



November 14, 2016

Via Hand Delivery

Ed Roberson
State Director
U.S. Bureau of Land Management
Utah State Office
440 West 200 South, Suite 500
Salt Lake City, UT 84101

Re: Protest of December 2016 Competitive Oil and Gas Lease Sale

Dear Mr. Roberson:

Pursuant to 43 C.F.R. § 3120.1-3, WildEarth Guardians hereby protests the Bureau of Land Management's ("BLM's") proposal to offer 28 publicly owned oil and gas lease parcels covering 12,224.48 acres of land for competitive sale on December 13, 2016. The parcels are located in the Vernal Field Office of northeastern Utah. The lease parcels included for sale, as identified by the BLM's in its Final December 2016 Oil and Gas Sale List, include the following:¹

Lease Serial Number	Acres	Field Office	County
UTU91927	320.72	Vernal	Duchesne
UTU91928	320.00	Vernal	Duchesne
UTU91929	400.00	Vernal	Duchesne
UTU91930	839.95	Vernal	Duchesne
UTU91931	720.00	Vernal	Duchesne
UTU91932	320.00	Vernal	Duchesne
UTU91933	1,255.14	Vernal	Duchesne
UTU91934	2,540.78	Vernal	Duchesne
UTU91935	160.00	Vernal	Duchesne
UTU91936	75.79	Vernal	Duchesne
UTU91937	320.00	Vernal	Duchesne
UTU91938	40.04	Vernal	Uintah
UTU91939	639.29	Vernal	Uintah
UTU91940	160.00	Vernal	Uintah

¹ This list of lease parcels is available on the BLM's website at <https://eplanning.blm.gov/epl-front-office/projects/nepa/59590/85330/102137/FinalSaleList.pdf>.

UTU91941	40.00	Vernal	Uintah
UTU91942	201.89	Vernal	Uintah
UTU91943	315.10	Vernal	Uintah
UTU91944	121.28	Vernal	Uintah
UTU91945	160.00	Vernal	Uintah
UTU91946	114.12	Vernal	Uintah
UTU91947	80.00	Vernal	Uintah
UTU91948	40.00	Vernal	Uintah
UTU91949	320.00	Vernal	Uintah
UTU91950	2,257.65	Vernal	Uintah
UTU91951	40.00	Vernal	Duchesne
UTU91952	40.00	Vernal	Duchesne
UTU91953	80.00	Vernal	Uintah
UTU91954	302.73	Vernal	Uintah

In support of its proposed leasing, the agency prepared an Environmental Assessment (“EA”), DOI-BLM-UT-G010-2016-033-EA.

As will be explained, the BLM’s proposal to lease falls short of ensuring compliance with applicable environmental protection laws and is not based on sufficient analysis and assessment of key environmental impacts under the National Environmental Policy Act (“NEPA”), 42 U.S.C. § 4331, *et seq.* The agency’s EA is therefore deficient and fail to provide sufficient justification for its proposed action and its proposal to issue a FONSI. For the reasons below, we request the BLM refrain from offering the 28 proposed lease parcels for sale and issuance.²

STATEMENT OF INTEREST

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

WildEarth Guardians has submitted extensive comments on the proposed leasing, including comments submitted on July 15, 2016 and July 27, 2016 over the BLM’s draft EA and proposed leasing. WildEarth Guardians has also extensively commented on BLM’s proposed oil and gas leasing in Utah, raising concerns over the agency’s failure to adequately address climate impacts.

² For purposes of this protest, we hereby incorporate by reference comments and attachments thereto submitted by WildEarth Guardians in response to the BLM’s Draft EA.

The mailing address for WildEarth Guardians to which correspondence regarding this protest should be directed is as follows:

WildEarth Guardians
2590 Walnut St.
Denver, CO 80205

STATEMENT OF REASONS

WildEarth Guardians protests the BLM's December 2016 oil and gas lease sale over the agency's failure to adequately analyze and assess the climate impacts of the reasonably foreseeable oil and gas development that will result in accordance with NEPA, 42 U.S.C. § 4331, *et seq.*, and regulations promulgated thereunder by the White House Council on Environmental Quality ("CEQ"), 40 C.F.R. § 1500, *et seq.*

NEPA is our "basic national charter for protection of the environment." 40 C.F.R. § 1500.1(a). The law requires federal agencies to fully consider the environmental implications of their actions, taking into account "high quality" information, "accurate scientific analysis," "expert agency comments," and "public scrutiny," prior to making decisions. *Id.* at 1500.1(b). This consideration is meant to "foster excellent action," meaning decisions that are well informed and that "protect, restore, and enhance the environment." *Id.* at 1500.1(c).

To fulfill the goals of NEPA, federal agencies are required to analyze the "effects," or impacts, of their actions to the human environment prior to undertaking their actions. 40 C.F.R. § 1502.16(d). To this end, the agency must analyze the "direct," "indirect," and "cumulative" effects of its actions, and assess their significance. 40 C.F.R. §§ 1502.16(a), (b), and (d). Direct effects include all impacts that are "caused by the action and occur at the same time and place." 40 C.F.R. § 1508.8(a). Indirect effects are "caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable." *Id.* at § 1508.8(b). Cumulative effects include the impacts of all past, present, and reasonably foreseeable actions, regardless of what entity or entities undertake the actions. 40 C.F.R. § 1508.7.

An agency may prepare an environmental assessment ("EA") to analyze the effects of its actions and assess the significance of impacts. *See* 40 C.F.R. § 1508.9; *see also* 43 C.F.R. § 46.300. Where effects are significant, an Environmental Impact Statement ("EIS") must be prepared. *See* 40 C.F.R. § 1502.3. Where significant impacts are not significant, an agency may issue a Finding of No Significant Impact ("FONSI") and implement its action. *See* 40 C.F.R. § 1508.13; *see also* 43 C.F.R. § 46.325(2).

Within an EA or EIS, the scope of the analysis must include "[c]umulative actions" and "[s]imilar actions." 40 C.F.R. §§ 1508.25(a)(2) and (3). Cumulative actions include action that, "when viewed with other proposed actions have cumulatively significant impacts and should therefore be discussed in the same impact statement." 40 C.F.R. § 1508.25(a)(2). Similar actions include actions that, "when viewed with other reasonably foreseeable or proposed agency actions, have similarities that provide a basis for evaluating their environmental consequences

together.” 40 C.F.R. § 1508.25(a)(3). Key indicators of similarities between actions include “common timing or geography.” *Id.*

Here, the BLM fell short of complying with NEPA with regards to analyzing and assessing the potentially significant climate impacts of oil and gas leasing. In support of its proposed leasing, the agency prepared an EA. In the EA, however, the BLM failed to analyze the reasonably foreseeable greenhouse gas emissions both from the proposed leasing and from cumulative and similar actions. The agency further failed to assess the significance of any emissions, particularly in terms of carbon costs. Below, we detail how BLM’s proposal fails to comply with NEPA.

1. The BLM Failed to Fully Analyze and Assess the Direct, Indirect, and Cumulative Impacts of Greenhouse Gas Emissions that Would Result from Issuing the Proposed Lease Parcels

Although we are pleased to see the BLM finally develop estimates for reasonably foreseeable direct and indirect greenhouse gas emissions associated with the proposed leasing (*see* EA at pp. 39-40), it appears that the agency’s analysis fails to fully comply with NEPA and to demonstrate support for a FONSI.

Notably, the BLM’s estimates of greenhouse gas emissions fails to account for emissions from cumulative and similar actions. As NEPA requires, an agency must analyze the impacts of “similar” and “cumulative” actions in the same NEPA document in order to adequately disclose impacts in an EIS or provide sufficient justification for a FONSI in an EA. *See* 40 C.F.R. §§ 1508.25(a)(2) and (3). Here, the BLM failed to take into account the greenhouse gas emissions resulting from other proposed oil and gas leasing in Utah and other neighboring states, as well as related oil and gas development, and to analyze the impacts of these actions in terms of their direct, indirect, and cumulative greenhouse gas emissions.

From a cumulative standpoint, it is first and foremost disconcerting that BLM’s analysis is entirely devoid of any consideration of greenhouse gas emissions from oil and gas development within the Vernal Field Office, as well as throughout the Rocky Mountain west. On a Field Office level, the underlying Final EIS prepared for the Vernal Field Office’s Resource Management Plan nowhere analyzes or assesses greenhouse gas emissions associated with oil and gas development. Regionally, including in other Field Offices in Utah as well as Field Offices in the neighboring states of Colorado, New Mexico, and Wyoming, BLM has never attempted to analyze or assess cumulative greenhouse gas emissions from oil and gas development.

Although the EA generally acknowledges there will be future greenhouse gas emissions from reasonably foreseeable development of the leases, there is no attempt to analyze these emissions in the context of oil and gas development within the actual cumulative impact area. The EA states that “[t]he cumulative impact area for air quality is the Uinta Basin, plus all regional Class I areas and other environmentally sensitive areas (e.g., national parks and monuments, wilderness areas, etc.) near the Uinta Basin” (*see* EA at 54), yet makes no attempt to actually analyze or assess reasonably foreseeable emissions within this area. The EA simply

remarks that greenhouse gas emissions will be produced in the future (*see* EA at 55), yet the BLM makes no effort to quantify these emissions or provide any information that would inform the decisionmaker and the public as to the significance of the reasonably foreseeable greenhouse gas emissions.

