity” approach bases sharing on population size and provides for equal per-capita emissions across countries, while the “inertia” approach bases sharing on countries’ current emissions. Similarly using a 66 percent probability of keeping warming below 2°C, Gignac et al. (2015) estimated the U.S. carbon budget at 78 to 97 GtCO<sub>2</sub>, based on a contraction and convergence framework, in which all countries adjust their emissions over time to achieve equal per-capita emissions. Although the contraction and convergence framework corrects current emissions inequities among countries over a specified time frame, it does not account for inequities stemming from historical emissions differences. When accounting for historical responsibility, Gignac et al. (2015) estimated that the United States has an additional cumulative carbon debt of 100 GtCO<sub>2</sub> as of 2013. See Peters, Glen P. et al., *Measuring a fair and ambitious climate agreement using cumulative emissions*, 10 Environmental Research Letters 105004 (2015) (attached as Exhibit 6); Gignac, Renaud and H. Damon Matthews, *Allocating a 2C cumulative carbon budget to countries*, 10 Environmental Research Letters 075004 (2015) (attached as Exhibit 7).

<sup>46</sup> Rogelj, Joeri et al., *Energy system transformations for limiting end-of-century warming to below 1.5°C*, 5 Nature Climate Change 519 (2015) (attached as Exhibit 8); IPCC 1.5°C Report (attached above as Exhibit 1).

the small remaining U.S. carbon budget, the United States must end fossil fuel CO<sub>2</sub> emissions even earlier: between 2025 and 2030 on average for a reasonable chance of staying below 1.5°C, and between 2040 and 2045 on average for a reasonable chance of staying below 2°C.<sup>47</sup> Ending U.S. fossil fuel CO<sub>2</sub> emissions between 2025 and 2030, consistent with the Paris 1.5°C target, will require “urgent” and “unprecedented” action.<sup>48</sup> An immediate halt to new production and a transition to closing most existing oil and gas fields and coal mines before their reserves are fully extracted would be consistent with this goal.

Ending the approval of new fossil fuel production and infrastructure is also critical for preventing “carbon lock-in,” where approvals and investments made now can lock in decades worth of fossil fuel extraction that are inconsistent with climate targets. New approvals for wells, mines, and fossil fuel infrastructure -- such as pipelines, marine and rail import and export terminals -- require upfront investments that provide financial incentives for companies to continue production for decades into the future.<sup>49</sup> Given the long-lived nature of fossil fuel projects, ending the approval of new fossil fuel projects avoids the lock-in of decades of fossil fuel production and associated emissions.<sup>50</sup>

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<sup>47</sup> See Climate Action Tracker, USA (last updated 17 June 2019), <http://climateactiontracker.org/countries/usa> at Country Summary figure showing U.S. emissions versus year. At the current annual emission rate of 6.5 GtCO<sub>2</sub>, the United States will exhaust the budget consistent with 1.5°C target between 2025 and 2030 and will exhaust the budget consistent with 2°C target between 2040 and 2045, leaving no room for additional fossil fuel CO<sub>2</sub> emissions.

<sup>48</sup> UNEP Emissions Gap Report 2018 at xiii (attached above as Exhibit 2); IPCC 1.5°C Report at TS-6 (attached above as Exhibit 1).

<sup>49</sup> Davis, Steven J. and Robert H. Socolow, *Commitment accounting of CO<sub>2</sub> emissions*, Environmental Research Letters 9: 084018 (2014) (attached as Exhibit 9); Erickson, Peter et al., Assessing carbon lock-in, 10 Environmental Research Letters 084023 (2015) (attached as Exhibit 23); Erickson, Peter et al., *Carbon lock-in from fossil fuel supply infrastructure*, Stockholm Environment Institute, Discussion Brief (2015) (attached as Exhibit 10); Seto, Karen C. et al., *Carbon Lock-In: Types, Causes, and Policy Implications*, 41 Annual Review of Environmental Resources 425 (2016) (attached as Exhibit 11); Green, Fergus and Richard Denniss, *Cutting with both arms of the scissors: the economic and political case for restrictive supply-side climate policies*, Climatic Change, <https://doi.org/10.1007/s10584-018-2162-x> (2018) (attached as Exhibit 26).

<sup>50</sup> Erickson et al. (2015): “The essence of carbon lock-in is that, once certain carbon-intensive investments are made, and development pathways are chosen, fossil fuel dependence and associated carbon emissions can become “locked in”, making it more difficult to move to lower-carbon pathways and thus reduce climate risks.” Green and Denniss (2018): “When production processes require a large, upfront investment in fixed costs, such as the construction of a port, pipeline or coalmine, future production will take place even when the market price of the resultant product is lower than the long-run opportunity cost of production. This is because rational producers will ignore ‘sunk costs’ and continue to produce as long as the market price is sufficient to cover the marginal cost (but not the average cost) of production. This is known as ‘lock-in.’”

One analysis shows that, of expected federal fossil fuel production in 2040, about two-thirds is either not yet under lease or is under lease but is not yet producing.<sup>51</sup> The authors conclude that if new leasing ceases and existing non-producing leases are not renewed, 40% of forecast coal production could be avoided in 2025 and 74% of coal production could be avoided in 2040. As for oil and gas, 12% of oil production could be avoided in 2025 and 65% could be avoided by 2040 while 6% of natural gas production could be avoided in 2025 and 59% could be avoided by 2040.<sup>52</sup>

This avoided production has the potential to significantly reduce future U.S. emissions. The study concludes that cessation of new and renewed leases for federal fossil fuel extraction could reduce CO<sub>2</sub> emissions by about 100 Mt per year by 2030. Annual emission reductions could become greater than that over time as production declines on existing leases and maintaining or increasing production becomes dependent on yet-to-be issued leases.<sup>53</sup>

According to the study, a comparison with other measures shows that a policy of “no new leasing” could be a very significant part of U.S. efforts to address climate change. The estimated 100 Mt CO<sub>2</sub> emissions savings that could result from no leasing in 2030 compares favorably with EPA standards for light- and medium-vehicles that are expected to yield 200 Mt in CO<sub>2</sub> savings in 2030, and with standards for heavy-duty vehicles that are expected to yield 70 Mt in CO<sub>2</sub> savings in the same year. Cessation of new and renewed leases could make an important contribution to U.S. climate change mitigation efforts.<sup>54</sup>

### ***E. BLM Failed to Take a Hard Look at Climate Change Impacts.***

In the Reasonable Foreseeable Development Scenario for oil and gas for the Uncompahgre Field Office, projections for oil and gas production are limited to 2029, rather than spanning the 20-year period of the plan. Additionally, the agency only discloses projected production for conventional oil and gas and conventional coalbed oil and gas. The RFD does not appear to account for unconventional development.

Quantities of natural gas and oil production for the Uncompahgre Study Area are projected in the Reasonable Foreseeable Development Scenario, although not summed. RFD at Tables 6a, 6b, 7a, 7b. BLM’s preferred alternative, Alternative E, includes the following projected production volumes:

Oil Volume:  
CSU: 5.404678 mmbbl  
NL: 0.974315 mmbbl  
NSO: 2.076926 mmbbl

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<sup>51</sup> Peter Erickson and Michael Lazarus, *How Would Phasing Out U.S. Federal Leases for Fossil Fuel Extraction Affect CO<sub>2</sub> Emissions and 2°C Goals?*, Stockholm Environmental Institute (2016) at 12 (previously attached as Exhibit 323).

<sup>52</sup> *Id.* at 16.

<sup>53</sup> *Id.* at 26.

<sup>54</sup> *Id.* at 27.

OPEN: 9.996115 mmbbl

Gas Volume:

CSU: 44.500764 bcf

NL: 3.971663 bcf

NSO: 12.867885 bcf

OPEN: 61.360176 bcf

Estimated direct GHGs from development allowed in Alternative E is 2,512,570 tons of CO<sub>2</sub>e per year. FEIS at 4-22. Estimated indirect GHGs from the high production scenario is 129 million tons CO<sub>2</sub>e over a 30 year period. FEIS at 4-22. 37% of that 129 million tons would come from federally-managed minerals. *Id.*

BLM fails to adequately address climate change in its Plan or EIS, as NEPA requires, through robust consideration of reasonable alternatives, mitigation measures and standards in the plan. Conservation Groups raised these issues in their comments on the DEIS, which is attached as Exhibit 1-1, at pp. 39-69. BLM acknowledges that “the projected emissions sources” from the Plan “will emit greenhouse gases, and will thus contribute to the accumulation of atmospheric greenhouse gases, and potential climate change effects” as projected by the Intergovernmental Panel on Climate Change. FEIS at R-141. However, instead of taking action to reduce GHG impacts from the UFO planning area below the level of significance, *e.g.* by further limiting development and/or requiring further emission controls, the UFO insists that action is either not possible or not meaningful:

Unfortunately, no analysis tools currently exist to describe the planning area’s incremental contributions to the global phenomenon of climate change in terms of potential warming, drought, sea level rise, or other common environmental metrics associated with increasing concentrations of greenhouse gases. The problem is, by nature, a cumulative issue, and any downscaling of the projected global climate changes effects to project/planning area scales (based on emissions scaling) does not provide meaningful analysis due to the fact that no studies have identified the precise relationship between specific levels of emissions from a particular source, and measurable differences in climate-change-related impacts. Nor has EPA or any other regulatory body adopted standards based on such impacts. Without specific thresholds with which to compare expected emissions, a quantitative analysis of potential differences in climate change impacts and mitigation among alternatives is not possible.

FEIS at R-141.

This type of dismissive approach fails to satisfy the guidance outlined in Department of Interior Secretarial Order 3226, discussed below, or the requirements of NEPA. “Reasonable forecasting and speculation is ... implicit in NEPA, and we must reject any attempt by agencies to shirk their responsibilities under NEPA by labelling any and all discussion of future environmental effects as ‘crystal ball inquiry.’” *Save Our Ecosystems v. Clark*, 747 F.2d 1240, 1246 n.9 (9th Cir. 1984 (quoting *Scientists’ Inst. for Pub. Info., Inc. v. Atomic Energy Comm.*, 481 F.2d 1079, 1092 (D.C. Cir. 1973))).

The GHG emissions from BLM actions in the planning area are significant. The UFO estimates annual direct emissions from BLM actions under the Uncompahgre RMP of 2,512,570 metric tons CO<sub>2</sub>e. FEIS at 4-22.<sup>55</sup> BLM estimated 30-year total estimated cumulative indirect greenhouse gas emissions for “high” and “low” UFO oil and gas production scenarios: approximately 129 million tons CO<sub>2</sub>e for the “high” UFO oil and gas production scenario, and approximately 8 million tons CO<sub>2</sub>e for the “low” UFO oil and gas production scenario. FEIS at 4-29. Such emissions would make a significant contribution to total emissions from federal lands, and contribute significantly to total U.S. emissions.<sup>56</sup> Nowhere that we have found in the FEIS does BLM add up the direct and indirect emissions under the plan—a major failing that BLM must correct.

With respect to coal, BLM states that it is relying on a U.S. Forest Service EIS for the West Elk coal mine, which, according to the UFO, “concluded that it was not reasonable to assume that the ‘No Action’ Alternative (not making UFO coal available) would result in overall cumulative (global) greenhouse gas emissions reductions.” FEIS at 4-29. That conclusion is incorrect. The Forest Service analysis referred to by BLM *did conclude* there would be substitution between coal and other fuels under a No Action scenario, such that overall U.S. GHG emissions would be different comparing Action and No Action alternatives. Moreover, the modeling the U.S. Forest Service relied on for West Elk assumed a full and immediate implementation of the Clean Power Plan. That assumption substantially changed the modelling’s substitution outputs; such an assumption cannot be justified today, and BLM cannot credibly rely on an analysis that is based on underlying assumptions that are no longer true.

Meaningful consideration of 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).

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<sup>55</sup> As discussed below, these totals are improperly low. BLM relies on methane’s 100-year global warming potential (GWP) of 34 to convert all methane emissions – direct and indirect – into CO<sub>2</sub>e, while omitting the fact that methane’s 20-year GWP is 84-87. BLM recently took the approach of calculating GHG emissions in its Buffalo and Miles City Draft RMPs using both methane’s short- and long-term GWP. The agency must take the same approach here.

<sup>56</sup> The Wilderness Society, *Greenhouse Gas Emissions from Fossil Energy Extracted from Federal Lands and Waters*, February 2012, available at: <http://wilderness.org/sites/default/files/FINAL%20STRATUS%20REPORT.pdf> (previously attached as Exhibit 24).

The courts have ruled that federal agencies should consider indirect GHG emissions resulting from agency policy, regulatory, planning 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).

A slew of recent cases have held that downstream greenhouse gas emissions are reasonably foreseeable indirect impacts of a federal fossil fuel action, that an agency must estimate downstream greenhouse gas emissions or explain why it could not, and finally, that a cumulative impacts analysis must include considerations of downstream greenhouse gas emissions under NEPA. *Wilderness Workshop v. United States Bureau of Land Mgmt.*, 342 F. Supp. 3d 1145, 1155 (D. Colo. 2018); *San Juan Citizens All. v. United States Bureau of Land Mgmt.*, 326 F. Supp. 3d 1227, 1244 (D.N.M. 2018); *WildEarth Guardians v. Zinke*, 368 F. Supp. 3d 41, 73 (D.D.C. 2019); *W. Org. of Res. Councils v. U.S. Bureau of Land Mgmt.*, No. CV 16-21-GF-BMM, 2018 WL 1475470, at \*13 (D. Mont. 2018); *Sierra Club v. Fed. Energy Regulatory Comm'n*, 867 F.3d 1357, 1374 (D.C. Cir. 2017); *WildEarth Guardians v. Zinke*, No. CV 17-80-BLG-SPW-TJC, 2019 WL 2404860 at \*12 (D. Mont. Feb. 11, 2019); *Indigenous Env'tl. Network v. United States Dep't of State*, 347 F. Supp. 3d 561, 578-579 (D. Mont. 2018).

The volume of potential coal, oil and gas from the parcels available for lease in the UFO draft RMP and EIS is quantifiable, and the lifecycle GHG emissions impact from these new lease parcels must be disclosed to the public. In our comments on the DEIS (at pp. 44-48), we easily generated an accurate, site-specific impact analysis for each alternative by utilizing BLM's own Energy Policy and Conservation Act phase III Oil and Gas Inventory Model geodatabase and the Uncompahgre draft RMP DEIS alternative GIS shapefiles to establish future extractible oil and gas volume from the planning area.<sup>57</sup> Then, we generated potential lifecycle greenhouse gas emissions for resultant oil and gas volumes using a peer-reviewed carbon calculator and lifecycle greenhouse gas emissions model developed by EcoShift consulting.<sup>58</sup> This model is not novel in

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<sup>57</sup> Center for Biological Diversity, Maps and volume estimates of future extractible oil and gas volume in the Uncompahgre planning area based on GIS mapping of U.S. Bureau of Land Management's EPCA Phase III Inventory GIS Data, published May 2008, *found at* [http://www.blm.gov/wo/st/en/prog/energy/oil\\_and\\_gas/EPCA\\_III/EPCA\\_III\\_geodata.html](http://www.blm.gov/wo/st/en/prog/energy/oil_and_gas/EPCA_III/EPCA_III_geodata.html); U.S. Bureau of Land Management, Uncompahgre Field Office draft Resource Management Plan and Environmental Impact Statement GIS mapping shapefiles, published June 3, 2016 *found at* [http://www.blm.gov/co/st/en/fo/ufo/uncompahgre\\_rmp.html](http://www.blm.gov/co/st/en/fo/ufo/uncompahgre_rmp.html); Emails and Dropbox files from David Sinton, Geographic Information Systems Specialist, BLM Uncompahgre Field Office, re: Uncompahgre draft RMP and EIS shapefiles supplemental data (October 7, 2016 2:14 PM MT). *Methodology used:* Intersect the leasable oil and gas areas for each alternative provided in the Dropbox files and on the planning website for the Uncompahgre field office's draft RMP and EIS with the model layer from BLM's Oil and Gas Inventory Model Geodatabase. Then calculate new acreage for each polygon and multiply the "Total Oil Density" and "Total Gas Density" layers by this acreage to create volume data. The resultant maps are attached as Exhibits 79-83.

<sup>58</sup> *See* Mulvaney (attached as Exhibit 23).

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.

Despite the fact that Conservation Groups provided BLM with a complete GHG lifecycle emissions analysis, BLM failed to use it or conduct its own analysis.

The extreme urgency of the climate crisis requires BLM to pursue all means available to limit the climate change effects of its actions, beginning with a robust and accurate quantitative analysis of potential greenhouse gas emissions from fossil fuel development proposed in the planning area. Any emissions source, no matter how small, is potentially significant, such that BLM should fully explore mitigation and avoidance options for all sources.

#### ***F. BLM Failed to Quantify the Severity of Harm from Greenhouse Gas Emissions.***

As Conservation Groups stated in their comments on the DEIS (attached as Exhibit 1-1), at pp. 62-69, the BLM failed to monetize climate damages stemming from the UFO RMP. BLM uses faulty reasoning to defend why it has chosen not to use the social cost of greenhouse gas metric to monetize the RMP's emissions.

First, the BLM reasons that “this action is not a rulemaking for which the SCC protocol was originally developed.” FEIS at R-181. However, application of the social cost of carbon is not limited to rulemakings. NEPA requires agencies to fully and accurately estimate environmental, public health, and social welfare differences between alternatives, and the social cost of carbon is the best available tool to compare the climate impacts of alternatives. The tool, which provides a dollar estimate of the damage caused by each additional ton of carbon dioxide emitted into the atmosphere, operates the same way whether those emissions result from a federal agency rulemaking, a federal resource management plan, or a project-level approval.

