

March 20, 2008

BLM Oil Shale and Tar Sands Draft Programmatic EIS
Argonne National Laboratory
9700 S. Cass Avenue
Argonne, IL 60439

Re: Oil Shale and Tar Sands Resources Programmatic EIS

Dear Reviewers:

On behalf of the undersigned organizations and business, we are submitting the following comments on the Bureau of Land Management's (BLM) *Draft Oil Shale and Tar Sands Resource Management Plan Amendments to Address Land Use Allocations in Colorado, Utah, and Wyoming and Programmatic Environmental Impact Statement (DPEIS)*. We represent individuals who live in close proximity to the areas identified for oil shale and tar sands leasing, and many others who are concerned about the fate of their public lands. Based on the BLM's analysis, commercial development of oil shale or tar sands would irreparably harm local lives and livelihoods. Development would also compromise a wide range of environmental values, including clean air, clean water, climate, recreation, water supply, and wildlife habitat.

Despite beliefs in some quarters that oil shale might finally be ready for large scale commercial development, industry's research and development are moving at a snail's pace. At the current pace of research, design and demonstration (RD&D) programs, we are years away from being informed of the social, economic and environmental impacts of commercial development. Prematurely amending Resource Management Plans (RMPs) is certain to lead to considerable unknown consequences at the expense of the affected region and its citizens.

Congress' directive that the BLM develop an oil shale and tar sands leasing program with arbitrary deadlines, while simultaneously working with industry on a RD&D leasing program, raises serious concerns. As Colorado Governor Bill Ritter stated in 2007, "the movement towards commercial leasing regulations and ultimately commercial leasing prior to the evaluation of the RD&D projects will not be in the best interest of our state and ultimately our nation."¹ Other western governors are raising similar concerns.

In June 2007, the Western Governors Association, led by South Dakota Governor Michael Rounds and Wyoming Governor Dave Freudenthal, argued the potential development of a large scale program "demands a thoughtful discussion."² According to the governors, the schedule for developing a commercial oil shale program set forth in Section 369 of the Energy Policy Act of 2005 "hampers the ability of the states to constructively participate." These "concerns are heightened by the lack of detailed information about the technologies that would be involved; the potential effects on our lands, water, air

¹ Appendix 1.

² Appendix 2.

quality, and wildlife; the conflicts with other uses of scarce resources; and the potentially serious adverse impacts on local communities.”³

Leading members of the region’s congressional delegation have stated that federal agencies must pursue a reasoned and measured approach. According to a March 13, 2008, statement by Senator Ken Salazar,

BLM is rushing towards a commercial lease sale when the technology is not ready and the potential environmental impacts are unknown. The communities of Colorado's West Slope are wary of unchecked oil shale development in their backyard. We must take a judicious approach that will help, not hurt, West Slope communities and avoid any economic bust that could follow an unchecked boom on commercial leasing.⁴

As the DPEIS clearly identifies, production of oil from shale and tar sands would irrevocably and permanently alter the three-state region for the worse. Commercial oil shale and tar sands development could render national policy objectives on climate change unattainable because of the magnitude of the increased demand for new coal-fired power capacity. From a regional perspective, oil shale and tar sands are incompatible with Colorado and Wyoming’s efforts to be leaders in the New Energy Economy. From a local perspective, the water demands could permanently alter the rural agricultural and amenity-based economy of affected regions. The proposed development unacceptably threatens drinking water, air quality, and the outdoor recreational economy powered by hunters, anglers and others who value the region’s unmatched wildlife, scenery and open spaces. Western communities are unwilling to abandon efforts to build sustainable, diversified economies and to again stake their future on unproven oil shale technologies.

No one can say whether the economics of oil shale will one day support full-scale production. Even today, however, with oil prices at an all-time high, industry fully acknowledges the uncertainty. As reported in *The Denver Post*,

The front-runner energy company in the effort to unlock oil shale in northwest Colorado has slowed down its research by withdrawing an application for a state mining permit. Shell spokeswoman Jill Davis said the withdrawal of a permit on one of its three oil-shale research and demonstration leases was done for economic reasons.⁵

Shell, a leader in developing new oil shale technologies, started its research in the 1970s. Shell’s experience demonstrates that industry is unlikely to develop viable oil shale technology for years to come.

What we do know is that the environmental impacts identified by the BLM are broad, deep and are only just a start. Western landscapes – and uses of those lands from hunting and fishing to agriculture and water rights – would be altered for generations as the proposed industrial development threatens clean air, clean water, human health, and local communities.