In terms of similar actions, we are particularly concerned that the BLM failed to analyze and assess greenhouse gas emissions resulting from oil and gas leasing within Utah and in the neighboring Rocky Mountain States of Colorado, Montana, New Mexico, and Wyoming. It is notable that at the same time and in this same region, the BLM has sold, is selling, and will be selling thousands of acres of oil and gas leases, including:

- Colorado: In May 2016, the BLM sold six lease parcels covering 6,960.48 acres. *See* https://www.blm.gov/style/medialib/blm/co/programs/oil_and_gas/Lease_Sale/2016/may.Par.43014.File.dat/May_2016_Results.pdf. And on December 8, 2016, only five days before Utah's oil and gas lease sale, the BLM is proposing to lease 31 parcels totaling 20,101 acres. *See* https://www.blm.gov/style/medialib/blm/co/programs/oil_and_gas/Lease_Sale/2016/november.Par.63919.File.dat/Dec_2016_Final_SN_v2.pdf. The BLM also has lease sales scheduled for February 9, 2017, May 11, 2017, August 10, 2017, and November 9, 2017. *See* https://www.blm.gov/co/st/en/BLM_Programs/oilandgas/oil_and_gas_lease.html.
- Montana: In May of 2016, the BLM sold seven lease parcels totaling 913.86 acres. *See* https://www.blm.gov/style/medialib/blm/mt/blm_programs/energy/oil_and_gas/leasing/lease_sales/2016/may4_2016.Par.61532.File.dat/05-04-16%20Comp%20Results.pdf. And on December 8, 2016, only five days' before Utah's oil and gas lease sale, the BLM is proposing to lease 91 parcels totaling 19,790.175 acres. *See* https://www.blm.gov/style/medialib/blm/mt/blm_programs/energy/oil_and_gas/leasing/lease_sales/2016/oct16_2016.Par.89806.File.dat/10_18_16%20SaleNotice_Map_List_Stips_for%20posting.pdf. The BLM also has lease sales scheduled for January 24, 2017, May 3, 2017, July 11, 2017, and October 17, 2017. *See* https://www.blm.gov/mt/st/en/prog/energy/oil_and_gas/leasing/leasesaleinfo/2017_oil_and_gas_lease.html.
- New Mexico: In April of 2016, the BLM sold 43 lease parcels totaling 36,841.03 acres. *See* https://www.blm.gov/style/medialib/blm/nm/programs/0/og_sale_notices_and/2016/july_2016.Par.97830.File.dat/July%202016%20OG%20Lease%20Sale%20Notice.pdf. And in September of 2016, the BLM sold 36 lease parcels totaling 13,876.08 acres. *See* https://www.blm.gov/style/medialib/blm/nm/programs/0/og_sale_notices_and/2016/july_2016.Par.97830.File.dat/July%202016%20OG%20Lease%20Sale%20Notice.pdf. The BLM also has lease sales scheduled for January 18, 2017, April 19, 2017, and July 19, 2017. *See*

https://www.blm.gov/sites/blm.gov/files/2017_FYOG_Schedule_updated1%2006-06_16_V3.pdf.

- **Wyoming:** On May 3, 2016, the BLM sold 95 oil and gas lease parcels totaling 86,608.8 acres. *See* https://www.blm.gov/wy/st/en/info/news_room/2016/may/blm_oil_and_gas_sales.html. And on November 1, 2016, the BLM sold 21 oil and gas lease parcels totaling 32,422.02 acres. *See* https://eplanning.blm.gov/epl-front-office/projects/nepa/60579/77921/87228/11_16sale_web.pdf. The BLM also has lease sales scheduled for February 7, 2017, May 2, 2017, August 1, 2017, and November 1, 2017. *See* https://www.blm.gov/wy/st/en/programs/energy/Oil_and_Gas/Leasing/reform/schedule.html.

And in Utah, the BLM sold numerous oil and gas lease parcels across thousands of acres on February 16, 2016 and May 3, 2016. The February 16, 2016 lease sale even included parcels from the Vernal Field Office. In 2017, the BLM has lease sales scheduled in Utah for February 21, 2017, May 16, 2017, August 15, 2017, and November 21, 2017. *See* <https://www.blm.gov/sites/blm.gov/files/uploads/SALERESULTS.pdf>.

Without any analysis of past, present, and reasonably foreseeable greenhouse gas emissions from these similar oil and gas leasing actions, the agency's proposed FONSI is unsupported under NEPA.

The BLM appears to attempt to argue that an analysis of greenhouse gas emissions is more appropriate at the drilling stage. We have yet to see the BLM actually prepare such a site-specific analysis in conjunction with an oil and gas lease development proposal. This is confirmed by a number of EAs prepared by the BLM for development proposals in the Vernal Field Office where no actual analysis of greenhouse gas emissions occurred. For instance, on October 17, 2016, the BLM approved the drilling of three wells in the Field Office proposed by Finley Resources. *See* Exhibit 1, BLM, "Environmental Assessment DOI-BLM-UT-G010-2016-0060-EA, Finley Proposes the Pelican 15-3A-7-20, 15-4A-7-20, 15-6A-7-20 Wells," October 2016, available online at https://eplanning.blm.gov/epl-front-office/projects/nepa/61501/88385/105740/Final_EA_1.pdf. Yet in the EA relied upon by the agency, there is no analysis or assessment of greenhouse gas emissions.

What's more, BLM's argument has no merit as the agency has proposed no stipulations that would grant the agency discretion to limit, or outright prevent, development of the proposed leases on the basis of greenhouse gas emissions and/or climate concerns. The BLM is effectively proposing to make an irreversible commitment of resources, which is the hallmark of significance under NEPA. *See* 42 U.S.C. § 4332(c)(v) and 40 C.F.R. § 1502.16. The failure to prepare an EIS—or any analysis for that matter—to address the potentially significant reasonably foreseeable greenhouse gas emissions that would result from the proposed leases is contrary to NEPA.

2. The BLM Failed to Analyze the Costs of Reasonably Foreseeable Carbon Emissions Using Well-Accepted, Valid, Credible, GAO-Endorsed, Interagency Methods for Assessing Carbon Costs that are Supported by the White House

Compounding the failure of the BLM to make any effort to estimate the greenhouse gas emissions that would result from reasonably foreseeable oil and gas development is that the agency also rejected analyzing and assessing these emissions in the context of their costs to society. It is particularly disconcerting that the agency refused to analyze and assess costs using the social cost of carbon protocol, 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.

The social cost of carbon protocol for assessing climate impacts is a method for “estimat[ing] the economic damages associated with a small increase in carbon dioxide (CO₂) emissions, conventionally one metric ton, in a given year [and] represents the value of damages avoided for a small emission reduction (i.e. the benefit of a CO₂ reduction).” *See* Exhibit 10 to Guardians’ July 15, 2016 Comments on EA. The protocol was developed by a working group consisting of several federal agencies, including the U.S. Department of Agriculture, EPA, CEQ, and others.

In 2009, an Interagency Working Group was formed to develop the protocol and issued final estimates of carbon costs in 2010. *See* Interagency Working Group on Social Cost of Carbon, “Technical Support Document: Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order 12866” (Feb. 2010), available online at <https://www.whitehouse.gov/sites/default/files/omb/inforeg/for-agencies/Social-Cost-of-Carbon-for-RIA.pdf>. These estimates were then revised in 2013 by the Interagency Working Group, which at the time consisted of 13 agencies. *See* Interagency Working Group on Social Cost of Carbon, “Technical Support Document: Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order 12866” (May 2013), available online at https://www.whitehouse.gov/sites/default/files/omb/inforeg/social_cost_of_carbon_for_ria_2013_update.pdf. This report and the social cost of carbon estimates were again revised in 2015. *See* Exhibit 13 to Guardians’ July 15, 2016 Comments on EA.

Depending on the discount rate and the year during which the carbon emissions are produced, the Interagency Working Group estimates the cost of carbon emissions, and therefore the benefits of reducing carbon emissions, to range from \$11 to \$220 per metric ton of carbon dioxide. *See* Chart Below. In its most recent update to the Social Cost of Carbon Technical Support Document, the White House’s central estimate was reported to be \$36 per metric ton. *See* White House, “Estimating the Benefits from Carbon Dioxide Emissions Reductions,” website available at <https://www.whitehouse.gov/blog/2015/07/02/estimating-benefits-carbon-dioxide-emissions-reductions>. In July 2014, the U.S. Government Accountability Office (“GAO”) confirmed that the Interagency Working Group’s estimates were based on sound procedures and methodology. *See* Exhibit 16 to Guardians’ July 15, 2016 Comments on EA.

Revised Social Cost of CO₂, 2010 – 2050 (in 2007 dollars per metric ton of CO₂)

Discount Rate Year	5.0% Avg	3.0% Avg	2.5% Avg	3.0% 95th
2010	10	31	50	86
2015	11	36	56	105
2020	12	42	62	123
2025	14	46	68	138
2030	16	50	73	152
2035	18	55	78	168
2040	21	60	84	183
2045	23	64	89	197
2050	26	69	95	212

Most recent social cost of carbon estimates presented by Interagency Working Group on Social Cost of Carbon. The 95th percentile value is meant to represent “higher-than-expected” impacts from climate change.

Although often utilized in the context of agency rulemakings, the protocol has been recommended for use and has been used in project-level decisions. For instance, the EPA recommended that an EIS prepared by the U.S. Department of State for the proposed Keystone XL oil pipeline include “an estimate of the ‘social cost of carbon’ associated with potential increases of GHG emissions.” Exhibit 14 to Guardians’ July 15, 2016 Comments on EA.