NEPA requires a more searching analysis than merely disclosing the amount of pollution. Rather, BLM must examine the “ecological[,]... economic, [and] social” impacts of those emissions, including an assessment of their “significance.” 40 C.F.R. §§ 1508.8(b), 1502.16(a)-(b). The U.S. Supreme Court has called the disclosure of impacts the “key requirement of NEPA,” and held that agencies must “consider and disclose the *actual environmental effects*” of a proposed project in a way that “brings those effects to bear on [the agency’s] decisions.” *Baltimore Gas & Elec. Co. v. Natural Res. Def. Council*, 462 U.S. 87, 96 (1983) (emphasis added); *see also* 40 C.F.R. § 1508.8(b) (requiring assessment of the “ecological,” “economic,” “social,” and “health” “*effects*”) (emphasis added). In particular, “[t]he impact of greenhouse gas emissions on climate change is precisely the kind of cumulative impact analysis that NEPA requires.” *Ctr. for Biological Diversity v. Nat’l Highway Traffic Safety Admin.*, 538 F.3d 1172, 1217 (9th Cir. 2008). Furthermore, the analyses included in environmental assessments and impact statements “cannot be misleading.” *High Country Conservation Advocates v. U.S. Forest Service*, 52 F. Supp. 3d 1174, 1182 (D. Colo. 2014). The BLM must provide the contextual information necessary to ensure that the public and decisionmakers grasp the true climate impacts of the RMP.

The methodology on which the social cost of carbon protocol is built is rigorous, transparent, and based on best available data. The protocol was developed by the Interagency Working Group (IWG) on Social Cost of Greenhouse Gases, which included experts from a dozen federal agencies and White House offices. In 2014, the U.S. Government Accountability Office concluded that the IWG had followed a “consensus-based” approach, relied on peer-reviewed academic literature, disclosed relevant limitations, and adequately planned to incorporate new information through public comments and updated research.<sup>59</sup> Leading economists and climate policy experts have endorsed the Working Group’s values as the best available estimates.<sup>60</sup>

The social cost of carbon protocol is perfectly suited to measure marginal climate damages such as those flowing from the UFO Resource Management Plan. The protocol translates emissions into changes in atmospheric greenhouse gas concentrations, atmospheric concentrations into changes in temperature, and changes in temperature into economic damages. The benefit of the protocol is that it does not require specific impacts to be assessed in isolation. Instead, the protocol groups and monetizes climate impacts, enabling agencies to assess whether an individual plan passes the threshold for significance and allowing the comparison of alternatives.

Second, the BLM points to Executive Order 13,783, by which President Donald Trump withdrew the Technical Support Documents upon which the social cost of carbon protocol was based and disbanded the Interagency Working Group (IWG) on Social Cost of Greenhouse Gases, and argues that “there is [currently] no Executive Order requirement to apply the SCC protocol to project decisions.” FEIS at R-181. However, Executive Order 13,783 does not prevent BLM from using the same methodology and inputs used by the IWG to develop its social cost of carbon protocol. Indeed, the President’s executive order withdrew the Technical Support Documents on political, not scientific, grounds. Moreover, Executive Order 13,783 assumes that federal agencies will continue to “monetiz[e] the value of changes in greenhouse gas emissions” and instructs agencies to ensure such estimates are “consistent with the guidance contained in OMB Circular A-4.” Exec. Order No. 13,783 § 5(c), 82 Fed. Reg. 16,093 (Mar. 28, 2017). As agencies follow the Circular’s standards for using the best available data and methodologies, they will necessarily choose similar data, methodologies, and estimates as the IWG, since the IWG’s work continues to represent the best available estimates.<sup>61</sup>

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<sup>59</sup> Gov’t Accountability Office, *Regulatory Impact Analysis: Development of Social Cost of Carbon Estimates* 12-19 (2014), available at <http://www.gao.gov/assets/670/665016.pdf>.

<sup>60</sup> See, e.g., Richard Revesz et al., *Best Cost Estimate of Greenhouse Gases*, 357 *Science* 655 (2017) (attached as Exhibit 12); Michael Greenstone et al., *Developing a Social Cost of Carbon for U.S. Regulatory Analysis: A Methodology and Interpretation*, 7 *Rev. Envtl. Econ. & Pol’y* 23, 42 (2013) (attached as Exhibit 13); Richard L. Revesz et al., *Global Warming: Improve Economic Models of Climate Change*, 508 *Nature* 173 (2014) (previously attached as Exhibit 11).

<sup>61</sup> See Richard L. Revesz et al., *Best Cost Estimate of Greenhouse Gases*, 357 *Science* 6352 (2017) (explaining that, even after Trump’s Executive Order, the social cost of greenhouse gas estimate of around \$50 per ton of carbon dioxide is still the best estimate) (attached as Exhibit 12).

Third, the BLM argues that NEPA does not require a cost-benefit analysis, and that, “[w]ithout a complete monetary cost-benefit analysis, which would include the social benefits of the proposed action to society as a whole and other potential positive benefits, inclusion solely of an SCC cost analysis would be unbalanced, potentially inaccurate, and not useful.” FEIS at R-181. However, although NEPA does not require a formal cost-benefit analysis,<sup>62</sup> the statute does require “a reasonably thorough discussion of the significant aspects of the probable environmental consequences,” including real-world climate impacts and their significance, to “foster both informed decisionmaking and informed public participation.” *Ctr. for Biological Diversity*, 538 F.3d at 1194 (citations omitted). In particular, it is arbitrary to fail to “provide the necessary contextual information about the cumulative and incremental environmental impacts.” *Id.* at 1217. The social cost of carbon provides such information. Courts have warned agencies, for example, that “[e]ven though NEPA does not require a cost-benefit analysis,” an agency cannot selectively monetize benefits in support of its decision while refusing to monetize the costs of its action. *High Country Conservation Advocates*, 52 F. Supp. 3d at 1191; *accord MEIC v. Office of Surface Mining*, 274 F. Supp. 3d at 1094-99 (holding it was arbitrary for the agency to quantify benefits in an EIS while failing to use the social cost of carbon to quantify costs, as well as arbitrary to imply there would be no effects from greenhouse gas emissions).

*High Country* and *MEIC v. OSM* were simply the latest applications of a broader line of case law in which courts find it arbitrary and capricious to apply inconsistent protocols for analyzing some effects compared to others, especially when the inconsistency obscures some of the most significant effects. For example, in *Center for Biological Diversity v. National Highway Traffic Safety Administration*, the U.S. Court of Appeals for the Ninth Circuit ruled that, because the agency had monetized other uncertain costs and benefits of its vehicle fuel efficiency standard—like traffic congestion and noise costs—its “decision not to monetize the benefit of carbon emissions reduction was arbitrary and capricious.” 538 F.3d 1172, 1203 (9th Cir. 2008). Specifically, it was arbitrary to “assign[ ] no value to *the most significant benefit* of more stringent [vehicle fuel efficiency] standards: reduction in carbon emissions.” *Id.* at 1199. Similarly, the U.S. Court of Appeals for the District of Columbia Circuit has chastised agencies for “inconsistently and opportunistically fram[ing] the costs and benefits of the rule [and] fail[ing] adequately to quantify certain costs or to explain why those costs could not be quantified.” *Bus. Roundtable v. SCC*, 647 F.3d 1144, 1148-49 (D.C. Cir. 2011). And the U.S. Court of Appeals for the Tenth Circuit has remanded an environmental impact statement

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<sup>62</sup> 40 C.F.R. § 1502.23 (“[T]he weighing of the merits and drawbacks of the various alternatives need not be displayed in a monetary cost-benefit analysis.”); *but see e.g., Sierra Club v. Sigler*, 695 F.2d 957, 978-79 (5th Cir. 1983) (holding that NEPA “mandates at least a broad, informal cost-benefit analysis,” and so agencies must “fully and accurately” and “objectively” assess environmental, economic, and technical costs); *Chelsea Neighborhood Ass’n v. U.S. Postal Serv.*, 516 F.2d 378, 387 (2d Cir. 1975) (“NEPA, in effect, requires a broadly defined cost-benefit analysis of major federal activities.”); *Calvert Cliffs’ Coordinating Comm. v. U.S. Atomic Energy Comm’n*, 449 F.2d 1109, 1113 (D.C. Cir. 1971) (“NEPA mandates a rather finely tuned and ‘systematic’ balancing analysis” of “environmental costs” against “economic and technical benefits”); *Nat’l Wildlife Fed. v. Marsh*, 568 F. Supp. 985, 1000 (D.D.C. 1983) (“The cost-benefit analysis of NEPA is concerned primarily with environmental costs. . . . A court may examine the cost-benefit analysis only as it bears upon the function of insuring that the agency has examined the environmental consequences of a proposed project.”).

because “unrealistic” assumptions “misleading[ly]” skewed comparison of the project’s positive and negative effects. *Johnston v. Davis*, 698 F.2d 1088, 1094–95 (10th Cir. 1983).

Moreover, monetizing one key impact still provides useful information for decisionmakers and the public even when monetizing other impacts is not feasible. The social cost of greenhouse gases enables a more accurate and transparent comparison of alternatives along the dimension of climate impacts even if other costs and benefits cannot be quantified.

Finally, BLM argues that “the SCC protocol does not measure the actual incremental impacts of a project on the environment and does not include all damages or benefits from carbon emissions.” FEIS at R-183. However, uncertainty over the values or range of values included in the social cost of carbon protocol is not a reason to abandon the protocol’s methodologies. *Center for Biological Diversity v. NHTSA*, 538 F.3d 1172, 1200 (9<sup>th</sup> Cir. 2008) (“[W]hile the record shows that there is a range of values, the value of carbon emissions reductions is certainly not zero.”). If anything, uncertainty supports higher estimates of the social cost of carbon, because most uncertainties regarding climate change entail tipping points, catastrophic risks, and unknown unknowns about the damages of climate change. Numerous federal agencies have successfully and usefully applied the social cost of carbon protocol’s ranges in their environmental impact statements. Most recently, in August 2017, the Bureau of Ocean Energy Management applied the IWG’s range of estimates calculated at three discount rates (2.5%, 3%, and 5%) to its environmental impact statement for an offshore oil development plan, and called this range of estimates “a useful measure to assess the benefits of CO<sub>2</sub> reductions and inform agency decisions.”<sup>63</sup>

BLM should also consider the social cost of methane protocol. Like the social cost of carbon protocol, the social cost of methane protocol has been adopted by the IWG and provides a standard methodology that allows state and federal agencies to quantify the social benefits of reducing methane emissions through actions that have comparatively small impacts on cumulative global emission levels.

Without rapid and profound reductions in greenhouse gas emissions, the societal losses, both economic and qualitative, will be massive and devastating. Due to the proliferation of extreme weather events, sea level rise, ocean acidification, and the increasing need to adapt to these phenomena to maintain our way of life, future climate change costs will be felt in virtually every arena. The arenas of public health, food and water supply, energy demand and supply, recreation, and built environment are all expected to be adversely impacted by climate change; and those impacts will manifest to levels of cost beyond those already reached. Therefore, prioritizing substantial greenhouse gas emissions reductions would be exceedingly beneficial and have quantifiable returns.

According to a recent IPCC analysis, there are great benefits to gain by keeping warming to 1.5°C rather than 2°C. By only committing to keeping warming to 2°C, we are committing ourselves to: 10 centimeters of additional sea level rise by 2100, exposing 10 million more people to flooding; a greater risk of the collapse of the Greenland and Antarctic ice sheets, resulting in multi-meter sea level rise; doubling the number of vertebrate and plant species losing

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<sup>63</sup> BOEM, *Liberty Development Project: Draft Environmental Impact Statement*, at 3-129, 4-247 (2017).

more than half their range; the virtual elimination of coral reefs; Arctic ice-free summers; doubling of the number of people exposed to climate-change-induced increases in water stress; higher risk of heat-related and ozone related deaths; reduced yields and lower nutritional value of staple crops; and up to several hundred million more people exposed to climate-related risks and susceptible to poverty by 2050.<sup>64</sup>

Multiple studies have quantified the benefits of greenhouse gas emissions reductions using various metrics. One study, similar to the IPCC report in its comparison between 1.5°C and 2°C warming, found that decreased air pollution (primarily PM<sub>2.5</sub> and ozone) in a 1.5°C scenario would lead to 153 million fewer premature deaths worldwide by 2100, with 40% occurring during the next 40 years. Also, under a 1.5°C warming scenario, more than a million premature deaths would be prevented in many metropolitan areas in Asia and Africa, and greater than 200,000 in individual urban areas on every inhabited continent except Australia.<sup>65</sup>

In another global study, in which risk factors related to water availability, energy demand, food demand, and environmental degradation were analyzed, a positive trend was found between risk exposure metrics and global warming. It was found that the number of people exposed to two or more risk factors, leading to an overall unacceptable risk to well-being, would double between 1.5°C and 2°C warming, and would double again at 3°C. Once again, exposure and vulnerability to risk would be most prevalent in Asian and African countries, but impacts would be felt by the global population.<sup>66</sup>

Two studies quantified emissions reduction impacts using gross domestic product (GDP). One found that every 1°C increase in temperature would lead to a loss of 1.2% of U.S. GDP. This estimate coalesced numerous factors, such as violent crime rates which would increase by 0.88% per 1°C increase; agriculture which would see reducing national yields of 9.1% per 1°C; mortality rates which would rise by 5.4 deaths per 100,000 per 1°C; electricity demand which would rise by 5.3% per 1°C; and labor declines of 0.11% per 1°C.<sup>67</sup> In the second study, it was found that, in response to 1.5°C, 2°C, and 4°C warming, changes in space heating and cooling demand would reduce global GDP in 2100 by 0.05%, 0.19%, and 0.94%, respectively, once again showing how the level of ambition for climate change mitigation will significantly impact societal costs.<sup>68</sup>

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<sup>64</sup> IPCC [Intergovernmental Panel on Climate Change], Global Warming of 1.5°C, an IPCC special report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty (October 6, 2018), <http://www.ipcc.ch/report/sr15/> (attached as Exhibit 1).

<sup>65</sup> Shindell, D. et al., Quantified, Localized Health Benefits of Accelerated Carbon Dioxide Emissions Reductions, 8 Nature Climate Change 291 (2018) (attached as Exhibit 14).

<sup>66</sup> Byers, E. et al., Global exposure and vulnerability to multi-sector development and climate change hotspots, 13 Environmental Research Letters 055012 (2018) (attached as Exhibit 15).

<sup>67</sup> Hsiang, S. et al., Estimating economic damage from climate change in the United States, 356 Science 1362 (2017) (attached as Exhibit 16).

<sup>68</sup> Park et al., Avoided economic impacts of energy demand changes by 1.5 and 2°C climate stabilization, 13 Environmental Research Letters 045010 (2018) (attached as Exhibit 17).

Another study found that with every metric ton of CO<sub>2</sub> emissions, three square meters of September sea-ice area would be lost, meaning that an additional 1000 Gt of CO<sub>2</sub> emissions would lead to an ice-free summer in the Arctic. Given an estimate of current emissions of 35 Gt CO<sub>2</sub> per year, the limit of 1000 Gt would be reached before mid-century. This would have far-reaching consequences since the amplified warming of the Arctic that would result would adversely affect global weather patterns and wildlife habitats.<sup>69</sup>

In a research endeavor called BRACE (Benefits of Reduced Anthropogenic Climate Change), the benefits of lower emissions pathways were quantified. It was found that impacts on certain sectors were significantly less if our emissions pathway tracked closer to RCP4.5 (atmospheric CO<sub>2</sub> as high as 550 ppm by 2100) than to RCP8.5 (atmospheric CO<sub>2</sub> as high as 935 ppm by 2100). For instance, it was found that the likelihood of currently rare extreme heat events (defined as having just a 5% chance of occurring in a given year today) would increase by a factor of 5 to 20 in RCP8.5, but only by a factor of 2 to 4 in RCP4.5 between 2061 and 2080. Also, under RCP4.5, the number of heat wave days in a given year would be half the amount under RCP8.5. In regards to health, the number of high-mortality heat waves, those that temporarily increase mortality rates by 20% or more, would be reduced by a third under RCP4.5 compared to RCP8.5. Under RCP8.5, an additional 2 billion people (4 billion currently) would live in conditions suitable for the mosquito *A. aegypti*, linked to the transmission of Zika, Chikungunya, and yellow fever viruses, but this number would be reduced by a third under RCP4.5.<sup>70</sup>

In the Fourth National Climate Assessment, it is reiterated how the costs of climate change discussed above will depend upon our ambition in curbing emissions, and those costs are translated to dollar savings. Annual damages under RCP8.5 in 2090 to labor, for example, would be approximately \$155 billion, corresponding to a loss of almost 2 billion labor hours, but if our pathway is instead RCP4.5, then 48 percent of this damage would be avoided; extreme temperature mortality would carry an annual cost in 2090 of \$141 billion under RCP8.5, but 58 percent of this cost would be avoided under RCP4.5; coastal property damage would carry an annual cost of \$118 billion under RCP8.5, but 22 percent of this cost would be avoided under RCP4.5; annual damages from air quality impacts would be \$26 billion under RCP8.5, but 31% of this cost would be avoided under RCP4.5. Similar would be the case for damage to roads, railways, and bridges, adverse food supply impacts, and impacts on energy and water supplies, where significantly reducing emissions leads to lower costs.<sup>71</sup> It is important to note that the

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<sup>69</sup> Notz, D. and Stroeve, J., Observed Arctic sea-ice loss directly follows anthropogenic CO<sub>2</sub> emission, 354 *Science* 747 (2016) (attached as Exhibit 18).

<sup>70</sup> O'Neill, B.C. et al., The Benefits of Reduced Anthropogenic Climate Change (BRACE): a synthesis, *Climatic Change* (2017) (attached as Exhibit 18).

<sup>71</sup> USGCRP [U.S. Global Change Research Program], Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II [Reidmiller, D.R. et al. (eds.)], U.S. Global Change Research Program, Washington, DC (2018), *available at* <https://nca2018.globalchange.gov> at 1349 (attached as Exhibit 19); Martinich, J. and Crimmins, A., Climate damages and adaptation potential across diverse sectors of the United States, *Nature Climate Change* (2019), <https://doi.org/10.1038/s41558-019-0444-6> (attached as Exhibit 20).

scenario most in line with staying below 2°C warming is RCP2.6 (CO<sub>2</sub> levels remaining below 450 ppm by 2100), so cost savings from pursuing this emissions pathway should be even greater than those from RCP4.5.

BLM should use the best tools available to it in order to fully analyze and disclose the climate impacts of its proposal. Given that the social cost of carbon and the social cost of methane were adopted by the IWG, which includes a dozen federal offices and agencies including the Department of Interior, BLM should use these tools to evaluate the climate impacts of its plan for the Uncompahgre planning area. Additionally, there are numerous studies that outline quantification tools that demonstrate the benefits of reducing greenhouse gas emissions and stabilizing the global climate as described above. BLM must utilize the latest climate tools to assign significance to the greenhouse gas emissions estimated in the UFO RMP FEIS as required by NEPA.