Commercial leasing and development also threatens our water. Development would subject Colorado River water – currently used by both western communities and Colorado’s Front Range – to

³ *Id.*

⁴ Appendix 3.

⁵ Nancy Lofholm, *Shell Shelves Oil Shale Application to Refine Its Research*, June 16, 2007, Section B.

call, thereby straining or destroying rural economies and communities throughout Colorado, Wyoming and Utah. The region is still largely rural, and is thus dependent on the health of the agricultural sector. Yet, as the BLM concludes, development will likely transfer water from traditional agricultural uses to industrial uses. This change will result in the loss of traditional irrigated agriculture and a shift towards dryland agriculture. Depending on the scale, water impacts could transform the character of traditional agriculture-based communities across the region.⁶

Also troubling are the potential impacts resulting from increased carbon-dioxide emissions. Climate change is already significantly affecting this region. The DPEIS either ignores the impacts on global climate change from commercial development, or wrongly dismisses them as inconsequential.

Tar sands development in Alberta has been promoted by some boosters as exemplary of an environmentally-protective development program. Tar sands production in Canada, however, has destroyed vast expanses of forests and wildlands, displaced wildlife, created enormous toxic waste sites, produced more greenhouse gasses than conventional fuel, and used an enormous amount of clean water – a priceless resource in the arid West. The environmental degradation experienced in Alberta might only scratch the surface of the types of potential impacts where the resource is technologically more difficult to develop in western Colorado, eastern Utah, and southwestern Wyoming.

Despite the inadequacies of the DPEIS, two things are clear. First, there is sufficient information to warrant Congress and the Administration proceeding more slowly and insufficient data to support the BLM's preferred alternative. The DPEIS is anathema to the intent and purpose of the National Environmental Policy Act (NEPA).⁷ NEPA's primary intent is to protect and enhance the environment. As the Supreme Court has stated, NEPA represents a "broad national commitment to protecting and promoting environmental quality."⁸ Using analyses such as this DPEIS to approve massive but uncertain environmental impacts violates Congressional intent. As stated in NEPA's preamble:

The purposes of this chapter are: To declare a national policy which will encourage productive and enjoyable harmony between man and his environment; to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; [and] to enrich the understanding of the ecological systems and natural resources important to the Nation[.]⁹

Second, the Preferred Alternative would violate the letter and spirit of NEPA. As the Supreme Court established in a landmark case involving the Department of the Interior, "NEPA announced a national policy of environmental protection and placed a responsibility upon the Federal Government to further specific environmental goals by 'all practicable means, consistent with other essential considerations of national policy.'"¹⁰ Premature commercial leasing and development of oil shale and tar sands would violate each and every criteria specified by Congress in our national environmental charter.

The BLM fails to substantiate or support the assertion that the DPEIS is legally sufficient to amend existing resource management plans, or that existing technologies indicate that oil shale and tar sands development would not unduly affect communities and the environment. The only approach

⁶ DPEIS at 4-144 to -145.

⁷ 42 U.S.C. §§ 4321-4370f.

⁸ See *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 348 (1989) (citing 42 U.S.C. § 4331).

⁹ 42 U.S.C. § 4321.

¹⁰ *Kleppe v. Sierra Club*, 427 U.S. 390, 409 (1976) (quoting 42 U.S.C. § 4331(b)).

consistent with NEPA at this time is Alternative A – the no commercial oil shale or tar sands leasing alternative.

Both the BLM and the public will be best served if – before amending RMPs, offering commercial lease sales, or adopting leasing regulations – the BLM conducts a thorough analysis of completed research, development and demonstration projects; a full assessment of environmental risks; and an exhaustive exploration of an appropriate range of alternatives. Only after conducting such an analysis can the BLM assure Congress and the public that the facts can be construed to support RMP amendments that would allow commercial leasing programs. Knowledge must precede action.

Building a new energy economy is central to the long-term economic, social and environmental health of our nation. We need to focus our resources on supporting energy efficiency and renewable energy sources that are known to protect the environment and are economically sound.