More importantly, the BLM has also utilized the social cost of carbon protocol in the context of oil and gas leasing. In recent Environmental Assessments for oil and gas leasing in Montana, the agency estimated “the annual SCC [social cost of carbon] associated with potential development on lease sale parcels.” Exhibit 15 to Guardians’ July 15, 2016 Comments on EA at 76. In conducting its analysis, the BLM used a “3 percent average discount rate and year 2020 values,” presuming social costs of carbon to be \$46 per metric ton. *Id.* Based on its estimate of greenhouse gas emissions, the agency estimated total carbon costs to be “\$38,499 (in 2011 dollars).” *Id.* In Idaho, the BLM also utilized the social cost of carbon protocol to analyze and assess the costs of oil and gas leasing. Using a 3% average discount rate and year 2020 values, the agency estimated the cost of carbon to be \$51 per ton of annual CO₂e increase. *See* Exhibit 4C to Guardians’ July 15, 2016 Comments on EA at 81. Based on this estimate, the agency estimated that the total carbon cost of developing 25 wells on five lease parcels to be \$3,689,442 annually. *Id.* at 83.

To be certain, the social cost of carbon protocol presents a conservative estimate of economic damages associated with the environmental impacts climate change. As the EPA has noted, the protocol “does not currently include all important [climate change] damages.” Exhibit 10 to Guardians’ July 15, 2016 Comments on EA. As explained:

The models used to develop [social cost of carbon] estimates do not currently include all of the important physical, ecological, and economic impacts of climate change recognized in the climate change literature because of a lack of precise information on the nature of damages and because the science incorporated into these models naturally lags behind the most recent research.

Id. In fact, more recent studies have reported significantly higher carbon costs. For instance, a report published this month found that current estimates for the social cost of carbon should be increased six times for a mid-range value of \$220 per ton. *See* Exhibit 12 to Guardians’ July 15, 2016 Comments on EA. In spite of uncertainty and likely underestimation of carbon costs, nevertheless, “the SCC is a useful measure to assess the benefits of CO2 reductions,” and thus a useful measure to assess the costs of CO2 increases. Exhibit 10 to Guardians’ July 15, 2016 Comments on EA.

The requirement to analyze the social cost of carbon is supported by the general requirements of NEPA, specifically supported in federal case law, and by Executive Order 13,514. As explained, NEPA requires agencies to analyze the consequences of proposed agency actions and consider include direct, indirect, and cumulative consequences. In terms of oil and gas leasing, an analysis of site-specific impacts must take place at the lease stage and cannot be deferred until after receiving applications to drill. *See New Mexico ex rel. Richardson v. Bureau of Land Management*, 565 F.3d 683, 717-18 (10th Cir. 2009); *Conner v. Burford*, 848 F.2d 1441 (9th Cir.1988); *Bob Marshall Alliance v. Hodel*, 852 F.2d 1223, 1227 (9th Cir.1988).

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

More recently, a federal court has done likewise for a federally approved coal lease. That court began its analysis by recognizing that a monetary cost-benefit analysis is not universally required by NEPA. *See High Country Conservation Advocates v. U.S. Forest Service*, 52 F.Supp.3d 1174 (D. Colo. 2014), citing 40 C.F.R. § 1502.23. However, when an agency prepares a cost-benefit analysis, “it cannot be misleading.” *Id.* at 1182 (citations omitted). In that case, the NEPA analysis included a quantification of benefits of the project. However, the quantification of the social cost of carbon, although included in earlier analyses, was omitted in the final NEPA analysis. *Id.* at 1196. The agencies then relied on the stated benefits of the project to justify project approval. This, the court explained, was arbitrary and capricious. *Id.* Such approval was based on a NEPA analysis with misleading economic assumptions, an approach long disallowed by courts throughout the country. *Id.*

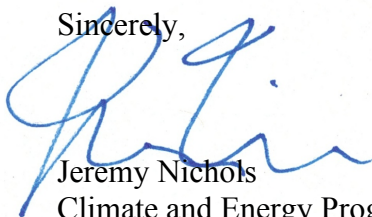
A recent op-ed in the New York Times from Michael Greenstone, the former chief economist for the President's Council of Economic Advisers, confirms that it is appropriate and acceptable to calculate the social cost of carbon when reviewing whether to approve fossil fuel extraction. See Exhibit 2, Greenstone, M., "There's a Formula for Deciding When to Extract Fossil Fuels," *New York Times* (Dec. 1, 2015), available online at http://www.nytimes.com/2015/12/02/upshot/theres-a-formula-for-deciding-when-to-extract-fossil-fuels.html?_r=0.

In light of all this, it appears more than reasonable to have expected the BLM to take into account carbon costs as part of its NEPA analyses. The agency did not. Instead, the BLM rejected the notion that a social cost of carbon analysis was appropriate, implicitly concluding that there would be no cost associated with the proposed oil and gas leasing. This violates NEPA and fails to demonstrate that a FONSI is appropriate.

In its EA, the BLM asserts that, absent a cost-benefit analysis, an assessment of carbon costs "would not be useful." EA at 41. However, analyzing social cost of carbon does not require a cost-benefit analysis, as the BLM asserts. Here, all it requires is basic multiplication. For example, using the mid-range cost of \$36 per ton, all BLM would have to do is multiply \$36 by the potential emissions disclosed on pp. 39-40 of the EA. This is not rocket science and the carbon costs that this basic multiplication would yield would not be confusing. It is unclear how providing such numbers to the American public would "not be useful." In any case, simply because the BLM may believe some information is "not useful," does not mean the agency may summarily avoid compliance with NEPA.

Further, using social cost of carbon provides critical insight into the potential significance of the proposed action from a climate standpoint and is by no means meant to be limited in use to only situations where a full cost-benefit analysis is conducted. BLM appears to misconstrue what information and insight social cost of carbon can provide as a tool and as such, has failed to demonstrate compliance with NEPA in rejecting this basic methodology as a means of assessing the climate impacts.

Sincerely,



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Exhibit 1

**U.S. Department of the Interior
Bureau of Land Management**

Environmental Assessment

DOI-BLM-UT-G010-2016-0060-EA

**Finley Proposes The Pelican 15-3A-7-20, 15-4A-7-20,
15-6A-7-20 Wells**

PREPARING OFFICE

U.S. Department of the Interior
Bureau of Land Management



Environmental Assessment
DOI-BLM-UT-G010-2016-0060-EA
Finley Proposes The Pelican 15-3A-7-20,
15-4A-7-20, 15-6A-7-20 Wells

Prepared by
U.S. Department of the Interior
Bureau of Land Management

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Finding of No Significant Impact

Finding of No Significant Impact:

Based on the analysis of potential environmental impacts DOI-BLM-UT-G010-2016-0060–EA, I have determined that the proposed action will not have any significant impacts on the environment, and an environmental impact statement is not required.

Signature:

Approved by:

\s\ Jerry Kenczka

Oct. 17, 2016

Jerry Kenczka

AFM for Minerals

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Decision Record - Memorandum

Selected Action:

It is my decision to authorize Finley Resources Inc. proposed split estate wells as described in the proposed action of DOI-BLM-UT-G010-2016-0060-EA

This decision includes the following components:

Table 1. Maximum Proposed Site Disturbance

<i>Well Names</i>	<i>Proposed Well Pad</i>	<i>Access Road</i>	<i>Pipeline</i>	<i>Total</i>
Pelican 15-4A-7-10	3.6 acres	295 feet	241 feet	4.0 acres
		0.2 acre	0.2 acre	
Pelican 15-3A-7-20	3.1 acres	1643 feet	3397 feet	6.5 acres
Pelican 15-6A-7-20		1.1 acres	2.3 acres	

Conditions of Approval:

This decision is contingent on meeting all stipulations and monitoring requirements listed below, which were designed to minimize and/or avoid impacts.

- All internal combustion equipment would be kept in good working order.
- Water or other approved dust suppressants would be used at construction sites and along roads, as determined appropriate by the Authorized Officer.
- Open burning of garbage or refuse would not occur at well sites or other facilities.
- Drill rigs would be equipped with Tier II or better diesel engines
- Low bleed pneumatics would be installed on separator dump valves and other controllers.
- During completion, not no venting would occur, and flaring would be limited as much as possible. Production equipment and gathering lines would be installed as soon as possible.
- Telemetry will be installed to remotely monitor and control production.
- All new and replacement internal combustion gas field engines of less than or equal to 300 design-rated horse power must not emit more than 2 grams of NOx per horsepower-hour. This requirement does not apply to gas field engines of less than or equal to 40 design-rated horsepower-hour.
- All new and replacement internal combustion gas field engines of greater than 300 design rated horsepower must not emit more than 1.0 grams of NOx per horsepower-hour.
- Green completions would be used for all well completion activities where technically feasible.

- Enhanced VOC emission controls with 95% control efficiency would be employed on production equipment having a potential to emit greater than 5 tons per year.
- The best method to avoid entrainment is to pump from an off-channel location – one that does not connect to the river during high spring flows. An infiltration gallery constructed in a BLM and Service approved location is best.
- If the pump head is located in the river channel where larval fish are known to occur, the following measures apply:
 - do not situate the pump in a low-flow or no-flow area as these habitats tend to concentrate larval fishes;
 - limit the amount of pumping, to the greatest extent possible, during that period of the year when larval fish may be present (April 1 to August 31); and
 - limit the amount of pumping, to the greatest extent possible, during the pre-dawn hours as larval drift studies indicate that this is a period of greatest daily activity.
- Screen all pump intakes with 3/32 inch mesh material.
- Approach velocities for intake structures will follow the National Marine Fisheries Service’s document “Fish Screening Criteria for Anadromous Salmonids”. For projects with an in-stream intake that operate in stream reaches where larval fish may be present, the approach velocity will not exceed 0.33 feet per second (ft/s).
- Report any fish impinged on the intake screen to the Service (801.975.3330) and the Utah Division of Wildlife Resources:

Northeastern Region 318 North Vernal Ave, Vernal, UT 84078

Phone: (435) 781-9453

Rationale:

The proposed wells and related facilities meet the BLM’s purpose and need to allow the lessee to develop the subject mineral lease indicated above in an environmentally sound manner. The need for the action is established by BLM Onshore Orders (43 CFR 3160) which require BLM approval of APDs on split estate.

