

Scoping Comments on the Programmatic Environmental Impact Statement on Federal Coal Leasing

Submitted electronically to
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July 28, 2016

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July 28, 2016

Via Electronic Mail (BLM_WO_Coal_Program_PEIS_Comments@blm.gov)

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RE: *Natural Resources Defense Council, Powder River Basin Resource Council, Western Organization of Resource Councils, and Northern Plains Resource Council Comments on The Notice of Intent To Prepare A Programmatic EIS On Federal Coal Leasing.*

Dear Secretary Jewell & Director Kornze:

The Natural Resources Defense Council (NRDC), Powder River Basin Resource Council (PRBRC), the Western Organization of Resource Councils (WORC), and Northern Plains Resource Council (Northern Plains), appreciate the opportunity to submit scoping comments on the Programmatic Environmental Impact Statement (PEIS) covering federal coal leasing. *See* 81 Fed. Reg. 17720 (Mar. 30, 2016) (Scoping Notice); *see also* Secretary of the Interior Order No. 3338 (Jan. 15, 2016) (Secretarial Order). We applaud the Bureau of Land Management's (BLM) decision to prepare a PEIS on the full scope of environmental impacts associated with federal coal leasing as a vital first step toward transforming the agency's coal leasing approach in a manner that can further the Nation's – and world's – critical clean energy needs. BLM's coal leasing policies, regulations, and planning documents must be updated to reflect our national commitment to combat climate change, protect water, air, and other natural resources, and provide a fair return to taxpayers for publicly owned coal.

I. STATEMENTS OF INTEREST

NRDC is a national non-profit environmental organization with over one million combined members and activists. NRDC's activities include maintaining and enhancing environmental quality and monitoring federal agency actions to ensure that federal statutes enacted to protect human health and the environment are fully and properly implemented. Since 1970, NRDC has sought to improve the environmental, health, and safety conditions associated with coal extraction and we will continue to do so.

PRBRC is a nonprofit organization founded in 1973 and located in Sheridan, Wyoming. PRBRC has approximately 1,000 landowner and citizen members in Wyoming dedicated to the stewardship of Wyoming's water, air, land, and wildlife resources. The organization's many agricultural members ranch and derive a livelihood from the land, many above federal split estate coal managed by BLM. Others live in, use, and enjoy the communities and landscapes affected by coal leasing and subsequent mining and transport. PRBRC's mission includes the preservation and enrichment of Wyoming's agricultural heritage and rural lifestyle, the conservation of Wyoming's unique land, mineral, water, and clean air resources consistent with responsible use of those resources to sustain the livelihood of present and future generations, as

well as the education and empowerment of Wyoming's citizens to raise a coherent voice in the decisions that will impact their environment and lifestyle.

WORC is a regional network of eight grassroots community organizations with 12,200 members and 40 local chapters and affiliates in seven states, including Colorado, Idaho, Montana, North Dakota, Oregon, South Dakota, and Wyoming. WORC's members farm and ranch on lands overlying and neighboring federal, state and privately owned coal deposits, and experience numerous impacts due to coal mining, transport and processing. WORC and its member groups have a longstanding interest in federal coal leasing, mining and royalty policy, and for over 40 years have actively engaged in advocacy in this area.

Northern Plains is a statewide grassroots organization of approximately 3,500 members based in Billings, Montana. Northern Plains was formed over the issue of federal coal leasing in 1972, when ranchers who owned private surface over federal coal deposits in the Bull Mountains north of Billings grew concerned about protecting their livelihoods and private property rights from coal development. Northern Plains has worked ever since to protect Montanans from the environmental and social impacts of coal mining, burning, and transport. Northern Plains members care deeply about Montana, its future, and the issues surrounding coal leasing and mining. The livelihoods of many Northern Plains members as ranchers and farmers depend entirely on clean air and water, native soils and vegetation, and lands that remain intact and productive. The leasing and mining of federal coal affects them directly.

II. INTRODUCTION

The federal government owns about eighty-eight billion tons of recoverable coal, or about one-third of all U.S. coal reserves, which amounts to nearly 10 percent of the world's known reserves of coal. These federal coal reserves are located on approximately 570 million acres across the country. More than 40% of the U.S.'s annual coal production comes from federal coal, with the vast majority being produced from the Powder River Basin of Wyoming and Montana. In 2014 alone, 402 million short tons of federal coal was mined.¹ Michael Burger and Jessica Wentz, *Downstream and Upstream Greenhouse Gas Emissions: The Proper Scope of NEPA Review* (Columbia Law School Mar. 2016) at 6. The BLM administers over 300 coal leases covering more than 480,000 acres,² and constituting almost 8 billion tons of recoverable coal reserves – which will sustain coal production for at least twenty years.

At the same time, national energy markets are undergoing fundamental changes as energy generating resources other than coal become more competitive for electricity production and as the world works to combat climate change and reduce all associated environmental harms. The

¹ Federal coal production data is available at <http://www.onrr.gov/About/production-data.htm>

² See BLM, Total Federal Coal Leases in Effect, Total Acres Under Lease, and Lease Sales by Fiscal Year Since 1990, available at http://www.blm.gov/wo/st/en/prog/energy/coal_and_non-energy/coal_lease_table.html. Complete information on coal leases located in each state is available via the hyperlinks contained on the website.

federal coal leasing framework needs to acknowledge these changes and equitably address the true and broad array of challenges driven by the mining and burning of coal. Heavily subsidized federal coal leasing artificially distorts electrical power markets, adversely impacts communities dependent on mining, accelerates climate change, and negatively affects a range of critical ecological resources.

The Secretarial Order and Scoping Notice identify many of the vital issues that must be addressed in the PEIS, which we will discuss in further depth below. However, a number of additional issues must be thoroughly considered and comprehensively addressed in the PEIS to insure it both meets the dictates of the National Environmental Policy Act, 42 U.S.C. §4321, *et seq.*, and provides the agency with the requisite information and blueprint to make the important regulatory decisions to follow.

Because the agency is at the early scoping stage of this process, these comments will focus on the overarching issues that must be covered in the PEIS, including the proper delineation of the purpose and need and definition of the major federal action at issue; the reasonable set of alternatives that must be considered; and the categories of environmental impacts that must be considered for each alternative. We are providing BLM with a significant body of documents in support of these scoping comments to assist the agency in its early considerations of issues to consider. We look forward to providing substantially more detailed comments on each specific area – and more specific supporting evidence and data – when the agency issues a Draft PEIS.

In terms of timing, we believe it is imperative that BLM complete the PEIS, and move forward with revising its regulations and other initiatives necessary to carry out the decisions that will be made at the conclusion of the NEPA process, as soon as practicable. To that end, we urge that particularly with respect to any regulatory or other reforms, such as Resource Management Plan (RMP) amendments, that will require notice and comment, BLM issue its proposed rules or reforms *concurrent* with issuance of the Final PEIS. This approach is consistent with the process followed by BLM in completing the Solar PEIS. Within three months of completion of the Final Solar PEIS, BLM issued a Record of Decision (ROD) incorporating final amendments to specific Resource Management Plans with solar energy resources. By proceeding in this manner, BLM can put its revised regulatory framework for coal leasing into effect as expeditiously as possible.

While there are numerous important programmatic decisions that must be considered and resolved in the PEIS, BLM must also be careful not to rely on the PEIS process to resolve issues that should be the subject of further, site-specific consideration in the site-specific EISs to be prepared for any future lease sales. Rather, at most the PEIS should provide *guidance* for how these issues should be considered in site-specific reviews, which must continue to consider the direct environmental impacts associated with the lease under consideration.

For instance, many direct impacts of mining necessitate review at the site-specific lease or mine level. While the PEIS should discuss these impacts at a programmatic level, discussing them in terms of regional or national trends, the PEIS analysis should not replace the need for much more detailed analysis at the leasing stage as effects can be extremely site specific. Rather, BLM should appropriately *tier* to the PEIS when considering impacts on a site-specific level.

We now provide a brief roadmap for our comments. Part One of these comments reviews the legal, regulatory, and procedural background associated with coal leasing, addresses the principal issues that must be covered in the PEIS, and discusses why it is appropriate at this time for BLM to both prepare the PEIS and maintain a moratorium on additional coal leasing until the process is completed.

In Part Two we address the Purpose and Need portions of the PEIS, and the need to properly define the Major Federal Action, which will in turn drive the consequent alternatives and impacts analyses.

Part Three covers the scope of environmental impacts the PEIS must address, many of which are at least mentioned in the Secretarial Order and Scoping Notice. We then outline the broad set of alternative issues the agency should consider to ameliorate, mitigate, or avoid those impacts. It is our intention that by providing the agency with a detailed, but not fully exhaustive, list of the environmental impacts that must be covered, some of the most important supporting material relevant to those impacts³, and approaches that should be considered to address those impacts, the agency will have the information necessary to prepare a comprehensive and useful Draft PEIS.

Finally, in Part Four we offer some initial suggestions on the more tailored set of alternatives the agency should carry forward for more detailed analysis in the PEIS.

III. DISCUSSION

PART ONE: THE LEGAL, REGULATORY, AND PROCEDURAL REQUIREMENTS

A. The National Environmental Policy Act, Implementing Regulations & Guidance

1. The Statute

The National Environmental Policy Act (NEPA), 42 U.S.C. § 4321, *et seq.*, is our “basic national charter for protection of the environment.” 40 C.F.R. § 1500.1; *Dept. of Transp. v. Pub Citizen*, 541 U.S. 752, 756 (2004). Recognizing “the profound impact of man’s activity on the interrelations of all components of the natural environment,” 42 U.S.C. §4331(a), in enacting NEPA Congress sought to “promote efforts which will prevent or eliminate damage to the environment and biosphere,” *id.* §4321, in order to, *inter alia*, “fulfill the responsibility of each generation as trustee of the environment for succeeding generations.” *Id.* § 4331(b)(1).

Federal agencies implement NEPA by preparing an Environmental Impact Statement (EIS), or, where applicable a Programmatic EIS, for any major federal action with significant environmental impacts. 42 U.S.C. § 4332; 40 C.F.R. §1502.9. An EIS must discuss: (i) the environmental impact of the proposed action, (ii) any adverse environmental effects which

³ A list of the references cited herein is attached at Appendix B. Under separate cover we are sending a disk containing all of these references and others that BLM should consider in preparing the PEIS. That disk will arrive by Overnight mail on or before July 28, 2016.

cannot be avoided should the proposal be implemented, (iii) alternatives to the proposed action, (iv) the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity, and (v) any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented. 42 U.S.C. § 4322.

In enacting NEPA Congress also recognized “the worldwide and long-range character of environmental problems,” and therefore also directed that agencies support “programs designed to maximize international cooperation in anticipating and preventing a decline in the quality of mankind's world environment,” *id.* § 4332(F) – a mandate of particular relevance here, given the interrelationship between the Greenhouse Gas (GHG) emissions associated with federal coal leasing on the one hand, and the Nation's international commitments to *reduce* those emissions on the other, as we will discuss further below.

The disclosure and careful consideration of key environmental information mandated by NEPA serves the statute's two key goals. First, it ensures the agency, in reaching its decision, will have available, and will carefully consider, detailed information concerning significant environmental impacts. Second, it guarantees the relevant information will be made available to the larger audience that may also play a role in both the decision-making process and the implementation of that decision. *See, e.g., Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 349 (1989).

2. Implementing Regulations

The Council on Environmental Quality's (CEQ) regulations governing the preparation of an EIS, or programmatic EIS, are binding on all agencies. 40 C.F.R. §§ 1500.3; 1507.1. The Department of the Interior also has NEPA implementing regulations. 43 C.F.R. Part 46. In terms of scope, the regulations direct that an agency include all connected, cumulative and similar actions in one impact statement – *i.e.*, actions that are “closely related,” “have cumulatively significant impacts,” or possess other “similarities that provide a basis for evaluating their environmental consequences together, such as common timing or geography.” *Id.* § 1508.25. As discussed below, this regulation provides the regulatory direction for BLM to consider the *overall* coal leasing regulatory framework in the PEIS.

The regulations further provide that an EIS must systematically and comprehensively address *all* of the relevant environmental impacts of the action under consideration. *Id.* § 1502.16 (defining environmental effects). NEPA characterizes environmental impacts broadly to include not only ecological effects, such as physical, chemical, radiological and biological effects, but also aesthetic, historic, cultural, economic, and social effects. *Id.* § 1508.8. With regard to “ecological effects” in particular, they include “effects on natural resources and the components, structures, and functioning of affected ecosystems,” including “effects on air and water and other natural systems.” *Id.* § 1508.8(b).

An EIS must consider not only the “direct” effects of an action – *i.e.*, those “caused by the action [that] occur at the same time and place,” but also “indirect” effects – those “caused by the action [but that] are later in time or farther removed in distance, but are still reasonably foreseeable.” *Id.* Indirect effects include “growth inducing effects and other effects related to induced changes

in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.” *Id.* Finally, an EIS must consider “cumulative” effects – *i.e.*, “the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions.” *Id.* § 1508.7.

Of vital importance for this PEIS, for each of these effects, the EIS must also grapple with “[e]nergy requirements and conservation potential of various alternatives and mitigation measures.” *Id.* §1502.16(e). Such mitigation measures may include:

- (a) Avoiding the impact altogether by not taking a certain action or parts of an action.
- (b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation.
- (c) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment.
- (d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
- (e) Compensating for the impact by replacing or providing substitute resources or environments.

Id. § 1508.20.

An EIS must consider the environmental impacts (and appropriate mitigation measures) not only for its proposed action, but also for a set of reasonable alternatives. “[T]he heart of the environmental impact statement,” the alternatives “present the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decisionmaker and the public.” *Id.* §1502.14

As regards alternatives, the CEQ regulations mandate that each agency:

- (a) Rigorously explore and objectively evaluate all reasonable alternatives, and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated.
- (b) Devote substantial treatment to each alternative considered in detail including the proposed action so that reviewers may evaluate their comparative merits.
- (c) Include reasonable alternatives not within the jurisdiction of the lead agency.
- (d) Include the alternative of no action.

- (e) Identify the agency's preferred alternative or alternatives, if one or more exists, in the draft statement and identify such alternative in the final statement unless another law prohibits the expression of such a preference.
- (f) Include appropriate mitigation measures not already included in the proposed action or alternatives.

Id.; see also 43 C.F.R. § 46.415(b) (Interior alternatives regulation).

Finally, the CEQ regulations mandate that agencies rely on “high-quality” scientific information in preparing an EIS. *Id.* §§ 1500.1(b); 1502.24 (directing agencies to “insure the professional integrity, including scientific integrity, of the discussions and analyses in environmental impact statements”). This includes “identify[ing] any methodologies used and [making] explicit reference by footnote to the scientific and other sources relied upon for conclusions in the statement.” *Id.* Moreover, where necessary scientific information does not already exist, if the data is “essential to a reasoned choice among alternatives and the overall costs of obtaining it are not exorbitant,” the agency is required to collect the information to include in the EIS. *Id.* § 1502.22(a).

3. Guidance Documents

CEQ has also issued draft Guidance on how agencies should incorporate the impacts of GHG and climate change into their EIS analyses, as well as Guidance on cumulative impact analyses. See CEQ Revised Draft Guidance on the Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in NEPA Reviews (Dec. 2014) (Climate Change Guidance); CEQ Guidance on Cumulative Impacts (1997) (Cumulative Impacts Guidance). As the Climate Change Guidance explains, although “[c]limate change is a particularly complex challenge given its global nature and inherent interrelationships among its sources, causation, mechanisms of action, and impacts,” it is a “fundamental environmental issue, and the relation of Federal actions to it falls squarely within NEPA’s focus. *Id.* at 2 (emphasis added). As the Guidance explains, “analyzing the proposed action’s climate impacts and the effects of climate change relevant to the proposed action’s environmental outcomes can provide useful information to decisionmakers and the public and should be very similar to considering the impacts of other environmental stressors under NEPA.” *Id.* This is consistent with CEQ’s Cumulative Impacts Guidance, which calls on agencies to consider impacts on the “global atmosphere.” Cumulative Impacts Guidance at 15; see also *id.* at 13 (describing “release of greenhouse gases” as a cumulative effect to be considered in NEPA analyses).

In terms of impact scope, the Climate Change Guidance reiterates that agencies should “account for greenhouse gas emissions from the proposed action and any connected actions,” and that the emissions considered should include all those that have “a reasonably close causal relationship to the Federal action, such as those that may occur as a predicate for the agency action (often referred to as upstream emissions) and as a consequence of the agency action (often referred to as downstream emissions)” Climate Change Guidance at 11.

Moreover, in light of the difficulties in attributing specific climate impacts to individual projects, CEQ recommends agencies use the projected GHG emissions and also, when appropriate, potential changes in carbon sequestration and storage, as the proxy for assessing a proposed action's potential climate change impacts. *Id.* at 8. As CEQ explains:

[M]any agency NEPA analyses to date have concluded that GHG emissions from an individual agency action will have small, if any, potential climate change effects. Government action occurs incrementally, program-by-program and step-by-step, and climate impacts are not attributable to any single action, but are exacerbated by a series of smaller decisions, including decisions made by the government. Therefore, the statement that emissions from a government action or approval represent only a small fraction of global emissions is more a statement about the nature of the climate change challenge, and is not an appropriate basis for deciding whether to consider climate impacts under NEPA. Moreover, these comparisons are not an appropriate method for characterizing the potential impacts associated with a proposed action and its alternatives and mitigations. This approach does not reveal anything beyond the nature of the climate change challenge itself: the fact that diverse individual sources of emissions each make relatively small additions to global atmospheric GHG concentrations *that collectively have huge impact.*

Id. at 9 (emphasis added).