***G. BLM Failed to Undertake a Hard-Look Analysis of Methane Waste and Methane’s Global Warming Potential.***

It is critically important to reduce methane waste from fossil fuel production in order to limit climate damages. Here, BLM failed to undertake a hard-look analysis of methane waste and global warming potential, or adopt enforceable mitigation requirements to minimize methane emissions and waste. Conservation Groups raised these issues in their DEIS Comments (attached as Exhibit 1-1), at pp. 69-89.

The BLM discloses estimated direct (upstream and local midstream) annual methane emissions from the proposed action to be 64,532 metric tons. *See* FEIS Table 4-3. However, BLM does not disclose what leak rate this calculation represents, even though methane emission rates can differ quite dramatically from one oil and gas field to the next, as Conservation Groups have previously explained. Furthermore, the BLM underestimates the climate impact of these emissions. Specifically, BLM uses a global warming potential (GWP) of 34 over a 100-year time horizon (meaning that methane is assumed to be 34 times as potent as CO<sub>2</sub> over a 100-year time horizon). FEIS at 4-28. However, the 100-year GWP for methane was updated by the IPCC in a 2013 Report to reflect that methane is 36 times as potent as CO<sub>2</sub>. Additionally, the IPCC’s new research has calculated that methane is 84 times as potent as CO<sub>2</sub> over a 20-year time horizon.<sup>72</sup> Furthermore, recent peer-reviewed science demonstrates that gas-aerosol interactions amplify methane’s impact such that methane is actually 105 times as potent as CO<sub>2</sub> over a twenty-year time period.<sup>73</sup> These values should be used—or at the very least acknowledged—in the FEIS, but are instead ignored. As one federal district court explained, in invalidating BLM’s reliance exclusively on 100-year methane GWPs, “BLM’s unexplained decision to use the 100-year time

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<sup>72</sup> G. Myhre et al., Anthropogenic and Natural Radiative Forcing, in INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, *Working Group I Contribution to the IPCC Fifth Assessment Report Climate Change 2013: The Physical Science Basis*, Table 8.7 at 714 (previously attached as Exhibit 113).

<sup>73</sup> Drew Shindell et al., *Improved Attribution of Climate Forcing to Emissions*, SCIENCE 2009 326 (5953), p. 716, available at: [www.sciencemag.org/cgi/content/abstract/326/5953/716](http://www.sciencemag.org/cgi/content/abstract/326/5953/716) (attached as Exhibit 83).

horizon, when other more appropriate time horizons remained available, qualifies as arbitrary and capricious.” *Western Org. of Res. Councils v. BLM*, 2018 WL 1475470 at \*15 (Mar. 26, 2018).

The agency’s quantitative assessment must account for methane’s long-term (100-year) global warming impact and methane’s short-term (20-year) warming impact using the latest peer-reviewed science to ensure that potentially significant impacts are not underestimated or ignored. *See* 40 C.F.R. § 1508.27(a) (requiring consideration of “[b]oth short- and long-term effects”). BLM recently took such an approach in the Buffalo and Miles City Draft RMPs.<sup>74</sup> BLM failed to acknowledge commenters’ concerns urging use of accurate and reflective GWP values. FEIS at R-484.

Moreover, BLM must adopt enforceable mitigation requirements to minimize methane emissions and waste. At the RMP stage, it is appropriate and advisable for the agency to identify enforceable methane mitigation measures, and these must be included either (1) as stipulations in future lease sales, or (2) as conditions of approval (“COAs”) for all future APD or MLP approvals or other authorizations for implementation when activities are conducted or equipment is installed. In previous comments, conservation groups detailed the resources BLM could use to identify and include these mitigation measures, including Colorado’s Comprehensive Air Resource Protection Protocol (“CARPP”). BLM should also refer to BLM’s Land and Resource Management Plan (“LRMP”), BLM: 1610 (CO-933), for BLM’s Colorado’s Tres Rios Field Office (“TRFO”) and the San Juan National Forest (“SJNF”). There, the BLM and the Forest Service broke new and essential ground in both acknowledging that significant GHG pollution would result from oil and gas development on TRFO lands, and then establishing *required* methane mitigation standards at the planning stage that will bind future leases and permits to drill to comply with these measures. Given that the TRFO is directly adjacent to the UFO, including shared geologic formations and mineral resources, it is arbitrary and capricious for BLM here to ignore or not adopt mitigation measures consistent with those included by the TRFO. At the very least, BLM has an obligation to explain why such measures are not applied in the Uncompahgre planning area, which it has failed to do. FEIS at R-484.

Conservation Groups also continue to take issue with the notion that “adaptive management” is a viable approach to addressing methane emissions and waste, as BLM suggests at FEIS at 4-19. The BLM seems to ignore the fact that methane emissions and waste are not monitored in the same manner and to the same degree as criteria and hazardous air pollutants. Therefore, BLM’s reliance on adaptive management to address methane emissions and waste is not sufficient because the agency has failed to require monitoring of smaller—but cumulatively significant—sources of such waste in the oil and gas production process. The UFO must do more

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<sup>74</sup> BLM, Miles City Field Office, Draft Supplemental Environmental Impact Statement and Resource Plan Amendment, at 3-15 (May 2019) (“Table 3-3, GHG Emissions as CO<sub>2</sub>e from Federal Coal Production, Transportation, and Combustion based on 20-year and 100-year GWPs.”); BLM, Buffalo Field Office, Draft Supplemental Environmental Impact Statement and Resource Plan Amendment, at 3-17 (May 2019) (“Table 3-6, GHG Emissions as CO<sub>2</sub>e from Federal Conventional Natural Gas Production and Combustion, Based on 20-year and 100-year GWPs.”).

than cite the CARPP as a tool for future adaptive management. Rather, the agency must adopt the methane mitigation technologies, BMPs and planning tools identified previously to address all future development authorized under the RMP/EIS, and to apply these tools, practices, and technologies not just to development on new leases but as RMP authorized stipulations on *all* new oil and gas development in the planning area.

As detailed in our previous comments, convincing evidence also exists to support the consideration of alternatives that would attach meaningful stipulations to areas open to oil and gas leasing, above and beyond the steps taken by the agency here. BLM has not considered such alternatives, which include requiring operators to use proven technologies and practices to reduce significantly the methane emissions from oil and gas operations.

#### ***H. The UFO Failed to Take a Hard Look at Impacts to Air Quality.***

As Conservation Groups previously explained, DEIS Comments (Ex. 1-1) at pp. 99-109, BLM must take a closer look at impacts to air quality. First, BLM may not avoid including winter ozone modeling. BLM's excuse for not including winter ozone modeling—that winter-time ozone formation is not as likely to occur in the Uncompahgre planning area as in other parts of the Rocky Mountain region—is unresponsive. FEIS at R-119. BLM cannot merely summarily dismiss ozone impacts without the support of monitoring or other data. That subverts the purpose of NEPA to look before leaping.

Notably, BLM does not contend with or even acknowledge Conservation Groups' point that climate change is likely to worsen ozone pollution across the Rocky Mountain West, even though the FEIS acknowledges that climate change can increase the occurrence and severity of wildfires on BLM-administered land. FEIS at 4-17. Wildfires release large amounts of ozone precursors into the atmosphere. Additionally, BLM does not address Conservation Groups' point that venting from methane drainage wells from coal mines in the North Fork Valley may release significant amounts of ozone precursors. These considerations must be part of BLM's NEPA analysis.

Additionally, the UFO should take a hard look at hazardous air pollutant ("HAP") impacts from the proposed development, including the impacts from 1,3-butadiene and secondary formaldehyde. BLM attempts to excuse its failure to take a hard look at HAPs by saying that "RMP-level impact analyses are broad and qualitative rather than quantitative or focused on site-specific actions," R-329, and that HAPs analyses "are developed at the project-level stage." R-118. However, the BLM does not explain why HAPs analysis at the RMP stage is inappropriate or infeasible. On the contrary, there is no reason why HAP analysis may not be conducted at the RMP stage to ensure there are no significant health impacts from near-field exposure to HAPs from the proposed development in the planning area. *See* 40 C.F.R. §1508.27(b)(2).

Entirely absent from the agency's discussion of air quality impacts is the relationship to human health. Although adherence to air quality mitigation and NAAQS standards will have a positive relationship to human health, poor baseline air quality conditions due to direct, indirect and cumulative impacts in the planning area warrants an independent hard look analysis at

human health; and, moreover, such analysis is required by NEPA and CEQ implementing regulations. As the Endocrine Disruption Exchange has noted:

In addition to the land and water contamination issues, at each stage of production and delivery tons of toxic volatile compounds (VOCs), including BETX, other hydrocarbons, and fugitive natural gas (methane), can escape and mix with nitrogen oxides (NO<sub>x</sub>) from the exhaust of diesel-driven, mobile and stationary equipment, to produce ground-level ozone. One highly reactive molecule of ground level ozone can burn the deep aveolar tissue in the lungs, causing it to age prematurely. Chronic exposure can lead to asthma and chronic obstructive pulmonary diseases (COPD), and is particularly damaging to children, active young adults who spend time outdoors, and the aged. Ozone combined with particular matter less than 2.5 micrometers produces smog (haze) that has been demonstrated to be harmful to humans as measured by emergency room admissions during periods of elevation. Gas field produced ozone has created a previously unrecognized air pollution problem in rural areas, similar to that found in large urban areas, and can spread up to 200 miles beyond the immediate region where gas is being produced. Ozone not only causes irreversible damage to the lungs, it is similarly damaging to conifers, aspen, forage, alfalfa, and other crops commonly grown in the West. Adding to this air pollution is the dust created by fleets of diesel trucks working around the clock hauling the constantly accumulating condensate and produced water to large waste facilities evaporation pits on unpaved roads. Trucks are also used to haul the millions of gallons of water from the source to the well pad.<sup>75</sup>

As discussed, development under the UFO RMP/EIS will increase ozone. The BLM acknowledges: “The magnitude of estimated non-greenhouse gas emissions from BLM-authorized oil and gas activities at the level of development predicted over the life of the RMP in Alternatives A, B, B.1, C, D, and E have the potential to contribute to increased ambient concentrations of ozone in, adjacent to, and outside and downwind of the Planning Area.” FEIS at 4-19. As detailed in Conservation Groups’ previous comments, increases in ground-level ozone not only impact regional haze and visibility, but can also result in dramatic impacts to human health.

Moreover, ozone is just one air-related byproduct of oil and gas development that may pose serious impacts to human health. Recent studies in Garfield County confirm that air toxics are generated during every stage of oil and gas development and can have potentially significant health impacts even at concentrations below regulatory thresholds.<sup>76</sup> Another recent study undertaken in rural Colorado locations found that women who lived close to gas wells were more

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<sup>75</sup> Theo Colburn et al., *Natural Gas Operations from a Public Health Perspective*, available at: <http://endocrinedisruption.org/assets/media/documents/GasManuscriptPreprintforweb12-5-11.pdf> (attached as Exhibit 151).

<sup>76</sup> Theo Colborn et al., *An exploratory study of air quality near natural gas operations*, HUM. ECOL. RISK ASSESS (Nov. 9, 2012) (previously attached as Exhibit 156).

likely to have children born with a variety of defects, from oral clefts to heart issues.<sup>77</sup> And, yet another recent study found that people who lived less than half a mile from a gas well had a higher risk of health issues. The research found a small increase in cancer risk and alleged that exposure to benzene was a major contributor to the risk.<sup>78</sup>

BLM's response to comments on the issue of health impacts is entirely unsatisfactory. BLM merely promises that "under all alternatives, lease stipulations and BMPs" that would be applied during subsequent site-specific NEPA analysis "would limit impacts on human health and safety." R-329. This excuse is conclusory and does not explain why analyzing human health impacts at the RMP stage would not be feasible or appropriate. Oil and gas development is one of the largest sources of VOCs, ozone, and sulfur dioxide emissions in the United States. The relationship between air quality and human health must be analyzed as soon as possible in the NEPA process. The failure of the UFO to do so here, in the RMP/EIS, represents a fundamental shortcoming of the agency's analysis, and must be corrected. "The agency must examine the relevant data and articulate a satisfactory explanation for its action including a 'rational connection between the facts found and the choice made.'" *Motor Vehicle Mfrs.*, 463 U.S. at 43 (1983).

### ***I. BLM Failed to Take a Hard Look at Resource Impacts from Hydraulic Fracturing.***

As described in detail in Conservation Groups' previous comments, DEIS Comments (Ex. 1-1) at 109-128, there is a wealth of information and reports stressing the dangers of fracking that must be considered in the agency's subject NEPA analysis, including methane contamination of drinking water, spills of hydraulic fracturing fluid, and migration of fracking fluids into groundwater aquifers. The potential impacts that may result from hydraulic fracturing are myriad and significant and include, among others, impacts to water quality and supply, impacts to habitat and wildlife, impacts to human health, as well as impacts on greenhouse gas emissions and air quality. In its FEIS, BLM continues to fail to fully address the additional information on resource impacts from hydraulic fracturing provided by Conservation Groups in their comments on the DEIS. FEIS at R-329.

The BLM briefly considers the potential for hydraulic fracturing fluid spills, recognizing that "[h]ydraulic fracturing could disturb surface water and groundwater hydrology and impact water quality." FEIS at 4-112. Although Appendix G does contain some best management practices directed at reducing the potential for contaminating water resources with hydraulic fracturing spills, FEIS at G-8 to G-9, the UFO continues to fail to address several fundamental questions that are central to fulfilling the agency's hard look mandate. It is undisputed that millions of gallons of water are needed to frack a single well. This raises several issues which the UFO has failed to fully address in the RMP/EIS. *See State of New Mexico v. BLM*, 656 F.3d 963, 714-15 (10th Cir. 2009) (providing that the EIS failed to take hard look at water quality impacts

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<sup>77</sup> Lisa M. McKenzie et al., *Birth Outcomes and Maternal Residential Proximity to Natural Gas Development in Rural Colorado*, ENVIRONMENTAL HEALTH PERSPECTIVES (April 2014) (previously attached as Exhibit 157).

<sup>78</sup> *Id.*

from proposed oil and gas lease sale where wells would generated significant amounts of waste water). For example:

- What source waters will be used for well development, and what are the direct, indirect, and cumulative impacts of extracting high volumes of these waters from surface or groundwater sources in this area?
- How would the produced water be disposed of? If produced water is returned to the surface as toxic waste for evaporation, where will such wastewater ponds be located? And, if produced water is re-injected in wastewater wells, where will such wells be located?
- What kind of treatment, if any, will be required of the producer for treating fracking wastewater?
- What is the potential footprint and location of the necessary treatment facilities, and what is the direct, indirect, and cumulative impact of such facilities?
- What mitigation measures and best management practices will BLM require, or at least recommend, to ensure that wastewater does not contaminate surface or groundwater resources, or impact threatened and endangered populations and designated critical habitat in the planning area?

The FEIS does not adequately address or analyze the risks of water quality contamination from surface storage of fracking fluid and other oil and gas wastes, including produced and flowback water from wells. Likewise, the BLM does not quantify, nor fully address, the risk of potentially catastrophic spills and blowouts at well sites.

The UFO also failed to sufficiently consider impacts to groundwater related to fracking. For the first time in the FEIS, BLM acknowledges “evidence of fugitive gas migration along wellbores,” but dismisses this evidence as “likely due to faulty well construction.” FEIS at 4-66. BLM concludes that “in some areas, the oil- and gas-related waters are not likely to reach drinking water aquifers, whereas in other areas, constituents of concern simply may not have yet reached the aquifer or have been diluted to below detection limits,” without providing an analysis of the characteristics of the Project Area that would make it more, or less, vulnerable to contamination. FEIS at 4-66. This dismissive approach does not satisfy the requirements of NEPA.

BLM also acknowledges that “[u]se, storage, and transportation of fluids, such as produced water, hydraulic fracturing fluids, and condensate, have the possibility of spills that could migrate to surface or groundwater, causing human health impacts,” and that “[i]f a groundwater source is contaminated, there are few cost-effective ways to reclaim that water; thus, the long-term impacts of groundwater contamination are considerable.” FEIS 4-63. However, BLM assures readers that “[r]igorous well casing protocols can reduce the risk of such contamination.” FEIS at 4-65. As identified in Conservation Groups’ previous comments, there are many documented instances where groundwater contamination has, in fact, resulted from the

fracking of oil and gas wells. The UFO's brief and dismissive response and analysis of the potential for contamination of groundwater as a result of fracking fails to satisfy the agency's obligation under NEPA to take a hard look at these impacts.

It is still the case that, as discussed in Conservation Groups' previous comments, the Reasonable Foreseeable Development scenario fails to sufficiently consider increased oil and gas development due to fracking. For example, BLM estimates that—as projected by the RFD—1,271 wells would be developed under the RMP on all federal minerals and private minerals within the planning area. FEIS at 4-2. However, this estimate does not allow for the likely scenario that advances in hydraulic fracturing technology will increase the number of drilled wells. The RFD is outdated and underestimates the number of potential wells. The RMP/EIS fails to take into account the most recent trends in well development, which are the most crucial in predicting the extent of development and its likely impacts. As detailed in Conservation Groups' previously comments, all evidence points to increased drilling in relation to historic trends, and this fact must be considered in BLM's NEPA analysis.

The RMP/EIS and RFD also failed to consider impacts regarding the subsequent fracturing treatments, or re-fracking operations. The UFO's RMP/EIS and RFD focus on initial drilling operations and routine maintenance, while these documents remain silent on the frequency and impacts – direct, indirect, and cumulative – related to re-fracking operations.

The RFD estimates the life of new conventional and coalbed natural gas wells will be at least 20 years. If additional stimulation or re-fracturing takes place every five years on average, then at least 4 such operations could be expected for each well. *See* RFD at 75. Additionally, the water demand and overall impacts of both initial and re-fracking operations could be several orders of magnitude greater for deep wells with horizontal reaches exceeding 5,000 feet, which can be fractured at intervals of 300 feet.

The re-fracking impacts analysis appears to still be absent from the EIS and must be conducted for all wells in the field office: private and public, existing and future, existing target formations, and potential new plays. Absent such analysis, BLM has failed to take a hard look at the direct, indirect or cumulative impacts of ongoing and reasonably foreseeable oil and gas development in the UFO.