An on-site review of the APD(s) was held on December 8, 2015 and the surface owner was invited to attend. The operator has provided certification that they have a surface owner’s agreement, which was received by the BLM on November 30, 2015. No major issues were identified by the surface owner.

The above factors and the analysis contained in DOI-BLM-UT-G010-2016-0060-EA for Finley Resources Inc.’s proposed wells were carefully considered and evaluated. In addition, the APD and surface owner’s agreements were reviewed. All reports were read and the information contained weighed in determining the appropriateness of the decision stated above.

Land Use Plan Conformance:

The selected alternative is in conformance with the Vernal Field Office Resource Management Plan and Record of Decision (BLM 2008).

The selected alternative is consistent with *Uintah County General Plan 2011 (Plan)* that encompasses the location of the proposed wells. In general, the plan indicates support for development proposals such as the selected alternative through the plan's emphasis of multiple-use public land management practices, responsible use and optimum utilization.

There are no comprehensive State of Utah plans for the vicinity of the selected alternative. However, the State of Utah School and Institutional Trust Lands Administration (SITLA) have leased much of the nearby state land for oil and gas production. Because the objectives of SITLA are to produce funding for the state school system, and because production on federal leases could further interest in drilling on state leases in the area, it is assumed that the selected alternative is consistent with the objectives of the State.

Public Involvement:

The proposed project was posted on the Eplanning NEPA Register on May 11, 2016. No comment has been received.

Alternatives Considered:

The EA analyzed the proposed action and no action alternatives. On-site visits were conducted by Vernal Field Office Personnel. The on-site inspection reports do not indicate that any other locations be proposed for analysis. The no action alternative was not selected because it would not best meet the BLM's need to acknowledge and allow development of valid existing leases.

Appeal or Protest Opportunities:

This decision is effective upon the date it is signed by the authorized officer. The decision is subject to appeal. Under BLM regulation, this decision is subject to administrative review in accordance with 43 CFR 3165. Any request for administrative review of this decision must include information required under 43 CFR 3165.3(b) (State Director Review), including all supporting documentation. Such a request must be filed in writing with the State Director, Bureau of Land Management, Utah State Office, P.O. Box 45155, Salt Lake City, Utah, 84145-0155, within 20 business days of the date this Decision is received or considered to have been received.

If you wish to file a petition for stay, the petition for stay should accompany your notice of appeal and shall show sufficient justification based on the following standards:

1. The relative harm to the parties if the stay is granted or denied;
2. The likelihood of the appellant's success on the merits;
3. The likelihood of irreparable harm to the appellant or resources if the stay is not granted; and,
4. Whether the public interest favors granting the stay.

Signature:

Authorizing Official:

\s\ Jerry Kenczka
Jerry Kenczka
AFM for Minerals

Oct. 17, 2016

Chapter 1. Introduction

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1.1. Identifying Information:

This Environmental Assessment (EA) has been prepared by the Bureau of Land Management Vernal Field Office to analyze Finley Resources Inc. (Finley) Applications for Permit to Drill (APDs), including roads, pipelines, well pads, and the associated infrastructure. The subject wells are on split estate lands. The well pads, access road, and majority of the pipeline route (2,457 feet) are on Ronald Virgle Hatch ETAL lands with mineral estate being held by the Bureau of Land Management. The remaining pipeline route (940 feet) are on lands owned by Ouray Park Irrigation Company, LLC. The well information is as follows:

Table 1.1. Well Information

Well Identification	Legal Location	Lease Number	Land Owner	Mineral Owner
Pelican 15-4A-7-20	N/2NW Sec 15, T7S, R20E	UTU-14219	Ronald Virgle Hatch ETAL	BLM
Pelican 15-3A-7-20				
Pelican 15-6A-7-20				

The EA assists the BLM in project planning and ensuring compliance with the National Environmental Policy Act (NEPA), and in making a determination as to whether any “significant” impacts could result from the analyzed actions.

1.1.1. Title, EA number, and type of project:

Title: The Pelican 15-3A-7-20, 15-4A-7-20, 15-6A-7-20 Wells

NEPA #: DOI-BLM-UT-G010-2016-0060-EA

Project Type: Environmental Assessment

1.1.2. Location of Proposed Action:

The proposed project area is located in section 15, T. 7S., R. 20 E., Uintah County, Utah. The proposed project area is located approximately 23 miles south west of Vernal, Utah.

1.1.3. Name and Location of Preparing Office:

Vernal Field Office

170 South 500 East

Vernal, Ut. 84078

(435) 781-4400

1.1.4. Identify the subject function code, lease, serial, or case file number:

Lease Number: UTU-14219

1.1.5. Applicant Name:

Finley Resources, Inc.

1.2. Purpose and Need for Action:

The BLM decision to be made is whether or not to approve the APDs. The purpose of the action is to allow the lessee to develop the federal mineral lease indicated above in an environmentally sound manner. The need for the action is established by BLM Onshore Orders (43 CFR 3160), which require the BLM to review and approve APDs on federal leases, including those leases with split estate lands. However, the BLM has no jurisdiction over surface impacts on these split estate lands.

1.3. Scoping, Public Involvement and Issues:

On-site reviews of the APDs were conducted on December 8, 2015; the surface owners were invited to attend. The operator has provided certification that they have a surface owner's agreement, which was received by the BLM on November 30, 2015. No issues were identified by the surface owners. A cultural resource survey has been completed and cover page of the survey results was submitted with the APD package, no resources were identified.

The proposed project was posted on the Eplanning NEPA Register on 5/11/2016.

Chapter 2. Proposed Action and Alternatives

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2.1. Description of the Proposed Action:

Finley proposes to drill the following oil wells: Listed in the following table which summarizes the maximum proposed site disturbance listed in acres.

Table 2.1. Surface Disturbance Summary

Well Names	Proposed Well Pad	Access Road	Surface Pipeline	Total
Pelican 15-4A-7-10	3.6 acres	295 feet 0.2 acre	241 feet 0.2 acre	4.0 acres
Pelican 15-3A-7-20	3.1 acres	1643 feet	3397 feet	6.5 acres
Pelican 15-6A-7-20		1.1 acres	2.3 acres	
TOTAL	6.7	1938 feet 1.3 acres	3638 feet 2.5 acres	10.5 acres

2.1.1. Surface Disturbance

New surface disturbance from the construction of the well pads and reserve pit would be approximately 6.7 acres. The total amount of surface disturbance will be lessened when interim reclamation becomes successful. Surface and subsoil materials in the immediate project area would be used for construction. Topsoil will be saved for reclamation purposes only. The reserve pit would be fenced on three sides during drilling operations and on the fourth side when the rig moves off location. It would be fenced, and the fence maintained, until the pit is reclaimed within 180 days of the well going into production.

There would be approximately 1.3 acre of new surface disturbance for access road, and pipeline infrastructure. However, disturbance will be lessened for long term when reclamation work is completed.

Up to 15 acre-feet per year of fresh water for drilling and completion operations would be obtained from one or more of the following sources: Permit # 43-8496, 49-1645, 49-2247, 43-11238, 43-12699, 43-12534, and/or 43-10288.

All production facilities would be located on the disturbed portion of the well pad and a minimum of 25 feet from the toe of the back slope, preferably on cut, and towards the front of the well pad to maximize interim reclamation. A dike/berm (earthen or corrugated steel) large enough to hold 110% of the capacity of the largest tank would be constructed completely around those production facilities which contain fluids.

Upon well completion, the operator would reclaim the reserve pit in accordance with Onshore Orders, regulations, and the surface owner requirements. Also, any unused portion of the well pad not needed for continued operations will undergo interim reclamation practices. This must be addressed in the reclamation plan required under Onshore Order #1 section J of the Surface Use Plan. Upon well abandonment, the operator would reclaim the well pad, road, and pipeline as directed by the surface owner or by the BLM AO.

2.2. No Action Alternative

The lease allows drilling to occur in the lease areas subject to the stipulations of the specific lease agreement. BLM can deny the APD, if the proposal would violate lease stipulations, applicable laws, and regulations, and also can impose restrictions to prevent undue or unnecessary environmental degradation. If BLM were to deny the APD, the applicant could attempt to reverse the BLM's decision through administrative appeals. The outcome of that action is beyond the scope of this EA and cannot be projected or meaningfully analyzed at this time.

2.3. Alternatives Considered but not Analyzed in Detail

There were no other alternatives identified aside from the Proposed Action and No Action Alternatives that would meet the purpose and need of this project.

2.4. Conformance

The alternatives are in conformance with the Vernal Field Office RMP/ROD (October 31, 2008) and the terms of the lease. The RMP/ROD decision allows leasing of oil and gas while protecting or mitigating other resource values (RMP/ROD p. 97-99). The Minerals and Energy Resources Management Objectives encourage the drilling of oil and gas wells by private industry (RMP/ROD, p. 97). The RMP/ROD decision also allows for processing applications, permits, operating plans, mineral exchanges, and leases on public lands in accordance with policy and guidance and allows for management of public lands to support goals and objectives of other resources programs, respond to public requests for land use authorizations, and acquire administrative and public access where necessary (RMP/ROD p. 86). It has been determined that the proposed action and alternative(s) would not conflict with other decisions throughout the plan.