Finally, the CEQ Guidance directs agencies to consider two specific impact areas relating to climate change: “(1) the potential effects of a proposed action on climate change as indicated by its GHG Emissions; and (2) the implications of climate change for the environmental effects of a proposed action.” As we will discuss below, this direction is vital to the Coal Leasing PEIS, given both the significant contribution made by federally leased coal to the Nation's GHG emissions, and the threats to public lands posed by climate change.

B. How We Got Here And The Task Before BLM

BLM's Scoping Notice and the Secretarial Order detail the history of the federal coal leasing regulatory scheme, and identify many of the problems that led the Department of the Interior to announce the preparation of a new PEIS to begin the process of updating the regulatory framework for federally leased coal. Here we simply detail some of the most pertinent events leading to this point, highlight the most important issues that must be addressed in a NEPA compliant PEIS, and reinforce the agency's correct assessment that a PEIS, and a moratorium on additional coal leasing, are both necessary and appropriate at this juncture.

1. The Outdated, Existing Federal Coal Leasing Regulatory Scheme

Under a set of laws and regulations issued decades ago, Congress directed BLM to manage public lands to allow appropriate resource extraction while ensuring the protection of the environment, instructing the agency to manage resources “in a manner that will protect the

quality of scientific, scenic, historical, ecological, environmental, air and *atmospheric*, water resource, and archeological values” 43 U.S.C. § 1701(a)(8) (emphasis added). Through the “principles of multiple use and sustained yield,” *id.* § 1712(a)-(c)(1), Congress instructed BLM to undertake “the management of the public lands and their various resource values so that they are utilized in the combination that will best meet the present and future needs of the American people,” including, *inter alia*, “the use of some land for less than all of the resources,” and taking 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.” *Id.* § 1702(c).

BLM manages federal coal leasing under the Mineral Leasing Act (MLA) of 1920, as amended by the 1976 Federal Coal Leasing Amendments Act. 30 U.S.C. § 181, *et seq.* The statute directs the agency to authorize leasing of coal on federal lands, in its “discretion,” only as the agency “finds appropriate *and in the public interest*,” 30 U.S.C. § 201 (emphasis added), and directs that, “[p]rior to issuance of any coal lease, the Secretary shall consider effects which mining of the proposed lease might have on an impacted community or area, including, but not limited to, impacts on the environment, on agricultural and other economic activities, and on public services.” *Id.* §201(a)(3)(C).

a. Bidding for leases, and the failure to either obtain a fair return for federal coal, or to account for external environmental harms

The statute directs the agency to “award [coal] leases . . . by *competitive bidding*,” *id.* § 201 (emphasis added), as a theoretical means to insure that the American people “receive fair market value of the use of the public lands and their resources” 43 U.S.C. § 1701(a)(9). Under BLM’s regulations, the agency is supposed to determine the “fair market value” [FMV] for the coal, and then consider various bids, accepting the highest bid above FMV from a qualified mining company. 43 C.F.R. § 3400.05 (defining Fair Market Value to mean “that amount in cash, or on terms reasonably equivalent to cash, for which in all probability the coal deposit would be sold or leased by a knowledgeable owner willing but not obligated to sell or lease to a knowledgeable purchaser who desires but is not obligated to buy or lease”); *see also id.* Part 3422. The regulations include a bid floor of “\$100 per acre or its equivalent in cents per ton.” *Id.* § 3422.1(b)(2).

In practice, however, there is typically only *one* bidder. For example, between 1990 and 2013 96 of 107 tracts leased (about 90 percent) involved only a single bidder in the bonus bid leasing auction. *See* GAO, *Coal Leasing: BLM Could Enhance Appraisal Process, More Explicitly Consider Coal Exports, and Provide More Public Information* (GAO 14-140) (Dec. 2013) at 16.⁴ As a result of this and other factors, the agency has often *failed to obtain FMV*, and has sold federal coal for much less than a dollar a ton.

⁴ This is largely due to the fact that most lease applications come from existing operators seeking to expand their existing mining operations, rather than new companies competing for new mines.

Successful Competitive Lease Sales Since 1990, Powder River Basin, Wyoming

LBA Name	Applicant (as applied)	Lessee (as issued)	Effective Date	Acres Offered (per sale notice)	Tons Offered (per sale notice)	Successful Bid	\$/ton	\$/acre	
Jacobs Ranch	Kerr McGee	Kerr McGee	10/1/1992	1708.82	181,216,000	\$20,114,930.00	\$0.12	\$11,772.82	
West Black Thunder	Thunder Basin Coal	Thunder Basin Coal	10/1/1992	3,492.50	429,048,216	\$71,909,282.89	\$0.17	\$20,589.88	
North Antelope/Rochelle	Powder River Coal	Powder River Coal	10/1/1992	3,084.04	403,500,000	\$88,987,765.00	\$0.22	\$28,389.89	
West Rocky Butte	Northwestern Resources	Northwestern Resources	1/1/1993	483.21	55,000,000	\$18,500,000.00	\$0.30	\$36,821.38	
Eagle Butte	Amax Land	Amax Land	8/1/1995	1,059.18	188,400,000	\$18,470,400.00	\$0.11	\$17,438.48	
Antelope	Antelope Coal	Antelope Coal	2/1/1997	817.20	80,384,000	\$9,054,800.00	\$0.15	\$14,670.45	
North Rochelle (North Roundup)	Zeigler Coal	Zeigler Coal	1/1/1998	1,481.93	157,610,000	\$30,576,340.00	\$0.19	\$20,832.78	
Powder River	Powder River Coal	Powder River Coal	9/1/1998	4,224.23	532,000,000	\$109,596,500.00	\$0.21	\$26,944.78	
Thundercloud	Kerr McGee	Arch	1/1/1999	3,545.50	412,000,000	\$158,000,008.50	\$0.38	\$44,583.50	
Horse Creek	Antelope Coal	Antelope Coal	12/1/2000	2,818.70	275,577,000	\$91,220,120.70	\$0.33	\$32,362.54	
North Jacobs Ranch	Jacobs Ranch Coal	Jacobs Ranch Coal	5/1/2002	4,982.24	537,542,000	\$379,504,652.00	\$0.71	\$78,171.49	
NARO South	Peabody	Peabody	9/1/2004	2,958.70	297,489,000	\$274,117,894.00	\$0.92	\$92,710.89	
Little Thunder	Arch Minerals	Arch Minerals	3/1/2005	5,083.50	718,719,000	\$810,999,949.80	\$0.85	\$120,192.77	
West Hay Creek	Triton Coal Company	Triton Coal Company	1/1/2005	921.00	142,898,000	\$42,809,400.00	\$0.30	\$46,481.43	
West Antelope	Kennecott	Kennecott	3/1/2005	2,809.13	194,981,000	\$148,311,000.00	\$0.75	\$52,084.10	
NARO North	Peabody	Peabody	3/1/2005	2,389.40	324,827,000	\$299,143,785.00	\$0.92	\$126,252.97	
West Roundup	Triton Coal Company	West Roundup Resources	5/1/2005	2,812.51	327,188,000	\$317,897,810.00	\$0.97	\$112,958.75	
Eagle Butte West	RAG Coal West	Foundation Coal	5/1/2008	1,427.00	255,000,000	\$180,540,000.00	\$0.71	\$128,517.17	
Maysdorf South	Cordero Mining	Cordero Mining	8/1/2008	2,900.00	288,081,000	\$250,800,000.00	\$0.87	\$88,482.78	
Maysdorf North	Cordero Mining	Cordero Mining	5/1/2009	448.89	54,857,000	\$48,098,424.00	\$0.88	\$107,870.80	
West Antelope II North	Antelope Coal Company	Antelope Coal	7/1/2011	2,837.83	350,283,000	\$297,723,228.00	\$0.85	\$104,919.88	
West Antelope II South	Antelope Coal Company	Antelope Coal	9/1/2011	1,908.80	56,356,000	\$49,311,500.00	\$0.88	\$26,836.48	
Belle Ayr North	Alpha Coal West	BTU Western Resources, Inc.	11/1/2011	1,871.03	221,734,800	\$210,648,060.00	\$0.95	\$126,058.81	
Caballo West	Caballo Coal Company	Alpha Coal West	11/1/2011	1,023.99	130,198,000	\$143,417,403.80	\$1.10	\$140,057.43	
South Hilllight Field	Ark Land Company	Arch Coal Company	5/1/2012	1,978.69	222,876,000	\$300,001,011.86	\$1.35	\$151,789.38	
South Porcupine	BTU Western Resources	BTU Western Resources	8/13/2012	3,243.03	401,830,508	\$448,031,864.00	\$1.11	\$137,535.53	
North Porcupine	BTU Western Resources	BTU Western Resources	10/1/2012	6,384.28	721,150,000	\$793,270,310.80	\$1.10	\$124,844.18	
				Totals:	68,207.71	7,897,861,524	\$5,402,855,829.95		

Source: BLM, http://www.blm.gov/style/medialib/blm/wy/programs/energy/coal/comp_lease-1990.Par.55365.File.dat/SuccSales080813.pdf

In addition to the bid amount received when a lease is awarded – called a “bonus” – BLM receives two other forms of compensation as an area is mined. First, the mining company pays a rental fee for access to the coal. Second, the company pays production royalties based on the amount of coal produced. “Royalty” literally means “a payment to the crown” and is a payment to the mineral owner (in this case the Federal Government) for the right to extract and produce a mineral resource. Half of the revenue generated from coal lease bonus bids, rents, and royalties are allocated to the state where the coal is located, in part to compensate the state for socio-economic and environmental impacts that are borne disproportionately by citizens living near federal coal mines. 30 U.S.C. § 191(a).

Rental rates may be as low as \$3/acre. 43 C.F.R. § 3473.31. Royalties may be as low as 12.5 % for a surface mine, and 8% for a subsurface mine. *Id.* § 3473.32; 30 U.S.C. § 207(a). In addition, as permitted by the statute, BLM’s regulations authorize the agency to “waive, suspend or reduce the rental, or reduce the royalty but not advance royalty on an entire leasehold, or on any deposit, tract or portion thereof,” as long as the royalty is not reduced to “zero percent.” *Id.* § 3473.32(e); see 30 U.S.C. § 209 (authorizing rate reductions where the Secretary determines “it is necessary to do so in order to promote development, or whenever in his judgment the lease cannot be successfully operated under the terms provided therein.”). As a result of these reductions and other factors, such as the use of subsidiary companies to pay royalties on non-arms-length prices, from 2008-2012 *the effective royalty rate was only 4.9 percent.* Executive

Office of the President, *The Economics of Coal Leasing On Federal Lands: Ensuring A Fair Return To Taxpayers* (2016) (Hereafter “White House Report”) at 8 (emphasis added); *see also* Headwaters Economics, *An Assessment of U.S. Federal Coal Royalties*, Jan. 2015.

As discussed below, the agency’s failure to actually *obtain* fair market value, combined with reliance on fee reductions, have cost taxpayers billions in revenue. These problems are further exacerbated by the fact that a federal coal lease has an initial term of twenty years, and may be extended for an additional ten years – allowing up to thirty years of mining based on fee schedules and conditions set decades earlier. *See* 43 C.F.R. §§ 3475.2, 3425.5.

Moreover, the agency also has not at all endeavored – in the bidding process or the other junctures where the government is compensated for access to federally-owned coal – to account for the numerous *external* costs associated with coal, such as the cost of carbon emissions associated with coal mining, transportation and combustion. As we will discuss, this is one of the central tasks now faced by the agency.

b. The evolution of the current leasing system

The current BLM regulatory scheme for federal coal leasing was developed in the 1970s, with a principal objective “to promote the timely and orderly development of publicly owned coal resources,” and to “ensure that coal deposits are leased at their fair market value.” 43 C.F.R. § 3420.02. The scheme envisioned that most coal would be leased through a regional leasing approach, under which “regional coal teams” would engage in a detailed planning process and recommend “coal production regions” as appropriate for leasing. *See* 43 C.F.R. §§ 3400.4, 3400.5. Based on those recommendations and other information (including, *e.g.*, the “demand for coal and industry interest,” “coal production goals,” energy needs, and the “potential economic, social and environmental effects of leasing on the region”), the Secretary would establish regional leasing levels, and areas within the production regions would be made available for leasing. *See generally* 43 C.F.R. Part 3420.

Unfortunately, BLM has not followed this process or otherwise engaged in a systematic and planned approach to federal coal leasing. Indeed, the Powder River Basin was decertified as a coal region decades ago, and there are currently *no* certified coal production regions.⁵

Instead, for decades coal leasing has proceeded under an alternative “leasing by application” (LBA) track, whereby the coal companies *themselves* identify federal coal they would like to exploit and file coal leasing applications for access to those resources. *See* 43 C.F.R. Part 3245. This approach was intended to be the exception, not the rule – in no small part because it largely

⁵ While the Powder River Basin (PRB) “Regional Coal Team” still exists, the agency has not relied on its recommendations to engage in regional lease planning in the PRB.

takes control of federal coal leasing out of the agency's hands and puts it into the hands of the mining companies.⁶

Even in a LBA system, BLM has the authority to determine that certain areas are unsuitable for mining. *See id.* § 3461.5. These unsuitability criteria include, *inter alia*, the presence of protected species or wetlands, wilderness study areas, and designated scenic or historic areas. *Id.* However, as discussed below, these criteria are woefully inadequate and rarely invoked, and BLM should carefully consider strengthening these criteria to protect appropriate areas from coal development.

The existing regulations also require certain bonding, which is supposed to be adequate to insure compliance with the terms and conditions of the lease, and which cover a portion of the liabilities associated with the bonus bid, rental, and royalties. *See generally* 43 C.F.R. Part 3474. BLM's bonding is distinct from bonding required by the Office of Surface Mining Reclamation and Enforcement (OSMRE) or delegated state programs to cover reclamation costs. However, as also detailed below, the current bonding approach by either BLM or OSMRE is insufficient to insure proper reclamation, particularly given that, in a world of declining coal prices and increasingly idled mines, companies risk defaulting on their self-bonded reclamation commitments.

2. Prior Efforts To Address Economic & Environmental Failures With Federal Coal Leasing

In the 1970s, responding to concerns about improper profits for coal companies in federal coal leasing, BLM imposed a moratorium on further leasing and prepared a PEIS. While the moratorium was subsequently narrowed, it remained in effect until 1981, after the PEIS had been completed, BLM had issued revised implementing regulations, and litigation over those regulations was resolved. As explained below, BLM should follow this same approach now.

⁶ While, in theory, Land Use Plans, such as RMPs, provide BLM with an opportunity to evaluate suitable areas with mining potential, in practice they have not provided a framework for BLM to make affirmative and informed decisions about where, and on what terms, coal leasing may be appropriate as BLM defers all coal leasing screens to the time of a LBA. The Buffalo (WY) Field Office, for example, did not apply any leasing screens limiting where coal could be leased when revising its Resource Management Plan in 2015. BLM, Proposed Resource Management Plan and Final Environmental Impact Statement for the Buffalo Field Office Planning Area (May 2015) at 29 (“[N]o coal leasing allocation decisions are being made through the RMP revision process. . . . Prior to offering a coal tract for sale, the unsuitability criteria will be reviewed, a tract specific National Environmental Policy Act (NEPA) analysis will be completed, and there will be opportunity for public comment”). *See also*, Miles City Field Office Proposed Resource Management Plan and Final Environmental Impact Statement (June 2015) at 2-10 (“At the time an application for a new coal lease or lease modification is submitted to the BLM, the BLM will determine whether the lease application area is “unsuitable” for all or certain coal mining methods pursuant to 43 CFR 3461.5.”). BLM's Buffalo (WY) and Miles City (MT) Field Offices cover federal coal in the Powder River Basin.

New concerns arose about FMV for coal leases in the 1980s, particularly with respect to a large lease sale in the PRB. A GAO Report revealed that the agency had received roughly \$100 million less than FMV for the lease. Congress responded by directing formation of a commission – subsequently called the Linowes Commission – to address the FMV issue. Congress also directed a study into whether federal coal leasing was compatible with the Nation’s environmental protection objectives, which resulted in BLM updating its PEIS for the federal coal regulatory scheme.

Once again, coal leasing was halted while these reports were completed, and ultimately the Commission and study recommended that BLM slow the pace of coal leasing, improve procedures to better ensure the government obtains FMV, and more closely consider environmental and other competing resources in making coal leasing decisions. BLM responded by supplementing the PEIS, and then once again modifying the regulatory scheme. And, once again, BLM kept its coal leasing moratorium in place until the revised regulatory scheme was implemented.

3. The Principal Existing Problems That Must Be Addressed

As we stated at the outset, we applaud Secretary Jewell for issuing Secretarial Order 3338, and BLM for its Scoping Notice for the PEIS. These documents identify many of the issues and environmental impacts that must be confronted in the current regulatory reform effort. Although we will discuss these and other impacts in further detail below, we here highlight the most important issues that must be confronted, and which should guide the agency’s delineation of the purpose and need for the major federal action under review.

a. Environmental Impacts On The Climate And The Local Environment

i. Climate Change Impacts

As the Interior Department recognizes in the Secretarial Order and Scoping Notice, federally leased coal’s contribution to anthropogenic climate change is one of the central issues that must be addressed in the PEIS. Federal coal fuels power plants across the country, and increasingly around the world, and coal-fired power plants are a leading emitter of carbon dioxide. Coal mining also accounts for approximately 15% of methane emissions – which at present operators are not required to address.⁷ These Greenhouse Gas (GHG) emissions contribute to climate change, the single biggest threat facing our world and nation today.