Respectfully submitted,

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Detailed Comments on Oil Shale and Tar Sands DPEIS

Overview – Putting the Cart Before the Horse

New oil shale and tar sands research and development in the U.S. remains in its infancy, leaving the BLM with little information to assess the impacts of a full scale leasing program using new technologies. The approach advanced through this DPEIS is, by the BLM's own admission and omissions, unsupported on both legal and public policy grounds. We formally request that the BLM respond to each issue raised in the cover letter, in these detailed comments, and in the opinions and papers attached to this document and included by reference. We also formally request Congress adopt legislation prohibiting the BLM from pursuing a leasing program (including adopting leasing regulations) until such time that the results on the current congressionally mandated RD&D program are known and independently assessed. Until that time it will be impossible to assess the environmental impacts of developing a full scale production plan or the potential for mitigation measures to protect our communities, western water, and the environment. For these and other reasons **we support Alternative A.**

Research and Design Must Precede Development

The BLM's initiative to develop a commercial-scale oil shale and tar sands leasing and development program based on this DPEIS, while simultaneously working with industry on the RD&D leasing program, is inconsistent with basic principles regarding research and development. A necessary precursor to considering an oil shale program is first completing the required research and development, and then fully assessing the likely impacts of full scale development based on an accurate assessment of the information gained from the research and development experience. Pursuing commercial-scale leasing without first understanding the impacts of the technology is putting the cart before the horse.

This concern has been even raised by proponents of oil shale development. In April 2007, Dr. James Bartis of the RAND Corporation provided the following testimony to Congress:

While the prospects of major economic and national security benefits motivate the development of oil shale, federal actions need to be tempered by the need to address the adverse environmental impacts and risks that accompany such development.¹¹

Dr. Bartis argued that Congress' requirement that the BLM establish final regulations for a commercial leasing program within six months of completing the DPEIS should be rescinded. It is unlikely, Dr. Bartis stated, that within the next few years

adequate technical, economic, and environmental information will be available to formulate fair and equitable leasing regulations . . . [The] fundamental approach the Department of the Interior is currently taking may be counterproductive if the goal is to keep open the option for a sustainable domestic oil shale industry.¹²

¹¹ James T. Bartis, The RAND Corporation, "Policy Issues for Oil Shale Development", Before the Committee on Natural Resources, Subcommittee on Energy and Mineral Resources, United States House of Representatives, April 17, 2007.

¹² *Id.*

Dr. Bartis is a leading expert on oil shale development. As a senior policy researcher at the RAND Corporation, Dr. Bartis was hired by the Department of Energy to report on the prospects and policy issues of oil shale development in the United States. The BLM's DPEIS confirms Dr. Bartis's conclusion – commercial oil shale and tar sands development, even if possible some day, is premature. Decisions about development should never precede research.

Congress' Directive – Identify the Impacts from Oil Shale and Tar Sands Development

Section 369 of the Energy Policy Act of 2005 directed the BLM to “develop the information necessary to complete a programmatic environmental impact statement for a commercial leasing program for oil shale and tar sands resources on public lands, with an emphasis on the most geologically prospective lands within each of the States of Colorado, Utah, and Wyoming.”¹³ While the BLM has identified significant impacts from commercial development, it lacks the information necessary to meet Congress' mandate. According to the BLM,

The BLM initially intended the final PEIS to provide the NEPA analysis not only for the amendment of land use plans but also for the issuance of leases for the commercial development of both oil shale and tar sands resources. The BLM developed and circulated among cooperating agencies an internal draft PEIS. Based on their review of the document, many of the cooperating agencies commented that the lack of information about specific technologies and their impacts caused BLM's analysis to be too speculative at this time to support a decision to issue any leases. As a result, the BLM has elected not to issue leases for commercial development of oil shale on the basis of this PEIS. (*Emphasis added*).¹⁴

We agree with the BLM's determination that it would be too speculative at this time to decide to lease lands for oil shale and/or tar sands development. It is also clear as both a matter of law and public policy that BLM does not have in this DPEIS the information it needs to amend existing Resource Management Plans (RMPs), much less to tier subsequent leasing analyses. Without further detail regarding the environmental impacts from oil shale and tar sands development, the BLM cannot identify impacts to specific areas identified in each RMP, cannot identify cumulative impacts resulting from oil shale and tar sands development, cannot identify steps the agency and lessee will need to mitigate such undefined impacts, and cannot ensure compliance with federal laws.

The root problem the BLM faces when developing the DPEIS is that, since none of the companies that have applied for oil shale research plots in Colorado have a proven and demonstrated extraction technology, adequate and appropriate analysis of the environmental and socio-economic impacts of oil shale development is problematic at best. The mistake the BLM makes is taking one theoretical oil sands project and one theoretical tar sands project and projecting the anticipated results over two million acres.