2.5. Relationships to Statutes, Regulations, or Other Plans

2.5.1. Federal Laws and Statutes

The subject lands were leased for oil or gas development under authority of the Mineral Leasing Act of 1920, as modified by the Federal Land Policy and Management Act of 1976, and the Federal Onshore Oil and Gas Leasing Reform Act of 1987. The lessee/operator has the right to explore for oil and gas on the lease as specified in 43 CFR 3103.1-2, and if a discovery is made, to produce oil and/or natural gas for economic gain.

2.5.2. State and Local Laws and Statutes

There are no comprehensive State of Utah plans for the vicinity of the Proposed Action.

The proposed project is consistent with the *Uintah County General Plan, 2011 (Plan)* that encompasses the location of the proposed well. In general, the Plan indicates support for development proposals such as the Proposed Action through the Plan's emphasis on multiple-use public land management practices, responsible use and optimum utilization.

The State of Utah School and Institutional Trust Lands Administration (SITLA) have leased much of the nearby state land for oil and gas production. Because the objectives of SITLA are to produce funding for the state school system, and because production on federal leases could further interest in drilling on state leases in the area, it is assumed that the alternatives analyzed, except the No Action Alternative, are consistent with the objectives of the state.

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Chapter 3. Affected Environment:

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3.1. Air Quality

Air Quality: The Project Area is located in the Uinta Basin, a semiarid, mid-continental climate regime typified by dry, windy conditions, limited precipitation and wide seasonal temperature variations subject to abundant sunshine and rapid nighttime cooling. The Uinta Basin is designated as unclassified/attainment by the EPA under the Clean Air Act. This classification indicates that the concentration of criteria pollutants in the ambient air is below National Ambient Air Quality Standards (NAAQS), or that adequate air monitoring is not available to determine attainment.

NAAQS are standards that have been set for the purpose of protecting human health and welfare with an adequate margin of safety. Pollutants for which standards have been set include ground level ozone, (O₃), sulfur dioxide (SO₂), nitrogen dioxide (NO₂), and carbon monoxide (CO), and particulate matter less than 10 microns in diameter (PM₁₀) or 2.5 microns in diameter (PM_{2.5}). Airborne particulate matter consists of tiny coarse-mode (PM₁₀) or fine-mode (PM_{2.5}) particles or aerosols combined with dust, dirt, smoke, and liquid droplets. PM_{2.5} is derived primarily from the incomplete combustion of fuel sources and secondarily formed aerosols, whereas PM₁₀ is primarily from crushing, grinding, or abrasion of surfaces. **Table 3-1** lists ambient air quality background values for the Uinta Basin and NAAQS standards.

Table 3.1. Ambient Air Quality Background Values

Pollutant	Averaging Period(s)	Uinta Basin Background Concentration (µg/m ³)	NAAQS (µg/m ³)
SO ₂	Annual	0.8 ²	-- ¹
	24-hour	3.9 ²	-- ¹
	3-hour	10.1 ²	1,300
	1-hour	19.0 ²	197
NO ₂	Annual	8.1 ³	100
	1-hour	60.2 ³	188
PM ₁₀	Annual	7.0 ⁴	-- ⁶
	24-hour	16.0 ⁴	150
PM _{2.5}	Annual	9.4 ³	15
	24-hour	17.8 ³	35
CO	8-hour	3,450 ⁴	10,000
CO	1-hour	6,325 ⁴	40,000
O ₃	8-hour	100.0 ^{3,5}	75
1 – The 24-hour and annual SO ₂ NAAQS have been revoked by USEPA 2 – Based on 2009 data from Wamsutter Monitoring Station Data (USEPA AQS Database) 3 – Based on 2010/2011 data from Redwash Monitoring Station (USEPA AQS Database) 4 – Based on 2006 data disclosed in the Greater Natural Buttes FEIS. (BLM, 2012) 5 – Ozone is measured in parts per billion (ppb) 6 – The annual PM ₁₀ NAAQS has been revoked by USEPA			

Existing point and area sources of air pollution within the Uinta Basin include the following:

- Exhaust emissions (primarily CO, NO_x, PM_{2.5}, and HAPs) from existing natural gas fired compressor engines used in transportation of natural gas in pipelines;
- Natural gas dehydrator still-vent emissions of CO, NO_x, PM_{2.5}, and HAPs;
- Gasoline and diesel-fueled vehicle tailpipe emissions of VOCs, NO_x, CO, SO₂, PM₁₀, and PM_{2.5};
- Oxides of sulfur (SO_x), NO_x, fugitive dust emissions from coal-fired power plants, and coal mining/ processing;
- Fugitive dust (in the form of PM₁₀ and PM_{2.5}) from vehicle traffic on unpaved roads, wind erosion in areas of soil disturbance, and road sanding during winter months; and,
- Long-range transport of pollutants from distant sources.

Two year-round air quality monitoring sites were established in summer 2009 near Red Wash (southeast of Vernal, Utah) and Ouray (southwest of Vernal). These monitors were certified as Federal Reference Monitors in fall of 2011, which means they can be used to make a NAAQS compliance determination. The complete EPA Ouray and Redwash monitoring data can be found at: <http://www.epa.gov/airexplorer/index.htm>

Both monitoring sites have recorded numerous exceedences of the 8-hour ozone standard during the winter months (January through March 2010, 2011, 2013, and 2014). It is thought that high concentrations of ozone are being formed under a “cold pool” process. This process occurs when stagnate air conditions form with very low mixing heights under clear skies, with snow-covered ground, and abundant sunlight. These conditions, combined with area precursor emissions (NO_x and VOCs), can create intense episodes of ozone. The high numbers did not occur in January through March 2012 due to a lack of snow cover. This phenomenon has also been observed in similar locations in Wyoming. Winter ozone formation is a newly recognized issue, and the methods of analyzing and managing this problem are still being developed. Existing photochemical models are currently unable to reliably replicate winter ozone formation. This is due to the very low mixing heights associated with unique meteorology of the ambient conditions. Further research is needed to definitively identify ozone precursor sources that contribute to observed ozone concentrations.

The UDAQ conducted limited monitoring of PM_{2.5} in Vernal, Utah in December 2006. During the 2006-2007 winter seasons, PM_{2.5} levels were higher than the PM_{2.5} health standards that became effective in December 2006. The PM_{2.5} levels recorded in Vernal were similar to other areas in northern Utah that experience wintertime inversions. The most likely causes of elevated PM_{2.5} at the Vernal monitoring station are those common to other areas of the western U.S. (combustion and dust) plus nitrates and organics from oil and gas activities in the Basin. PM_{2.5} monitoring that has been conducted in the vicinity of oil and gas operations in the Uinta Basin by the Red Wash and Ouray monitors beginning in summer 2009 have not recorded any exceedences of either the 24 hour or annual NAAQS.

HAPs are pollutants that are known or suspected to cause cancer or other serious health effects, such as reproductive effects or birth defects, or adverse environmental impacts. The EPA has classified 187 air pollutants as HAPs. Examples of listed HAPs associated with the oil and gas industry include formaldehyde, benzene, toluene, ethylbenzene, isomers of xylene (BTEX)

compounds, and normal-hexane (n-hexane). There are no applicable Federal or State of Utah ambient air quality standards for assessing potential HAP impacts to human health.

Greenhouse Gases: Greenhouse gases keep the planet's surface warmer than it otherwise would be. According to NOAA and NASA data, the Earth's average surface temperature has increased by about 1.2 to 1.4° F in the last 100 years. The eight warmest years on record (since 1850) have all occurred since 1998, with the warmest year being 1998. However, according to the British Meteorological Office's Hadley Centre (BMO 2009), the United Kingdom's foremost climate change research center, the mean global temperature has been relatively constant for the past nine 18 years after the warming trend from 1950 through 2000. Predictions of the ultimate outcome of global warming remain to be seen.

The analysis of the Regional Climate Impacts prepared by the U.S. Global Change Research Program (USGCRP) in 2009 suggests that recent warming in the region (including the project area) was nationally among the most rapid. Past records and future projections predict an overall increase in regional temperatures, largely in the form of warmer nights and effectively higher average daily minimum temperatures. They conclude that this warming is causing a decline in spring snowpack and reduced flows in the Colorado River. The USGCRP projects a region-wide decrease in precipitation, although with substantial variability in interannual conditions. For eastern Utah, the projections range from an approximate 5 percent decrease in annual precipitation to decreases as high as 40 percent of annual precipitation.

Equilibrium climate sensitivity quantifies the response of the climate system to constant radiative forcing on multicentury time scales. It is defined as the change in global mean surface temperature at equilibrium that is caused by a doubling of the atmospheric CO₂ concentration. Equilibrium climate sensitivity is likely in the range 1.5°C to 4.5°C (high confidence), extremely unlikely less than 1°C (high confidence), and very unlikely greater than 6°C (medium confidence). The lower temperature limit of the assessed likely range is thus less than the 2°C in the AR4, but the upper limit is the same. This assessment reflects improved understanding, the extended temperature record in the atmosphere and ocean, and new estimates of radiative forcing. No best estimate for equilibrium climate sensitivity can now be given because of a lack of agreement on values across assessed lines of evidence and studies (IPCC, 2013).

3.2. Invasive Plants/Noxious Weeds, Soils, and Vegetation

The proposed well is located in Section 15 of T7S R20E. The area is relatively flat with a strong sage type community and 5-8 inches of precipitation per year on average. The soils are mixture sandy loams. The vegetation noted on the on-site include Indian ricegrass, Basin big-sagebrush, Four-wing saltbush, rubber rabbitbrush, Prickly pear cactus, horsebrush, and the following noxious and or invasive weeds Cheatgrass, and Russian thistle.