⁷ In 2014, BLM issued an Advanced Notice of Proposed Rulemaking to assess ways its regulations could be amended to allow the capture, use, sale, or destruction of waste mine methane from Federal coal leases. 79 Fed. Reg. 23,923 (Apr. 29, 2014). While this rulemaking was abandoned, the Secretary’s announcement in January 2016 committed to issuing guidance that would facilitate the capture of waste mine methane. We encourage BLM to complete this necessary and appropriate effort to issue guidance outside the PEIS process, but to be sure, emissions of waste mine methane must still be included within the scope of issues to be analyzed in the PEIS.

As of 1970, the mean level of atmospheric carbon dioxide had been elevated to 325 parts per million (ppm). Since 1970, the concentration of atmospheric carbon dioxide has increased at a rate of about 1.6 ppm per year (1970–2012) to approximately 395 ppm in 2014. It is now well established that rising global atmospheric GHG emission concentrations are significantly affecting the Earth's climate. These conclusions are built upon an incontrovertible scientific record including key contributions from the United States Global Change Research Program, the National Research Council, and the Intergovernmental Panel on Climate Change. Broadly stated, the effects of climate change observed to date and projected to occur in the future include more frequent and intense heat waves, more and/or severe wildfires, degraded air quality, more heavy downpours and flooding, increased drought, greater sea-level rise, more intense storms, harm to water resources, harm to agriculture, and harm to wildlife and ecosystems. For these reasons, and others, the Environmental Protection Agency (EPA) has issued a finding that the changes in our climate caused by increased concentrations of atmospheric GHG emissions endanger public health and welfare.

To address this fundamental threat to our planet and humanity, last year countries around the world committed to the United Nations Framework Convention on Climate Change (Paris Agreement). In the Paris Agreement the United States and other countries committed to a goal of “Holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C.” In addition the United States committed to reduce the GHG emissions from within our borders by 26-28% below 2005 levels by the year 2025.

As discussed in greater detail below, federal coal leasing and its various externalities contribute significantly to our Nation's GHG emissions, and therefore to the threats posed by climate change. As much as 21% of all of America's GHG emissions in 2012 originated from coal, oil and gas extracted from public lands. And the federal coal program accounts for the lion's share of those emissions – *over 57% of emissions from federal fossil fuel production, or 12% of total U.S. GHG emissions*. It has been estimated that if all available fossil fuels from public lands were extracted and used, the lifecycle GHG emissions would be almost 500 gigatons (Gt) of CO₂.⁸

GHG emissions arise from the coal extraction process, from the transportation and refining of coal, and from its combustion – all of which must be comprehensively considered in the PEIS. In short, the PEIS must provide the necessary information for BLM to restructure the coal leasing regulatory framework in order to insure that federal coal leasing does not stand as an obstacle to the United States achieving the GHG reduction goals to which it committed in the Paris Agreement. *See, e.g.,* CEQ Climate Change Guidance at 14 (directing that an EIS address the role of the agency action in meeting climate change goals).

⁸ See Dustin Mulvaney et al., *Center for Biological Diversity and Friends of the Earth, The Potential Greenhouse Gas Emissions of U.S. Federal Fossil Fuels* (Aug. 2015).

As stated in the Scoping Notice, the PEIS will “examine how best to measure and assess the climate impacts of continued Federal coal production, transportation, and combustion,” as well as “whether and how to mitigate, account for, or otherwise address those impacts through the structure and management of the coal program.” 81 Fed. Reg. 17,725. Among the approaches BLM is already considering to address climate change goals are:

- changing the methodology used to determine which areas and how much coal is available for leasing, such as:
 - establishing a coal leasing budget tied to U.S. GHG emission reduction goals
 - creating a new regional lease planning process to make affirmative leasing decisions
 - developing a land-scape level approach to identify areas for leasing;
- raising royalty rates with an “adder” to incorporate GHG externalities from all stages of the coal process, including the social cost of carbon and methane; and
- requiring mitigation for climate and environmental harms from coal production.

81 Fed. Reg. at 17,727.

ii. Direct Environmental Impacts

In addition to climate change impacts, federal coal leasing and subsequent mining creates significant – and in many cases irreversible – impacts to air and water resources, wildlife habitat, and ecosystems in the areas where mining occurs. Federal coal is mined through the large strip mines of the Powder River Basin, as well as underground and longwall mines in other parts of the Western U.S. All coal mines create impacts, which must be addressed in the PEIS.

Impacts include:

Groundwater Depletion: Coal mining has caused complete dewatering of aquifers formerly used for drinking water and livestock watering. The Surface Mining Control and Reclamation Act (SMCRA), 30 U.S.C. §1201 *et seq.*, creates responsibilities to restore both the quality and quantity of aquifers; however, companies are far behind on meeting these obligations, especially at a landscape scale.

Delayed Reclamation and Corresponding Impacts to Other Land Uses: The gap between disturbed and reclaimed lands continues to grow. After decades of mining, across 562 square miles of land in Colorado, Montana, New Mexico, North Dakota, Utah, and Wyoming, only 77 square miles have been fully reclaimed and released from bond, meaning that the vast majority of lands have not met regulatory requirements for re-vegetation and water restoration necessary to sustain pre-mining land uses. Western Organization of Resource Councils, *et al.*, *Undermined Promise II*, available at www.underminedpromise.org. This lack of reclamation prevents land from being returned to its prior use of habitat for wildlife and livestock. Unreclaimed lands can

also lead to the spread of noxious weeds and can contribute to air quality impacts. Due to down market conditions for coal, the threat of failed and untimely reclamation is becoming even more prevalent for companies that are “self-bonded.”



Air Quality Impacts: During blasting operations, coal mines emit significant amounts of toxic air pollution, contributing to regional haze and higher ozone levels. Coal haul trucks are surrounded in a cloud of air pollution that is carried by the wind to neighboring lands. BLM’s planning documents must ensure compliance with Clean Air Act standards for nitrogen oxides and particulate matter, but the mines have violated these standards. Coal mines must also mitigate dust under their state SMCRA permits. Mitigation measures to reduce air quality impacts must

be addressed in the PEIS.

Subsidence: Underground mines that exploit federal coal have caused land subsidence, impacting surface owners and adjacent landowners. For instance, in the Bull Mountains of Montana, Signal Peak Energy’s longwall mine, has caused subsidence cracks over a quarter-mile long.



Impacts to Wildlife: The grasslands and forests of the Western U.S. are home to abundant wildlife, including big game, songbirds, raptors, and the iconic greater sage-grouse. Coal mining, especially strip mining, disrupts this important wildlife habitat. The PEIS must fully assess impacts to all wildlife species.

Coal Transportation Impacts: Coal rail lines scar landscapes and create coal dust pollution along the tracks. Trains also can create traffic congestion at road intersections near mines and across the Nation.

These harms have been well documented, and will be addressed in further detail below.



It is critical that before new leasing, BLM ensure that previously leased lands fully comply with SMCRA, the Clean Water Act, the Clean Air Act, and other environmental requirements governing coal mining and development. However, beyond these legal requirements more often met by EPA, OSMRE, and state agencies, BLM has an independent duty to assess impacts and corresponding mitigation measures pursuant to its mandates under the MLA, FLPMA, and other statutes. This is especially true for areas mining federal coal, where SMCRA and FCLAA has given the Department of Interior special management obligations under federal mining plans and resource recovery and protection plans (R2P2s). In sum, the new federal coal leasing regulatory framework must minimize and mitigate adverse environmental impacts of mining federal coal reserves.

Among the approaches BLM is already considering to address these environmental challenges are prohibiting or limiting leasing to companies that have violated the terms of their leasing permits and/or those who have not met their reclamation or bonding requirements. 81 Fed. Reg. at 17,727.

b. Fair Return For American Taxpayers

The final principal problem that must be addressed in the PEIS is the amounts charged for access to exploit federally leased coal. As the CEQ regulations provide, where – as here – a federal agency action has important economic effects, those issues must be thoroughly addressed. 40 C.F.R. §§ 1508.8; 1508.14; 43 C.F.R. § 146.420(d); BLM NEPA Handbook at 54.

Outdated federal coal revenue policies distort U.S. energy markets and undermine the Nation's climate change goals. They do so because the federal coal leasing program provides an unfair advantage to companies mining PRB coal, where more than 85% of all federal coal comes from. Coal from the PRB is significantly undervalued and sells for less than one-third of the price of Appalachian coal, even when accounting for Appalachian coal's higher Btu content.

Average weekly coal commodity spot prices
(dollars per short ton)

Coal commodity regions	Week ending			
	06/24/16	07/01/16	07/08/16	07/15/16
Central Appalachia 12,500 Btu, 1.2 SO ₂	\$40.50	\$41.10	\$41.10	\$41.10
Northern Appalachia 13,000 Btu, < 3.0 SO ₂	\$42.10	\$43.35	\$43.35	\$43.35
Illinois Basin 11,800 Btu, 5.0 SO ₂	\$31.70	\$32.00	\$32.00	\$32.00
Powder River Basin 8,800 Btu, 0.8 SO ₂	\$8.80	\$8.70	\$8.70	\$8.70
Uinta Basin 11,700 Btu, 0.8 SO ₂	\$37.50	\$39.40	\$39.40	\$39.40

Source: With permission, [Coal Markets](#)

EIA, <http://www.eia.gov/coal/>

Numerous reports and audits have found that the revenue system of bonus bids, annual rents, and royalties is not securing a fair return to the taxpayer; in fact the American people have been shortchanged by nearly \$30 billion over the past three decades. As noted in the Secretarial Order and Scoping Notice, in 2013 both GAO and OIG issued reports raising important concerns about fair return and FMV. 81 Fed. Reg. at 17,723. Numerous other reports have reached similar conclusions, and the PEIS therefore provides a much needed opportunity to consider and address these issues.⁹

⁹ See GAO, *Coal Leasing: BLM Could Enhance Appraisal Process, More Explicitly Consider Coal Exports, and Provide More Public Information* (GAO 14-140) (Dec. 2013); OIG, *Coal Management Program*, U.S. Department of the Interior, Report No.: CR-EV-BLM-0001-2012 (June 2013); see also Taxpayers for Common Sense, *Federal Coal Leasing: Fair Market Value and a Fair Return for the American Taxpayer* (Sept. 2013); Center for American Progress, *Modernizing the Federal Coal Program* (Dec. 2014); Headwaters Economics, *An Assessment of U.S. Federal Coal Royalties* (2015); Center for American Progress, *Cutting Subsidies and Closing Loopholes in the U.S. Department of the Interior's Coal Program* (Jan. 6, 2015); Institute for Policy Integrity, *Harmonizing Preservation and Production* (June 2015); Institute for Policy Integrity, *Illuminating the Hidden Costs of Coal* (Dec. 2015).

To date, BLM has relied on an initial bonus bid, lease rentals, and royalties to comprise what little return on the value of the coal accrues to the taxpayer. The PEIS must explore not only readjusting the amount of compensation for each of these aspects of leasing, but also additional compensation approaches that will not only insure a fair return for federally leased coal, but will also address the environmental externalities – and particularly GHG emissions. Coal lease pricing can also be utilized to properly incentivize the use of coal resources in our Nation’s fuel mix, allowing for appropriate levels of coal while insuring that coal emissions do not hinder the Nation’s ability to meet its GHG emission reduction goals.

One principal issue the PEIS must address is the fact that, in practice, there is very little competition for coal leases, with almost 90% of lease sales involving only a single bidder – often the operator of the adjacent (or expanding) mine. This lack of competition poses significant challenges to accurately setting FMV and therefore the initial bid cost. However, even in the absence of a competitive market, BLM can create policies and procedures that will return a fairer amount of revenue for the public. Because of the amount of federal coal that is leased, recent government reports have shown that raising bid amounts a mere penny can bring in up to \$7 million of additional revenue in the average Wyoming PRB lease sale. In short, every penny counts.

A second issue concerns the royalty rates for coal production, which do not currently either provide a fair return or cover the myriad externalities of coal production – including GHG emissions. Under existing royalty policies, coal companies also exploit loopholes, and subsidies, deductions, and royalty rate reductions lower the effective royalty rate to approximately 5% overall. In addition, companies are sometimes selling coal to their own subsidiaries, paying a royalty based on this depressed price, and then reselling the coal on the market at higher prices.¹⁰ Moreover, since this coal represents more than 40% of domestic coal production, artificially low royalty rates bring artificially low market prices.

Finally, the PEIS must address the transparency issues that have repeatedly arisen in the coal leasing context, where the leasing process, including the determination of Fair Market Value, is all conducted behind closed doors without public input or access. Insuring an open and fair leasing process is a critical step necessary to provide the American people with the necessary confidence that they are being fairly compensated for this public resource.

As the Scoping Notice explains, in addressing these issues BLM will consider reforming the regulatory framework for how, when, and where leasing occurs. 81 Fed. Reg. at 17,725. As outlined in the Scoping Notice, among the measures BLM is already considering to address these issues are:

¹⁰ Although the Office of Natural Resources Revenue recently issued new regulations that touch on some of these issues, 81 Fed. Reg. 43,338 (July 1, 2016), the PEIS should explore the extent to which companies can continue to exploit these loopholes. Among other concerns, sales may still be structured to avoid royalty payments.

- raising royalty rates based on rates used for other resources, such as offshore oil and gas (18.75%) or onshore natural gas, or to other rates that will maximize taxpayer revenue;
- incorporating an “adder” to take account of GHG externalities from all stages of the coal process, including the social cost of carbon and methane;
- limiting the use of royalty rate reductions;
- Changing the approach to determining FMV, such as
 - considering the market price of non-Federal coal in the region or nation-wide
 - incorporating the “option value” of leasing coal at a specific time
 - incorporating the social cost of mining, addressing all externalities
 - addressing export values
 - replacing “lease by application” with an open process of setting minimum bids
 - raising the minimum bid amount to account for various factors;
- Raising rental rates to account for externalities, inflation and other factors;
- Limiting leasing to companies with more than ten years of recoverable coal; and
- Evaluating whether coal oversupply is leading to reduced royalties.

Id. at 17,726. All of these changes and more should be fully developed in the Draft PEIS and we look forward to responding with detailed comments.

4. The Need For Both A PEIS and A Continuation Of The Coal Moratorium Until A Revised Regulatory Framework Is In Place

In the Secretarial Order and Scoping Notice the Secretary and BLM explain the need for a new PEIS, and why it is appropriate to impose a leasing moratorium until the process is completed. We here reiterate our strong agreement to both of these steps.

A. A PEIS Is Necessary And Appropriate At This Time

A PEIS is plainly appropriate at this critical juncture for federal coal leasing. One pressing issue that must be addressed in the PEIS *has never been* the subject of a comprehensive examination under NEPA or any other federal analytical tool – the impact of federal coal leasing on GHG emissions, and the changes necessary to ensure coal leasing supports GHG emission reduction goals. The many developments since the last PEIS update (in the 1980s) also call for the PEIS to comprehensively address both the other environmental issues posed by federal coal leasing, and the coal leasing valuation issues that have come under recent scrutiny. Moreover, as the Secretarial Order and Scoping Notice reflect, in order to properly inform the federal decision-maker, it is vital that these matters all be considered *together* given that solutions to some issues

– such as GHG reductions – may be found in other areas, such as incorporating the social cost of carbon into coal lease pricing.

It is also entirely consistent with NEPA and implementing regulations for a PEIS to be prepared for the entire coal leasing framework, for, as noted, the CEQ regulations call for a single EIS. Indeed, while a single EIS is appropriate where an agency is considering several actions that are *either* “closely related,” impose “cumulatively significant impacts,” *or* possess other similarities “such as common timing or geography,” 40 C.F.R. § 1508.25, here all three of these factors support preparation of a single, comprehensive PEIS. *See also* CEQ Climate Change Guidance at 30 (recognizing a “programmatic NEPA review may also serve as an efficient mechanism to describe Federal agency efforts to adopt sustainable practices for energy efficiency, GHG emissions avoidance or reduction, petroleum product use reduction, and renewable energy use, as well as other sustainability practices”).

B. The Moratorium On Additional Coal Leasing Must Remain In Effect Until Implementation Of The New Leasing Framework

The moratorium on continued coal leasing, which should continue until a new regulatory system goes into effect, is also necessary and appropriate. Indeed, as the Secretary explained in Order 3338, because lease terms are for twenty years or longer, allowing new leases during this process “risks locking in for decades the future development of large quantities of coal under current rates and terms that the PEIS may ultimately determine to be less than optimal.” Order at 8. It is well-established that BLM is not *required* to lease public lands for energy development. *See, e.g., U.S. ex rel. McLennan v. Wilbur*, 283 U.S. 414 (1931) (upholding President Hoover’s oil leasing moratorium under the Mineral Leasing Act).

It is also evident that additional coal leasing is entirely unnecessary to meet domestic energy needs while this process is under way, as the Secretarial Order identifies that, on average, mines have 20 years of federal coal supplies (see chart below showing reserves for major coal producing companies at the time of the Order). Additionally, for mines that have fewer reserves on hand, the Secretarial Order provides for exceptions to the moratorium. In this context, it makes little sense to allow any new twenty-year leases at antiquated lease prices, with no consideration of the myriad issues that will be explored in the PEIS and addressed in the agency’s coming revised regulations. A moratorium pending completion of a new leasing framework is entirely consistent with the approach taken by the Reagan Administration, which similarly halted issuance of new leases while the program underwent extensive review.