Legal Deficiencies

As discussed in depth below, the BLM's decision to amend the RMPs contravenes existing law.

¹³ Public Law 109-58

¹⁴ DPEIS at ES-2 to -3 (emphasis added).

The National Environmental Policy Act

The National Environmental Policy Act¹⁵ requires federal agencies to prepare a detailed statement on the environmental impacts of a proposed “major federal action” and all of the reasonable alternatives thereto before authorizing any such action.¹⁶ An agency proposal for major federal action exists for NEPA purposes “at that the stage . . . when an agency subject to [NEPA] has a goal and is actively preparing to make a decision on one or more alternative means of accomplishing that goal and the effects can be meaningfully evaluated.”¹⁷ NEPA’s purpose is to promote efforts “which will prevent or eliminate damage to the environment”,¹⁸ to inform the public of environmental consequences,¹⁹ and to “help public officials . . . take actions that protect, restore, and enhance the environment.”²⁰

Under NEPA, the DPEIS must analyze “connected”, “cumulative”, and “similar” actions and three types of impacts.²¹ Connected actions are those which are “closely related,” including those that “[c]annot or will not proceed unless other actions are taken”, or those that “[a]re interdependent parts of a larger action and depend on the larger action for their justification.”²² Cumulative actions are those that “have cumulatively significant impacts and should therefore be discussed in the same impact statement.”²³ Similar actions include those that have “common timing or geography.”²⁴ In order to assess “significance,” NEPA requires consideration of “[w]hether the action is related to other actions with individually insignificant but cumulatively significant impacts.”²⁵

The three types of impacts to be studied in an environmental impact statement are those that are “direct,” “indirect,” and “cumulative.”²⁶ Direct effects are those that “are caused by the action and occur at the same time and place.”²⁷ Indirect effects are those “which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable.”²⁸ A project’s “cumulative impact,” is

the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.²⁹

As discussed in more detail below (*See infra* pp. 9-12), while the DPEIS uses the term “cumulative impacts” it does not identify such impacts. Instead, the DPEIS defers its analysis of the

¹⁵ 42 U.S.C. §§ 4321-4370f.

¹⁶ *Id.* at § 4332(2)(C).

¹⁷ 40 C.F.R. § 1508.23.

¹⁸ 42 U.S.C. § 4321.

¹⁹ 40 C.F.R. § 1500.1(b).

²⁰ *Id.* at § 1500.1(c).

²¹ *Id.* at §§ 1508.25, 1508.7, 1508.8.

²² *Id.* at § 1508.25(a)(1).

²³ *Id.* at § 1508.25(a)(2).

²⁴ *Id.* at § 1508.25(a)(3).

²⁵ *Id.* at § 1508.27(b)(7).

²⁶ *Id.* at 1508.25(c); *see also id.* at §§ 1508.7, 1508.8.

²⁷ *Id.* at § 1508.8(a).

²⁸ *Id.* at § 1508.8(b).

²⁹ *Id.* at § 1508.7. *See also* *Neighbors of Cuddy Mountain v. U.S. Forest Serv.*, 137 F.3d 1372, 1379 (9th Cir. 1998) (stating that with respect to a cumulative impacts analysis, an agency must provide “some quantified or detailed information” because “[w]ithout such information, neither courts nor the public . . . can be assured that the [agency] provided the hard look that it is required to provide.”).

cumulative impacts of developing oil shale and tar sands over two million acres to future analyses to be conducted on a lease-by-lease basis. This approach is not only inconsistent with NEPA but it contravenes Congress' intent in directing the BLM to issue this DPEIS.

Cumulative and Connected Impacts

One of the most glaring gaps in the DPEIS concerns identification of connected actions; a second is the BLM's thin analysis of cumulative impacts. As discussed above, identifying and evaluating the cumulative and connected impacts arising from a federal action is a central component of NEPA. The BLM is required to consider not only the single proposed action – amending RMPs to designate lands available for leasing – but also connected actions (actions which are closely related) and cumulative actions (actions, which when viewed with other proposed actions, have cumulatively significant impacts).³⁰ Closely related actions include any reasonably foreseeable oil shale and tar sands project that would not occur “but for” authorization provided in the RMP.