Oil and gas development can result in serious impacts to the environment and human health. The technology used in oil and gas production has evolved rapidly but, unfortunately, regulation has not kept pace. The BLM's and Colorado's current regulations are insufficient to protect public health and the environment. The use of Best Management Practices ("BMPs") can greatly reduce the risks presented by oil and gas development by incorporating processes and technologies that are readily available.

Appendix G contains many important provisions to reduce the risks to the environment and human health from oil and gas operations and the UFO RMP can and should require the use of these BMPs through stipulations, standards, and guidance. However, additional protections are needed, including but not limited to: improved site characterization to look for pathways by which contaminants may reach groundwater; stronger well design and construction standards;

stimulation operation monitoring and reporting requirements; and improved waste water handling planning and practices.

NEPA was enacted to promote efforts that will prevent or eliminate damage to the human environment. BMPs help “mitigate” environmental impacts. “Mitigation” is defined in CEQ regulations as measures to help, avoid, reduce or compensate for environmental impacts. 40 CFR 1508.20. BLM’s failure to analyze the potential benefits of requiring these BMPs in alternatives does not satisfy NEPA’s hard look mandate and frustrates the purpose of preparing an EIS (40 CFR 1502.1 states that the purpose of preparing an EIS is to “...provide full and fair discussion of significant environmental impacts and [ ] inform decisionmakers and the public of the reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment.”). By failing to implement these BMPs in the RMP, BLM has failed to take adequate measures to minimize and mitigate the adverse impacts that will result from the RMP. The following BMPs should be required for all oil and gas operations in the UFO area.

***J. The Uncompahgre RMP DEIS Inadequately Analyzes Impacts from Colorado River Withdrawals for Fracking and Other Unconventional Drilling Methods on Endangered Fish Populations and Water Supply, in Violation of NEPA and Section 7 of the ESA (2016 EIS Comments at 145-164)***

Cumulative impacts are those impacts on the environment resulting from “the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency . . . or person undertakes such other actions.” 40 C.F.R. § 1508.7. By all accounts, the impacts stemming from future oil and gas leasing and development in the Uncompahgre planning area discussed at length in these comments are cumulative with the impacts from development of neighboring planning areas. *Thomas v. Peterson*, 753 F.2d 754, 759 (9th Cir. 1985) (reasoning that effects of proposed road and of timber sales that road was designed to facilitate were cumulative actions for which comprehensive analysis was required). Indeed, under NEPA, BLM has an obligation to consider the effects of neighboring lease sales and oil and gas development projects as cumulative impacts of any future development stemming from new leasing in the Uncompahgre planning area. 40 C.F.R. §§ 1508.7, 1508.8.

One significant foreseeable cumulative impact from oil and gas development occurring adjacent to and in the Uncompahgre planning area are Colorado River water withdrawals necessary for fracking and horizontal drilling techniques. Indeed, millions of gallons of water are withdrawn from the Colorado River for oil and gas extraction, potentially impacting endangered fish in the Gunnison River and Uncompahgre Rivers and communities that rely on this water downstream in the North Fork Valley and elsewhere. BLM must analyze the effects of the massive water demand resulting from relatively new horizontal drilling techniques, such as slickwater fracking, already being deployed in the Gunnison Basin and Upper Colorado River Basin (the “Upper Basin”) which would impact watersheds in the Uncompahgre planning area, including (1) the significant cumulative impacts on local water supplies and the Colorado River endangered fish under NEPA and (2) the cumulative impacts of water depletion effects on the Colorado River endangered fish under Section 7 of the Endangered Species Act. The loss of

adequate flows in the endangered fishes' habitat within the Upper Colorado River Basin is so serious that the Service has determined that any depletion of Upper Basin stream flows adversely affects and jeopardizes the endangered fish.<sup>79</sup> The UFO draft RMP and EIS identifies critical habitat of at least two endangered fish populations within the planning area, namely the Colorado pikeminnow and the razorback sucker in the Gunnison and Uncompahgre Rivers. UFO RMP DEIS at 3-75. Therefore, any depletion is subject to Section 7 consultation and review under NEPA.

The FEIS acknowledges the fact that dams and diversions, altered water flows and temperatures, mercury and selenium contamination, and nonnative fish predation have all dramatically affected the viability of Colorado River endangered fish. FEIS at 3-60. It badly misrepresents, however, the current state of recovery efforts for the Colorado pikeminnow and razorback sucker, which do not have viable, self-sustaining populations in the Upper Colorado Basin, and are entirely reliant on annual stocking by hatchery-raised fish. The FEIS asserts:

Hatchery-produced, stocked fish form the foundation for the reestablishment of naturally self-sustaining populations of razorback sucker in the upper Colorado River system, conducted by the Upper Colorado River Endangered Fish Recovery Program. The Recovery Program has been largely successful in meeting their annual stocking targets. Stocked razorback sucker are reproducing and wild juvenile razorback suckers were collected in 2013 (Upper Colorado River Endangered Fish Recovery Program 2017).<sup>80</sup>

This characterization of razorback sucker viability, however, omits entirely the central fact that none of those wild-spawned juvenile razorback suckers are surviving to reproductive maturity, due to factors including predation and lack of suitable rearing habitat. The U.S. Fish and Wildlife Service's most recent 5-Year Status Review for the razorback sucker explains:

The razorback sucker population in the Colorado River subbasin has been increasing over the last decade through stocking efforts and is currently estimated at 5,000-8,000 adults (Elverud in prep). Spawning and larval presence have been documented in the mainstem Colorado and tributaries above the confluence with the Green River. Untagged juveniles

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<sup>79</sup> U.S. Bureau of Land Management, White River FEIS at 3-71 (2015) ("The FWS has determined that any federally authorized depletion from the Upper Colorado River Basin has an adverse effect on listed Colorado River fishes.") (Chapter 3 attached as Exhibit 22); Biological Opinion for BLM Resource Management Plan (RMP), Price Field Office (PFO), 138 (Oct. 27, 2008), available at: [http://www.blm.gov/style/medialib/blm/ut/price\\_fo/Planning/rod\\_approved\\_rmp.Par.2742.File.dat/Price%20Biological%20Opinion.pdf](http://www.blm.gov/style/medialib/blm/ut/price_fo/Planning/rod_approved_rmp.Par.2742.File.dat/Price%20Biological%20Opinion.pdf) (attached as Exhibit 209) ("The USFWS determined that any depletion will jeopardize their continued existence and will likely contribute to the destruction or adverse modification of their critical habitat") (citing USDI, Fish and Wildlife Service, Region 6 Memorandum, dated July 8, 1997); Biological Opinion for BLM Resource Management Plan (RMP), Vernal Field Office (VFO), 113 (Oct. 23, 2008), available at: [http://www.blm.gov/style/medialib/blm/ut/vernal\\_fo/planning/rod\\_approved\\_rmp.Par.4719.File.dat/VernalBiologicalOpinion.pdf](http://www.blm.gov/style/medialib/blm/ut/vernal_fo/planning/rod_approved_rmp.Par.4719.File.dat/VernalBiologicalOpinion.pdf) (attached as Exhibit 23) (same).

<sup>80</sup> FEIS at 3-60.

and adults have rarely been encountered, indicating that recruitment from the larval stage to other life stages is not commonly occurring. In both Green River and Colorado River subbasin populations, a lack of recruitment is considered a result of nonnative predation and lack of access to rearing habitat... The San Juan River subbasin adult population has been consistent in size (approximately 3,000), but also consists almost entirely of hatchery-reared individuals (SJRIIP 2017). Spawning and larval production has occurred annually for the last 20 years, but there are indications that only a small percentage of the population is participating in spawning. Juvenile survival has rarely been documented except for the Lake Mead population in the Lower Basin, “[A]ll other populations are maintained through stocking efforts as the young are eaten by nonnative fish before they reach adulthood.”<sup>81</sup>

As discussed below, contamination by selenium from selenium-rich soils is also a significant threat to endangered fish and their critical habitat in the Gunnison Basin in particular.

## **1. Endangered Species Act Section 7 Consultation Requirements**

Section 7(a)(2) of the ESA prohibits federal agencies from undertaking actions that are “likely to jeopardize the continued existence” of any listed species or “result in the destruction or adverse modification of” critical habitat. 16 U.S.C. § 1536(a)(2). “Jeopardy” results when it is reasonable to expect, “directly or indirectly,” that the action would “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.” 50 C.F.R. § 402.02. “Adverse modification” is defined as “a direct or indirect alteration that appreciably diminishes the value of critical habitat for . . . the survival [or] recovery of a listed species.” *Id.*

To enable compliance with section 7’s substantive mandate, the ESA and its implementing regulations impose specific procedural duties on federal agencies, requiring an “action agency,” such as BLM, to consult with FWS before undertaking any “action” that “may affect” a listed species or its designated critical habitat. 16 U.S.C. § 1536(a)(2); 50 C.F.R. § 402.14(a). An “action” includes “all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by Federal agencies,” in which there is “discretionary Federal involvement or control.” 50 C.F.R. §§ 402.02, 402.03. The “may affect” threshold for triggering the consultation duty under section 7(a)(2) is low, and is triggered by “[a]ny possible effect, whether beneficial, benign, adverse, or of an undetermined character.” *Nat’l Parks Conservation Ass’n v. Jewell*, 62 F. Supp. 3d 7, 12 (D.D.C. 2014) (quoting 51 Fed. Reg. 19,926, 19,949–50 (June 3, 1986)). FWS and the action agency must use the best scientific and commercial data available throughout the consultation process. 16 U.S.C. § 1536(a)(2).

For actions that are “major construction activities,” the action agency must first prepare a BA. The BA “shall evaluate” the potential “effects of the action” on listed and proposed species

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<sup>81</sup> U.S. Fish and Wildlife Service Region 6. 2018. Razorback Sucker (*Xyrauchen texanus*) 5-Year Review: Summary and Evaluation. At 8. Available at: [http://www.coloradoriverrecovery.org/documents-publications/foundational-documents/recoverygoals/2018\\_Razorback\\_sucker\\_5-year\\_Final.pdf](http://www.coloradoriverrecovery.org/documents-publications/foundational-documents/recoverygoals/2018_Razorback_sucker_5-year_Final.pdf)

and designated and proposed critical habitat within the “action area” and determine whether any such species or habitat are “likely to be adversely affected by the action.” 50 C.F.R. § 402.12. “Effects of the action” are defined as “the direct and indirect effects of an action on the species or critical habitat, together with the effects of other activities that are interrelated or interdependent with that action.” *Id.* § 402.02. “Indirect effects” are those that are “caused by the proposed action and are later in time, but still are reasonably certain to occur.” *Id.* “Interrelated actions” are those that are “part of a larger action and depend on the larger action for their justification.” *Id.* “Interdependent actions” are those that “have no independent utility apart from the action under consideration.” *Id.* And “action area” is defined as “all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action.” *Id.*

Depending on the degree of anticipated effects determined in the BA, there are two types of consultation. Informal consultation is sufficient if the action agency determines, with FWS’s written concurrence, that the proposed action “may affect,” but is “not likely to adversely affect” the species or its critical habitat. 50 C.F.R. §§ 402.13, 402.14(b). If informal consultation or the BA conclude that the proposed action is “likely to adversely affect” a listed species or its critical habitat, the action agency must initiate formal consultation with FWS. *Id.* § 402.14(b). During the consultation process, the action agency may not make any irreversible or irretrievable commitments of resources. 16 U.S.C. § 1536(d).

Formal consultation is completed when FWS issues a BiOp determining whether the proposed action, taken together with its cumulative effects, is “likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of critical habitat.” 50 C.F.R. § 402.14(g)(4). The BiOp must include a “detailed discussion of the effects of the action on listed species or critical habitat.” *Id.* § 402.14(h)(2). The BiOp can either find (1) no jeopardy or no adverse modification; (2) that the action will cause jeopardy or adverse modification but such jeopardy or adverse modification can be avoided by implementing certain reasonable and prudent alternatives to the proposed action as designed; or (3) that jeopardy or adverse modification is unavoidable and thus the action cannot proceed. *Id.* § 402.14(h)(3). The BiOp’s finding must be based on FWS’s independent analysis of the “action area,” the “effects of the action”—including the action’s “indirect effects” and effects of “interrelated or interdependent” activities—and the “cumulative effects” on listed species or critical habitat. *Id.* §§ 402.02, 402.14(g); *see also* FWS, Endangered Species Consultation Handbook at 4-15 (Mar. 1998) (Ex. 1) (noting that FWS can disagree with BLM’s delineation of the action area).

If FWS issues a BiOp finding no jeopardy or no adverse modification, or finding that jeopardy or adverse modification can be avoided by implementing reasonable and prudent alternatives, but determines that the action may incidentally “take” individual members of a listed species, FWS must issue an incidental take statement (ITS). 16 U.S.C. §§ 1532(19), 1536(b)(4)(A), (B); 50 C.F.R. §§ 402.14(g)(7), 402.14(i)(1). An ITS must specify the impact of incidental take on the species, “reasonable and prudent measures” that FWS considers necessary to minimize that impact, and terms and conditions to implement those measures. 16 U.S.C. § 1536(b)(4)(i)–(iv). “Take” that complies with the ITS’s terms and conditions is not prohibited. *Id.* § 1536(o)(2). But without a lawful BiOp and ITS, any activity likely to result in incidental take is unlawful. *Id.* §§ 1536(o)(2), 1538(a)(1)(B). Finally, BLM must reinstate consultation if

the specified level of take in the ITS is exceeded, or if new information or a modification to the action indicates previously unexamined effects. 50 C.F.R. §§ 402.14(i)(4), 402.16.

The Upper Colorado River Basin is home to four endangered fish species: the Colorado pikeminnow, razorback sucker, humpback chub, and bonytail chub. One of the principal threats to these four fish species is habitat loss and reduction in historic range due to water diversions throughout the Basin. 58 Fed. Reg. 6,578, 6,579 (Jan. 29, 1993). In 1987, FWS determined, based on more than 100 biological opinions issued over the course of a decade, that a jeopardy situation exists for the four endangered fish species. FWS, Recovery Implementation Program for Endangered Fish Species in the Upper Colorado River Basin at 1-3 to 1-6 (Sept. 29, 1987). Recognizing that any new depletion to the Upper Colorado River Basin would result in FWS issuing a “jeopardy” BiOp, *see id.*, numerous stakeholders—including federal agencies, three states, water users, and conservation groups—created the Upper Colorado River Basin Recovery Implementation Program (RIP). The program is intended to permit new water developments to proceed, while sufficiently working towards recovering the four endangered fish species to avoid a “jeopardy” determination. *Id.* at 1-6; *see also* Reed D. Benson, *Avoiding Jeopardy, Without the Questions: Recovery Implementation Programs for Endangered Species in Western River Basins*, 2 Mich. J. Env’tl. & Admin. L. 473, 473, 476–77 (2013). The Upper Colorado River RIP’s long-term recovery plan, called the Recovery Action Plan (RIPRAP), “identifies specific actions and time frames currently believed to be required to recover the endangered fishes in the most expeditious manner in the upper basin.” Upper Colo. River Endangered Fish Recovery Program, *Recovery Implementation Program Section 7 Consultation, Sufficient Progress, and Historic Projects Agreements and Recovery Implementation Program Recovery Action Plan (RIPRAP)* at ii (May 17, 2018).

The activities and accomplishments included in the RIPRAP are intended to provide the reasonable and prudent alternatives for projects undergoing section 7 consultation based on their water depletions to the Upper Colorado River basin. Use of these reasonable and prudent alternatives is meant to prevent water depletions from jeopardizing the endangered fish species or destroying or adversely modifying their critical habitat. *Id.* at iv–v. FWS must “assess the impacts of projects that require Section 7 consultation and determine if progress toward recovery has been sufficient for the RIP to serve as a reasonable and prudent alternative.” *Id.* at vi. If sufficient progress is being achieved, BiOps for water depletions must “identify the activities and accomplishments of the RIP that support it serving as a reasonable and prudent alternative.” *Id.* And if sufficient progress is not being achieved, BiOps must “be written to identify which action(s) in the RIPRAP must be completed to avoid jeopardy.” *Id.*

## **2. BLM and USFWS May Not Rely on the 2017 Fluid Minerals Programmatic Biological Opinion**

In December 2018, the U.S. Fish and Wildlife Service, relying on information provided by BLM, issued a Programmatic Biological Opinion Regarding the Effects from the implementation of the revised Resource Management Plan within the Uncompahgre Field Office

of the Bureau of Land Management (“UFO BiOp”).<sup>82</sup> In the UFO BiOp, the Fish and Wildlife Service asserts that earlier 2009 and 2017 Programmatic Biological Opinions for water depletions associated with BLM projects in the Upper Colorado River Basin “address adverse effects to the Colorado pikeminnow, razorback sucker, humpback chub, and bonytail, and their respective critical habitats, associated with depletions resulting from projects and activities implemented under the revised RMP.”<sup>83</sup> Reliance, however, in the UFO BiOp on the 2017 Programmatic Biological Opinion for Water Depletions Associated with Bureau of Land Management’s Fluid Mineral Program within the Upper Colorado River Basin in Colorado (the “Fluid Mineral PBO” or “PBO”) (attached as Exhibit 21), is improper for the reasons set forth below.

First, the Fluid Mineral PBO addresses only impacts from water depletions, not other indirect impacts of authorizing oil and gas leasing, including (a) spills or surface and groundwater contamination by hydrocarbons, hydraulic fracturing fluids, or produced water; and (b) selenium loading to the Gunnison and/or Colorado Rivers resulting from ground disturbance, road construction, erosion, and sedimentation. The 2017 Fluid Mineral PBO does not fully take into account the enormous water depletion effects of horizontal drilling and stimulation techniques such as slickwater hydraulic fracturing.

The 2017 PBO is also unreliable in numerous other respects due to significant new information revealing that the Fluid Mineral Program may have effects on the endangered fish in a manner or to an extent not previously considered. This includes new information about (a) the potential for increased Mancos shale play development within the Piceance Basin, much of which would require horizontal drilling and therefore increased water depletions; (b) climate change effects on Upper Colorado River Basin stream flows (which is not even acknowledged in the PBO or the UFO DEIS); (c) long-term drought and increased water demand which has drastically reduced water supplies; (d) mercury and selenium pollution effects on the endangered fish; (e) declining humpback chub and Colorado pikeminnow populations and failure to meet these populations’ recovery targets; (f) the Recovery Program’s failure to meet recommended stream flows necessary for recovery of the endangered fish and (g) the failure of BLM to adequately monitor and track actual water use and depletions in the Upper Colorado River Basin, which could result in higher water use and greater depletions in the UFO planning area than anticipated in the PBO.