Coal reserves of major western US producers			
	2014 coal production (millions of tons)	Proven and probable reserves as of Dec. 31, 2014 (millions of tons)	State
Peabody Energy			
North Antelope Rochelle	118	2,136	Wyoming
Rawhide	15	642	Wyoming
Caballo	8	297	Wyoming
El Segundo	8	106	New Mexico
Twentymile	7	46	Colorado
Cloud Peak Energy			
Antelope	34	581	Wyoming
Cordero Rojo	23	267	Wyoming
Spring Creek	17	274	Montana
Arch Coal			
Black Thunder	101	1,263	Wyoming
Coal Creek	9	161	Wyoming
Alpha Natural Resources			
Eagle Butte & Belle Ayr	39	700	Wyoming
Westmoreland Coal			
Rosebud	9	269	Montana
Beulah	3	38	North Dakota
Savage	0	5	Montana
Kemmerer	4	94	Wyoming
Total	396	6,879	

Includes reserves leased from federal government. Some reserves may also be leased from states or private parties.
 List not comprehensive.
 Source: SNL Energy



PART TWO: THE PURPOSE AND NEED FOR THE PEIS, AND THE MAJOR FEDERAL ACTION TO BE ADDRESSED

As set out in the Interior Department’s NEPA regulations, the “need” for an action “may be described as the underlying problem or opportunity to which the agency is responding with the action,” while the “purpose” may “refer to the goal or objective that the bureau is trying to achieve, and should be stated to the extent possible, in terms of desired outcomes.” 43 C.F.R. § 46.420(a)(1). As further explained in BLM’s NEPA Handbook:

A carefully crafted purpose and need statement can be an effective tool in controlling the scope of the analysis and thereby increasing efficiencies by eliminating unnecessary analysis and reducing delays in the process. The purpose and need statement dictates the range of alternatives, because action alternatives are not “reasonable” if they do not respond to the purpose and need for the action. The broader the purpose and need

statement, the broader the range of alternatives that must be analyzed. The purpose and need statement will provide a framework for issue identification and will form the basis for the eventual rationale for selection of an alternative. Generally, the action alternatives will respond to the problem or opportunity described in the purpose and need statement, providing a basis for eventual selection of an alternative in a decision.

BLM NEPA Handbook at 6.2.1

Here, in framing the purpose and need, BLM must be guided by its statutory mandate to administer federal coal leasing in a manner that protects the Nation's "environmental, air and atmospheric, [and] water resource[s]," 43 U.S.C. § 1701(a)(8), takes into "account the long-term needs of future generations," and considers "the use of some land for less than all of the resources" to accomplish these objectives. *Id.* § 1702(c). In addition, Congress directed that federal coal leasing should occur as the Secretary "finds appropriate and in the public interest," and, where it does occur, must be "by competitive bidding." 30 U.S.C. § 201; 43 U.S.C. § 1701(a)(9) (requiring "fair market value for the use of the public lands and their resources").

In light of these requirements, the *need* for the PEIS arises from the failure of the current federal coal leasing framework to fulfill BLM's statutory mandates to protect the environment and provide a fair return to the American taxpayer. And the *purpose* of the PEIS is to revise and update that framework in a manner that will (a) minimize the extent to which federal coal contributes to the emissions that drive climate change; (b) ameliorate direct impacts to the environment where federal coal is mined; and (c) maximize the value of this federal resource.

As explained in further detail below, in order to achieve this purpose and need, the PEIS must explore alternatives that will achieve the following overarching objectives:

- Delineating the full scope of GHG emissions associated with federal coal leasing, including upstream and downstream emissions;
- Reducing, mitigating, or eliminating the GHG emissions associated with federal coal leasing to align with the Nation's GHG emission reduction goals;
- Identifying and fully presenting a detailed analysis of the direct adverse environmental impacts associated with federal coal leasing and developing new regulations and policies to insure these impacts are minimized, including insuring proper reclamation; and
- Reforming the coal leasing price structure to advance GHG reduction objectives, insure meaningful competition, and provide a transparent and fair return to taxpayers.

It is of course too early in the process to set out precisely which reforms will best accomplish these objectives. However, at this stage we anticipate that BLM will need to include the following elements to achieve the PEIS's purpose and need:

- An end to leasing by application and regional coal teams, and development of a national framework for when, where, and how much federal coal, if any, must be considered for leasing;

- A revised lease payment framework that takes into account GHG reduction objectives and provides a transparent and fair return to taxpayers, including a new approach to determining FMV and setting rental and royalty fees;
- A systematic examination of the full life-cycle GHG emissions caused by federal coal leasing;
- A Carbon Budget delineating the extent of GHG emissions that the agency will permit from federally leased coal;
- An inter-agency management approach to ensure compliance with all federal laws;
- Limitations on leasing in areas with environmental conflicts or suitable for renewable energy development;
- Limitations on who may obtain leases based on the extent of reserves and the company's demonstrated capacity to complete appropriate reclamation;
- New lease conditions and bonding requirements that will facilitate proper site reclamation; and
- Regulatory requirements for methane capture and/or offsets.

To encompass these issues, we recommend that the agency identify the following major federal action as the driver of consideration in the PEIS:

The proposed federal action is to provide a complete environmental analysis of, potential alternatives to, and mitigation measures associated with federal coal leasing, as well as an informed basis for restructuring the regulatory and policy framework for federal coal leasing with the objectives of minimizing contributions to Greenhouse Gas emissions and other environmental harms, while maximizing returns to the American public.

PART THREE: THE ENVIRONMENTAL IMPACTS OF FEDERAL COAL LEASING, AND POTENTIAL ALTERNATIVES TO ADDRESS THOSE IMPACTS¹¹

At the outset, we emphasize that, as regards all physical, chemical, radiological and biological, aesthetic, historic, cultural, economic, and social effects areas, the PEIS must address *all* relevant impacts, including cumulative and related impacts. *See, e.g.*, 40 C.F.R. § 1508.7 (explaining that cumulative effects include “the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions”). Only through a comprehensive analysis can BLM make an informed judgment about changes in the federal coal leasing regulatory framework.¹²

¹¹ In order to meaningfully address the impacts of federal coal leasing, BLM must take into account important geographical considerations. To assist with that aspect of the analysis, attached as Appendix A are additional comments focusing on geographic information systems and geospatial analysis and data that should be considered in developing the PEIS.

¹² *See, e.g.*, CEQ, *Considering Cumulative Effects Under the National Environmental Policy Act*, January 1997 (explaining that “cumulative effects must be evaluated along with the

Moreover, impacts must be analyzed broadly and include all relevant “effects on natural resources and the components, structures, and functioning of affected ecosystems,” including “effects on air and water and other natural systems.” 40 C.F.R. § 1508.8(b). BLM should also be guided by its statutory mandate to manage public lands “in a manner that will *protect* the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archeological values” 43 U.S.C. § 1701(a)(8) (emphasis added).

To minimize and mitigate these impacts, in the PEIS BLM must also “[r]igorously explore and objectively evaluate all reasonable alternatives” and “[d]evote substantial treatment to each alternative considered in detail.” 40 C.F.R. §1502.14. Because the alternatives we propose – and those BLM is already considering – are closely tied to the impact area they are designed to address, we present a set of tailored alternatives for each impact area in this section. In the following section we will offer several combined alternatives for BLM to consider carrying forward in the PEIS.

A. Greenhouse Gas Emissions

As discussed, *see supra* at 13-14, climate change poses concrete risks to the environment globally, including water availability, ocean acidity, weather, sea-level rise, and the health of ecosystems and the public. To address these concerns, the United States and other countries committed in the Paris Agreement for the United Nations Framework Convention on Climate Change to “Holding the increase in the global average temperature to well below 2°C above pre-industrial levels.” Some reports have estimated that to meet this goal 90% of U.S. coal reserves must remain in the ground. *See, e.g.* Christophe McGlade & Paul Ekins, “The geographical distribution of fossil fuels unused when limiting global warming to 2 °C,” *Nature*, Jan. 8, 2015; *see also* July 27, 2016 Letter from Scientists on the BLM PEIS.

The first order of business is for BLM to develop the appropriate methodologies to calculate the GHG emissions associated with the *entire* fuel cycle for federally leased coal, including extraction, transportation and refining, and combustion, for only through such an approach can the climate change impacts of coal be properly assessed. Next, the PEIS must explore alternatives that should be considered to mitigate those impacts and insure that federally leased coal does not stand as an obstacle to GHG emission reduction goals.

1. GHG Emissions Due To Federal Coal Leasing

A critical threshold change required in BLM’s approach to federal coal leasing, and crucial for a technically defensible NEPA analysis in the PEIS, is to account for all the “links in the chain”

direct effects and indirect effects... of each alternative...” and that “...as the proposed action is modified or other alternatives are developed (usually to avoid or minimize adverse effects), additional or different cumulative effects issues may arise”); BLM NEPA Handbook at 61 (stating that cumulative effects analysis “must be able to describe the incremental differences in cumulative effects as a result of the proposed action and alternatives”).

stemming from granting coal leases, and consideration of those links comprehensively. This includes emissions associated with coal extraction, transportation, refining, and combustion – *i.e., the entire coal fuel cycle.*

NEPA requires just such an approach, for, as noted, it calls on agencies to take a hard look at the direct, indirect, and cumulative impacts of federally permitted activities, as well as impacts from related activities. *See, e.g.* 40 C.F.R. § 1508.8(b) (requiring consideration of “growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems, as well as “effects on natural resources and the components, structures, and functioning of affected ecosystems,” including “effects on air and water and other natural systems”); *see also* Climate Change Guidance at 11 (requiring consideration of all emissions having “a reasonably close causal relationship to the Federal action, such as those that may occur as a predicate for the agency action (often referred to as upstream emissions) and as a consequence of the agency action (often referred to as downstream emissions) . . .”).

Recognizing this obligation, other agencies have begun to include this kind of analysis in their environmental review documents. For example, the Department of Energy has begun doing lifecycle GHG analyses in considering the impacts associated with Liquid Natural Gas terminals and exports.¹³ The Forest Service has also considered CO₂ emissions from coal combustion anticipated to be produced under coal leases,¹⁴ and the State Department included a relatively comprehensive life-cycle GHG analysis in its review of the proposed Keystone XL Pipeline.¹⁵ EPA has also commented on FERC proposals that upstream and downstream emissions should be considered (Burger and Wentz at 27-28). Finally, numerous courts have confirmed that, to comply with NEPA, agencies must consider upstream and/or downstream emissions associated with fossil fuel projects. *See* Burger and Wentz at 3, 28-57 (citing cases); *e.g. High Country Conservation Advocates v. United States Forest Serv.*, 52 F. Supp. 3d 1174, 1196 (D. Colo. 2014).

¹³ *See* Dept. of Energy, Life Cycle Greenhouse Gas Perspective on Exporting Liquefied Natural Gas (May 2014); Dept. of Energy, Office of Fossil Energy, Freeport LNG Expansion, Docket no. 10-161-Ing, Final Opinion and Order (Nov. 14, 2014); Dept. of Energy, Addendum to Environmental Review Documents Concerning Exports of Natural Gas (Aug. 2014); Dept. of Energy, Life Cycle Greenhouse Gas Perspective on Exporting LNG (May 29, 2014) (all cited in Burger and Wentz).

¹⁴ U.S. Forest Serv., Final EIS, Federal Coal Lease Modifications (Aug. 2012); *see also* U.S. Forest Serv., ROD and EIS, Oil and Gas Leasing Analysis, Fishlake National Forest (Aug. 2013) (considering downstream emissions for oil and gas leasing) (cited in Burger and Wentz).

¹⁵ U.S. Dept. of State, Final Supplemental EIS For the Keystone XL Project § 4.14.3 Appendix U (Jan. 2014).

BLM itself has also begun to include some consideration of downstream emissions in EISs.¹⁶ Nonetheless, in some prior environmental review documents, BLM – and other agencies – have suggested that the GHG emissions from fossil fuel combustion can ultimately be *ignored* because the same quantity of coal or other fuel will be used regardless of its source.¹⁷ BLM should reject this “perfect substitute” approach in the PEIS. Rather, BLM must engage in a reasoned energy substitution analysis to estimate the extent to which other coal – or other energy sources – might replace reduced quantities of federal coal in the marketplace. Although BLM should assume implementation of the Clean Power Plan in undertaking this analysis (which would partially, though not completely, resolve emission externalities), it should also consider how the analysis might change in the unlikely event the Plan does not go into effect. See James Stock et al, *Federal Coal Program Reform, the Clean Power Plan, and the Interaction of Upstream and Downstream Climate Policies* (Harvard Kennedy School April 2016) at 3 (concluding that a royalty adder that addresses the social cost of carbon could reduce emissions by roughly $\frac{3}{4}$ of the emissions reduction that the Clean Power Plan is projected to achieve).

In considering this issue, we urge BLM to consider the numerous peer-reviewed studies and government reports that evaluate the life-cycle emissions associated with coal development.¹⁸

¹⁶ See Bureau of Land Mgmt., Final EIS For the Wright Area Coal Lease Applications, 4-140 (July 2010); Bureau of Land Mgmt., Final Supplemental EIS For the Leasing and Underground Mining Of the Greens Hollow Federal Coal Lease Tract (Feb. 2015) (cited in Burger and Wentz).

¹⁷ See Bureau of Land Mgmt., Final EIS for the Wright Area Coal Lease Applications (July 2010) (determining that the No Action alternative of rejecting six large coal leases to expand Powder River Basin coal mines would not reduce GHG emissions).

¹⁸ A list of these documents are provided in the Appendix to Burger and Wentz, and include the following: Greenhouse Gas Protocol, WRI and WBC on Sustainable Development, <http://www.ghgprotocol.org/>; Oil and Gas Production Protocol, The Climate Registry, <http://www.theclimaterestry.org/wpcontent/>; U.S. Energy Info. Admin., the National Energy Modeling System: An Overview (2009); New Tool Yields Custom Environmental Data for Lifecycle Analysis, Dep’t of Energy (Sept. 10, 2012), <http://energy.gov/fe/articles/new-tool-yields-custom-environmental-data-lifecycle-analysis>; Greet Model, Argonne Natl. Lab. <https://greet.es.anl.gov>; OPGEE: The Oil Production Greenhouse Gas Emissions Estimator, Stanford School of Earth, Energy & Env’tl. Sciences, <https://pangea.stanford.edu/researchgroups/eao/research/opgee-oil-production-greenhouse-gas-emissions-estimator>; Natural Gas Models, Deloitte Marketplace LLC, <https://www.deloittemarketpoint.com/industries/natural-gas/world-gas-model>; EPA Greenhouse Gas Reporting Rule, 40 C.F.R. Pt. 98; Paulina Jaramillo et al., Comparative Life-Cycle Air Emissions of Coal, Domestic Natural Gas, LNG, and SNG for Electricity Generation, 41 Environ. Sci. Technol. 6290 (2007); Andrew Burnham et al., Life-Cycle Greenhouse Gas Emissions of Shale Gas, Natural Gas, Coal, and Petroleum, 46(2) Environ. Sci. Technol. 619 (2012); Richard K. Lattanzio, CRS, Life-Cycle GHG Assessment of Coal and Natural Gas in the Power Sector (June 26, 2015); U.S. Dept. of Energy, National Energy Technology Laboratory, Life Cycle Analysis of Natural Gas Extraction and Power Generation, , May 29, 2014 (although

A full life-cycle analysis must also include the other downstream emissions that come before combustion. This includes emissions tied to the substantial amount of electricity and fossil fuels used to operate mining equipment, as well as those associated with the transportation of coal and other coal related infrastructure. In the United States, coal companies transport 70% of their product by rail, approximately 10% by truck, 10% or more by waterways, and the rest using a variety of means including conveyor belts and slurry pipelines. Jayni Hein and Peter Howard, Institute for Policy Integrity, *Reconsidering Coal's Fair Market Value* (New York Univ. School of Law 2015) at A4. One report estimates that transportation of coal accounts for 1.7% of CO₂ emissions in the life cycle of coal production. See Spath, P. L., Mann, M. K., & Kerr, D. R., *Life Cycle Assessment of Coal-fired Power Production* (National Renewable Energy Lab 1999). Each of these forms of transportation must be factored into determining the entire fuel cycle cost of federally leased coal.

In terms of combustion emissions, we applaud Secretary Jewell's plan to have the U.S. Geological Survey establish and maintain a public database to account for the annual carbon emissions from fossil fuels developed on federal lands. If completed in a timely manner, this quantitative database can certainly contribute to the required analysis. However, even without this database, BLM can – and must – quantify emissions for this PEIS. One straightforward approach to calculate those emissions is to multiply the amount extracted by the CO₂ emissions factor for that fuel (Burger and Wentz at 58).¹⁹

the report focuses on natural gas LCA, it also includes coal LCA for the purpose of comparison); U.S. Dept. of Energy, National Energy Technology Laboratory, Life Cycle GHG Perspective on Exporting LNG (May 29, 2014) (although the focus is on natural gas, coal is also evaluated for comparison); Leslie S. Abrahams et al., Life Cycle Greenhouse Gas Emissions from U.S. Liquefied Natural Gas Exports: Implications for End Uses, 49 *Envtl Science and Technology* 3237 (2014); Mohan Jiang et al., Life Cycle Greenhouse Gas Emissions of Marcellus Shale Gas, 6(3) *Env. Rsch. Letters* 034014 (2011); James Bradbury, et al., WRI, Clearing the Air: Reducing Upstream GHG Emissions from U.S. Natural Gas Systems (2013); Christopher L. Weber & Christopher Clavin, Life Cycle Carbon Footprint of Shale Gas: Review of Evidence and Implications, 46(11) *Environ. Sci. Technol.* 5688 (2012); Daniel Zavala-Araiza et al., Reconciling Divergent Estimates of Oil and Gas Methane Emissions, *PNAS Early Edition* DOI 10.1073 (Nov. 2015), <http://www.pnas.org/content/early/2015/12/03/1522126112.abstract>; Paul R. Epstein et al., Full Cost Accounting for the Life Cycle of Coal, 1219 *Ecological Econ. Review* 73 (2011); see also Greenpeace, *Leasing Coal, Fueling Climate Change* (2014).