Cumulative and connected impacts assessments help assure that Federal Land Policy and Management Act's (FLPMA)³¹ requirements regarding no degradation to the environment are met. As the BLM notes in section 6 of the DPEIS,

The purpose of this cumulative impacts assessment is to discuss how the environmental and socioeconomic conditions within the study area might be incrementally affected over the next 20 years (the study period) by oil shale development that would be made possible by land use plan amendments under either Alternative B or Alternative C. . . . [D]irect, indirect, and incremental cumulative impacts could occur due to future commercial oil shale development that would be facilitated by such land use plan amendments.³²

Courts have held that there are situations where an agency must consider several related actions in a single NEPA document. The U.S. Court of Appeals for the Fifth Circuit held that in a cumulative impact analysis, an agency should consider “(1) past and present actions without regard to whether they themselves triggered NEPA responsibilities and (2) future actions that are ‘reasonably foreseeable,’ even if they are not yet proposals and may never trigger NEPA-review requirements.”³³ The court noted that the applicable law “does not limit the inquiry to the cumulative impacts that can be expected from proposed projects; rather, the inquiry also extends to the effects that can be anticipated from “reasonably foreseeable future actions.”³⁴ Similarly, the U.S. Court of Appeals for the Ninth Circuit has specifically required analysis of activities on both public and private land, since both may impact federal resources; the court also found cumulative impacts analysis insufficient where it did not include foreseeable projects in the same geographical region.³⁵

Identifying these impacts is vital to the decision-making process as the “primary purpose” of the DPEIS is to “insure that the policies and goals defined in [NEPA] are infused into the ongoing programs and actions of the Federal Government.”³⁶ NEPA policies and goals include:

³⁰ 40 C.F.R. § 1508.25

³¹ 43 U.S.C. §§ 1701 – 1785.

³² DPEIS at 6-106 to -107

³³ *See, Fritiofson v. Alexander*, 772 F.2d 1225, 1245 (5th Cir. 1985).

³⁴ *Id.* at 1243

³⁵ *See, Natural Resources Defense Council v. U.S. Forest Service*, 421 F.3d 797, 815-16 (9th Cir. 2005); *Muckleshoot Indian Tribe v. U.S. Forest Service*, 177 F.3d 800 (9th Cir. 1999).

³⁶ 40 C.F.R. § 1502.1

- Encouraging a “productive and enjoyable harmony between man and his environment;”³⁷
- Promoting “efforts which will prevent or eliminate damage to the environment and biosphere”;³⁸
- Using “all practicable means and measures . . .to create and maintain conditions under which man and nature can exist in productive harmony . . .;”³⁹
- Fulfilling “the responsibilities of each generation as trustee of the environment for succeeding generations;”⁴⁰
- Assuring “all Americans safe, healthful, productive, and esthetically and culturally pleasing surroundings;”⁴¹
- Allowing beneficial use of the environment “without degradation . . . or other undesirable and unintended consequences;”⁴²
- Preserving “important historic, cultural, and natural aspects of our national heritage . . .;”⁴³
- Achieving a “balance between population and resource use . . .;”⁴⁴ and
- Enhancing “the quality of renewable resources” and maximizing recycling of depletable resources.⁴⁵

Importantly, the scope of this analysis must be appropriate to the scope of the proposed action.⁴⁶ The Council on Environmental Quality’s (CEQ) guidelines on cumulative and connected effects analyses provide the following steps for determining the appropriate geographic boundary of cumulative impact analysis:⁴⁷

- Determine the geographic area that will potentially be directly affected by an action, known as the “project impact zone”;
- Identify resources in the project impact zone that could be affected by the action;
- Determine the geographic areas occupied by the resources outside the project impact zone; and
- Identify the appropriate area for analysis of cumulative effects based on the largest of the geographic areas outside the project impact zone.

Once commercial development projects are planned, it is reasonably foreseeable that additional energy infrastructure and refining projects will be developed. The increased infrastructure and the clustering of projects to access and service the oil shale and tar sands leasing areas is likely to have a cumulatively significant effect on the resources in the area. Since the additional energy infrastructure development projects will be tied, at least to some extent, to the location of these leasing areas, these projects are certainly similar in terms of geography. Or, even if such support facilities (e.g., coal-fired electric power plants) are located at some distance from the immediate area of oil shale and tar sands development, the impacts upon the lands, communities, and resources impacted by such facilities need to be analyzed in this document.