While the 2017 PBO is designed to address any depletions resulting from oil and gas development within the Uncompahgre Field Office and other western Colorado field offices, BLM can no longer rely on that consultation for its Section 7 compliance. The PBO did not consider the likely increase in horizontal drilling and other unconventional drilling practices that deplete enormous amounts of water to develop the Mancos/Mowry and Niobrara shale plays (collectively “Mancos shale play”). These increased water depletion impacts throughout the

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<sup>82</sup> U.S. Fish and Wildlife Service, Programmatic Biological Opinion Regarding the Effects from the implementation of the revised Resource Management Plan within the Uncompahgre Field Office of the Bureau of Land Management (Dec. 2018), *available at* <https://ecos.fws.gov/tails/pub/document/11904433> (attached as Exhibit 28).

<sup>83</sup> UFO BiOp at 2.

Upper Basin could alter the Service’s analysis of the cumulative effects on the endangered fish, as all BLM-authorized fluid mineral development activity within the Basin is part of a single programmatic action that impacts the endangered fish.

Moreover, recently, on June 8, 2016, the U.S. Geological Survey published a report re-assessing the total technically recoverable reserves in the Mancos shale play in the Piceance Basin, including the Niobrara strata of the play.<sup>84</sup> According to the report, the Mancos shale play’s total technically recoverable natural gas reserves are over 40 times greater than the USGS’s 2003 estimate and is the second-largest in the U.S., behind the Marcellus shale.<sup>85</sup> Specifically, 66.3 trillion cubic feet of natural gas, 74 million barrels of oil and 45 million barrels of natural gas liquids are potentially recoverable.<sup>86</sup> While tight gas in the younger, shallower Mancos shale intervals is produced primarily from vertical and directional wells in which the reservoirs have been hydraulically fractured, the tight gas and continuous oil and gas in the older and deeper intervals of the Mancos shale are produced mostly from horizontal wells that have been hydraulically fractured.<sup>87</sup> These reserves underlie large areas of the Grand Junction, White River, Colorado River Valley, Uncompahgre, and Gunnison Field Offices, all of which fall under the PBO.<sup>88</sup>

Increasing interest in the Piceance Basin’s Mancos shale play should therefore be expected in the Uncompahgre field office and these other field offices, given its enormous production potential. Indeed, since the 2003 USGS assessment, more than 2,000 wells have already been drilled and completed in one or more intervals of the study area.<sup>89</sup> A review of BLM oil and gas projects in western Colorado indicates that operators are planning a number of projects involving horizontal drilling, which would most likely target the Mancos shale.<sup>90</sup>

Accordingly, Mancos shale drilling projects could increase within the Upper Basin, including the UFO, but the PBO does not take into account this expansion in new development potential. Because the RMPs for the Uncompahgre Field Office and other Piceance Basin field offices overlapping the Mancos shale play do not limit total new wells that may be drilled, and actually, the UFO draft RMP anticipates greater oil and gas leasing within the planning area, the greater amount and availability of technically recoverable oil and gas reserves could result in the development of many more new wells in the Upper Basin than assumed in the RMPs and the PBO. For example, the RFDs for the Colorado River Valley and White River RMPs did not take

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<sup>84</sup> Assessment of Continuous (Unconventional) Oil and Gas Resources in the Late Cretaceous Mancos Shale of the Piceance Basin, Uinta-Piceance Province, Colorado and Utah (2016) (“USGS 2016”), available at <http://pubs.usgs.gov/fs/2016/3030/fs20163030.pdf> (attached as Exhibit 24).

<sup>85</sup> *See id.*

<sup>86</sup> *Id.*

<sup>87</sup> *Id.*

<sup>88</sup> Exhibit 219 (map showing overlap of Mancos shale with field office boundaries).

<sup>89</sup> *Id.*

<sup>90</sup> *See* Center for Biological Diversity, Spreadsheet of Horizontal Well Projects in Colorado (attached as Exhibit 220) (listing horizontal well projects listed in BLM’s NEPA register and projected water use).

into account Mancos shale drilling (other than exploratory wells) and thus such drilling is not considered in the PBO.<sup>91</sup> Further, a substantial portion of new wells would be horizontal wells, as the lower strata of the Mancos formation would likely be accessed via horizontal drilling, but again, the PBO does not take into account the extraordinarily higher water use for horizontal wells. Water depletions in the Gunnison river sub-basin and throughout the entire Upper Colorado River Basin could therefore exceed projected water use estimates in the PBO.

Additionally, the UFO RMP DEIS must analyze cumulative impacts from oil and gas projects moving forward in the Uncompahgre planning area, namely the Bull Mountain Unit Master Development Plan and North Fork Mancos Master Development Plan. In particular, the recently-amended North Fork Mancos Master Development Plan proposal will, on its own, authorize development for slickwater fracking resulting in water depletions that will exceed the thresholds analyzed for the Gunnison Basin in the 2017 Fluid Mineral PBO. By authorizing development that will foreseeably exceed the limits contemplated in the U.S. Fish and Wildlife Service's 2017 Fluid Minerals Programmatic BiOp, BLM will violate its duties under ESA Section 7 regarding water depletion impacts on the endangered fish. The Revised North Fork Mancos EA's disclosure of the substantial water demands of slickwater fracking makes clear that the project will foreseeably result in new annual consumptive water uses of Gunnison Basin water of at least 668.5 acre-feet per year, even accepting the questionable assumption that coalbed methane produced water is non-tributary groundwater.<sup>92</sup> This level of water use, even without the foreseeable possibility of other potential fracking projects within the subbasin, clearly takes the proposed project, and all future water withdrawals within the Gunnison Basin, outside the scope of the 2017 PBO.

Further, even assuming that cumulative water use by this and other Gunnison Basin fracking projects remains within the 607 acre-foot/year threshold for the Gunnison River subbasin discussed in the 2017 Fluid Minerals PBO, the 2017 PBO does not cure BLM's failure to engage in required consultation or fulfill BLM's substantive duty to insure against jeopardy.<sup>93</sup> The 2017 PBO presents a skewed effects analysis that does not take into account realistic depletion scenarios or the potential for baseline stream flows to fall below recommended flows.

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<sup>91</sup> See White River RMP FEIS at K-358 ("Development of the Mancos and Niobrara outside the Rangely Field in Rio Blanco County in the WRFO are not [] currently well defined and are exploratory in nature. This development is in the initial stages of the exploration phase to determine of the maturity of the reservoir and the potential viability of the Niobrara within the WRFO."); see also Colorado River Valley RMP FEIS at 4-576 (attached as Exhibit 25) ("To date, use of horizontal drilling in relation to the deep marine shales [i.e., Niobrara, Mancos, and Eagle Basin formations] has been limited and is considered experimental. As a result, the development intensity, timing, and location of development of the deep marine shales was considered too speculative for quantitative impact analysis in connection with this planning process.").

<sup>92</sup> See BLM, Revised Preliminary Environmental Assessment for the North Fork Mancos Master Development Plan at 64 (2019) (DOI-BLM-CO-N040-2017-050-EA), attached as Exhibit 26.

<sup>93</sup> USFWS, Programmatic Biological Opinion for Water Depletions Associated with Bureau of Land Management's Fluid Mineral Program within the Upper Colorado River Basin in Colorado (Dec. 26, 2017) ("PBO or "2017 PBO").

It further ignores the potential for severe drought, lacks any serious consideration of cumulative effects from future water demand, fails to consider the best available information regarding Colorado pikeminnow population trends, and fails to provide an honest assessment of the Recovery Program's effectiveness in offsetting depletion effects. BLM must also fully address these issues in an EIS.

The PBO's effects analysis averages the effects of annual depletions over the year rather than looking at depletion effects under real-time conditions.<sup>94</sup> It irrationally assumes depletions will occur at a constant rate over the entire year, and fails to consider the potential for rapid depletions occurring over a short time period (e.g., over a week or month), which could have immediate and harmful effects on the endangered fish. For example, in the 15-Mile Reach it assumes that depletions will occur at a steady rate of 3.4 cfs over the year (equal to 2,463 acre-feet of depletions per year), when, in fact, tens of millions of gallons of water could be removed more rapidly over the course of a month to supply water for the drilling and fracking of several wells at a rate exceeding 3.4 cfs. The rapid depletion of water in a short time frame could have far worse effects than projected in the PBO, under low-flow conditions.

The PBO's effects analysis also uses an improper baseline by which depletion effects are measured, by assuming that summer flows in the 15-Mile Reach will be maintained at the recommended flow of 810 cfs for drought years,<sup>95</sup> contrary to FWS's statements that this flow "may be unattainable" and is especially difficult to attain in drought years.<sup>96</sup> The PBO suggests that various water commitments will provide enough water to maintain these flows, without evidentiary support or analysis that these commitments will be sufficient in drought years, when water demand would be higher and water supplies scarcer. The 10,000 acre-feet of water made available by Bureau of Reclamation--assuming it would all be released in July, August, and September--only amounts to 56 cfs over 90 days. Half of this water would not be available in one out of every 5 years. The additional Lake Granby-Ruedi water commitment of 10,825 per year only amounts to 60.6 cfs over 90 days. It is unclear whether the entire amount of water from these two sources would be available in the dry season, or whether some would be reserved for augmenting spring peak flows. Further, the PBO is vague as to whether these "agreements" are voluntary or mandatory. If flow commitments are largely voluntary, it is improper for the PBO to assume that this minimum recommended flow will offset depletions in the 15-Mile Reach. If flows drop below 810 cfs, any depletions will have a larger effect on the endangered fish than projected in the PBO. While the PBO points out that flows have not dropped below 810 cfs since 2013, the years since 2013 have not been unusually dry years, and nothing indicates that enough water is available to avoid a similar drop in flows if 2012-2013 drought conditions reoccur.

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<sup>94</sup> See 2017 PBO at 58.

<sup>95</sup> See PBO at 58.

<sup>96</sup> USFWS, Final 2015-2016 Assessment of Sufficient Progress Under the Upper Colorado River Endangered Fish Recovery Program in the Upper Colorado River Basin, and Implementation of Action Items in the January 10, 2005, Final Programmatic Biological Opinion on the Management Plan for Endangered Fishes in the Yampa River Basin, 6 (Dec. 20, 2016) ("2016 Sufficient Progress Assessment"); see also PBO at 49.

The PBO's discussion of climate change does not give any serious consideration to the potential for more severe and frequent droughts within the 10-year term of the PBO and beyond, or other catastrophic events. Rather, it assumes that climate change will occur "gradually" as if on a linear continuum, with only slight changes detectable over the next 10 years.<sup>97</sup> This ignores the potential for more frequent and severe extreme events precipitated by temperature rise, as demonstrated by recent droughts, severe storms, and wildfires across the U.S. Scientists have recently projected a 70-99% megadrought risk in the southwest by the end of the century under a business-as-usual GHG emissions scenario.<sup>98</sup> A megadrought could last several decades and "would impose unprecedented stress on the limited water resources of the area."<sup>99</sup> The probability of megadrought is virtually certain (99% likely) if precipitation drops below normal. But regardless of how or whether precipitation changes, regional warming would significantly increase the risk of megadrought.<sup>100</sup> The PBO should have considered a severe drought scenario and whether minimum flows in the 15-Mile Reach, White River and other sub-basins, could be maintained with dwindling water supplies and increased water demand in a drought year. A severe drought reducing the Recovery Program's ability to maintain 810 cfs in the 15-Mile Reach and other sensitive reaches could have potentially devastating effects on the Colorado pikeminnow, and any depletions could severely exacerbate those effects.

The PBO's discussion of climate change provides no sense of the potential magnitude of stream flow declines caused by temperature rise, the declines that have already occurred, and their impact on the Recovery Program. In addition, a 2017 study by Udall and Overpeck (not discussed in the PBO) has formally linked the Upper Colorado River system's declining flows to warming temperatures in the region.<sup>101</sup> The study examined historical and recent temperatures, precipitation, and river flows, and concluded that temperatures averaging 1.6°F above normal in the Upper Basin contributed to one-third or more of the river's 19%/year decline in flow from 2000 to 2014: "Fifteen years into the 21st century, the emerging reality is that climate change is already depleting Colorado River water supplies at the upper end of the range suggested by previously published projections."<sup>102</sup> Projecting these results into the future based on current greenhouse gas emissions and trends, the authors concluded that "[u]nabated greenhouse gas emissions will lead to continued substantial warming, translating to 21st century flow reductions of 35% or more."<sup>103</sup>

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<sup>97</sup> See PBO at 47 ("We believe that the primary net effects are likely to be in a gradual increase in the competitive edge for some nonnative fish at the expense of native fish, including the four endangered fish in the Upper Colorado River Basin, gradual reductions in streamflow, and gradual changes to the timing of peak flows.").

<sup>98</sup> Ault, Toby R. et al., Relative impacts of mitigation, temperature, and precipitation on 21st-century megadrought risk in the American Southwest, *Science Advances*, Vol. 2, no. 10, e1600873 (2016), DOI: 10.1126/sciadv.1600873.

<sup>99</sup> *Id.*

<sup>100</sup> *Id.*

<sup>101</sup> Bradley Udall and Jonathan Overpeck, The 21st Century Colorado River Hot Drought and Implications for the Future, *Water Resources Research* 53 (2017), doi:10.1002/2016WR019638.

<sup>102</sup> *Id.*

<sup>103</sup> *Id.*

Another recent publication by the Colorado River Research Group notes that the Colorado River Basin has already warmed by roughly 2° F (the PBO states 1.6° F), and is already locked in to roughly 5° F of additional warming by mid-century “regardless of any behavioral changes that may or may not be implemented by the world’s governments.”<sup>104</sup> Beyond 2050, “[d]epending on the climate model and the GHG emissions scenario used, the range of additional warming likely falls within the 6 to 10° F range by 2100.”<sup>105</sup> The researchers further note that significant temperature-driven runoff declines in the Basin are likely, and that it is “increasingly evident that the strong warming trend is likely to overwhelm any modest changes in precipitation.”<sup>106</sup> Given the 15% decline in Colorado River flows this century compared to the previous century (or 19% decline, according to Udall and Overpeck 2017), the researchers suggest that average streamflows will decline significantly more than Bureau of Reclamation’s projections of a roughly 9% decline in average streamflows by 2060: “[W]ith 16 years of the 21st century already passed, there is now considerable evidence that a 9 percent decline is likely an optimistic scenario.”<sup>107</sup> The PBO’s failure to discuss even a range of potential stream reduction scenarios, or quantitatively analyze how these declines are already harming the Recovery Program’s ability to offset depletions, and how much worse off it could be in the future, is unjustified.

In addition, the PBO’s curtailed approach in limiting its analysis to climate change impacts over the next decade is short-sighted: as conditions will become more inhospitable over the next decade and beyond, it is even more important now to establish robust populations that are resilient to climate change effects, and to minimize depletion impacts. The PBO lacks any analysis of how or whether the endangered fish will tolerate these impacts into the future, and whether the Recovery Program is sufficiently offsetting harms to strengthen populations and reverse population declines to ensure a resilient population in the face of climate change.

The PBO provides no analysis of the cumulative effects of oil and gas development activities within the UFO and the Gunnison Basin in connection with past, present, and future depletions by private and state projects and climate change. While it quantifies potential increased municipal and industrial water demand through 2050, it lacks any analysis of how these depletions together with the project’s depletions would impact the endangered fish. Again, the PBO fails to answer the fundamental question of whether maintaining recommended stream flows is sustainable with increasing water demand, climate change, and drought, or whether the Recovery Program would offset new depletions. It also fails to acknowledge the cumulative effects of increased private well development of the Mancos shale and associated water depletions, in connection with BLM’s Fluid Mineral Development Program.

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<sup>104</sup> Colorado River Research Group, *Climate Change and the Colorado River: What We Already Know*, 2 (October 2016), available at [http://www.coloradoriverresearchgroup.org/uploads/4/2/3/6/42362959/crrg\\_climate\\_change.pdf](http://www.coloradoriverresearchgroup.org/uploads/4/2/3/6/42362959/crrg_climate_change.pdf).

<sup>105</sup> *Id.*

<sup>106</sup> *Id.*

<sup>107</sup> *Id.* at 3.

The PBO fails to use the best available scientific information in discussing Colorado pikeminnow population trends. The most recent population data from 2015 indicates that long-term abundance of pikeminnow (i.e., average of all yearly monitoring data) is 596 adults while short-term abundance (average of 5 most recent data points) is 446 adults.<sup>108</sup> The PBO cites 2010 data indicating a long-term abundance of 644 adults, and a short-term abundance of 658 adults.<sup>109</sup> The failure to use the best available scientific information masks the severely weakened state of this population, and continued population declines since 2010.

The PBO cites to Osmundson 2017 but ignores several of its key findings regarding Colorado pikeminnow. As acknowledged by the PBO, Osmundson finds that “low abundance and a recent rapid decline suggest long-term population persistence is tenuous.”<sup>110</sup> However, the PBO fails to note Osmundson’s finding that “recovery efforts have not sufficiently addressed ongoing threats affecting recruitment, including river regulation, non-native fish invasions, and other potential threats yet to be evaluated.”<sup>111</sup> Further, “no progress toward recovery was evident based on demographic trends,” leading the authors to conclude “the Colorado River population of Colorado pikeminnow has not recovered after 25 [years] of Recovery Program implementation.”<sup>112</sup> These conclusions cast serious doubt on FWS’s findings that sufficient progress has been made in recovery of the Colorado pikeminnow, and that the Recovery Program is adequately offsetting depletion effects.<sup>113</sup>

The paper recommends focusing on enhanced recruitment and spawning habitat to reverse this trend. Specifically, increasing the frequency of reservoir releases during spring runoff is needed to improve habitat, but “the frequency of years with peak flows capable of mobilizing coarse substrates [to improve spawning habitat]...has declined from 30% [in the period between 1976 to 1996] to 25% in more recent years.”<sup>114</sup> Moreover, this declining trend is likely to continue as water supplies decrease, and as long as spring flow releases are only voluntary: “With already tight water supplies, a warming climate trend, and increasing demands for water, the voluntary participation by dam operators to release fish flows may diminish over time, limiting future peak flow augmentation opportunities.”<sup>115</sup> The PBO lacks any meaningful discussion of these increasing strains on the Recovery Program’s ability to offset water depletions, and whether the Recovery Program will remain effective in offsetting depletions.