¹⁹ The U.S. Energy Information Administration (EIA) publishes emission factors (or coefficients) for the amounts of certain gases that are released when fuels are burned, and publishes emission factors for when electricity is generated and used. For example, for subbituminous coal, EIA's emission factor for electricity generation is 97.20 kilograms of CO₂ emitted per million Btu (and a Btu refers to the amount of energy needed to raise the temperature of one pound of water by one degree Fahrenheit). See https://www.eia.gov/environment/emissions/co2_vol_mass.cfm.

BLM should also work to qualitatively monetize the impacts of these GHG emissions using the EPA's social cost of methane and the Interagency Working Group's social cost of carbon methodologies, as well as the USGS carbon database. Relying on these data, BLM should develop quarterly estimates of all GHG emissions associated with the extraction, transport, and consumption of federal coal to serve as basis for informing future decisions regarding the federal coal regulatory scheme, and report the carbon emissions and impacts for all agency leasing decisions.

Finally, fugitive methane is the biggest other contributor to the GHG emissions (after burning of coal for electricity generation), and coal mining accounts for approximately 15% of United States methane emissions. Methane is formed in coal as the coal is created over time from various plant remains, and is retained by the coalbed and surrounding strata as long as it remains under pressure. When coal mining occurs, the trapped methane is released from both the coal seams and surrounding strata.

To address this other potent contributor to climate change, BLM must develop a method to account for the methane emissions associated with mining, and incorporate those emissions into its calculations of the full life-cycle emissions associated with federal coal leasing.

2. Alternatives & Mitigation Measures That Must Be Analyzed To Address GHG Emissions

Once the impacts are properly characterized and analyzed, the PEIS should consider several approaches to minimize and mitigate GHG emissions associated with federal coal leasing. These approaches should include a set of analytical alternatives of the GHG environmental impacts associated with federal coal leasing:

a. Establishing a “Carbon Budget” for coal leasing

Under this approach, BLM – in coordination with other appropriate agencies – would present an analysis that would determine how much of United States GHG emissions should be permitted to come from federal coal leasing (again, considering full life cycle emissions), taking into account the Nation's GHG reduction objectives and other sources of GHG emissions. Once that Carbon Budget is established, BLM would apply it initially to take account of existing leases. Any remaining Budget would then be allocated to new leasing based on a revised leasing framework, which would incorporate the applicant's ability to achieve GHG emission and other environmental goals.²⁰

²⁰ Capping the amount of leasing available, and having coal operators compete for remaining leases, could also create an associated benefit of additional competition for federal coal resources.

b. Amending the price structure for coal leasing to account for the significant GHG emissions externalities costs associated with coal

Under this alternative, BLM would analyze incorporation of the life-cycle costs of GHG emissions into the royalty rates charged for access to federally leased coal. For example, the royalties might include an “adder” that would be a flat sum (adjusted over time and keyed to inflation) to reflect these costs.

While BLM might determine it requires a change to its regulations²¹, analysis of this alternative would be well within BLM’s broad authority, for the MLA and FLPMA provide the agency with broad discretion to determine appropriate royalty rates.

Finally, BLM should present an analysis of the relevant alternatives associated with where the money raised by such fees should be allocated. Possibilities include:

- paying for carbon mitigation or other efforts to reduce GHG emissions elsewhere – *e.g.*, carbon sequestration;
- assisting coal mine employees displaced by reductions in federal coal leasing; or
- supporting coal reclamation projects in areas where operators have not fulfilled their reclamation obligations.²²

c. Requiring CO₂ and/or methane capture and sequestration throughout the coal leasing chain

To the extent CO₂ and methane emissions from the coal supply chain can be captured and sequestered, coal leasing’s impacts on GHG emissions, and therefore on climate change, can be mitigated to some extent. BLM should therefore consider analyzing such a sequestration alternative.

Capture during the coal mining process – where most of the fugitive methane emissions occur – is squarely within BLM’s authority. As noted, at present operators have no requirement to capture fugitive methane. BLM should squarely address this problem by considering an approach that would require every coal lease, permit and plan of operations to provide for the capture of all methane releases, or, at bare minimum, to provide strong incentives for methane capture (*i.e.*, penalties for non-capture).

²¹ Although the existing regulation only provides for a 12.5% (for surface mining) *floor* on royalties, 43 C.F.R. § 3473.32, we recommend BLM amend the regulation to explicitly include the adder for GHG emissions.

²² Although some of these uses may not be within BLM’s present statutory authority, that should not dissuade the agency from giving them serious consideration. *See, e.g.*, 40 C.F.R. § 1502.15(c) (requiring consideration of “reasonable alternatives not within the jurisdiction of the lead agency”).

As for downstream emissions, in this alternative BLM should consider structuring its leasing framework to incentivize companies to insure downstream sequestration. For example, BLM might reduce the externality cost included in leasing prices to the extent the applicants can demonstrate that the downstream emissions will be sequestered.

d. Permitting GHG emission mitigation through offsets elsewhere in the economy

Another alternative to address GHG emissions would be an analysis of permitting applicants to offset life cycle GHG emissions by obtaining GHG emissions reductions outside the coal leasing fuel chain. One potential source for this mitigation would be investments in renewable energy. Another possibility would be carbon capture with biological carbon sinks – *i.e.*, restoration or protection of vegetative communities that naturally absorb significantly quantities of carbon dioxide. BLM should identify federal lands that might serve as significant biological carbon sinks, and make them available for this purpose, and should also consider permitting carbon capture elsewhere, such as through forest or coastal habitat restoration, sustainable land management practices, or other measures. *See generally* CEQ Climate Guidance at 20.

e. Prioritizing renewable energy development

Through the Solar PEIS and other initiatives BLM and other agencies have identified areas suitable for renewable energy development, including solar, wind and geothermal projects. BLM should prioritize these efforts by precluding coal leasing in these areas.

f. Prohibiting new leasing

Finally, BLM should consider the environmental impacts that would be associated with no longer issuing federal coal leases, which – short of terminating existing leases – would have the greatest impact on GHG emissions reduction. Such an alternative would be eminently reasonable given the state of the science on climate change and the contribution federally leased coal is making to GHG emissions. In short, because immediate and substantial reductions in GHG emissions are critical to reduce or prevent serious impacts from climate change, BLM would be well within its broad discretion to maintain a hiatus on further leasing.

It is also evident that further federal coal leasing will not be necessary to meet the Nation's energy demands. Demand for coal is decreasing, and will continue to decrease, while existing federal coal leases will continue to provide adequate coal supplies for decades. *See, e.g.*, U.S. EIA, *Today in Energy: Clean Power Plan reduces projected coal production in all major U.S. supply regions* (July 8, 2016) (available at <http://www.eia.gov/todayinenergy/detail.cfm?id=26992>)

It also bears emphasizing that the statutory requirement for “maximum economic recovery,” 30 U.S.C. § 201(a)(3)(C), would not be impediment to this or any other alternative under which BLM might prioritize environmental concerns over simply achieving the highest economic returns. To the contrary, Congress was clear that this requirement “does not restrict the authority of the authorized officer to ensure the conservation of the recoverable coal reserves *and other resources* and to prevent the wasting of coal.” 43 C.F.R. § 3480.0-5(21)(emphasis added).

And regardless of whether BLM were to choose such an alternative, fully analyzing what would happen were leasing to be halted is critical to permit BLM to meaningfully *compare* the relative GHG reductions that can be reasonably achieved through other alternatives.

B. NEPA Analysis of Alternatives & Mitigation Measures is Necessary for the Ecosystems Where Mining Occurs

Federal coal leasing imposes significant adverse impacts on water and air resources, habitats and wildlife in the immediate regions where coal is mined. Climate change will further exacerbate many of these threats in decades to come. BLM's existing regulatory scheme fails to insure that operators fulfill the reclamation obligations necessary to ameliorate these impacts. To address these issues, BLM must perform a detailed NEPA analysis that considers several alternatives to improve decision-making concerning where mining occurs, and to improve the reclamation process.

1. Reasonably Foreseeable Development Scenarios

A full assessment of the impacts of the federal coal leasing program going forward requires analysis of the amount of development that might occur. *See e.g., BLM & DOE, Final Programmatic Environmental Impact Statement (PEIS) for Solar Development in Six Southwestern States* (July 2012) at 2-64; *Interagency Reference Guide: Reasonably Foreseeable Development Scenarios and Cumulative Effects Analysis* (June 2003). Several key factors are relevant to BLM's preparation of reasonably foreseeable development scenarios. The most important factors include: (1) enforceable greenhouse gas reduction targets and policies; (2) other federal and state policies that impact federal coal production; (3) market factors affecting demand for federal coal both domestically and internationally; (4) financial solvency of coal companies; (5) future production costs for federal coal; and (6) the time frame selected for evaluation.

Each alternative that BLM chooses to evaluate in its PEIS should have a reasonably foreseeable development scenario associated with it. A transparent description of the federal coal resource can provide a critical foundation for each development scenario. This accounting should distinguish between federal coal resources already leased and those not yet leased. Economic recoverability will vary in each scenario based on assumptions about available technology, demand, price including royalty rate and greenhouse gas emissions, and other policies and regulations affecting coal production. Such assumptions and choices should be clearly identified. Moreover, the analysis and modeling used to estimate reasonably foreseeable development from the assumptions/ choices should be explained and made publically available. Once a reasonably foreseeable development scenario is determined for each alternative, BLM can then assess the impacts associated with this level of development.

2. Direct Environmental Impacts

Coal leasing and subsequent mining creates substantial local and regional environmental impacts wherever it occurs. Mines disturb huge amounts of land in order to remove the coal, interrupt and deplete underground aquifers flowing through or above the coal seam, cause negative physical and chemical changes to surface waters, and create large amounts of air pollution degrading air quality. In the case of federal coal, many of these impacts are occurring on and around public lands that are important for wildlife habitat, hunting, grazing, and recreation opportunities. It is imperative that BLM takes a “look before you lease” approach to coal development across the federal mineral estate, and especially analyzes and discloses local and regional trends regarding critical issues such as reclamation, air quality, and groundwater depletion. As discussed below, it is equally important that BLM consider enforceable and effective measures to mitigate these impacts, as part of its alternatives to modernize and enhance the federal coal regulatory scheme.

a. Impacts from Delayed and Ineffective Reclamation

Timely and effective reclamation practices are essential to protecting land and water resources, minimizing the length of time lands are disturbed, maintaining stable non-eroding mine sites, reducing fugitive dust from unvegetated areas, and achieving productive end land uses. Inadequate reclamation has substantial adverse impacts, including the spread of noxious weeds, decreased air quality as a result of a larger area of disturbance, less water restoration, and a longer loss of livestock and wildlife pastureland. Absent ensured contemporaneous reclamation, land may not be able to be restored “to a condition equal to or greater than the ‘highest previous use’” as required by Federal and state laws.

For those reasons, one of the most important legal requirements for coal mining in the United States is that reclamation of mined land must be “as contemporaneous as possible.” 30 U.S.C. § 1202(e).

Every year, OSMRE prepares oversight reports on state programs implementing SMCRA which analyze state-wide trends regarding contemporaneous reclamation. OSMRE evaluates the effectiveness of a state program achieving reclamation success based on the number of acres that meet the standards for phases of bond release and acres that have been released from bond. BLM should fully consider these reports in the scope of its PEIS and solicit additional information from OSMRE as necessary to disclose the current reclamation status of mines with federal coal leases.

Specifically, the reports on the Wyoming program, where the largest amount of federal coal is being mined, show that contemporaneous reclamation requirements are not being met because of a growing gap between disturbed and reclaimed acreages, delays in reclamation activities, failure to achieve bond release, and operational emphasis on production over reclamation. These reports affirmatively demonstrate that, on average, the rate of land disturbance is much greater than the rate of reclamation for PRB coal mines. OSMRE has stated that “the data shows that the State program may not be fully effective in its goal of having all disturbed lands reclaimed to the approved post-mining land use as contemporaneously as possible.” Annual Evaluation Summary

Report For The Wyoming Regulatory Program (OSMRE 2009) at 9. OSMRE concludes that “...there could be delays in backfilling and grading or permanent seeding operations due to the mines’ operational emphasis on coal production over reclamation.” *Id.*

The risks and impacts associated with the failure to complete these reclamation obligations must be thoroughly examined in the PEIS. The PEIS should also disclose the reclamation and bond release status of all mining operations. BLM must also assess how long land uses will be impacted (*e.g.* what is the expected time frame for reclamation and the area to re-gain access for grazing, hunting, and recreational purposes?). These impact analyses should be site-specific and cumulative on a regional basis.²³

Assessing the status of reclamation is fundamental to BLM’s responsibilities to limit coal leasing to those circumstances that are in the public interest. 30 U.S.C. § 201. Federal law makes contemporaneous reclamation a pre-requisite to coal leasing. Leasing and the right to mine coal that it conveys is allowed only where reclamation can and does occur. 30 U.S.C. §1202(c) (purpose of SMCRA is to “assure that surface mining operations are not conducted where reclamation as required by this Act is not feasible.”). The success and failure of coal companies to reclaim land previously mined is a critical factor in BLM’s determination whether to lease more coal.

b. Inadequate Reclamation Bonding

Many coal companies “self-bond” to meet reclamation bonding requirements, meaning the company’s reclamation commitment is backed only by the company’s name and overall financial health, not by sureties or specific pledges of collateral. While it is technically allowed under federal and some state laws, self-bonding is an option, not a requirement. With declining coal company revenues and increasingly decreasing demand for coal, self-bonding practices are becoming more and more risky for State and Federal governments, and concerns will only grow. *See, e.g., Can Coal Companies Afford To Cleanup Coal Country?*, Washington Post, Apr. 1, 2016 (discussing concerns). Across the nation, \$3.5 billion in reclamation liabilities are covered only by self-bonds. Thus, as noted in the Scoping Notice, in recent years some companies mining federal coal resources have sought to shed their reclamation obligations in bankruptcy proceedings. *See, e.g., In re Alpha Natural Resources, Inc.*, No. 15–33896 (KRH) United States Bankruptcy Court, Eastern District of Virginia, Richmond Division (Aug. 3, 2015).

The PEIS should disclose the amount of reclamation liability for federal coal leases that are covered only by self-bonds, disclose the status of those bonds and the financial health of the companies, and disclose any reasonably foreseeable impacts and risks associated with self-

²³ As identified by BLM’s sister agency, OSMRE, bond release status is the most objective measure of reclamation success. For example, in Wyoming bond release is tied to restoration progress, and the operator is not eligible for final bond release until re-vegetation standards have been met, pre-mining productivity has been re-established, and pre-mining surface and groundwater quality and quantity (including groundwater recharge capacity) have been restored. *See* Wyo. Land Quality Regulations Ch. 15 § 5.

bonding practices. This analysis is necessary for all lands overlying leased federal coal, regardless of ownership status, but it is especially important for federal public lands, as self-bonding presents additional risks to the Federal government as the owner and manager of those lands.

c. Groundwater Depletion

Western coal mining often takes place in very arid environments, with limited rainfall and surface water resources. Thus, successful reclamation of rangeland requires not only establishing surface vegetation, but also replacement and restoration of pre-mining water resources, the impacts on which must also be fully considered.

As such, BLM should analyze and disclose the bond release status of previously leased acreage, and assess associated impacts related to water resources. OSMRE dictates that, “[a]chievement of surface water quality and quantity restoration can be measured by acres of Phase III bond release.” OSMRE Wyoming 2009 Report at 9. There is no other objective measure of water quality and quantity restoration (sufficient to allow post-mining land uses) that BLM could substitute for its evaluation.

Additionally, BLM should review previous NEPA analyses for federal coal leases, analyses which have disclosed significant – and irreversible – impacts to groundwater resources. For instance, the Wright Area Leases Final Environmental Impact Statement for the Powder River Basin in Wyoming disclosed: “[t]he overburden and coal aquifers within the leased tracts would be completely dewatered and removed, and the area of drawdown caused by overburden and coal removal would be extended...” Bureau of Land Mgmt., Final EIS For the Wright Area Coal Lease Applications, 3-111 (July 2010). According to the EIS, “the effect of coal mine dewatering on the Upper Fort Union from 1990 to 2010...is a cumulative drawdown ranging from...50 to 150 feet in the vicinity of the Black Thunder” mine. *Id.* at 4-62. BLM states that “[t]he rate and extent of the actual drawdown in the coal is currently much greater than the life-of-mine drawdown predictions,” and that “[r]oughly 30 years of surface mining and the more recent CBNG development have resulted in complete dewatering of the coal aquifer in localized areas...” *Id.* at ES-40, 3-118. Additionally, the agency discloses that “resaturation of coal mine pit backfill to form backfill aquifers may take approximately 100 years after cessation of mining.” *Id.* at ES-67 (emphasis added).²⁴

Coal mining also uses substantial amounts of water for dust control, extraction (*i.e.*, to cool equipment and prevent fire), and processing (*e.g.*, coal washing). The Department of Energy estimates that U.S. coal mining uses approximately 70 to 260 million gallons of water per day, with average uses of 10 gallons per ton of coal mined on the surface in the West. *See* Hein and Howard at 10. Most, if not all, of this water comes from underground sources. The PEIS should

²⁴ These statements essentially acknowledge that coal mining is resulting in material damage to the hydrologic balance of ground and surface water and that compliance with SMCRA’s statutory requirement to restore the regional Fort Union coal aquifer to “pre-mining conditions” may in fact be impossible.

provide a cumulative analysis of these impacts and direction for considering these impacts in future site-specific EISs.

d. Water Quality Impacts

The PEIS must also address the substantial hydrological impacts of coal leasing. In the water-scarce western U.S., groundwater, intermittent surface water and sub-irrigation are vital to the environment and the economic base. Mined coal seams often contain groundwater aquifers that nourish springs, wells, streams, and natural systems. Coal mining pollutes both surface and groundwater resources, often increasing levels of suspended solids and sediment load in streams and wetlands nearby. This in turn can increase ventilation rates, reducing oxygen levels for aquatic life. Suspended solids can also diminish light penetration through water, limiting aquatic plant productivity. *See Undermined Promise II* at 30.