3.3. Wildlife: Migratory Birds (Including raptors)

All migratory birds and their nests are protected from take or disturbance under the Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C., 703 et seq.). These protection laws were implemented for the protection of avian species. Unless permitted by regulations, it is unlawful to pursue, hunt, kill, capture, possess, buy, sell, purchase, or barter any species covered under these Acts. In addition, Executive Order 13186 sets forth the responsibilities of federal agencies to further implement the provisions of these Acts by integrating bird conservation principles and

practices into agency activities and by ensuring that federal actions evaluate the effects of actions and agency plans on protected avian species.

The following addresses migratory birds that may utilize the project area for nesting or foraging activities, including those species classified as Priority Species by Utah Partners-in-Flight. Utah Partners-in-Flight is a cooperative partnership among federal, state, and local government agencies as well as public organizations and individuals organized to emphasize the conservation of birds not covered by existing conservation initiatives.

Desert/Shrub Areas: American robin, American white pelican, bald eagle, blue-gray gnatcatcher, black-billed magpie, black-capped chickadee, black-chinned hummingbird, black-throated sparrow, bobolink, Brewer's blackbird, Brewer's sparrow, broad-tailed hummingbird, common raven, mountain bluebird, sage sparrow, sage thrasher, short-eared owl, song sparrow, western burrowing owl, and western kingbird.

3.4. Wildlife:Threatened, Endangered, Proposed or Candidate

The USFWS has identified four federally listed fish species historically associated with the Upper Colorado River Basin as being impacted through water depletions: bonytail, Colorado pikeminnow, humpback chub, and razorback sucker. These fish are federally and state-listed as endangered and have experienced severe population declines due to flow alterations, habitat loss or alteration, and the introduction of non-native fish species.

Chapter 4. Environmental Effects:

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4.1. Direct and Indirect Impacts

The potential direct, indirect, and cumulative impacts from Alternative A (the Proposed Action) and Alternative B (the No Action Alternative) are discussed in the following sections of Chapter 4. Direct impacts to soils and vegetation in the following analyses are described as short-term and long-term impacts. In areas where interim reclamation is implemented, ground cover by herbaceous and woody species could be re-established to approximately 75 percent of initial basal cover within five years following seeding of native plant species and diligent weed control efforts. These reclaimed areas are categorized as short-term disturbance.

4.2. Proposed Action

4.2.1. Air Quality

Air Quality: This Proposed Action is considered to be a minor air pollution source under the Clean Air Act at present control technology on some emissions sources (e.g. drill rigs) is not required by regulatory agencies. The Proposed Action would result in different emission sources associated with two project phases: well development and well production. Annual estimated emissions from the Proposed Action are summarized in **Table 4-1**.

Table 4.1. Proposed Action Annual Emissions (tons/year)

Pollutant	Development ¹	Production	Total
NO _x	9.81	6.93	16.74
CO	5.25	16.02	21.27
SO _x	0.204	0	0.204
VOC	19.89	14.49	34.38
PM ₁₀	25.59	0.36	25.95
PM _{2.5}	3.06	0.36	3.42
Benzene	0.036	0.03	0.066
Toluene	0.039	0.03	0.069
Ethylbenzene	0	0	0
Xylene	0.00105	0	0.00105
n-Hexane	0	0.36	0.36
Formaldehyde	0.0012	0.36	0.3612

¹ Emissions include 3 producing well(s) and associated operations traffic during the year in which the project is developed.

Well development includes NO_x, SO₂, and CO tailpipe emissions from earth-moving equipment, vehicle traffic, drilling, and completion activities. Fugitive dust concentrations would occur from vehicle traffic on unpaved roads and from wind erosion where soils are disturbed. Drill rig and fracturing engine operations would result mainly in NO_x and CO emissions, with lesser amounts of SO₂. These emissions would be short-term during the drilling and completion phases.

During well production, continuous NO_x, CO, VOC, and HAP emissions would originate from well pad separators, condensate storage tank vents, and daily tailpipe and fugitive dust emissions from operations traffic. Road dust (PM₁₀ and PM_{2.5}) would also be produced by vehicles servicing the wells.

Under the proposed action, emissions of NO_x and VOC, ozone precursors, are 16.74 tons/yr for NO_x, and 34.38 tons/yr of VOC (**Table 4-1**). Emissions would be dispersed and/ or diluted to the extent where any local ozone impacts from the Proposed Action would be indistinguishable from background conditions.

The primary sources of HAPs are from oil storage tanks and smaller amounts from other production equipment. Small amounts of HAPs are emitted by construction equipment. These emissions are estimated to be minor and less than 1 ton per year.

4.2.1.1. Greenhouse Gases

The assessment of greenhouse gas emissions and climate change remains in its earliest stages of formulation. Applicable EPA rules do not require any controls and have yet to establish any emission limits related to GHG emissions or impacts. The lack of scientific models that predict climate change on regional or local level prohibits the quantification of potential future impacts of decisions made at the local level, particularly for small scale projects such as the Proposed Action. Drilling and development activities from the Proposed Action are anticipated to release a negligible amount of greenhouse gases into the local air-shed.

4.2.1.1.1. Mitigation

- All internal combustion equipment would be kept in good working order.
- Water or other approved dust suppressants would be used at construction sites and along roads, as determined appropriate by the Authorized Officer.
- Open burning of garbage or refuse would not occur at well sites or other facilities.
- Drill rigs would be equipped with Tier II or better diesel engines
- Low bleed pneumatics would be installed on separator dump valves and other controllers.
- During completion, not no venting would occur, and flaring would be limited as much as possible. Production equipment and gathering lines would be installed as soon as possible.
- Telemetry will be installed to remotely monitor and control production.
- All new and replacement internal combustion gas field engines of less than or equal to 300 design-rated horse power must not emit more than 2 grams of NO_x per horsepower-hour. This requirement does not apply to gas field engines of less than or equal to 40 design-rated horsepower-hour.
- All new and replacement internal combustion gas field engines of greater than 300 design rated horsepower must not emit more than 1.0 grams of NO_x per horsepower-hour.
- Green completions would be used for all well completion activities where technically feasible.
- Enhanced VOC emission controls with 95% control efficiency would be employed on production equipment having a potential to emit greater than 5 tons per year.

4.2.1.2. Invasive Plants/Noxious Weeds, Soils, and Vegetation

During construction process, the soils in the project area would be stripped of vegetation, moved around and compacted until the location is formed. Topsoil would be separated from other soils and would be used for interim and final reclamation only. The proposed action alternative would result in approximately 10.5 acres of disturbance. Upon well completion, the reserve pit would be reclaimed in accordance with Onshore Order #1 regulations and the surface owner's directions, which includes Finley's surface operating plan and surface owner's agreements. Upon well abandonment, the well pad, road, and pipeline would be reclaimed in accordance with the surface owner's directions, and Finley's site specific reclamation plan.

4.2.2. Wildlife: Migratory Birds (Including raptors)

Potential effects of the Proposed Action Alternative on avian species include 1) direct loss or degradation of potential nesting and foraging habitats, 2) indirect disturbance from human activity (including harassment, displacement, and noise), and 3) increased direct impacts (including poaching and collisions with vehicles). By following the mitigation measures outlined below these impacts would be minimized or completely negated.

Project activities are anticipated to disturb approximately 10.5 acres of migratory bird foraging and nesting habitat. Given the abundance of foraging habitat in the surrounding area, habitat losses are not expected to reduce raptor prey bases to levels where "take" would occur. Impacts to migratory birds within the proposed project area would also be dependent upon the time when project activities would occur. If these activities occur in the late fall, most of the species would have left the area during winter migration. If construction activities were to occur during the spring or summer months it could cause birds to move into other adjacent habitats or into habitats where interspecific and intraspecific competition between species may increase. Surface and noise disturbance associated with project activities would be considered temporary and is anticipated to occur during typical working hours.

4.2.3. Wildlife: Threatened, Endangered, Proposed or Candidate

Colorado River Fish Species:

Water depletions from the Upper Colorado River Drainage System, along with a number of other factors, have resulted in such drastic reductions in the populations of the Colorado pikeminnow, humpback chub, bonytail, and razorback sucker that the Service has listed these species as endangered and has implemented programs to prevent them from becoming extinct.

Water depletions reduce the ability of the river to create and maintain the primary constituent elements that define critical habitats. Food supply, predation, and competition are important elements of the biological environment. Food supply is a function of nutrient supply and productivity, which could be limited by reduction of high spring flows brought about by water depletions. Predation and competition from nonnative fish species have been identified as factors in the decline of the endangered fishes. Water depletions contribute to alterations in flow regimes that favor nonnative fishes.

The potential exists for water intake structures placed in the Upper Colorado River Drainage System (flowing rivers and streams) to result in mortality to eggs, larvae, young-of-the-year,

and juvenile life stages. BLM and their applicants would minimize this potential by following applicant committed conservation measures (listed below and in Chapter 2). Key habitat components for foraging or cover may be removed or altered due to equipment, including decreased water quantity for aquatic species from dewatering during low flow periods.

The proposed action would result in a 15 acre-feet per year of water depletion based on removal of water from the Upper Colorado River Drainage System for construction and drilling operations. Therefore, the proposed action will have a “*may affect, likely to adversely affect*” determination for the endangered Colorado pikeminnow, humpback chub, bonytail, and razorback sucker. A programmatic Water Depletion Biological Assessment was prepared by the UWSFWS and the Bureau of Land Management, Vernal Field Office. These associated impacts are within the scope of this consultation. Therefore, the consultation for the water depletion impacts to the four Colorado River fish and their designated critical habitat has been previously completed.