³⁷ 42 U.S.C. § 4321.

³⁸ *Id.*

³⁹ *Id.*

⁴⁰ *Id.* at § 4331(b)(1).

⁴¹ *Id.* at § 4331(b)(2).

⁴² *Id.* at § 4331(b)(3).

⁴³ *Id.* at § 4331(b)(4).

⁴⁴ *Id.* at § 4331(b)(5).

⁴⁵ *Id.* at § 4331(b)(6); *see also* BLM Handbook H-1790-1.V. B.2.a.(3).

⁴⁶ *Kern v. United States Bureau of Land Management*, 284 F.3d 1062, 1072 (9th Cir. 2002).

⁴⁷ Council on Environmental Quality, 1997, *Considering Cumulative Effect Under the National Environmental Policy Act*.

A landscape level analysis is a critical component of any NEPA analysis, even if site-specific analyses are deferred until authorization of specific projects. The U.S. Court of Appeals for the Second Circuit has held that analyzing the overall environmental risks involved in transporting oil from off-shore leases was appropriate and necessary in a PEIS, although specific analysis of individual pipeline locations could be deferred.⁴⁸

In the context of this DPEIS, the BLM must examine the cumulative effects on the landscape of oil shale and tar sands development. Examples of actions/projects that would not occur but for authorization in the RMP include leasing, exploration projects, and full-field development projects. Thus, given that the DPEIS amends RMPs, the DPEIS should address each of these types of connected actions/projects in detail so as to foster informed public participation in the RMP revision and informed decision-making by BLM.

A landscape level analysis of proposed commercial oil shale and tar sands development must likewise evaluate the distribution of resources and supporting facilities across the affected states. Doing so complies with the BLM's legal obligations to truly assess potential impacts and to, as necessary, yield management decisions in order to balance and protect the multiple resources of these public lands. For oil shale and tar sands development, the geographic area of impact will include the resources, such as wildlife, within areas of proposed development and their habitat extending outside such areas.

As a case in point, the document acknowledges that ten new large coal-fired power plants will be required to supply energy to these projects, and mainline and branch power lines will be needed to run the required energy into the oil shale facilities.⁴⁹ However, likely corridors and their impacts are not identified in the DPEIS, but are instead deferred to project-level NEPA analyses. Nor are the likely emissions of greenhouse gases from these power plants or their contributions to global warming. Similarly, oil shale and tar sands development will require substantial new construction of regional and feeder pipelines and expansion of existing refineries to transport and process the crude oil.⁵⁰ However, likely routes and impacts resulting from these are not identified in the DPEIS.

Similarly, given that cumulative actions are actions that, incrementally, have significant impacts, even if the individual impacts are minor, the BLM should broaden the scope of the DPEIS to include analysis of the cumulative effects of other actions/projects already approved under each RMP. Impacts and actions that should be addressed in a cumulative fashion include, but are not limited to:

- road construction,
- activities leading to soil and vegetation disturbance,
- activities leading to changed habitat structure,
- activities leading to habitat fragmentation, and
- activities causing air or water pollution.

Yet, instead of identifying the cumulative and connected impacts at a landscape level, the BLM relies on one theoretical data point and projects the impacts over a given area:

For the purposes of analysis, this cumulative impacts assessment looks at the incremental impacts of a single oil shale facility (as described in Section 4.1) and a single tar sands facility (as described in Section 5.1),

⁴⁸ County of Suffolk v. Secretary of Interior, 562 F.2d 1368, 1376-1377 (2nd Cir. 1977) (It was “essential to consider and weigh the environmental aspects of transportation, as well as of exploration and production.”).

⁴⁹ See DPEIS 4-12 to -13.

⁵⁰ *Id.* at 4-13 to -16.

recognizing that there may be more than one of each type of these facilities brought into operation during the study period.⁵¹

Not surprisingly, due to the paucity of information regarding the technologies to be used, the cumulative impacts are nearly impossible to define. The BLM cedes this point in the DPEIS:

Because of the magnitude of actions on public land, the lack of information about how many projects might be undertaken under either alternative, and the lack of information regarding the likely locations for future development, the cumulative effects discussed in this section are general in nature. The magnitude of the differences between the cumulative effects of Alternatives B and C cannot be identified. The cumulative effects discussion by resource area presented in Section 6.1.5.3 is intended to place the potential development of oil shale resources into the context of impacts from known ongoing and planned activities, and highlight issues that will be considered in future, site-specific NEPA actions.⁵²