Surface waters can become contaminated from the leaching of toxic substances from exposed ore, waste rock, and overburden. In Wyoming and Idaho, for example, dust from the surface mining of coal in areas with selenium containing overburden was found to cause selenium levels to increase in the environment. Selenium leaches from coal ash and coal mine waste into nearby water and soil and heavily impacts aquatic ecosystems, where it can easily reach toxic concentrations and bio-accumulate through the food chain. In several lakes and reservoirs, selenium has been linked to reproductive impairment in fish and waterfowl. Contamination of groundwater usually occurs as the result of the leaching of ions from soils or the leakage of chemicals from waste-management facilities. *See* Helmut Meuser, *Contaminated Urban Soils* (Springer Sciences 2010) at 39; *see also* Richard S. Ogle et al., *Bioaccumulation of Selenium in Aquatic Ecosystems*, 4 *Lake and Reservoir Management* 2 (1988).

e. Air Quality Impacts

The PEIS must evaluate the impacts of coal leasing on local and regional air quality. BLM's own regulations require that the agency manage federal lands according to federal and state air quality standards.²⁵ The Mineral Leasing Act also mandates that the agency insert in each coal lease provisions that require compliance with the Clean Air Act (as well as the Clean Water Act). 30 U.S.C. § 201. The PEIS should include a discussion of current local and regional air quality conditions and modeling of future compliance under various leasing scenarios. Pollutants which require specific attention include PM10 and PM2.5, as well as NOx and ozone.

In a related issue, the PEIS should disclose and discuss Air Quality Related Values (AQRVs) as established by land managers. Although AQRVs lack the legal force of criteria pollutant

²⁵ *See* 43 C.F.R. § 2920.7(b)(3) (requiring that BLM “land use authorizations shall contain terms and conditions which shall . . . [r]equire compliance with *air . . . quality standards* established pursuant to applicable Federal or State law”) (emphasis added); *see also* 43 U.S.C. § 1712(c)(8) (“In the development and revision of land use plans, the Secretary shall . . . provide for compliance with applicable pollution control laws, including State and Federal air, water, noise, or other pollution standards or implementation plans.”).

emission limits, for example, they are not without legal significance. The PEIS should provide discussion and analysis of AQRVs and how they factor in the air quality permitting process for federal coal leases.

f. Coal Transportation Impacts

Downstream impacts on air quality must also be considered. For example, trains used to transport federal coal run on fossil fuels – in particular diesel – which produce a variety of air pollutants, including nitrogen oxide, soot, sulfur dioxide²², and carcinogens. In 2006, U.S. diesel trains released approximately a million tons of ozone forming oxides of nitrogen and 32,000 tons of PM_{2.5}, causing 3,400 deaths and 290,000 lost work days. Hein and Howard at A4. Assuming that 40% of U.S. trains are freight and 40% of freight is coal, one study estimated the approximate cost of air pollution from U.S. coal transport to be \$4 per ton of coal in 2015 USD. *Id.* at A13.

Coal trains also emit dust from the exposed coal in the train cars. Even with surfactant sprayed over coal train cars, over 100 pounds of coal dust per train car, or about 12,500 pounds per train, blows off the trains as they move from the mines to their final destination. *See, e.g.,* Ashley Ahearn, What Coal Train Dust Means for Human Health, Earthfix, June 21, 2016, available at <http://www.opb.org/news/article/coal-dust-a-closer-look/>. Over 160 doctors in Washington expressed public health concerns about increased coal train traffic, and resulting air pollution from diesel emissions and coal dust. *See* Whatcom Docs, Position Statement on the Proposed Cherry Point Coal Terminal, available at <http://www.coaltrainfacts.org/whatcom-docs-position-statement-and-appendices>.

Rail transportation also poses risks to public health due to accidents, noise and congestion. Transportation of federal coal can also burden traffic patterns in towns with rail lines, causing impacts to emergency services and daily commuting. If communities wish to avoid these impacts, they must invest in expensive infrastructure projects, such as bypasses and overpasses.

Increased coal train traffic can also displace other rail users, such as agricultural freight trains, leading to impacts for those economic sectors. Limited rail capacity means that freight, agricultural shippers, and passenger trains, risk delays and higher rates as they are bumped by coal, which often takes priority on the tracks. *See, e.g.,* Terry Whiteside, *et al., Heavy Traffic Ahead and Heavy Traffic Still Ahead*, available at www.heavytrafficahead.org. Timely deliveries are particularly important with agricultural products. At least one significant agricultural business has been closed in recent years due to being pushed off the rails by coal train traffic. *See* Steve Wilhelm, *Coal Trains Kill Cold Trains: Fruit delivery service shuts down as rail congestion heats up*, Puget Sound Business Journal, Aug. 8, 2014, available at <http://www.bizjournals.com/seattle/news/2014/08/07/coal-trains-kill-cold-trains-fruit-delivery.html>.

All of these impacts should be considered cumulatively across all federal coal leasing, and the PEIS should guide how they will be considered in site-specific EISs.

g. Habitat and Wildlife Impacts

Coal mining – and particularly mining in the context of inadequate reclamation – also can have severe adverse impacts on habitats, wildlife, and ecosystems. The PEIS must provide a cumulative impacts analysis of these issues, and also provide guidance on how they should be addressed further in site-specific reviews.

For instance, the PEIS should disclose wildlife population trends in coal mining regions and generally discuss impacts to population and habitat as a result of coal leasing and mining activity.

Among the mining activities that impact wildlife and plant species, and must be examined in the PEIS, are: (a) exhaust from heavy equipment and transport vehicles, which contain sulfur dioxide, nitrous oxide, and lead; and (b) exposure of ores and rocks, which causes surface water contamination from increased sediment loads and the leaching of toxic elements, leading to decreases in aquatic oxygen content and light penetration, reductions in growth of aquatic plants, and consequent mortality of fish and other aquatic species dependent on those plants.

Undermined Promise II at 25. As explained in *Undermined Promise II* (at 24):

Wildlife is affected by coal mining in a variety of ways. Construction and mining activities cause direct wildlife mortalities in addition to the disturbance and displacement of wildlife populations. Direct mortalities from mining activities occur primarily as the result of interactions between wildlife species and mining equipment, increased traffic and other development. Reptiles, amphibians and small mammals are generally not mobile enough to avoid mining equipment. Mortalities of birds are caused by collisions with electrical transmission lines and other mine support structures while fish mortalities result from the rerouting of streams or the activity from heavy construction near stream channels.

Because mined areas are also susceptible to non-native plants and weeds, the PEIS should also examine these habitat impacts. *Id.* at 28.

The PEIS must also address brush lands protection. Brush lands are very difficult to reestablish, and very little acreage of brush lands has been reclaimed at western coal mines. Schuman, Richmond, and Neuman, *Sagebrush Establishment on Mined Lands: Ecology and Research*, 2000.²⁶ Lack of brush land reclamation has adverse impacts to brush-dependent wildlife species, including the Greater Sage-grouse and mule deer, and an overall reduction in sagebrush results in a long term reduction of habitat for some species.

²⁶ This paper was a compilation of proceedings at a workshop held by OSMRE in 2000. The paper is available at: <http://www.osmre.gov/resources/library/proceedings/Sagebrush.pdf>

h. Subsidence

While the majority of federal coal is developed from large surface mines, federal coal is also mined underground. Underground mining creates different impacts, including first and foremost subsidence of surface lands after mining occurs. These cracks can pose a safety hazard to surface users, from small cracks that can break the legs of horses, cattle, and wildlife that step into them, to larger cracks that can render surface lands uncrossable for some distance. Some ranchers in Montana have measured subsidence cracks that are up to 15 feet wide. These issues can be compounded when cracking occurs on steep slopes, which increases the risk of slope failure, rockfalls, and landslides. In addition, subsidence cracks can damage springs and streams, draining surface water resources that are beneficial to agriculture and wildlife. The PEIS should analyze subsidence problems on previously leased acreage and disclose impacts.

i. Direct Impacts Associated With Climate Change

Finally, the PEIS must examine the impacts from climate change to the ecosystems in which federal coal leasing occurs. Secretarial Order No. 3226 recognizes BLM's responsibility to identify changes that may result from climate change and directs bureaus to "consider and analyze potential climate change impacts" in "long range planning" and/or when making "major decisions affecting DOI resources."²⁷

From 2003 to 2007, the 11 western states warmed 70% more than the rest of the world as a whole. Nowhere is this impact felt more than in water supplies — the warming has led to decreases in snowpack, reduced snowfall, shifts in precipitation from snow to rain, earlier snowmelt, increased peak spring flows, and decreased summer flows. These dynamics are also making the West increasingly vulnerable to future wildfires, which are weighing more and more on federal, state and local budgets in mountain communities and towns across the West. For example,

- Climate models based on a 2.4C warming show a 17% reduction in runoff in the Colorado River Basin, which leads to a 40% reduction in basin storage.
- The Sierra Nevada Range in California may experience a 99% loss of its April 1st baseline snowpack, and other western mountain ranges will suffer reduced late-season snowpacks by the end of the century.

²⁷ This order was replaced by Secretarial Order No. 3289, Amendment No. 1, Feb. 22, 2010. However, the text of the relevant portion is unchanged and the new order specifically recognizes that that portion of Order No. 3226 remains in effect.

See Paying The Costs of Climate Change: How Closing Coal Loopholes Can Supply Western Communities With Much-Needed Revenue To Fight Wildfires, Prepare For Droughts, and Adapt To A Changing Climate (Mountain Pact 2015) at 2.

Climate change can increase the vulnerability of resources and ecosystems, making them more susceptible to environmental damage. For example, a proposed coal lease might require water from a stream that has diminishing quantities of available water because of decreased snow pack in the mountains. The PEIS should evaluate these impacts and provide direction for their consideration in site-specific EISs.

3. Alternatives To Address Direct Environmental Impacts

Once the PEIS properly characterizes the impacts of coal leasing in the areas where it occurs, BLM should consider and present an analysis of alternatives that will address those impacts, including:

a. New leasing framework

As noted, the Powder River Basin was “decertified” as a coal production region in 1990, and all other coal regions have been likewise “decertified.” This decision turned leasing into a non-competitive framework through the “Lease by Application” process. Rather than a process in which BLM acts proactively and leads decision making with respect to federal coal mining, mining companies apply for parcels to be leased and BLM responds to such applications. Under the Mineral Leasing Act regulatory framework, the “Lease by Application” (LBA) process was an exception to the rule of competitive, BLM-driven leasing, but it has now become the norm.

As a policy matter, the current company-driven LBA system must be replaced with a new national programmatic approach and this PEIS analysis should commence that work. A new leasing framework should be presented and fully analyzed that provides a basis to determine when, where, and how much federal coal, if any, might be considered for lease in leasing plans. The alternatives analysis of leasing plans should specify the amount, timing, and location of potential leasing activity, if any, that the Secretary of the Interior determines will best meet national energy needs, achieve GHG emission reduction targets, protect other uses and resources, and ensure a fair return to taxpayers over a five year period.

A useful model for this analysis and for *when* to lease can be found in the outer continental shelf (OCS) leasing framework. *See* 43 U.S.C. § 1344. That program consists of a national schedule of proposed lease sales indicating the size, timing and location of leasing activity that best meets national energy needs for the five-year period following plan approval. The plans also dictate tailored leasing strategies instead of defaulting to industry proposals as done with the current LBA approach BLM follows. A PEIS is completed for the five-year leasing schedule to gather public input and ensure proper environmental analysis and mitigation. The five-year lease schedule, which is reviewed by the Secretary annually, examines environmental and socio-economic considerations, landscape-scale approaches to mitigation, national energy markets and needs, production substitutes for the energy resources, and assurances for fair market value.

A useful model for this analysis and for *where* to lease can be found in the Western Solar Program, where BLM prepared a PEIS to identify the preferred locations for development and excluded development from high conflict and/or low potential areas. That PEIS also set out required design features to be incorporated where development is permitted, and a commitment to mitigating impacts that could not be adequately avoided or minimized. Parameters to guide the management of solar resources were also shaped by a robust economic and technical analysis, further ensuring that leasing contemplation would be in balance with market conditions.

BLM should also analyze what the elimination or retention of the Coal Teams would mean in terms of environmental impacts. The Coal Teams, while advisory in nature, have had substantial power in determining whether lease applications should move forward. Members of the Coal Teams, notably Governors of coal-dependent states, have inherent conflicts of interest, making them unable to balance the desire for more leasing and revenue from leasing with other considerations.

Under any approach, BLM must also incorporate expanded unsuitability criteria, including protecting environmentally sensitive areas and areas that may be suitable for renewable energy development. Through this new leasing framework, regardless of whether it follows the OCS approach, BLM can protect local environmental conditions by making affirmative decisions about whether, where, and under what conditions mining may occur.

b. Adequate bonding

While BLM regulations require that operators be adequately bonded to fund eventual reclamation activities, *see* 43 C.F.R. Part 3474, as noted, BLM does not independently evaluate the sufficiency of bonding and leaves such analysis for post-leasing permitting from state environmental agencies and OSMRE.

While determination of the amount and type of reclamation bonding may ultimately come from another agency, as part of its leasing decision, BLM should consider the current bonding status of a mine. As discussed above, one of the bonding methods often allowed is “self-bonding,” which poses the risk of making taxpayers subsidize reclamation obligations should a company financially fail. *See, e.g.,* Patrick Rucker, *Arch Coal asks U.S. Bankruptcy Court To Ease Its Cleanup*, Reuters, Jan 11, 2016 (reporting that the company asked the Judge to set aside 75 million for cleanup that is estimated to cost more than \$450 million).

To address this concern, under this alternative BLM should consider no longer awarding leases to any company that is self-bonded, regardless of the current financial condition of the company. BLM has this discretion – irrespective of federal and state reclamation bonding requirements – to ensure leasing is in the public interest.

BLM should also consider raising its own bond amounts, to insure adequate coverage of bonus bids, royalties, and other payments. This is especially important given the risk of frequently idled

mines and current trends of mines laying off workers and decreasing production. In today's market conditions, no mine is "too big to fail" and BLM must insure protection of taxpayers.

c. Requiring bond release for previously mined lands

Under this alternative BLM would consider management options for new leases – or modification or renewal of existing leases – that incorporate bond release requirements. For example, BLM might require that a company may not obtain a new or modified lease until at least 50% of its current leased acreage has been released from bond. BLM might also not permit additional leasing for mines where reclamation has not been completed after waiting for the required 10 year period, meaning reclamation at that site cannot be demonstrated. *Undermined Promise II* at 42. These requirements should be accompanied with measurable and enforceable objectives to ensure contemporaneous reclamation standards are met.

While reclamation of mining operations is regulated by OSMRE under SMCRA, BLM can also play a role in helping to meet SMCRA's commitment to ensure coal mines are reclaimed in a complete and timely fashion that restores disturbed land, water and habitat features to their pre-mining integrity and productivity. This is especially important in the context of acreage of federal surface lands, including National Grasslands, occupied by mines, as BLM has a regulatory obligation to meet a "multiple use" mandate for federal lands and prevent "undue and unnecessary degradation of the lands." 43 U.S.C. §§ 1701(a)(7), 1732(b).

d. Facilitating reclamation

As noted, NEPA requires agencies to consider appropriate mitigation measures, which include "[r]ectifying the impact by repairing, rehabilitating, or restoring the affected environment," "[r]educing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and/or "[c]ompensating for the impact by replacing or providing substitute resources or environments. 40 C.F.R. § 1508.20.

Certain mining sites are more difficult to successfully remediate, and a tract's design is critical to facilitating successful remediation. To fulfill mitigation requirements under NEPA and other statutes, under this alternative BLM would consider establishing additional unsuitability criteria focused on insuring that remediation can be adequately completed, and additional design criteria to ensure that tract design best aligns with remediation objectives.

BLM would also consider subjecting lease tract design to public comment, including from neighboring landowners, allowing the public the opportunity to weigh in on whether lease design could be improved to ensure reclamation timeliness and success.

e. Avoiding environmental conflicts

Although, as noted, BLM's regulations specify some areas as unsuitable for mining, 43 C.F.R. § 3461.5, under this alternative BLM would more expansively identify specific areas where coal development should be avoided due to high conflicts with wildlife and fisheries, water, air and

protected lands, and set a schedule for amending Resource Management Plans to exclude them from future leasing.

f. Restricting leasing eligibility

The Department of the Interior has significant discretion to reject a coal lease if, based on the Secretary's assessment, it is not in the "public interest." 30 U.S.C. § 201(a)(1) (authorizing coal leasing by the Secretary for lease tracts "he finds appropriate and in the public interest."). BLM's rules require that, "[a]n application for a lease shall be rejected in total or in part if the authorized officer determines that ... leasing of the lands covered by the application, for environmental or other sufficient reasons, would be contrary to the public interest." 43 CFR § 3425.1-8. This provision is distinct from the screens BLM must apply to identify lands that are unsuitable or unacceptable for coal development, and is also distinct from BLM's requirements to obtain "fair market value" for a lease.