Mitigation

- The best method to avoid entrainment is to pump from an off-channel location – one that does not connect to the river during high spring flows. An infiltration gallery constructed in a BLM and Service approved location is best.
- If the pump head is located in the river channel where larval fish are known to occur, the following measures apply:
 1. do not situate the pump in a low-flow or no-flow area as these habitats tend to concentrate larval fishes;
 2. limit the amount of pumping, to the greatest extent possible, during that period of the year when larval fish may be present (April 1 to August 31); and
 3. limit the amount of pumping, to the greatest extent possible, during the pre-dawn hours as larval drift studies indicate that this is a period of greatest daily activity.
- Screen all pump intakes with 3/32 inch mesh material.
- Approach velocities for intake structures will follow the National Marine Fisheries Service’s document “Fish Screening Criteria for Anadromous Salmonids”. For projects with an in-stream intake that operate in stream reaches where larval fish may be present, the approach velocity will not exceed 0.33 feet per second (ft/s).
- Report any fish impinged on the intake screen to the Service (801.975.3330) and the Utah Division of Wildlife Resources:

Northeastern Region 318 North Vernal Ave, Vernal, UT 84078

Phone: (435) 781-9453

*Chapter 4 Environmental Effects:
Wildlife: Threatened, Endangered, Proposed or
Candidate*

4.3. No Action Alternative

4.3.1. Air Quality

Under the No Action Alternative, the proposed well(s) would not be permitted, so no emissions would occur.

4.3.2. Invasive Plants/Noxious Weeds, Soils, and Vegetation

Under the No Action Alternative, the Fin Federal 4-5A-8-20, 4-5B-8-20, 4-6A-8-20, and 4-6B-8-20 would not be approved or drilled. Soils and vegetation in the area would remain in their current state. Erosion rates would also remain at current levels.

4.3.3. Wildlife

Under the no action alternative, there would be no direct disturbance or indirect effects to threatened, endangered, proposed, candidate, or sensitive wildlife species from surface disturbing activities associated with the road realignment. Current land use trends in the area would continue, including increased industrial development, increased OHV traffic, increased recreational use for hunting, bird watching and sightseeing.

4.4. Reasonably Foreseeable Development and Cumulative Impacts Analysis

4.4.1. Cumulative Impacts

4.4.1.1. Air Quality

The cumulative impact area for air quality is the Uinta Basin, plus all regional Class I areas and other environmentally sensitive areas (e.g., national parks and monuments, wilderness areas, etc.) near the Uinta Basin. The Air Resource Management Strategy (ARMS) Modeling Project is a cumulative assessment of potential future air quality impacts associated with predicted oil and gas activity in the Uinta Basin (BLM, 2011). Consequently, past, present and reasonably foreseeable wells in the Uinta Basin are a part of the cumulative actions considered in this analysis. The ARMS is incorporated by reference and summarized below.

The ARMS Modeling Project predicted the following impacts to air quality and air quality related values for the 2010 typical year and four 2021 future year scenarios: 2021 on-the-books (OTB); 2021 Scenario 1 (NO_x controls); 2021 Scenario 2 (VOC controls); and 2021 Scenario 3 (NO_x and VOC controls).

- Ozone
 - The highest modeled ozone occurs in the Uinta Basin study area regardless of model scenario, and all scenarios predict exceedences of the ozone NAAQS and state AAQS in the Uinta Basin.

- In the Uinta Basin, the ozone concentrations are highest during the winter period. In Class I and Class II areas outside the Uinta Basin study area, ozone concentrations are highest during the summer period.
- During non-winter months in the Uinta Basin the model predicts that ozone may exceed the NAAQS and state AAQS (Ambient Air Quality Standards); however, model-adjusted results from the MATS tool (which accounts for model performance biases) indicate that non-winter ozone concentrations are below the NAAQS and state AAQS for all monitors and areas analyzed. Also, the 2021 scenarios have minimal effect on model-predicted ozone concentrations during non-winter months.
- 2021 Scenario 2 tends to have the lowest 8-hour ozone concentration relative to all other 2021 scenarios (4th highest daily maximum is 3 ppb lower compared to the 2021 OTB Scenario). When comparing Scenario 2 to the OTB Scenario, a potential reduction in ozone concentrations occurs in the vicinity of the Ouray site (where the concentrations are already largest). There is no predicted ozone disbenefit associated with Scenario 2 mitigation measures (i.e., there is no area with predicted ozone increases relative to the OTB Scenario). This supports the assessment that peak ozone impacts are in VOC-limited areas.
- 2021 Scenarios 1 and 3 are predicted to have higher ozone impacts than either the 2010 Typical year and the 2021 OTB Scenario. Both scenarios predict a relatively large increase in ozone concentrations within the vicinity of Ouray indicating potential ozone disbenefits associated with NO_x control mitigation measures.
- NO₂, CO, SO₂, PM_{2.5}, and PM₁₀
 - There are seven monitoring stations within the 4- km domain with daily PM_{2.5} concentrations that exceed the NAAQS and state AAQS in the baseline emissions inventory.
 - All modeled NO₂, CO, SO₂, PM_{2.5}, and PM₁₀ values are well below the NAAQS and state AAQS in the Uinta Basin.
 - The model-predicted PM_{2.5} and PM₁₀ concentrations may underestimate future impacts due to a negative model bias throughout the year in the 4-km domain with the largest bias occurring in summer (AECOM and STI 2014).
 - Results from the MATS tool (which accounts for model performance biases) indicate that PM_{2.5} concentrations may exceed the NAAQS and state AAQS for select monitors and assessment areas in the 2010 Typical year. All 2021 scenarios predict that only one of these monitoring station would continue to exceed the NAAQS and state AAQS.
 - No monitoring stations within the 4-km domain exceed the annual PM_{2.5} NAAQS and state AAQS during the 2010 typical or 2021 Scenarios.

Two unmonitored areas within the Uinta Basin exceed the annual PM_{2.5} NAAQS and state AAQS during the 2010 typical year, and impacts in these areas tend to increase under 2021 Scenarios 1 and 2. Under 2021 Scenario 3, the annual PM_{2.5} impacts decrease in the Uinta Basin due to combustion control measures.

- The 2021 scenarios generally have lower NO₂, CO, SO₂, PM_{2.5}, and PM₁₀ concentrations than the 2010 Typical Year scenario, except for within the Uinta Basin.

- Under the 2021 scenarios, all assessment areas are within the PSD (Prevention of Significant Deterioration) increments for annual NO₂, 3-hour SO₂, annual SO₂, and annual PM₁₀.
- Under the 2021 scenarios, most assessment areas exceed the 24-hour PM_{2.5} PSD increment.
- **Visibility**
 - Visibility conditions in Class I and sensitive Class II areas generally show improvement in the 2021 Scenarios relative to the 2010 Typical Year.
 - There also are no substantial differences in the 20th percentile best and worst visibility days between the 2021 Scenarios.
- **Deposition and Acid Neutralizing Capacity**
 - Results generally show a decrease in deposition for the 2021 Scenarios relative to the 2010 Typical Year.
 - The differences in estimated deposition between the 2021 Scenarios are generally very small.
 - Acid Neutralizing Capacity change at all seven sensitive lakes exceeds the 10 percent limit of acceptable change for all model scenarios.

It is anticipated that the impact to ambient air quality and air quality related values associated with the Proposed Action would be indistinguishable from and dwarfed by the model and emission inventory scope and margin of error. The No Action alternative would not result in an accumulation of impacts.

4.4.1.2. Greenhouse Gases

It is not currently possible to determine a climate change impact from project specific GHG emissions, nor is it possible to assign a significance value to project specific GHG emissions. GHG emissions will be reported per guidance established by CEQ and the Interagency Air Quality MOU (USDA/USDOJ, 2011). Drilling and development activities from the Proposed Action are anticipated to release a negligible amount of greenhouse gases, into the local airshed, resulting in a negligible cumulative impact. The No Action Alternative would not result in an accumulation of impacts.

4.4.2. Invasive Plants/Noxious Weeds, Soils, and Vegetation

The cumulative impact area is the Greater Uinta Basin as defined in the Greater Uinta Basin Cumulative Impacts Technical Support Document (2012), a 5,853,000 acre area. Oil and gas development are major resource development activities within the planning area. Approximately 10,689 wells are active within the cumulative impact area. It is estimated that approximately 28,417 new wells would be drilled. Past, present, and reasonably foreseeable impacts would result in 67,436 acres of disturbance to soils and vegetation. Cumulative impacts to soils and vegetation typical of oil and gas field development include: removal of native vegetation and disturbance to soils which are generally very thin, slow to develop, and difficult to reclaim due to arid climate, low average precipitation per year, erosional forces, microbial breakdown, leaching of soils, and low organic content. The proposed action would result in 10.05 acres of additional disturbance to soils and vegetation. The no action would have the same impacts as the proposed impacts.

4.4.3. Wildlife:

4.4.3.1. Wildlife: Migratory Birds (Including raptors)

The cumulative impact analysis area for migratory birds is defined as the Pelican Lake-Green River Hydrologic Unit Boundary consisting of approximately 83,832 acres. This hydrologic unit boundary was chosen for cumulative impact analysis as this best represents a soil and vegetation habitat type avian species found within the project area would utilize in whole. Future actions of the Proposed Action could increase human presence in the area continuing to fragment and manipulate the surrounding habitats by increasing the presence of non-native invasive plant species. Further introduction of non-native invasive plant species could have significant adverse impacts on migratory birds that are dependent upon prevalent species for their survival. In general such an environmental shift would probably have negative impacts on wildlife species and would favor non-native and readily adaptive species.

Impacts to migratory birds in the cumulative impact analysis area would be dependent upon the season of project activities. Any activities completed in the late fall would less likely have a direct impact to avian species because many of the species would have left for winter grounds. In addition to displacement caused by project activities the Proposed Action Alternative would also result in the temporary removal of up to approximately 10.5 acres of potential nesting and foraging habitat for migratory birds. However, successful reclamation efforts would return disturbed habitats to pre-disturbance levels and loss of vegetation would be a temporary impact to migratory bird habitat. The No Action Alternative would have the same results as the proposed action.