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<sup>108</sup> 2016 Sufficient Progress Assessment at 6; *see also* USFWS, 2016-2017 Abbreviated Assessment of Sufficient Progress under the Upper Colorado River Endangered Fish Recovery program in the Upper Colorado River Basin, 4 (Dec. 10, 2017).

<sup>109</sup> PBO at 13.

<sup>110</sup> Osmundson, Douglas B. & Gary C. White, Long-term mark recapture monitoring of a Colorado pikeminnow *Ptychocheilus lucius* population: assessing recovery progress using demographic trends, 34 *Endangered Species Research* 131-147 (2017), doi: <https://doi.org/10.3354/esr00842>.

<sup>111</sup> *Id.* at \_\_\_\_.

<sup>112</sup> *Id.* at 141, 143.

<sup>113</sup> PBO at 8, 68.

<sup>114</sup> *Id.* at 143.

<sup>115</sup> *Id.*

While the PBO cites the sufficient progress memos for support that the Recovery Program is effective, these documents do not discuss the impact of climate change or the potential for severe drought conditions, and fail to assess the Recovery Program's ability to offset depletions into the future, in light of these changing conditions. Without significant retooling of the Recovery Program to ensure adequate peak spring and base flows in the Upper Colorado River Basin to mitigate the effects of water depletions, BLM cannot continue to rely on the Recovery Program to mitigate depletion effects on the four Colorado River endangered fish. BLM's failure to address these issues in an EIS and Section 7 consultation violates NEPA and the ESA.

Finally, while the PBO does adopt or recommend measures beneficial to the endangered fish, which are steps in the right direction, these measures do not go far enough. First, the PBO requires BLM to prohibit water withdrawals directly from the 15-Mile Reach as a condition for APD approval. But it continues to allow water withdrawals from other rivers that contain spawning areas, noting that *existing* areas of oil and gas development are far away from spawning areas.<sup>116</sup> This reasoning ignores areas of *future* development potential—particularly the Mancos shale formation at issue in this proposed project—and whether they are near spawning grounds. The PBO also incorrectly notes that spawning has not been documented in the White River, but elsewhere it notes that spawning Colorado pikeminnow and razorback sucker were documented in the White River for the first time in 2011.<sup>117</sup> These spawning grounds should be protected from water withdrawals.

Finally, the PBO recommends “[d]uring times of drought when river levels are very low (e.g., late summers of 2002 and 2012),” that BLM “strongly encourage operators to use treated produced water, instead of fresh water, to the fullest extent practicable for fracking/well completions.”<sup>118</sup> It explains further: “The use of produced water does not constitute a water depletion and would not deplete water from rivers. This would allow some water to remain in the rivers occupied by endangered fish during the times when it is needed most.”<sup>119</sup> This recommendation validates our concerns that the potential for another serious drought with harmful effects on the endangered fish is real, and that depletions from oil and gas operators could have significant consequences, contrary to the PBO's attempt to minimize these effects. BLM should be required to ban fresh water use for all fracking operations, year-round, drought-year or not. Limiting this condition to drought years when flows are “very low” does not provide clear direction to oil and gas operators.

In sum, BLM's reliance on the 2017 Programmatic Biological Opinion for the Fluid Mineral Program for foreseeable depletions that will exceed the analysis in that Biological Opinion is unlawful, and does not satisfy its duties to insure jeopardy against the endangered fish. BLM must reconsult with FWS to address these numerous flaws in the 2017 PBO. Further, BLM must prepare a NEPA analysis addressing water depletion

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<sup>116</sup> *Id.*

<sup>117</sup> Compare PBO at 55 with PBO at 42, 44.

<sup>118</sup> PBO at 69.

<sup>119</sup> *Id.*

effects of horizontal drilling on the endangered fish, in light of climate change, population declines, mercury and selenium contamination, and Recovery Program failures in meeting recommended flows. Mercury and Selenium Are Adversely Impacting the Endangered Fish.

*Mercury and Selenium Impacts of the RMP on Endangered Fish*

New scientific information regarding (a) mercury and selenium effects on fish reproduction and population viability, (b) mercury and selenium concentrations in Upper Colorado and White River fish, (c) the potential role of oil and gas development in mercury contamination levels in the White River, (d) the potential for development of the Mancos shale play to increase selenium pollution, and (e) the relationship between climate change and mercury and selenium toxicity constitutes new information revealing that the Fluid Mineral Program may have effects on the endangered fish to an extent that was not considered in the PBO, and requires reinitiation of consultation over the Fluid Mineral Program.<sup>120</sup>

*Mercury contamination is harming Colorado pikeminnow populations*

The Uncompahgre DEIS and Fluid Mineral PBO's discussion of the environmental baseline for, and threats to, the Colorado pikeminnow and razorback sucker contains no discussion whatsoever of environmental and tissue mercury contamination or the resulting toxicity and reproductive impairment to the endangered fish. Significant new research has demonstrated that elevated levels of mercury in Colorado pikeminnow muscle tissue, including within the Upper Colorado River Basin, are at concentrations likely to cause reproductive and behavioral impairment to the fish.<sup>121</sup>

Mercury is a potent neurotoxin shown to cause numerous reproductive and endocrine impairments in fish in laboratory experiments, including effects on production of sex hormones, gonadal development, egg production, spawning behavior, and spawning success.<sup>122</sup> Concentrations of mercury in Colorado pikeminnow in the Upper Basin are documented to be

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<sup>120</sup> 50 C.F.R. § 402.16(b).

<sup>121</sup> USFWS, Upper Colorado River Endangered Fish Recovery Program, Colorado pikeminnow (*Ptychocheilus lucius*), 5-Year Review: Summary and Evaluation 21 (2011) (“[T]he recovery goal revision needs to consider the impacts of mercury. . . the majority (64 %) of Colorado pikeminnow may be experiencing some reproductive impairment through mercury exposure.”) (attached as Exhibit 309) (“Colorado Pikeminnow 5-year Review”); USFWS, Biological Opinion for the Four Corners Power Plant and Navajo Mine Energy Project at 76 & Table 3 (April 8, 2015) (“Four Corners Biological Opinion”) (attached as Exhibit 243).

<sup>122</sup> USFWS, Draft 2014-2015 Assessment of Sufficient Progress Under the Upper Colorado River Endangered Fish Recovery Program in the Upper Colorado River Basin, and of Implementation of Action Items in the December 20, 1999, 15-Mile Reach Programmatic Biological Opinion and December 4, 2009, Gunnison River Basin Programmatic Biological Opinion, 10 (Oct. 7, 2015) (“Sufficient Progress Assessment”) (attached as Exhibit 244).

well in excess of the thresholds for reproductive impairment and population-level impacts.<sup>123</sup> 2008-2009 muscle tissue averages were 0.60 mg/Kg Hg for Colorado pikeminnow in the Upper Colorado basin and 0.95 mg/Kg Hg for Colorado pikeminnow in the White River – well above the 0.2 mg/kg threshold of concern.<sup>124</sup>

Mercury deposition and accumulation in critical habitat is attributable to a number of local and global factors, including air emissions from coal-fired power plants both in the immediate region and around the world.<sup>125</sup> In addition, because of discrepancies in mercury concentrations between pikeminnow in the Yampa and White Rivers, research suggests that “[i]t is possible that there is some localized sources of mercury contamination into the White River drainage connected with oil and gas exploration and development.”<sup>126</sup>

Once mercury is deposited on land or water, it is converted into a biologically available form, methylmercury (MeHg) by bacteria. Methylmercury “bioaccumulates in food chains, and particularly in aquatic food chains, meaning that organisms exposed to MeHg in their food can build up concentrations that are many times higher than ambient concentrations in the environment.”<sup>127</sup> Once it accumulates, mercury is a potent neurotoxin, affecting fish in many ways, including brain lesions, reduced gonadal secretions, reproductive timing failures, reduced ability to feed, suppressed reproductive hormones, reduced egg production, reduced reproductive success, and transfer of mercury into developing eggs.<sup>128</sup> Although the precise effects vary with relative concentrations, mercury and selenium may have synergistic toxic effects at certain ratios.<sup>129</sup>

The Service has acknowledged that its recovery planning for the Colorado pikeminnow needs updating to reflect this new information regarding mercury:

In addition, the recovery goal revision needs to consider the impacts of mercury. Beckvar et al. (2005) associated studies involving survival, growth, reproduction, and behavior and recommended that 0.2 mg/kg in whole fish be viewed as

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<sup>123</sup> See Barb Osmundson and Joel Lusk, Field assessment of mercury exposure to Colorado pikeminnow within designated critical habitat (May 5, 2011) (“Osmundson & Lusk 2011”) (attached as Exhibit 245).

<sup>124</sup> See Four Corners Biological Opinion at 76 & Table 3 (attached as Exhibit 243); see generally Beckvar, N., T.M. Dillon, and L.B. Reads, Approaches for linking whole-body fish tissue residues of mercury or DDT to biological effects threshold, *Environmental Toxicology and Chemistry* 24:2094-2105 (2005) (attached as Exhibit 246).

<sup>125</sup> See Four Corners Biological Opinion at 73-74 (attached as Exhibit 243); Osmundson & Lusk 2011 at 9-10 (attached as Exhibit 245).

<sup>126</sup> *Id.* at 29.

<sup>127</sup> Four Corners Biological Opinion at 73 (attached as Exhibit 243).

<sup>128</sup> See Lusk, Joel D., USFWS, Mercury (Hg) and Selenium (Se) in Colorado Pikeminnow and in Razorback Sucker from the San Juan River, 17 (2010), available at [https://www.fws.gov/southwest/sjrip/pdf/DOC\\_Evaluation\\_Hg\\_Se\\_SJR\\_pikeminnow%20or\\_razorback\\_SJRIP\\_BC\\_2010.pdf](https://www.fws.gov/southwest/sjrip/pdf/DOC_Evaluation_Hg_Se_SJR_pikeminnow%20or_razorback_SJRIP_BC_2010.pdf). (attached as Exhibit 247)

<sup>129</sup> Four Corners Biological Opinion at 103 (attached as Exhibit 243).

protective, while adverse biological effects are more likely at higher concentrations. Based on this threshold, the majority (64 %) of Colorado pikeminnow may be experiencing some reproductive impairment through mercury exposure. Management strategies for controlling anthropogenic mercury emissions are necessary as atmospheric pollution can indirectly affect this endangered species, its critical habitat, and its recovery by ambient air exposure, deposition into aquatic habitat and bioaccumulation in diet and in fish tissues.<sup>130</sup>

Moreover, the Service's 2015 Sufficient Progress Assessment for the Recovery Program acknowledges that population viability studies show that mercury- and selenium-related reproductive impairment is likely to influence population levels in the San Juan Basin,<sup>131</sup> but no comparable analysis has yet been done for the higher levels of contamination present in Upper Colorado River Basin fish.

The significant difference in mercury concentrations in fish found in the neighboring Yampa and White Rivers also offers significant new information potentially relevant to the effect of BLM-authorized oil and gas development. Osmundson and Lusk found very high (average 0.95 mg/Kg WW) mercury concentrations in Colorado pikeminnow and in the White River, and lower (0.49 mg/Kg) concentrations in the neighboring Yampa.<sup>132</sup> Based on this discrepancy, they noted:

The Yampa and White rivers are relatively close geographically in northwestern Colorado. Because of this proximity, it is interesting that the Yampa River had the lowest mercury concentrations in Colorado pikeminnow while the White River had the highest mercury concentrations. If most of the mercury was from aerial wet and dry deposition, the two drainages should be similar. This difference may indicate a localized source/s of mercury contamination into the White River drainage. There are currently >2,600 gas and oil wells in Rio Blanco county. It is possible that there is some localized sources of mercury contamination into the White River drainage connected with oil and gas exploration and development.<sup>133</sup>

Although site-specific information for the Upper Basin planning areas appears scarce, there is scientific as well as circumstantial evidence that oil and gas operations can contribute to mercury contamination.<sup>134</sup> In addition, climate change can foreseeably be predicted to increase heavy rainfall events and ensuing runoff, increase pollutant concentrations due to reduced

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<sup>130</sup> Colorado Pikeminnow 5-year Review at 21 (attached as Exhibit 309); *see also* Significant Progress Assessment at 10-11 (attached as Exhibit 244).

<sup>131</sup> Sufficient Progress Assessment at 10-11 (attached as Exhibit 244).

<sup>132</sup> Osmundson & Lusk 2011 at 21 & Table 2 (attached as Exhibit 245).

<sup>133</sup> *Id.* at 29 (citations omitted).

<sup>134</sup> *See* U.S. EPA, National Risk Management Research Laboratory, Mercury in Petroleum and Natural Gas: Estimation of Emissions from Production, Processing, and Combustion, EPA/600/SR-01/066 (Oct. 2001) (attached as Exhibit 248); Visvanathan, C., Treatment and Disposal of Mercury Contaminated Waste from Oil and Gas Exploration Facilities, available at <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.549.9515&rep=rep1&type=pdf> (attached as Exhibit 249).

flows during low-flow periods, and contribute to increased methylmercury conversion due to higher temperatures.

*Selenium pollution is harming the endangered fish*

The Uncompahgre FEIS acknowledges, without explanation, that “reduced flows associated with freshwater depletions from approved projects within the Planning Area could exacerbate the effects of selenium and mercury on these fish, as reduced flows could lessen beneficial dilution effects on concentrations of each chemical in a given river (BLM 2017a).” While the UFO RMP does reference its participation in the Gunnison River Basin Selenium Management Program (SMP) as part of a 2009 programmatic Biological Opinion for selenium in the Gunnison River, the UFO RMP does not address how they are monitoring or minimizing selenium loadings from non-agricultural nonpoint sources in this RMP, especially for potential fossil fuel development. In fact, in the 2011 "Program Formulation Document" for the SMP, as well as its latest (2014) Annual Progress Report, it stated that BLM will "address selenium in new [Uncompahgre] Resource Management Plan."<sup>135</sup> There is no substantive review of the SMP or requirements within the SMP referenced anywhere in the draft UFO RMP DEIS. The effects of selenium on endangered fish species in the UFO are below comments. Nevertheless, the BLM's new preferred Alternative, Alternative E, weakens measures in the existing plan designed to reduce selenium contamination. Alternative E contains the following provisions that reduce selenium mitigation not only compared to other proposed alternatives including Alternatives B and D, but also to the existing RMP:

- Eliminates timing limitations to prohibit disturbance to saturated spring soils, replacing them with discretionary surface use restrictions on saline and selenium soils<sup>136</sup>
- Eliminates direction to manage 24,180 acres of Mancos shale hills or “adobes” to reduce salinity loads to the Upper Colorado River Basin, replacing them with discretionary surface use restrictions<sup>137</sup>
- Declines to adopt no-leasing and no-surface-use measures for soils with high and very high potential for selenium loading<sup>138</sup>
- Declines to adopt Conditional Surface Use stipulations for fluid mineral operations on saline and high-selenium soils<sup>139</sup>

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<sup>135</sup> U.S. Bureau of Reclamation, Selenium Management Program: Program Formulation Document Gunnison River Basin, Colorado, Prepared by Selenium Management Program Workgroup at 69 (December 2011), available at <http://www.usbr.gov/uc/wcao/progact/smp/docs/Final-SMP-ProgForm.pdf> (attached as Exhibit 250); U.S. Bureau of Reclamation, Selenium Management Program Annual Report at 23 (2014) available at <http://www.usbr.gov/uc/wcao/progact/smp/docs/SMP-2014AnnualRep.pdf> (attached as Exhibit 251).

<sup>136</sup> FEIS at T-18.

<sup>137</sup> FEIS at T-18.

<sup>138</sup> FEIS at T-18, T-243.

<sup>139</sup> FEIS at T-253.

- Declines to adopt right-of-way exclusion or avoidance areas for saline and/or selenium soils<sup>140</sup>

Selenium harms the endangered fish and other aquatic species through bioaccumulation in the food chain. Concentrations of 3µg/g in the food chain have been found to cause gill and organ damage in certain fish and may lead to death.<sup>141</sup> These bioaccumulative effects resulting in direct toxicity to juvenile and adults are known as “Type 1” effects. Moreover, selenium bioaccumulation can result in maternal transfer of selenium to fish egg yolks and lead to developmental abnormalities, known as “Type 2 effects.”<sup>142</sup> Waterborne concentrations of selenium in the 1-5 µg/L range can bioaccumulate and lead to Type 1 and/or Type 2 effects.<sup>143</sup>

Recent studies reveal significant exposures of the endangered fish to selenium. In one study analyzing selenium concentrations of 26 fish specimens collected from designated critical habitat in the Gunnison River, one Colorado pikeminnow specimen exhibited concentrations in muscle plugs that exceeded the 8 micrograms per gram dry weight toxicity guideline for selenium in fish muscle tissue.<sup>144</sup> Several species, including the razorback sucker and Colorado pikeminnow, exhibited selenium exposures in excess of the critical concentration at which Type 1 health effects begin to occur.<sup>145</sup>

In the Lower Gunnison River Basin, 2014 data indicated a range of dissolved selenium (chronic values) from 0.97 µg/L to 16.7 µg/L along the Uncompahgre River. Out of 18 sites in the lower Gunnison that were considered, the Colorado water-quality standard for chronic dissolved selenium of 4.6 µg/L was exceeded at two sites.<sup>146</sup> In regards to acute values, the range measured was from 1.1 µg/L for a portion of the Uncompahgre River to 125 µg/L along a portion of Loutzenhizer Arroyo, with 125 µg/L being well in excess of any criteria for instantaneous selenium measurements.<sup>147</sup> In another 2015 study, mean concentrations of selenium in various fish species in the lower Colorado River Basin exceeded the risk for maternal transfer to eggs, while selenium concentrations in various species of macroinvertebrate

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<sup>140</sup> FEIS at T-408.