Under this alternative BLM would establish additional criteria for determining the fitness of a coal operator as a buyer to ensure leasing is in "the public interest." One principal restriction would be that an operator cannot obtain a new or modified lease where it owns a current mine – or combination of mines – that has more than 10 years of reserves. According to GAO, "[o]fficials from coal companies told us they typically submit new applications for federal coal leases to maintain a 10-year coal supply at their existing mining operations." Yet, BLM documents suggest that mines with pending lease applications in Wyoming have from 10.6 – 19 years of remaining recoverable reserves, based on the most recent annual production numbers available and, until BLM's rejection of the West Jacobs Ranch LBA, the agency continued to make coal available for lease whenever coal companies apply. BLM must consider a reserve limit to ensure leasing is in the public interest.

Other criteria would preclude any new leases to any company that is out-of-compliance with SMCRA, Clean Water Act, Clean Air Act, or any other environmental requirements at any mine site they operate, particularly in regards to their reclamation and contemporaneous reclamation requirements. BLM should also assess whether the buying company has any history of environmental violations related to reclaiming current or past mines at any of its facilities.

Finally, eligibility requirements might include whether the company is operating an existing and viable coal facility, whether the company is financially healthy, and whether the operator is being diligent in developing existing leases.

C. The Economics Of Federal Coal Leasing

1. Competition, Fair Market Value, And Fair Return Issues

The final major impact issue that must be addressed in the PEIS is restructuring the lease payment system to more accurately compensate the American taxpayer for the value – and cost – of the coal resources being leased.

While it can be accomplished in several ways, as discussed below, in our view the most important element to be added to these payments is incorporating environmental harms caused by the full life-cycle of the GHG emissions associated with leasing. By taking those costs into account, along with other changes, the PEIS provides an opportunity to explore appropriate reforms in the leasing system.

a. Minimum Bid And Rental Issues

As noted, many concerns have been raised about whether BLM is obtaining accurate FMV in leasing federal coal.²⁸ Although BLM endeavors to determine FMV, numerous reports have demonstrated that the fact that there is often only one bidder for a lease, along with other limiting factors, result in billions of dollars in losses to taxpayers. See, e.g., Tom Sanzillo, *The Great Giveaway: An analysis of the costly failure of federal coal leasing in the Powder River Basin* at 9 (stating the U.S. Treasury has lost roughly \$28.9 billion in revenue from coal leasing below FMV).

BLM has a statutory mandate to “award leases [through] *competitive bidding*.” 30 U.S.C. § 201 (emphasis added). The regulatory framework must be modified to achieve this statutory directive.

b. Royalty Rate Issues

As noted, there are several problems with the current royalty rate structure that must be addressed in the PEIS to provide taxpayers with a fair return and to address the economic externalities of federal coal leasing. The PEIS must also explore eliminating the royalty rate reductions, and deductions for transportation and coal washing, that has even further reduced the return on federal coal leases.

As discussed above, royalties may be the most appropriate place to couple leasing prices to the social cost of carbon, since an operator only pays royalties for the coal extracted. As the recent *White House Report* explained, “royalty reform [can] provide a fair return to taxpayers while simultaneously reducing the environmental effects of coal extraction and combustion.” *White House Report* at 3.

Because the environmental and social externalities from coal production vary with the amount of coal produced, one sensible approach would be to recoup those costs through royalties that cover: (1) the cost of production-related environmental externalities; (2) the cost of transportation-related externalities, including CO₂ emissions; (3) uncompensated infrastructure demand (e.g., water, power, processing facilities); and (4) any foreseeable “waste” of the

²⁸ BLM determines FMV with one of two methods: the comparable sales approach (in which sale prices from similar properties in prior transactions are used to determine value) and the income approach (in which an estimate of annual costs and revenues is used to determine value).

resource, such as vented or flared methane associated with coal production. *See* Hein and Howard at 20.

2. Alternatives To Address Fair Return For American Taxpayers

The alternatives necessary to address fair return overlap with those considered to address climate change impacts, since – particularly in the context of a royalty “adder” – the fees collected will principally compensate the taxpayer for the climate change impact associated with the coal produced. However, additional alternatives to consider include:

a. Basing lease sales on actual FMV

As noted, numerous investigations have documented how BLM fails to obtain FMV for coal leases or otherwise collect coal leasing income commensurate with the value of the coal and its myriad externality costs. Leases with a single bidder, market manipulations, unreasonable deductions, royalty and rent reductions, and other factors have led hundreds of millions, or more, in lost income. For example, one Report found that, had coal valuation actually been based on market value, the royalty collections for just the five year period from 2008 – 2012 would have been \$850 million higher, an average of \$170 million per year.

Under this alternative, to address this concern BLM would make fair return a threshold criterion for when and whether to offer new leases and accept bids. New leases would be offered only when FMV can be achieved and royalty and rent reduction are not required to make the lease economical or commercially viable. Leasing would also only be permitted when the federal coal brought to market will not reduce the price of coal on the national market, will not contribute to overproduction, and will not lead to resource hoarding or speculation. Approaches to consider include:

- Establishing minimum bids for each coal region that take into account regional economic, geologic and engineering variables, and assessing the projected income from each individual lease to be offered based on unique variables.
- Raising the minimum bid to \$1 per ton, the average market price of coal during the Obama Administration.²⁹
- Considering the market value for coal based on sale prices of coal with similar characteristics, from both Federal lands and non-Federal lands. *White House Report* at 18. Where it is difficult to find such comparative prices, prices could alternatively be calculated on an energy-equivalent basis to reflect the fact that the heat rate of the coal is a determinant of its value in the coal power plant. Pricing this way would permit

²⁹ Nidhi Thakar, *Modernizing the Federal Coal Program*, Center for American Progress 5 (December 9, 2014), available at <https://cdn.americanprogress.org/wp-content/uploads/2014/12/FederalCoal.pdf>.

comparisons to the payments collected from Federal leases for natural gas and oil on public lands.³⁰

- Creating an inter-lease bidding process in which BLM makes multiple sites available for bidding simultaneously, and then subsequently decides which bids to accept based on site location and the amounts bid.
- Incorporating “option value” into the bid amounts – *i.e.*, the informational value of delay associated with federal leasing. As the D.C. Circuit recently explained in considering option value in another context, “[t]here is therefore a tangible present economic benefit to delaying the decision to drill for fossil fuels to preserve the opportunity to see what new technologies develop and what new information comes to light.” *Center for Sustainable Economy v. Jewell*, 779 F.3d 588 (D.C. Cir. 2015).

As outlined in Hein and Howard, under this approach, at the bidding stage, BLM would be compensated for both the estimated market price of the coal to be leased, as well as the option value of mining coal, as both of these are fixed costs.

The option value of coal leasing includes not only the uncertainties associated with future coal prices, but numerous other factors about which BLM may obtain additional information. As outlined by Hein and Howard, these include:

- uncertainty about the magnitude of risk from externalities, such as methane emissions, particulate matter emissions, and potential aquifer overdraft; as a

³⁰ As the recent *White House Report* on these issues explains:

After adjusting for the heat content of coal, the royalty rate being paid by surface PRB coal is roughly one third of the royalty rate paid for natural gas on Federal lands (on an energy-equivalent basis), even though they are both subject to a 12.5 percent royalty rate on their respective reported sales prices (before deductions). It could be appropriate to adjust the royalty rate directly to reflect an adjustment for heat content, or to include a Btu-adjusted royalty “adder” on top of the base royalty rate. In other words, the royalty owed would be 12.5 percent of the revenues plus an additional payment in dollars per Btu. Similar adjustments would be possible for sulfur content and other characteristics, but the heat content adjustment is likely to be among the most important.

White House Report at 19; *see also id.* at 4 (“If royalty payments are based on the price of nearby regional coal on a per-Btu basis, after it is fully phased-in, this would add up to \$290 million more to State and Federal coffers annually. Maximizing royalty payments would bring in as much as \$3 billion more to State and Federal coffers annually once fully phased-in”).

recent example, methane leakage from natural gas gathering facilities was recently found to be 8 times higher than prior EPA estimates;

- uncertainty about the development rate of pollution-prevention technologies, as well as technologies that may better protect worker safety;
- uncertainty with respect to the cost of externalities, including the social cost of carbon and the social cost of methane;
- uncertainty about competing uses of federally-owned lands, such as the potential and need for renewable energy siting;
- uncertainty with respect to coal reserve estimates, which may affect the long-term availability and price of accessible coal; and
- uncertainty with respect to climate sensitivities, such as climate conditions that may exacerbate the damaging effects of air or water pollution, or consequences for land values near production sites

Hein and Howard at 18.

b. Setting royalties based on price comparisons

Under this alternative royalty payments would be based on nearby regional coal prices, nationwide coal prices, and the price of natural gas, which is a close substitute for coal in the electricity market. All three prices would be expressed in terms of dollars per one million British Thermal Units (MMBtu) to account for differences in heat rates of different types of coal (and natural gas). *See White House Report at 3.*

c. Setting royalties to maximize revenue

Under BLM's current scheme the agency charges low royalty rates, and then further reduces royalties as necessary to encourage development. *See, e.g.* 43 C.F.R. § 3485.2(c)(1) ("The authorized officer may waive, suspend, or reduce the rental on a Federal lease, or reduce the Federal royalty," where doing so serves "the purpose of encouraging the greatest ultimate recovery of Federal coal . . ."). This approach served an earlier era where the agency's objective was to maximize the production of federal coal as an energy source.

As the foregoing discussion of climate change impacts demonstrates, this should no longer be an aim of BLM's approach to federal coal leasing. To the contrary, royalty rates should be used to both generate maximum income and help align coal development with GHG emissions reduction goals.

Accordingly, under this alternative BLM would explore the maximum royalty rates it could charge in order to obtain the most revenue for taxpayers, and consider the extent to which those

rates would reduce GHG emissions. It would also consider eliminating royalty rate reductions. Given that there may be a royalty rate too high to attract coal companies, the rates charged under this alternative are likely to differ from the rates that would apply by simply incorporating all GHG externality costs into a royalty adder.

d. Increasing leasing transparency and public disclosure

As noted, multiple reviews over the years have shown BLM officials leasing federal coal for less than FMV, improperly reducing royalties, and otherwise allowing access to federal coal without full return to taxpayers. Among the structural flaws that allow these problems to occur is the secrecy surrounding these decisions.

BLM should amend its regulations to provide for transparency and public disclosure throughout the leasing process. This would include determining FMV, the bid process itself, and the establishment of rent and royalty rates. By forcing BLM officials to “show their work,” the public will be in a position to both monitor BLM decision-making and insure that the public receives a fair return for coal resources.

e. Changing lease terms

Under this alternative, BLM would consider changing lease terms to control the amount of coal produced, by putting annual coal production limits in coal leasing contracts. Like the Carbon Budget alternative, this would allow BLM to control the upper limit of federally leased coal, and therefore to begin to address the GHG emissions associated with the federally leased coal fuel cycle.

BLM would also consider incorporating into coal leases the authority to adjust rental and royalty fees over time, particularly if leases are going to continue to be given for decades-long periods. Providing additional flexibility in pricing would allow BLM to insure that coal leases continue to advance national objectives in the future based on new information that might not be available at the time of the original lease.

D. Other Issues And Alternatives

1. Coal exports

With domestic demand for coal shrinking because of aging coal plants, concerns about air pollution and the global climate, and low natural gas prices, the coal industry is eyeing Asian power markets as a way to dramatically boost their bottom lines. The very companies that BLM is selling our coal to – Peabody, Arch, and Cloud Peak – are developing export terminals with the intent to export more and more federal coal to U.S. competitors like China and India.

The EIS should disclose impacts associated with exporting federal coal. This includes increased rail traffic and corresponding traffic congestion impacts (with associated costs to local communities), the necessary building of port facilities, and the corresponding impacts those

facilities create. The BLM should also assess the financial impacts of coal exports, including increases in energy costs for domestic consumers and depletion of strategic federal energy reserves.

The PEIS should also consider the environmental and socio-economic impacts that come with exporting federal coal. For example, exporting millions of tons of coal from the Powder River Basin, or even a small fraction of that amount, would necessitate massive export infrastructure – such as ports in Washington and Oregon if destined for Asian markets. Those impacts, which have never been incorporated or analyzed by the BLM, must be examined in the PEIS. *See* letters from Washington and Oregon (raising these concerns).

In addition, the dozens of coal trains needed to haul federal coal from federally supplied mines to ports would have dramatic and costly impacts on local traffic and infrastructure. The cost to communities in mitigating those coal trains congestion and public safety impacts easily adds up to hundreds of millions.

The GAO report *"Freight Transportation: Developing National Strategy Would Benefit from Added Focus on Community Congestion Impacts,"* (September 2014) found that freight related traffic congestion in communities resulted in delays and congested road conditions for passenger and emergency response vehicles. Addressing those problems is costly and federal funding that is currently allocated for state and local transportation agencies does not align with those needs. Communities are left on their own to foot the bill for costly rail congestion related infrastructure. (See attachments).

Coal trains hauling export coal also put other commodity shippers and passenger rail at a competitive disadvantage as detailed in Heavy Traffic Still Ahead (attachments). In terms of alternatives, the principal alternative to be considered here is whether BLM should ban or otherwise dis-incentivize the export of federally leased coal.

The PEIS should also consider whether allowing coal development for export is consistent with BLM's often stated objective to sell federal coal to private companies "to meet the nation's energy needs."³¹ Allowing leasing for export contradicts this purpose and need, by sending our domestic energy supply overseas.

2. The "no action" alternative

The EIS must consider a "no action alternative," 40 C.F.R. §1502.14(d), whereby BLM would make no changes to the coal leasing regulatory framework. In the PEIS, the agency should detail each of the problems that would remain should the agency choose this approach, including:

³¹ *See* Final Environmental Statement for the Wright Area Coal Lease Applications at 1-17; *see also* Record of Decision for the North Porcupine Coal Lease Application at 10 (stating the federal coal program "provides a reliable, continuous supply of stable and affordable energy for consumers throughout the country" and helps to "reduce our nation's dependence on foreign energy supplies").

- The conflict between federal coal leasing and the Nation's GHG emission reduction goals;
- The direct environmental harms caused by coal mining on federal lands, and the failure of current reclamation standards to protect against those harms;
- BLM's failure to obtain FMV for coal resources or to otherwise obtain a full return for taxpayers; and
- The conflicts between the current regulatory scheme and domestic energy security.

PART FOUR: POTENTIAL CONSOLIDATED ALTERNATIVES FOR REVIEW IN THE PEIS

While the foregoing illustrates many of the alternatives BLM should analyze and consider in the PEIS, we recognize that BLM is likely to choose only a small subset of consolidated alternatives to carry forward for further consideration. We here offer some initial thoughts on how BLM might approach those alternatives. We do not intend this to be a comprehensive list, or to advocate for any particular alternative at this early stage, but intend these consolidated alternatives to simply aid BLM's thinking in how to address alternatives as the process moves forward. And in any case, all of these alternative analytical scenarios must include and be based on a PEIS that has clearly set forth the environmental impacts; the adverse environmental effects which cannot be avoided should the proposal be implemented; a sharply defined set of comparative alternatives; the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity; and any irreversible and irretrievable commitments of resources should the proposed alternative be implemented. *See* 42 U.S.C. § 4322.

A. The 21st Century Coal Alternative

This alternative would contain a combination of the reforms BLM determines will best achieve the goals of reducing GHG emissions, protecting the environment, and maximizing returns for American taxpayers. We anticipate that under this alternative BLM would determine to implement a new leasing framework whereby coal would be leased, solely for domestic use, at appropriate prices and times, from appropriate places, on appropriate terms, and in a manner that insures a complete (or almost complete) accounting for GHG emissions through adder or royalty fees, or other mitigation or offset measures, and only to companies with a demonstrated ability to achieve maximum mitigation and reclamation.

The discussion of impacts under this alternative would demonstrate that it has the least detrimental environmental impacts, maximizes revenue, and poses the least risks to domestic energy security.

B. The Taxpayer Return Alternative

This alternative would seek to maximize returns for the public by structuring bonus, rental and royalty rates to provide the highest possible returns to taxpayers over the long term – *i.e.*, a

century or more. Because coal prices are currently low relative to other energy sources, this approach may result in a marked reduction in federal coal leasing in the short term. *See, e.g. Coal: Survival of the Fittest* (Citibank May 27, 2015) (discussing anticipated continuing low coal prices). However, BLM would consider whether by requiring higher prices, the agency could achieve a greater return in the long term, while providing greater GHG reductions and environmental protection in the coming decades.

C. The Climate Change Focused Alternative

This alternative would focus principally on the GHG emissions aspects of coal leasing, presumably advocating for highly restricted – or no – leasing to best align with GHG emissions reduction goals. Because there would be far fewer leases for which the agency would need to value the coal, engage in enforcement, or insure proper reclamation, a significantly scaled back scope to public lands coal leasing could make other reforms considerably easier.

D. The Land Protection Alternative

This alternative would focus on reclamation, and other non-GHG environmental issues, limiting leasing in areas that pose environmental conflicts and insuring that where leasing occurs, operators follow all environmental protection requirements at every stage, including a guarantee that they complete timely and satisfactory reclamation.

E. The Lease Reform Alternative

This alternative would focus on the coal pricing issues, insuring coal leases are properly valued, including incorporating all externalities, especially GHG contribution. It could also include timing and location restrictions that help drive GHG and/or other environmental goals by reducing coal production.