4.4.3.2. Wildlife: Threatened, Endangered, Proposed or Candidate

Cumulative effects include the effects of the future state, tribal, local, or private actions that are reasonably certain to occur within the upper Colorado River Basin. Declines in the abundance or range of many special status species have been attributed to various human activities on federal, state, and private lands, such as human population expansion and associated infrastructure development; construction and operation of dams along major waterways; water retention, diversion, or dewatering of springs, wetlands, or streams; recreation, including off-road vehicle activity; expansion of agricultural or grazing activities, including alteration or clearing of native habitats for domestic animals or crops; and introductions of nonnative plant, wildlife, or fish, or other aquatic species, which can alter native habitats or out compete or prey upon native species. Many of these activities are expected to continue on state and private lands within the range of the various federally protected wildlife, fish, and plant species, and could contribute to cumulative effects to the species within the project area. Species with small population sizes, endemic locations, or slow reproductive rates, or species that primarily occur on non-federal lands where landholders may not participate in recovery efforts, would be highly susceptible to cumulative effects.

Reasonably foreseeable future activities that may affect river-related resources in the area include oil and gas exploration and development, irrigation, urban development, recreational activities, and activities associated with the Upper Colorado River Endangered Fish Recovery Program. Implementation of all or any of these projects has affected and continues to affect the environment including, but not limited to, water quality, water rights, socioeconomic, and wildlife resources.

Chapter 5. Tribes, Individuals, Organizations, or Agencies Consulted:

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Table 5.1. List of Persons, Agencies and Organizations Consulted

Name	Purpose & Authorities for Consultation or Coordination	Findings & Conclusions
Ronald Virgle Hatch ETAL	BLM requires that the Operator engage the Surface Owner in negotiations for the purpose of obtaining a surface owner agreement or waiver for access.	Surface use agreement or certification received on 11/30/2015.
Ouray Park Irrigation Company, Inc.	BLM requires that the Operator engage the Surface Owner in negotiations for the purpose of obtaining a surface owner agreement or waiver for access.	Surface use agreement or certification received on 10/12/2016.
USFWS	Information on Consultation, under Section 7 of the Endangered Species Act (16 USC 1531).	Water depletion will occur for the proposed project; however, the proposed project wells have been analyzed under the USFWS's <i>Conclusion of Reinitiation of Section 7 Consultation for Water Depletion in the Upper Colorado River Basin on Bureau of Land Management land administered by the Vernal Field Office Biological Assessment, 2011</i> (FWS/R6 ES/UT 06-F-0215-R001).
State Historic Preservation Office (SHPO)	Historic Preservation Act.	BLM recommended a No Effect determination based on Class III surveys and asked for concurrence on all of the wells listed in this EA. Concurrence was received, documentation of this can be found in the individual well/APD files.

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Chapter 6. List of Preparers

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Table 6.1. List of Preparers

Name	Title	Responsible for the Following Section(s) of this Document
David Gordon	Natural Resource Specialist/ Environmental Scientist	Chapters 1 & 2 Chapters 3 & 4: Soils and vegetation
Brandon McDonald	Wildlife Biologist	Chapters 3 & 4: Wildlife
David Christensen	Archeologist	Archeology Report

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Chapter 7. References Cited

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AECOM and STI, 2014 Final Utah Air Resource Management Strategy Modeling Project Impact Assessment Report. http://www.blm.gov/ut/st/en/prog/more/air_quality/airprojs.html

BLM. 2012. Final Environmental Impact Statement for the Greater Natural Buttes

BLM, 2011 Air Resource Management Strategy (ARMS). http://www.blm.gov/style/medialib/blm/ut/natural_resources/airQuality.Par.48166.File.dat/BLMUtahARMS.pdf

British Meteorological Office (BMO). 2009. British Meteorological Office's Hadley Centre, 2009. Accessed January 2009 at <http://www.metoffice.gov.uk/climatechange/science/monitoring/>.

IPCC, 2013: Summary for Policymakers. In: *Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* [Stocker, T.F., D. Qin, G.-K. Plattner, M. Tignor, S.K. Allen, J. Boschung, Y. Xia, V. Bex, and P.M. Midgley (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

USDA/USDOJ. 2011 Memorandum of Understanding. <http://www.doi.gov/news/pressreleases/loader.cfm?csModule=security/getfile&pageid=251152>

BLM. 2008. Vernal Field Office Resource Management Plan, U.S. Department of the Interior, Bureau of Land Management, Vernal District Office.

BLM. 2012c. Final Environmental Impact Statement for the Greater Natural Buttes

Uintah County. 2011. Uintah County General Plan. Amended Number 02-27. i – xiv + 302 pp.

Exhibit 2



Edited by David Leonhardt

The Up hot

CLIMATE CHANGE

There's a Formula for Deciding When to Extract Fossil Fuels

“Drill, Baby, Drill” became a popular campaign mantra back in the 2008 election cycle. But now we’re hearing the opposite call: “Leave It in the Ground.”

These calls come from environmentalists who see the end of drilling and mining as the way to avoid disruptive climate change. They direct these calls toward the federal government because it is estimated that about half of the carbon in technologically recoverable fossil fuels in the United States is on public lands.

Is there a middle ground that can supply the energy we need without causing significant climate damages? Yes. And it doesn’t involve exploiting all available resources, nor banning their use.

What if we continued to lease the rights to access fossil fuels on federal land but required the leases and royalty payments to reflect the full climate damages from these fuels? Doing so would put the market to work by unlocking fossil fuels that have the highest value in relation to their impact on the climate. The bonus: It provides money to pay for some of the damage of climate change.

We've seen the benefits of using our domestic resources over the last decade as the amount of our energy coming from domestic oil and gas resources increased 54 percent. Chiefly, we have lower fuel prices. We now pay 74 percent less for natural gas and 25 percent less for petroleum, compared with 2005. Further, net imports will account for just 23 percent of American liquid fuel supplies this year — down from 60 percent in 2005 — with important energy security benefits. Our carbon emissions are also below 2005 levels, with cheap natural gas having taken significant market share from coal, which is more carbon intensive.

At the same time, the combustion of fossil fuels causes climate change that is projected to impose myriad costs around the world. But in this regard, not all fossil fuels are created equal. The value per unit of energy, measured by the market price, is greater for some (like petroleum) than others (like coal). Further, some contain more carbon or result in the release of more emissions because of other factors like the extraction and transportation process, and inflict greater climate damages. Knowing the monetary value of climate damages associated with a ton of carbon emissions is therefore the key to this whole problem.

Luckily, there is a way to determine this. It is called the Social Cost of Carbon (S.C.C.), and the federal government sets it at \$40 per metric ton of CO₂ emissions. The S.C.C. is used to inform a wide variety of regulations that limit the use of fossil fuels, including emissions standards for vehicles, appliances and power plants. But the S.C.C. has not been used to guide extraction policies. (I was co-leader of an interagency group that set the S.C.C. when I worked in the Obama administration from 2009 to 2010.)

If the S.C.C. were applied as a part of leasing and royalty rates on federal lands, we would unlock resources with the greatest net benefits. To illustrate the consequences of such a shift, I did some calculations based on the spot prices for coal, petroleum and natural gas and their respective energy and carbon contents. The addition of a charge based on the S.C.C. is unlikely to

have a substantial effect on domestic production of petroleum: The spot price per million British thermal units (B.T.U.s) this year has been \$8.81, and the associated climate damages are \$2.98. If the federal government collected a charge of \$2.98 for each million B.T.U.s of petroleum extracted on federal lands, the revenue could be refunded directly to taxpayers or used to help the nation adapt to climate damages. The story is similar for natural gas; its value today exceeds the expected climate damages.

The case of coal is different, especially coal from the federal land in the Powder River Basin in Wyoming and Montana. The climate damages from coal mined from this region are five to six times greater than its market value (\$0.66 at market value versus \$3.89 of climate damages). Thus, a climate charge linked to the S.C.C. would probably make at least some of the coal mining in this region unprofitable. There is currently an opportunity for policy overhaul: The Department of the Interior is considering how to restructure lease terms for fossil fuels on federal lands. Further, a federal judge ruled last year that the government should take into account climate impacts when making decisions about mining on federal lands.

The application of an S.C.C.-related fee would meet many goals. Environmentalists would naturally like it, and so should fiscal conservatives who recognize that the federal government will be increasingly on the hook for climate damages (recall the more than \$50 billion of federal tax dollars appropriated in response to Hurricane Sandy). At the same time, this fee would not stop the development of economically attractive fossil fuels.

Such a change in policy would have challenges. There would inevitably be some shifting of fossil fuel production to private lands in the United States, as well as to other countries; but it would also reduce the long-run global supply of fossil fuels. Further, there would be a strong case for harmonizing S.C.C. charges with existing domestic climate regulations to ensure that the carbon policies operate as efficiently as possible. There is also a strong case for providing support to communities that experience meaningful declines in

economic activity because of an extraction fee linked to the S.C.C.

An efficient climate policy would price carbon throughout the global economy so that users of all fossil fuels recognized their climate costs. It does not appear likely that the current Paris climate negotiations will produce such a system. In the absence of such a policy, the solution doesn't need to be to use all fossil fuels, or to ban their usage. Common sense suggests that we use the ones that provide more value than harm and that we leave the others in the ground.

For a detailed analysis of the calculations, the technical document is available [here](#).

Michael Greenstone, the Milton Friedman professor of economics at the University of Chicago, runs the Energy Policy Institute there. He was the chief economist of President Obama's Council of Economic Advisers from 2009 to 2010.

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