<sup>141</sup> Lemly, A.D., Appalachian Center for the Economy & the Environment and Sierra Club, Aquatic hazard of selenium pollution from mountaintop removal coal mining, 3 (2009) (“Lemly 2009”) (attached as Exhibit 252).

<sup>142</sup> Lemly 2009 at 3 (attached as Exhibit 252); Hamilton, S.J., Review of residue-based selenium toxicity thresholds for freshwater fish, *Ecotox. Environ. Saf.* 56: 201-210 (2003) (attached as Exhibit 253).

<sup>143</sup> *See id.*

<sup>144</sup> May, Thomas W. and Michael J. Walther, USGS, Determination of selenium in fish from designated critical habitat in the Gunnison River, Colorado, March through October, 2012, Open-File Report 2013-1104, 2 (2013) (attached as Exhibit 254).

<sup>145</sup> *Id.*

<sup>146</sup> Henneberg, M.F., 2014 annual summary of the lower Gunnison River Basin Selenium Management Program water-quality monitoring, Colorado: U.S. Geological Survey Open-File Report 2016-1129, 25 p. (2016), <http://dx.doi.org/10.3133/ofr20161129> (attached as Exhibit 255).

<sup>147</sup> *Id.*

prey exceeded the risk value for larval fishes.<sup>148</sup> Average selenium concentrations in the studied fish species were found to be 2- to 4-fold higher than the risk threshold for piscivorous (fish-eating) wildlife, with samples exceeding this threshold in 81-100% of cases depending on the species. The risk value for larval fishes, who either absorb selenium via maternal transfer to eggs or through invertebrate diet, was exceeded in 56-100% of cases depending on the adult species (with risk posed to larvae due to maternal transfer), and 86-100% of cases among invertebrates (with risk posed to larval fishes through diet). Thus, the transfer of selenium toxicity from invertebrates to fish to piscivores is readily observable.<sup>149</sup>

Natural erosion and runoff, as well as selenium leaching into irrigation runoff, are the primary sources of this toxic pollutant. The weathering of Cretaceous marine shales can produce high selenium soils, which are present in many areas of the western U.S.<sup>150</sup> Most notable of these Cretaceous shales is the Mancos Shale, which is found in Colorado, Utah, Wyoming, New Mexico, and Arizona. Irrigation of selenium-rich soils for crop production in arid and semi-arid regions can mobilize selenium and move it off-site in surface water runoff or via leaching into groundwater. Groundwater in contact with the Mancos Shale is known to have high levels of selenium due to leaching, and irrigation activities on Mancos Shale have led to selenium loading of nearby rivers and streams such as those in the Colorado River Basin.<sup>151</sup> As discussed previously, increased exploitation of the Mancos shale play could also put surface waters and endangered fish at risk. Selenium-laced produced water from oil and gas operations may find a pathway to surface waters via hydraulically induced fractures in Mancos shale rock, or via surface spills.

*Population Numbers of the Endangered Fish Are Declining.*

Colorado pikeminnow populations are in decline throughout the Green River and Colorado River Basin, indicating that the Recovery Plan for the endangered fish has not been effective and that the impacts of water depletions could be more severe than previously anticipated.

According to Fish and Wildlife Service, the latest 2014 Colorado River sub-basin population number of 501 is “cause for great concern,” and catch of sub-adults and adults in 2013 and 2014 “were near lowest observed in the history of the project.”<sup>152</sup> 2015 catch numbers are within the same range, which suggests that the population estimate for 2015 will be similar to

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<sup>148</sup> Walters, David M., et al. Mercury and selenium accumulation in the Colorado River food web, Grand Canyon, USA. *Environmental Toxicology and Chemistry*, 34(10):2385-2394, 2390 (2015) (attached as Exhibit 256).

<sup>149</sup> *Id.*

<sup>150</sup> Lemly, A.D., Guidelines for evaluating selenium data from aquatic monitoring and assessment studies. *Environ. Monitor. Assess.* 28(1):83-100 (1993) (attached as Exhibit 257).

<sup>151</sup> Environmental Sciences Laboratory, Natural Contamination from the Mancos Shale, U.S. Department of Energy, Doc. No. S07480 (2011) (attached as Exhibit 258).

<sup>152</sup> Sufficient Progress Assessment at 23, 36 (attached as Exhibit 244).

the 2014 estimate.<sup>153</sup> Preliminary data show that the Green River sub-population is “in decline throughout the entire Green River Subbasin” and has fallen under 2,000, below the minimum viable population of 2,600 adults.<sup>154</sup> The Yampa River portion of the sub-basin population also “remains low and may be in further decline.”<sup>155</sup> Recent studies show that Colorado pikeminnow declines in the Yampa River are linked to “persistent high densities of nonnative predators (e.g., smallmouth bass and northern pike),” and that northern pike are outnumbering Colorado pikeminnow by three to one.<sup>156</sup>

Humpback chub numbers are also low. Fish and Wildlife Service is “concerned that wild populations of humpback chub in Black Rocks and Westwater Canyon of the Colorado River (near the Colorado-Utah state line) have not recovered from declines detected in the late 1990’s. The reason for those population declines is uncertain.”<sup>157</sup> After this steep reduction, the Black Rocks/Westwater population continued to decline.<sup>158</sup> In 2008, the population “dropped below the population size downlist criterion (MVP = 2,100 adults) for the first time.”<sup>159</sup> In 2011 and 2012, the core population estimates were 1,846 and 1,718, respectively.<sup>160</sup>

The Desolation/Gray Canyons population in the Green River has also not met the population-size downlist criterion, and was observed to be “trending downward” based on 2006-2007 population estimates.<sup>161</sup> This trend has been attributed to “increased nonnative fish abundance and habitat changes associated with dry weather and low river flows.”<sup>162</sup> The 2014 estimate is 1,863 adults, substantially below the 2,100-adults recovery criterion.<sup>163</sup>

These declining population numbers are new baseline conditions, such that the endangered fish could be more vulnerable to water depletion and other oil and gas development effects than previously assumed. These downward trends also strongly suggest that the Endangered Fish Recovery Program is not achieving recovery targets nor adequately offsetting water depletion effects as intended.

#### ***K. BLM Failed to Sufficiently Consider Traffic Impacts.***

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<sup>153</sup> See USFWS, Monitoring the Colorado Pikeminnow Population in the Mainstem Colorado River via Periodic Population Estimates, 3 (Nov. 2015), available at <http://www.coloradoriverrecovery.org/documents-publications/work-plan-documents/arpts/2015/rsch/127.pdf> (attached as Exhibit 259) (showing similar capture rates of pikeminnow in 2014 and 2015).

<sup>154</sup> Sufficient Progress Assessment at 7 (attached as Exhibit 244).

<sup>155</sup> *Id.*

<sup>156</sup> *Id.* at 8.

<sup>157</sup> *Id.* at 36.

<sup>158</sup> *Id.* at 13.

<sup>159</sup> *Id.*

<sup>160</sup> *Id.* at 13-14.

<sup>161</sup> *Id.* at 12.

<sup>162</sup> *Id.* at 23.

<sup>163</sup> *Id.* at 12.

The RMP/EIS fails to undertake a substantive analysis of the impacts from oil and gas related traffic (as discussed in Conservation Groups' DEIS Comments, Ex. 1-1, at 165-67). The RMP/EIS acknowledges that oil and gas development will result in increased traffic, *see e.g.*, EIS at 4-418, 4-446, 4-468. However, the RMP/EIS makes no effort to take a meaningful look at the effects from this significant rise in traffic, merely mentioning generalized impacts from delays, dust, road degradation, and increased vehicle safety concerns as potential negative impacts to the area. *Id.* This type of cursory analysis fails to satisfy the UFO's hard look obligations.

***L. BLM Failed to Sufficiently Consider the Impacts of Unregulated Pipelines.***

Furthermore (as discussed in Conservation Groups' DEIS Comments, Ex. 1-1, at 167-170), the BLM did not consult agencies with pipeline safety jurisdiction and did not consider the environmental, public safety, and human health impacts associated with a web of unregulated gas gathering pipelines, as Conservation Groups detailed in their comment letter on the DEIS. EIS 5-5. Rural gas gathering pipelines are exempt from federal pipeline safety regulations and therefore state regulation. 49 CFR § 192. Unregulated gas gathering pipelines are at higher risk of failure than regulated pipelines. *See* PHMSA Notice of Proposed Rulemaking on Gas Transmission and Gathering Lines 68 Fed. Reg. 20728 (April 8, 2016) (amending 49 CFR Parts 191 and 192).

BLM excuses this failure by saying that “[s]pecific components of pipeline safety noted in the comment, including nonjurisdictional pipeline operators safety inspections, are outside the BLM’s jurisdiction and, therefore, irrelevant to the planning effort.” FEIS at R-943. This is inaccurate. BLM still has the obligation under NEPA to take a “hard look” at the subject, and given the lack of regulatory oversight in this area it is incumbent upon BLM to explain how it would ensure animal, human, and environmental safety from unregulated pipelines. 40 C.F.R. § 1502.22.

In addition, the RMP/EIS is unclear on whether or what pipelines will be required, whether they would be limited in what they transport, how many barrels per day they would transport, and how much truck traffic this would displace (if any, since the pipelines ultimately are transferring product to trucks). There are no specific estimates of how many pipelines will be constructed, how many miles of pipe will be laid, what their diameter would be, how many water-bodies they would cross, or where they will be located. In this regard the BLM again has not taken a “hard look” at the subject, and if this information is not available it is incumbent upon BLM to explain what would be required to obtain it and why it cannot collect the information. 40 C.F.R. § 1502.22.

***M. BLM Failed to Conduct a Health Impact Assessment.***

As discussed in Conservation Groups' DEIS Comments, Ex. 1-1, at 170-181, BLM did not conduct a health impact assessment, or equivalent analysis, and, as a result, the agency's RMP/EIS does not satisfy NEPA and its implementing regulations.

NEPA requires that the BLM employ at least the same level of effort to analyze human health impacts as it does to promote industry's interest in development when preparing the RFD and associated analyses regarding projected drilling levels.

A health impact assessment ("HIA") or equivalent analysis would fulfill the regulations governing NEPA, to examine human health impacts "to the fullest extent possible." A HIA would be forward-looking and attempt to identify all of the potential direct, indirect, and cumulative links between a proposed activity and the health and well-being of affected communities, and to develop mitigation measures to minimize harms and maximize benefits. The RMP does not include this type of analysis of human health impacts.

The U.S. EPA has posted on its website an excellent document on the utility of an HIA as part of the NEPA analysis of federal agencies where public health impacts are at issue.<sup>164</sup> HIA "provides a systematic process and methodology to anticipate and proactively address the potential health consequences of a program or policy in order to maximize the potential benefits and minimize adverse outcomes."<sup>165</sup> Steps in the HIA process include:

1. Screening: Determines whether an HIA is necessary, and whether it is likely to be useful.
2. Scoping: Establish the population to which the HIA applies, the scope of health problems to be analyzed, the HIA team, methods to be used in the assessment, and data sources.
3. Assessment: describe the baseline health status and determinants of health in the population and assess likely impacts through a literature review and qualitative or quantitative analysis.
4. Decision and recommendations to minimize adverse impacts and maximize benefits.
5. Monitoring and reassessment plan: select a set of outcomes likely to be sensitive/accurate indicators of the changes predicted, such as health outcomes and develop a plan to monitor and then reassess if needed.

The BLM did not conduct these steps and its examination of health effects is cursory. This RMP is a major point in the leasing decision-making process, requiring analysis of all of the impacts, including health impacts, at this stage.

***N. The Uncompahgre FEIS Fails to Take a Hard Look at Reasonably Foreseeable Effects on the Threatened Gunnison Sage-Grouse (2016 EIS Comments at 182-186)***

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<sup>164</sup> See EPA, Human Impact Partners, *Frequently Asked Questions About Integrating Health Impact Assessment into Environmental Impact Statement*, available at: <http://www.epa.gov/region9/nepa/PortsHIA/pdfs/FAQIntegratingHIA-EIA.pdf> (previously attached as Exhibit 281).

<sup>165</sup> See Aaron Wernham, *Inupiat Health and Proposed Alaskan Oil Development: Results of the First Integrated Health Impact Assessment/Environmental Impact Statement for Proposed Oil Development on Alaska's North Slope*, ECOHEALTH, 2007 (previously attached as Exhibit 282).

The Gunnison sage-grouse was listed as a threatened species under the Endangered Species Act in November 2014. *See* U.S. Fish and Wildlife Service, Threatened Status for Gunnison Sage-Grouse, Final Rule, 79 Fed. Reg. 69,192 (Nov. 20, 2014). Approximately 88 to 93 percent of the species’s historical range has been lost since Euro-American settlement, and “[t]his contraction in the birds’ range indicates the vulnerability of all the populations to extirpation.” Gunnison Sage-Grouse Listing Rule, 79 Fed. Reg. at 69,228. The listing rule found that “the persistence of Gunnison sage-grouse is dependent on large and contiguous sagebrush habitats, that human development and disturbance contribute to the decline of this needed habitat, and that such impacts negatively affect the survival and persistence of Gunnison sage-grouse.” *Id.* Numerous activities on BLM land and minerals contribute to loss of these sage-grouse habitats, including road-building, power lines, livestock grazing practices, invasive plants, fire, and leasable minerals (i.e. oil and gas development). The U.S. Fish and Wildlife Service has concluded that the proposed Uncompahgre RMP will likely adversely affect the Gunnison sage-grouse and its designated critical habitat.<sup>166</sup> Despite the extreme vulnerability of Gunnison sage-grouse satellite populations present in the planning area, the acknowledged likelihood of adverse impacts, and the availability of more effective mitigation measures, the BLM fails to fully disclose the impacts of its planning decisions or to adopt reasonable alternatives that would meet its obligation to foster recovery of Gunnison sage-grouse.

#### A. The FEIS Fails to Meaningfully Disclose Impacts on Gunnison Sage-Grouse

The FEIS now acknowledges the existence of, but does not fully analyze, the multiple adverse effects from road construction, oil and gas development, and livestock grazing on Gunnison sage-grouse:

Disturbances associated with fluid mineral and infrastructure development may have direct impacts by disrupting Gunnison sage-grouse behavior and productivity, such as by causing flushing from a lek (Braun et al. 2002; Lyon and Anderson 2003; Robel et al. 2004). Indirectly, habitat fragmentation may force Gunnison sage-grouse to use less-optimal habitats, making the species more susceptible to predation. Other indirect impacts include those from powerlines or fences, such as collisions, which may cause injury or mortality, and increased perch sites, which may change Gunnison sage-grouse behavior or population growth rates (Gunnison Sage-grouse Rangewide Steering Committee 2005; Braun et al. 2002). Birds could perch on pipes used for flaring, which could cause injury or mortality to individuals. All of these impacts could occur even when development is outside, but adjacent to, Gunnison sage-grouse habitats, including designated occupied critical habitat.

Use of unconventional drilling technologies can often result in large volumes of hydraulic fracturing fluid that return to the surface (known as “flowback”). This flowback requires larger on-site storage, either through pits or tanks, compared with other types of fluid mineral exploration and production (EPA 2018b). Birds, including Gunnison sage-grouse, and other wildlife species

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<sup>166</sup> UFO BiOp at 2, 15-23.

could be impacted by waste pits because they are attracted to oil-covered ponds. Potential impacts are the following:

- Entrapment in oil and drowning
- Death or illness from ingestion of toxic quantities of oil
- Cold stress if oil were to damage the insulation provided by feathers
- Increased susceptibility to disease, such as West Nile virus, and predation (USFWS 2000; Gunnison Sage-grouse Rangewide Steering Committee 2005) <sup>167</sup>

Oil and gas development, road construction, and livestock grazing have numerous adverse effects on Gunnison sage-grouse habitat, behavior, and population not adequately acknowledged in the FEIS:

Energy development impacts sagegrouse and sagebrush habitats through direct habitat loss from well pad construction, seismic surveys, roads, powerlines and pipeline corridors, and indirectly from noise, gaseous emissions, changes in water availability and quality, and human presence. The interaction and intensity of effects could cumulatively or individually lead to habitat degradation and fragmentation (Suter 1978, pp. 6–13; Aldridge 1998, p. 12; Braun 1998, pp. 144–148; Aldridge and Brigham 2003, p. 31; Knick *et al.* 2003, pp. 612, 619; Lyon and Anderson 2003, pp. 489–490; Connelly *et al.* 2004, pp. 7–40 to 7–41; Holloran 2005, pp. 56–57; Holloran *et al.* 2007, pp. 18–19; Aldridge and Boyce 2007, pp. 521–522; Walker *et al.* 2007a, pp. 2652–2653; Zouet *et al.* 2006, pp. 1039–1040; Doherty *et al.* 2008, p. 193; Leu and Hanser 2011, pp. 270–271). Increased human presence resulting from oil and gas development can also impact sagegrouse either through avoidance of suitable habitat or disruption of breeding activities (Braun *et al.* 2002, pp. 4–5; Aldridge and Brigham 2003, pp. 30–31; Aldridge and Boyce 2007, p. 518; Doherty *et al.* 2008, p. 194). The development of oil and gas resources requires surveys for economically recoverable reserves, construction of well pads and access roads, subsequent drilling and extraction, and transport of oil and gas, typically through pipelines. Ancillary facilities can include compressor stations, pumping stations, electrical generators and powerlines (Connelly *et al.* 2004, p. 7–39; BLM 2007, p. 2–110). Surveys for recoverable resources occur primarily through loud seismic exploration activities. These surveys can result in the crushing of vegetation. Well pads vary in size from 0.10 ha (0.25 ac) for coal-bed natural gas wells in areas of level topography to greater than 7 ha (17.3 ac) for deep gas wells and multi-well pads (Connelly *et al.* 2004, p. 7–39; BLM 2007, p. 2–123). Pads for compressor stations require 5–7 ha (12.4–17.3 ac) (Connelly *et al.* 2004, p. 7–39). Individually, impacts from well pads, infrastructure, and ancillary features may be small; however, the cumulative impact of such development can be significant.