F. The Domestic Security Alternative

This alternative would focus on whether coal leasing is necessary to insure domestic energy needs, and restrict or forbid leasing for export to protect these resources for the American people, as Congress intended.

IV. CONCLUSION

As we said at the outset, we applaud BLM's effort to address the serious problems with the Nation's existing federal coal leasing framework and believe the Secretarial Order and Scoping Notice go a long way toward identifying the vital issues that must be addressed in the PEIS. We trust that these comments, and supporting materials, provide the agency with the additional information and support necessary to prepare a Draft PEIS that properly identifies the purpose and need for this major federal action, explores reasonable alternatives, and thoroughly explores the environmental impacts associated with these alternatives.

We appreciate the opportunity to comment. If you have any questions or there is any additional information we can provide at this stage, please do not hesitate to contact us.

Sincerely,



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APPENDIX A

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GEOGRAPHIC INFORMATION SYSTEMS (GIS) DATA AND ANALYSES THAT SHOULD BE CONSIDERED IN DEVELOPING THE PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT OVER FEDERAL COAL LEASING

The Natural Resources Defense Council (NRDC), Powder River Basin Resource Council (PRBRC), the Western Organization of Resource Councils (WORC), and Northern Plains Resource Council (Northern Plains) comment that Geographic Information Systems (GIS) data and analysis is a necessary element for BLM to develop its programmatic environmental impact statement on federal coal leasing. Development and publication of comprehensive, validated GIS data sets covering multiple aspects or themes of federal coal leasing, and applying these data sets to environmental impacts analysis for alternatives are integral to the scoping process.

1. BACKGROUND

A geographic information system or GIS is a geographic and quantitative data framework and model with which to analyze, interrogate and understand information in order to comprehend patterns, casual relationships and the implications of decision-making. A fundamental aspect to GIS is the association of a location with an attribute for a given theme –for example, a location could have associated with it attributes of land ownership, endangered species habitat or geology associated with specific Public Land Survey System (PLSS) sections within a township. A GIS analysis examines correlations between attribute data across themes at a given place, and analyzes or models aspects of the geospatial data such as proximity, clustering, networks, and time dependence. GIS data sets may take the form of discrete points combined into geometries such as lines or polygons, also known as “vector” data, and also may take the form of continuous surfaces of data consisting of regular cells, or “raster” data. GIS data collection, data curation, and data analysis, working together as a composite whole, are a core component to government oversight and decision making at the federal, state and local levels.

The geography of federal coal leasing is both spatially vast and highly complex. With respect to the vast area impacted by federal coal leasing, as noted in the body of these comments, federal coal reserves are located on approximately 570 million acres, with current production focused on the geologic structure known as the Powder River Basin, comprised of approximately 12.5 million acres. In total, the Bureau of Land Management (BLM) administers over 300 coal leases covering more than 480,000 acres. Federal ownership of these lands adds to the complexity of the geography by the addition of federal requirements to protect water, air, and other natural resources, as well as the national commitment to combat climate change.

Currently the BLM provides GIS data to stakeholders for individual states (for example, BLM provides hyperlinks to the agency’s GIS data for Wyoming at http://www.blm.gov/wy/st/en/resources/public_room/gis/datagis.html) or for groups of states (for example, BLM provides hyperlinks to the agency’s GIS data for Montana and the Dakotas at

http://www.blm.gov/mt/st/en/res/public_room/gis/data/montana.html). These GIS data typically consist of different downloadable themes describing boundaries and land ownership, cultural and historic data, land use such as energy, minerals and grazing, and wildlife and wilderness quality. However, these GIS data are of widely varying comprehensiveness and quality across BLM-administered lands, and the same data theme will have different GIS data authors and curators across different states, as listed in the GIS dataset's metadata. We believe the PEIS process offers an opportunity to rectify this situation and improve and standardize the GIS data associated with federal coal leasing. We expand on this below.

To support agency decision making under the requirements of NEPA, BLM has also created, analyzed and published GIS data of more consistent accuracy across specific geographical extents. This GIS work includes revisions to Resource Management Plans for specific BLM field offices (for example, the Colorado River Valley at http://www.blm.gov/co/st/en/BLM_Programs/land_use_planning/rmp/kfo-gsfo/crv.html). But more relevant to federal coal are BLM's GIS efforts on specific energy issues including the Solar Energy Development Programmatic Environmental Impact Statement (at <http://solareis.anl.gov/maps/gis/>) and the Geothermal Programmatic Environmental Impact Statement (at http://www.blm.gov/wo/st/en/prog/energy/geothermal/geothermal_nationwide/Documents/GIS_Data.html). Another pertinent example of agency GIS analysis in support of NEPA analysis of energy issues is the Bureau of Ocean Energy Management (BOEM) Development of the Programmatic Environmental Impact Statement for the 2017-2022 Oil and Gas Program (at <http://boemoceaninfo.com/resources/>).

2. RECOMMENDATIONS: GIS DATA

Consistent with CEQ regulations that direct agencies to rely on "high-quality" scientific information in preparing an EIS (40 C.F.R. §§ 1500.1(b); 1502.24 (directing agencies to "insure the professional integrity, including scientific integrity, of the discussions and analyses in environmental impact statements")), BLM must create and validate GIS data in the following categories in order to support environmental impacts analyses for alternatives for federal coal leasing: federal coal leasing and production data; non-federal coal leasing and production data; surface ownership and mineral rights, including split estate; coal geology and resources on federal lands; conservation areas, species habitat and migration routes; groundwater and surface water resources; coal mining site reclamation operations and the current status of past mined sites; coal transportation and end use (for example, coal-fired power plants); and coal employment data and regional market information.

a. Federal coal leasing and production data. Currently, BLM provides geospatial data pertinent to federal coal leasing. However, this data is largely fragmented. Some state BLM offices, particularly Colorado, provide good quality data for federal coal leasing. In other states,

if there is BLM data, it is not easy to use. BLM operates LR2000, a database that contains valuable information regarding coal leases, but it is one that only experts can navigate.

BLM should include a synthesized GIS dataset for all federal coal leasing in the country. Additionally, BLM should create datasets of synthesized geospatial information for each state in which federal coal leasing occurs or is proposed. This will help to ensure that communities are fully aware of the extent of federal coal leasing in their respective regions. Within the scope of a programmatic NEPA analysis, BLM must provide, at minimum, maps of the proposed planning area, and indicate which lands are not suitable for development. This GIS data should also include current and pending leases, existing leases that are not producing, and lease bidders and holders. Other information should include:

- **Surface ownership and mineral rights, including split estate**
- **Coal geology and resources on federal lands**
- **Conservation areas, species habitat and migration routes**
- **Groundwater and surface water resources**
- **Coal mining site reclamation operations and the current status of past mined sites**
- **Coal transportation and end use (for example, coal-fired power plants)**
- **Coal employment data and regional market information**

b. Non-federal coal leasing and production data. In order to understand cumulative impacts and the context of federal coal leasing within the larger, national context of coal extraction, BLM should also provide stakeholders with GIS data on non-federal coal leasing and production.

3. RECOMMENDATIONS: GIS ANALYSIS

To ensure that the PEIS considers a broad range of environmental impacts, it is important to create maps that highlight areas where potential federal coal leasing interferes with other significant land uses. BLM will need to conduct a geospatial analysis for programmatic analysis of federal coal leasing including, but not limited to:

- **Total acreage of federal coal leases for alternatives**
- **Overlap of federal coal leasing with conservation areas and wildlife habitat for alternatives**
- **Federal coal leasing impacts on waterbodies such as streams, rivers, estuaries, lakes, ponds, groundwater and surface water, and subsurface aquifers**
- **Federal coal leasing impacts on nearby populations, and on areas with subsistence and commercial agricultural practices**
- **Geospatial extent and locations of climate change impacts from federal coal leasing alternatives**
- **Cumulative regional environmental impacts of federal coal leasing in combination with other extractive resources such as oil, gas and uranium recovery operations.**

4. RECOMMENDATIONS: STAKEHOLDER ACCESS TO GIS DATA AND ANALYSIS

In order to ensure that the federal coal PEIS process is transparent, BLM must make the geospatial data accessible to all stakeholders and the public.

Data must be available in a repository with downloadable GIS files, suitable for a variety of GIS platforms (for example: the Esri ArcGIS Online and ArcMap platforms, and the Google Earth Keyhole Markup Language platform).

In addition to the GIS data files, BLM should create an online, interactive data viewer so that non-GIS experts and broader communities can understand the extent of federal coal leasing in their respective regions. The data viewer should be interactive so that people can view more specific characteristics of each lease. These specifications should also be linked to the data repository associated with that particular lease.

For example, while the general repository will provide all of the federal coal leasing geospatial data, the interactive data viewer will allow communities to explore the lease characteristics that are most likely to affect them. This will drastically improve community efforts to make the most effective and efficient decisions regarding resource use. An example of an interactive data viewer can be found on the Colorado Division of Reclamation Mining & Safety website (<http://mining.state.co.us/Reports/Pages/GISData.aspx>). A similar data viewer should be compiled for all federal coal leasing to satisfy the broad scope of a programmatic NEPA analysis.

NRDC, PRBRC, WORC, and Northern Plains Comments, Federal Coal Leasing PEIS Scoping

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APPENDIX B

APPENDIX B: LIST OF CITED REFERENCES

- Western Organization of Resource Councils, et al, *Undermined Promise II* (2015)
- Jayni Hein and Peter Howard, Institute for Policy Integrity, *Reconsidering Coal's Fair Market Value* (NYU School of Law 2015)
- Michael Burger and Jessica Wentz, *Downstream and Upstream Greenhouse Gas Emissions: The Proper Scope of NEPA Review* (Columbia Law School Mar. 2016)
- Tom Sanzillo, *The Great Giveaway: An analysis of the costly failure of federal coal leasing in the Powder River Basin*
- P.L. Spath, et al., *Life Cycle Assessment of Coal-fired Power Production* (No. NREL/TP-570-25119). National Renewable Energy Lab., Golden, CO (US) (1999)
- Executive Office of the President, *The Economics of Coal Leasing On Federal Lands: Ensuring A Fair Return To Taxpayers* (2016)
- Headwaters Economics, *An Assessment of U.S. Federal Coal Royalties*, Jan. 2015
- Dustin Mulvaney et al., Center for Biological Diversity and Friends of the Earth, *The Potential Greenhouse Gas Emissions of U.S. Federal Fossil Fuels* (Aug. 2015)
- Paying The Costs of Climate Change: How Closing Coal Loopholes Can Supply Western Communities With Much-Needed Revenue To Fight Wildfires, Prepare For Droughts, and Adapt To A Changing Climate* (Mountain Pact 2015)
- James Stock et al., *Federal Coal Program Reform, the Clean Power Plan, and the Interaction of Upstream and Downstream Climate Policies* (Harvard Kennedy School April 2016)
- Alan Krupnick et al, *Putting a Carbon Charge on Federal Coal: Legal and Economic Issues* (Resources For the Future Mar. 2015)
- An Assessment of U.S. Federal Coal Royalty Structure, Effective Royalty Rates, and Reform Options* (Headwaters 2015)
- CEQ, *Revised Draft Guidance on Consideration of GHG and Effects of Climate Change in NEPA* (79 Fed. Reg. 77,802) (2014)
- GAO, *Coal Leasing: BLM Could Enhance Appraisal Process, More Explicitly Consider Coal Exports, and Provide More Public Information* (GAO 14-140) (Dec. 2013)
- Office of the Inspector General, *Coal Management Program*, U.S. Department of the Interior, Report No.: CR-EV-BLM-0001-2012 (June 2013);

Taxpayers for Common Sense, *Federal Coal Leasing: Fair Market Value and a Fair Return for the American Taxpayer* (Sept. 2013)

Center for American Progress, *Modernizing the Federal Coal Program* (Dec. 2014)

Center for American Progress, *Cutting Subsidies and Closing Loopholes in the U.S. Department of the Interior's Coal Program* (Jan. 6, 2015)

Institute for Policy Integrity, *Harmonizing Preservation and Production* (June 2015)

Institute for Policy Integrity, *Illuminating the Hidden Costs of Coal* (Dec. 2015)

Dept. of Energy, *Life Cycle Greenhouse Gas Perspective on Exporting Liquefied Natural Gas* (May 2014);

Dept. of Energy, Office of Fossil Energy, Freeport LNG Expansion, Docket no. 10-161-Ing, *Final Opinion and Order* (Nov. 14, 2014)

Dept. of Energy, *Addendum to Environmental Review Documents Concerning Exports of Natural Gas* (Aug. 2014)

Dept. of Energy, *Life Cycle Greenhouse Gas Perspective on Exporting LNG* (May 29, 2014)

Helmut Meuser, *Contaminated Urban Soils* (Springer Sciences 2010)

Richard S. Ogle et al., *Bioaccumulation of Selenium in Aquatic Ecosystems*, 4 *Lake and Reservoir Management* 2 (1988).

U.S. Forest Serv., *Final EIS, Federal Coal Lease Modifications* (Aug. 2012)

U.S. Forest Serv., *ROD and EIS, Oil and Gas Leasing Analysis, Fishlake National Forest* (Aug. 2013)

U.S. Dept. of State, *Final Supplemental EIS For the Keystone XL Project § 4.14.3 Appendix U* (Jan. 2014).

Bureau of Land Mgmt., *Final EIS For the Wright Area Coal Lease Applications*, at 4-140 (July 2010)

Bureau of Land Mgmt., *Final Supplemental EIS For the Leasing and Underground Mining Of the Greens Hollow Federal Coal Lease Tract* (Feb. 2015)

Bureau of Land Mgmt., *Final EIS for the Wright Area Coal Lease Applications* (July 2010)

WRI and World Business Council on Sustainable Development, *Greenhouse Gas Protocol* (<http://www.ghgprotocol.org/>)

The Climate Registry, *Oil and Gas Production Protocol* (<http://www.theclimateregistry.org/wpcontent/>)

U.S. Energy Info. Admin., *The National Energy Modeling System: An Overview* (2009)

Dep't of Energy, *New Tool Yields Custom Environmental Data for Lifecycle Analysis* (Sept. 10, 2012) (<http://energy.gov/fe/articles/new-tool-yields-custom-environmental-data-lifecycle-analysis>)

Argonne Natl. Lab, *Greet Model* (<https://greet.es.anl.gov>)

Stanford School of Earth, Energy & Env'tl. Sciences, *OPGEE: The Oil Production Greenhouse Gas Emissions Estimator* (<https://pangea.stanford.edu/researchgroups/eao/research/opgee-oil-production-greenhouse-gas-emissions-estimator>)

Deloitte Marketplace LLC, *Natural Gas Models* (<https://www.deloittemarketpoint.com/industries/natural-gas/worldgas-Model>)

Paulina Jaramillo *et al.*, *Comparative Life-Cycle Air Emissions of Coal, Domestic Natural Gas, LNG, and SNG for Electricity Generation*, 41 *Environ. Sci. Technol.* 6290 (2007)

“*Freight Transportation: Developing National Strategy Would Benefit from Added Focus on Community Congestion Impacts*” (GAO, Sept. 2014)

Andrew Burnham *et al.*, *Life-Cycle Greenhouse Gas Emissions of Shale Gas, Natural Gas, Coal, and Petroleum*, 46(2) *Environ. Sci. Technol.* 619 (2012)

Richard K. Lattanzio, CRS, *Life-Cycle GHG Assessment of Coal and Natural Gas in the Power Sector* (June 26, 2015)

U.S. Dept. of Energy, National Energy Technology Laboratory, *Life Cycle Analysis of Natural Gas Extraction and Power Generation*, May 29, 2014

U.S. Dept. of Energy, National Energy Technology Laboratory, *Life Cycle GHG Perspective on Exporting LNG* (May 29, 2014)

Leslie S. Abrahams *et al.*, *Life Cycle Greenhouse Gas Emissions from U.S. Liquefied Natural Gas Exports: Implications for End Uses*, 49 *Env'tl. Science and Technology* 3237 (2014)

Mohan Jiang *et al.*, *Life Cycle Greenhouse Gas Emissions of Marcellus Shale Gas*, 6(3) *Env. Rsch. Letters* 034014 (2011)

James Bradbury, *et al.*, WRI, *Clearing the Air: Reducing Upstream GHG Emissions from U.S. Natural Gas Systems* (2013)

Christopher L. Weber & Christopher Clavin, *Life Cycle Carbon Footprint of Shale Gas: Review of Evidence and Implications*, 46(11) Environ. Sci. Technol. 5688 (2012)

Daniel Zavala-Araiza *et al.*, *Reconciling Divergent Estimates of Oil and Gas Methane Emissions*, PNAS Early Edition DOI 10.1073 (Nov. 2015),

Paul R. Epstein *et al.*, *Full Cost Accounting for the Life Cycle of Coal*, 1219 Ecological Econ. Review 73 (2011)

Greenpeace, *Leasing Coal, Fueling Climate Change* (2014)

U.S. EIA, *Today in Energy: Clean Power Plan reduces projected coal production in all major U.S. supply regions* (July 8, 2016) (available at <http://www.eia.gov/todayinenergy/detail.cfm?id=26992>)

Can Coal Companies Afford To Cleanup Coal Country?, Washington Post, Apr. 1, 2016

Nidhi Thakar, *Modernizing the Federal Coal Program*, Center for American Progress 5 (December 9, 2014), available at <https://cdn.americanprogress.org/wp-content/uploads/2014/12/FederalCoal.pdf> .

Patrick Rucker, *Arch Coal asks U.S. Bankruptcy Court To Ease Its Cleanup*, Reuters, Jan 11, 2016