The amount of direct habitat loss within an area of oil and gas development is ultimately determined by well densities and the associated loss from ancillary

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<sup>167</sup> FEIS at 4-129.

facilities. Roads associated with oil and gas development were suggested as the primary impact to greater sage-grouse due to their persistence and continued use even after drilling and production ceased (Lyon and Anderson 2003, p. 489). Declines in male greater sage-grouse lek attendance were reported within 3 km (1.9 mi) of a well or haul road with a traffic volume exceeding one vehicle per day (Holloran 2005, p. 40). Because of reasons discussed previously, the effects of oil and gas development to Gunnison sage-grouse are expected to be similar to those observed in greater sage-grouse. Sage-grouse also may be at increased risk for collision with vehicles simply due to the increased traffic associated with oil and gas activities (Aldridge 1998, p. 14; BLM 2003, p. 4–222).

Habitat fragmentation resulting from oil and gas development infrastructure, including access roads, may have greater effects on sage-grouse than habitat loss associated with drill sites. Energy development and associated infrastructure works cumulatively with other human activity or development to decrease available habitat and increase fragmentation. Greater sage-grouse leks had the lowest probability of persisting (40–50 percent) in a landscape with less than 30 percent sagebrush within 6.4 km (4 mi) of the lek. These probabilities were even less in landscapes where energy development also was a factor.<sup>168</sup>

The Fish and Wildlife Service found, in considering the adequacy or inadequacy of existing regulatory mechanisms to safeguard Gunnison sage-grouse, that existing BLM RMPs, including the current Uncompahgre RMP, are inadequate as regulatory mechanisms. Existing “RMPs provide only partial protection for Gunnison sage-grouse in terms of land use allocation decisions specific to the species and its habitat and, therefore, are considered inadequate to protect the species.” In particular, with regard to fluid mineral development, “Given the already small and fragmented nature of the populations where future oil and gas leases are likely to occur, additional development within occupied habitat would negatively impact those populations by contributing to further habitat decline.”<sup>169</sup>

In part in response to this finding of inadequate regulatory mechanisms for BLM lands and minerals, the Colorado and Utah BLM have undertaken a range-wide RMP Amendment process for Gunnison Sage-Grouse habitat, encompassing the UFO, with a draft RMP Amendment and EIS released in August 2016. This amendment process overlaps the UFO RMP Revision: “If the GUSG RMP Amendment is issued prior to the revised Uncompahgre RMP, then it would amend the existing Uncompahgre Basin RMP (as well as the San Juan/San Miguel RMP) for lands in the Uncompahgre RMP planning area. Analysis from the GUSG EIS would be incorporated by reference into the Uncompahgre Proposed RMP/Final EIS, and decisions made in the GUSG Approved RMP Amendment/ROD would be carried forward to the Uncompahgre Approved RMP/Record of Decision. However, if the revised Uncompahgre RMP is issued first,

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<sup>168</sup> Gunnison Sage-Grouse Final Listing Rule, 79 Fed. Reg. at 69,255-256 (attached as Exhibit 27).

<sup>169</sup> Gunnison Sage-Grouse Listing Rule at 69,284.

then the GUSG RMP Amendment could require amendment of the Uncompahgre RMP.”<sup>170</sup> Yet the UFO DEIS fails to acknowledge or take into account substantial scientific information available in both the Listing Rule and the Gunnison Sage-Grouse Rangewide DEIS.

Contrary to the DEIS’s assertion, the UFO supports four, not three, of the remaining populations of Gunnison sage-grouse: “the Uncompahgre FO operates . . . provides habitat for four GUSG populations: the Cerro Summit-Cimarron-Sims Mesa Population (with the Sims Mesa sub-population entirely within the Uncompahgre FO), the Crawford Population, the Gunnison Basin Population, and the Piñon Mesa Population.”<sup>171</sup> The Crawford population in particular has been classified by the BLM as having “medium potential” for oil and gas development.<sup>172</sup> Although it currently has only a single federal well, additional oil and gas development within the Crawford Population could adversely affect its persistence and chance of recovery.

In addition, an even more recent scientific study confirms the established finding that sage-grouse lek attendance is negatively related to oil and gas density, regardless of sagebrush cover and participation.<sup>173</sup> Green et al. examined greater sage-grouse lek attendance, oil and gas well, and habitat and precipitation data from Wyoming over the period 1984 to 2008, and, consistent with numerous prior studies, that lek attendance declines are closely associated with the density of oil and gas development:

Oil and gas development correlates well with sage-grouse population declines from 1984 to 2008 in Wyoming, which is supported by other findings (Doherty et al. 2010b, Harju et al. 2010, Hess and Beck 2012, Taylor et al. 2013, Gregory and Beck 2014). As with other studies, we also found support for 4-year lag effects of oil and gas development on lek attendance (Walker et al. 2007, Doherty et al. 2010a, Harju et al. 2010, Gregory and Beck 2014). This result suggests that development likely affects recruitment into the breeding population rather than avoidance of wells by adult males or adult survival. Adult sage-grouse are highly philopatric to lek sites (Dalke et al. 1963, Wallestad and Schladweiler 1974, Emmons and Braun 1984, Dunn and Braun 1985, Connelly et al. 2011a), and males typically recruit to the breeding population in 2–3 years. We would expect a delayed response in lek attendance if development affects recruitment, either by reducing fecundity or avoidance of disturbance by nesting females, as adult males die and are not replaced by young males.

On average, lek attendance was stable when no oil and gas development was present within 6,400m (Fig. 4). However, attendance declined as development increased.

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<sup>170</sup> BLM, Gunnison Sage-Grouse Rangewide Draft Resource Management Plan Amendment Draft Environmental Impact Statement 1-14 (attached as Exhibit 298)

<sup>171</sup> Gunnison Sage-Grouse Rangewide RMP DEIS at 1-13.

<sup>172</sup> Gunnison Sage-Grouse Listing Rule, 79 Fed. Reg. at 69,255.

<sup>173</sup> Green, Adam et al., Investigating Impacts of Oil and Gas Development on Greater Sage-Grouse, *Journal of Wildlife Management* (2016), DOI: 10.1002/jwmg.21179 (attached as Exhibit 299).

<sup>174</sup> Importantly, Green et al. confirmed that declines in sage-grouse populations may continue even within Wyoming’s “core areas,” where density of wells is limited to one pad per square mile. Yet the UFO DEIS fails to consider any alternative that either prohibits fluid mineral leasing or regulates the density of allowable oil and gas facilities. Although the DEIS does consider minimal buffers and seasonal operation restrictions around leks, the DEIS acknowledges that its preferred alternative would “fall short of accepted minimum protection standards to maintain sage-grouse viability:

For Gunnison sage-grouse, stipulations would provide some level of protection from surface occupancy and site disturbance in all seasonal habitats. Breeding habitat would be protected with similar stipulations as Alternative C (NSO-20/SSR-32), and would similarly fall short of accepted minimum protection standards to maintain sage-grouse viability (Knick and Connelly 2011). However, disturbance/disruption would be prohibited during the breeding season within four miles of active leks (CSU-28/SSR-34).<sup>175</sup>

Even with only one operating oil and gas well, the UFO’s Crawford Population has been in dramatic decline from 2000 through 2012, and had to be supplemented with birds from the Gunnison Basin in 2011 through 2013.<sup>176</sup> BLM manages approximately 63% of the remaining occupied habitat for this population, as well as 13% of occupied habitat. Despite the precarious status of the Crawford Population in particular, the UFO DEIS fails either to take a hard look at the extensive science showing relationship between oil and gas density and sage-grouse population decline, or to consider any alternative that would either limit density of development or exclude oil and gas entirely from Gunnison sage-grouse occupied and/or suitable habitat. Given that 63% of the Crawford Population’s remaining habitat is on BLM land with “moderate” oil and gas decisions, BLM’s failure to consider a no-leasing alternative for that area foregoes an opportunity to foster recovery and to eliminate a significant threat to the extirpation of one of the few remaining populations of Gunnison sage-grouse.

#### B. The FEIS Fails to Adopt Reasonable Measures to Meet BLM’s Obligation to Recover Listed Species

Section 7(a)(1) of the Endangered Species Act mandates that “All other Federal agencies shall, in consultation with and with the assistance of the Secretary, utilize their authorities in furtherance of the purposes of this Act by carrying out programs for the conservation of endangered species and threatened species listed pursuant to section 4 of this Act.” BLM’s failure to adopt reasonable measures, based on the best available science, to conserve Gunnison sage-grouse and its critical habitat, violates this statutory mandate.

As discussed above, the chief threat to Gunnison sage-grouse results from indirect habitat loss resulting from new infrastructure, including roads, powerlines, and oil and gas infrastructure within four miles of lek sites. Alternative B would have closed some Gunnison sage-grouse

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<sup>174</sup> Green et al. at 9.

<sup>175</sup> DEIS at 3-77.

<sup>176</sup> See Gunnison Sage-Grouse Rangewide RMP DEIS at 3-14.

habitat to new leasing, and prohibited surface occupancy within 4 miles of known leks, as well as incorporating timing limitations within 6 miles of leks.<sup>177</sup> Alternative E, however, adopts no surface occupancy requirements (a) only for occupied critical habitat, and (b) subject to potential exceptions.<sup>178</sup> For the four-mile buffer zone, Alternative E requires only seasonal limits on additional operation, which do not mitigate the long-term habitat impairment associated with oil and gas infrastructure and continuing operation.<sup>179</sup>

BLM itself acknowledges that these allegedly “refined” management measures “fall short of accepted minimum protection standards to maintain sage-grouse viability.”<sup>180</sup> The FEIS describes Alternative E’s sage-grouse standards as “similar to Alternative D and would provide some level of protection from surface occupancy and site disturbance in all seasonal habitats; Alternative E specifies that these include designated critical habitat (both designated occupied and unoccupied), winter habitat, and nondesignated occupied breeding habitat.”<sup>181</sup> Under Alternative D, however, “[b]reeding habitat would be protected with similar stipulations as Alternative C (NSO-31/SSR-32), and would similarly fall short of accepted minimum protection standards to maintain sage-grouse viability (Knick and Connelly 2011).”<sup>182</sup> While “additional conservation measures could be applied as needed under the CSU stipulation within breeding (non-lek) habitats to conserve high-quality sage-grouse habitat and to avoid habitat fragmentation and cumulative effects,” FEIS at 4-145, the discretionary nature of that stipulation provides no certainty that “additional conservation measures” either will be applied, or that effective measures will be selected.”

Similarly, the BLM, in violation of ESA Section 7(a)(1), declines to adopt reasonably available, science-based conservation measures that would mitigate known impacts to Gunnison sage-grouse from road construction and use. Unlike Alternative B, which would have excluded new rights-of-way from both the immediate vicinity of leks and from designated critical habitat, Alternative E excludes right of-ways from only 1330 acres within 0.6 miles of leks, and proposed to manage an additional 12,840 acres of designated critical habitat as “right-of-way avoidance.”<sup>183</sup> The term “ROW avoidance,” however, is not defined in the FEIS or its appendices, creating considerable uncertainty as to what, if any, concrete measures BLM will take to mitigate the significant threat of new road, pipeline, and powerline construction in designated Gunnison sage-grouse critical habitat. As FWS’s final listing rule for the species recognizes, roads associated with oil and gas development are one of the greatest threats to Gunnison sage-grouse viability:

The amount of direct habitat loss within an area of oil and gas development is ultimately determined by well densities and the associated loss from ancillary facilities. Roads associated with oil and gas development were suggested as the primary impact to greater sage-grouse due to their persistence and continued use even after drilling and production ceased (Lyon and Anderson 2003, p. 489).

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<sup>177</sup> FEIS at T-116.

<sup>178</sup> FEIS at T-115 to T-116.

<sup>179</sup> FEIS at T-114.

<sup>180</sup> FEIS at 4-145.

<sup>181</sup> FEIS at 4-149.

<sup>182</sup> FEIS at 4-144.

<sup>183</sup> FEIS at T-117.

Declines in male greater sage-grouse lek attendance were reported within 3 km (1.9 mi) of a well or haul road with a traffic volume exceeding one vehicle per day (Holloran 2005, p. 40). Because of reasons discussed previously, the effects of oil and gas development to Gunnison sage-grouse are expected to be similar to those observed in greater sage-grouse. Sage-grouse also may be at increased risk for collision with vehicles simply due to the increased traffic associated with oil and gas activities (Aldridge 1998, p. 14; BLM 2003, p. 4–222).

Habitat fragmentation resulting from oil and gas development infrastructure, including access roads, may have greater effects on sage-grouse than habitat loss associated with drill sites.<sup>184</sup>

The San Miguel, Sims-Cerro, and Crawford populations of Gunnison sage-grouse prevent a unique combination of vulnerable satellite populations and low oil and gas potential. Nevertheless, BLM has arbitrarily selected an alternative that opens these areas to oil and gas development and road construction, and declines adoption of minimum protective measures, including 4-mile lek buffers and exclusion of rights-of-way from critical habitat, that might prevent the extirpation of these highly-vulnerable populations. BLM’s decision to prioritize “energy dominance” over its ESA and FLPMA obligations places the private profit from a handful of low-potential wells over the very survival of three of the few remaining populations of the threatened Gunnison sage-grouse.

C. Alternative E Violates BLM’s Obligation to Prioritize the Designation and Protection of Areas of Critical Environmental Concern.

BLM arbitrarily and in violation of FLPMA fails to adopt reasonable proposed Areas of Critical Environmental Concern for the San Miguel and Sims-Cerro populations of Gunnison sage-grouse. BLM acknowledges that the nominated San Miguel Gunnison Sage-Grouse ACEC and Sims Cerro Gunnison Sage-Grouse ACEC could provide additional protection for two isolated, fragmented populations of threatened Gunnison sage-grouse.<sup>185</sup>

FLPMA Section 103(a), 43 U.S.C. § 1702(a), defines Areas of Critical Environmental Concern as “areas within the public lands where special management attention is required (when such areas are developed or used or where no development is required) to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife re-sources or other natural systems or processes, or to protect life and safety from natural hazards.” Section 201(a), 43 U.S.C. § 1701(a)(11), further provides that the Secretary shall “prepare and maintain on a continuing basis an inventory of all public lands and their re-source and other values (including, but not limited to outdoor recreation and scenic values), *giving priority to areas of critical environmental concern*. This inventory shall be kept current so as to reflect changes in conditions and to identify new and emerging resource and other values.” Finally, Section 202(c)(3), 43 U.S.C. § 1712(c)(3), explicitly mandates that the Secretary shall “give priority to the

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<sup>184</sup> Final Listing Rule, 79 Fed. Reg. at 69,255.

<sup>185</sup> FEIS at O-16 to O-17, O-19 to O-21.

designation and protection of areas of critical environmental concern” in developing and revising land use plans.

Despite numerous, well-documented Areas of Critical Environmental concern nominated for designation in the Uncompahgre RMP revision, Alternative E adopts no Ecological Emphasis Areas and only 30,190 acres in six small ACECs. In particular, it arbitrarily declines to adopt any ACECs for the San Miguel Gunnison Sage-Grouse or Sims-Cerro Gunnison Sage Grouse ACECs. Despite the acknowledged inadequacy of the standard stipulations for sage-grouse habitat in Alternative E, the relatively low oil and gas potential in the area, and the extreme vulnerability of Gunnison sage-grouse satellite populations, BLM wrongfully and arbitrarily fails to prioritize designation of ACECs generally, and the sage-grouse ACECs in particular, in the FEIS and its preferred alternative.

### ***O. FLPMA: Unnecessary and Undue Degradation***

FLPMA’s unnecessary and undue degradation requirements are distinct from requirements under NEPA. “A finding that there will not be significant impact [under NEPA] does not mean either that the project has been reviewed for unnecessary and undue degradation or that unnecessary or undue degradation will not occur.” *Ctr. for Biological Diversity*, 623 F.3d at 645 (quoting *Kendall's Concerned Area Residents*, 129 I.B.L.A. 130, 140 (1994)). In the instant case, the UFO’s failure to specifically account for UUD in the RMP and EIS – which is distinct from its compliance under NEPA – is also actionable on procedural grounds. Conservation Groups addressed this issue in their Comments on the DEIS, at p. 186.

## **III. Conclusion**

The Conservation Groups appreciate your consideration of the information and concerns addressed herein, as well as the information included in the attached exhibits.

For the reasons described above, we urge BLM to prepare a supplemental EIS that: (1) fully considers a range of alternatives, including a “no-leasing” alternative; (2) fully considers the problem of methane waste, and takes steps to control methane waste; (3) fully considers current scientific and economic information, especially regarding climate change; and (4) strengthens its “hard look” at impacts to air, water, and human health, including by conducting a Health Impact Assessment.

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

Sincerely,

Kyle Tisdell, Attorney, Climate & Energy Program Director  
Laura King, Staff Attorney  
WESTERN ENVIRONMENTAL LAW CENTER  
208 Paseo del Pueblo Sur, Unit 602  
Taos, New Mexico 87571  
575.751.0351

[tisd@westernlaw.org](mailto:tisd@westernlaw.org)  
[king@westernlaw.org](mailto:king@westernlaw.org)

*Attorneys for Conservation Groups*

Nathan Matthews  
Nathaniel Shoaff  
Senior Attorneys  
SIERRA CLUB ENVIRONMENTAL LAW PROGRAM  
2101 Webster Street, Suite 1300  
Oakland, CA 94612  
415.977.5695  
[nathan.matthews@sierraclub.org](mailto:nathan.matthews@sierraclub.org)  
[nathaniel.shoaff@sierraclub.org](mailto:nathaniel.shoaff@sierraclub.org)

Diana Dascalu-Joffe, Senior Attorney  
CENTER FOR BIOLOGICAL DIVERSITY  
1536 Wynkoop Street, Suite 421  
Denver, CO 80202  
720.925.2521  
[ddascalujoffe@biologicaldiversity.org](mailto:ddascalujoffe@biologicaldiversity.org)

Jeremy Nichols  
Climate and Energy Program Director  
WILDEARTH GUARDIANS  
2590 Walnut St.  
Denver, CO 80205  
303.437.7663  
[jnichols@wildearthguardians.org](mailto:jnichols@wildearthguardians.org)

Natasha Léger  
Interim Executive Director  
CITIZENS FOR A HEALTHY COMMUNITY  
303.667.1544  
[natasha@citizensforahealthycommunity.org](mailto:natasha@citizensforahealthycommunity.org)

Matt Reed  
Public Lands Director  
High Country Conservation Advocates  
716 Elk Avenue  
P.O. Box 1066  
Crested Butte, CO 81224  
[matt@hccacb.org](mailto:matt@hccacb.org)