This approach is unacceptable. We appreciate the enormous challenge Congress created when it directed the BLM to undertake a programmatic assessment of oil shale and tar sands development. As BLM notes numerous times throughout the DPEIS, it is virtually impossible to identify with any certainty the scope of environmental, social and economic impacts that will result from oil shale development. Clearly, what the agency has not done is comply with applicable rules for dealing with situations in which necessary information is incomplete or unavailable.⁵³

Instead, the BLM's opt-out is to note that there will be subsequent project-specific NEPA analyses. While that may be the agency's intent, the DPEIS amends existing RMPs and the subsequent NEPA analyses the BLM identifies above will be driven by lease applications and thus will not address landscape level actions and associated impacts. Instead, there is ample precedent that the agency's subsequent NEPA analysis for individual projects will be limited and will rely on this PEIS to justify placement of projects in proximity to designated leasing areas. This approach contravenes NEPA and thus raises critical questions regarding BLM's legal basis for amending the RMPs. As the courts have found, an insufficient cumulative or connected impact analysis of actions within a larger region will render NEPA analysis insufficient.⁵⁴

Mitigating Environmental Impacts

At the most fundamental level, NEPA is intended to help public officials make decisions that are based on an understanding of environmental consequences, and to take actions that protect, restore, and enhance the environment.⁵⁵ Federal agencies are required, to the fullest extent possible, use all practicable means consistent with the requirements of NEPA to "restore and enhance the quality of the human environment and avoid or minimize any possible adverse effects of their actions upon the quality of the human environment."⁵⁶ CEQ regulations further define mitigation as:

⁵¹ *Id.* at 6-108.

⁵² *Id.*

⁵³ *See* 40 CFR § 1502.22.

⁵⁴ *See, e.g., Kern*, 284 F.3d at 1078.

⁵⁵ *See* 40 CFR § 1500.1(b).

⁵⁶ *Id.* at 1500.2(f).

- Avoiding the impact altogether by not taking a certain action or parts of an action.
- Minimizing impacts by limiting the degree or magnitude of the action and its implementation.
- Rectifying the impact by repairing, rehabilitating, or restoring the affected environment.
- Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
- Compensating for the impact by replacing or providing substitute resources or environments.⁵⁷

Effective mitigation therefore starts at the beginning of the NEPA process, not at the end, and must be included as an integral part of the alternatives development and analysis process.

There are two fundamental problems with the mitigation measures identified in the DPEIS. First, the measures identified are generic, speculative, and lack any assurance that if implemented will avoid, minimize, rectify, reduce, eliminate or compensate for impacts associated with oil shale or tar sands development. Instead the DPEIS states what the lessees might be required to do but does not link mitigation measures with specific steps that should be taken in specific resource areas or over a larger landscape. To make matters worse, many of the measures identified are accompanied by a caveat such as “if possible” and “to the fullest extent practicable.”

Second, the DPEIS does not link cumulative impacts with mitigation measures. As discussed above, one of the fundamental shortcomings of the DPEIS is that it does not adequately identify cumulative impacts resulting from full scale production, Congress’ goal in developing oil shale and tar sands. Mitigation measures, in turn, will be tailored to individual leases, whose impacts will be a small percentage of the overall project impacts.

The DPEIS amends 12 RMPs to allow for full scale development of oil from shale and tar sands. Accordingly, mitigation measures must track full-scale oil shale development and not be reduced to a lowest common denominator.

Lease Sales and Tiering

Under FLPMA, RMPs guide and regulate the configuration and timing of lease offerings when parcels are offered for lease. Currently, industry nominates parcels, followed by a pre-leasing environmental analysis which is not based on common airsheds, river drainages, or other ecological units. While RMPs should ensure that these problems of focusing narrowly on the environmental impacts are not perpetuated, the fact that the BLM has not identified cumulative impacts in the DPEIS nor identified in any detail impacts to specific RMPs leaves a huge gap in its analysis.

The DPEIS does not examine the pace and intensity of development but instead leaves it to industry to set. Coupled with no identification of cumulative impacts or measures the BLM and industry will take to mitigate such impacts, the BLM is unable to identify the impacts resulting from development. The impacts are thus conceptual and so too is the mitigation.

Agencies often deal with proposals and alternatives for which necessary information on environmental impacts is incomplete, and NEPA regulations elaborate upon the responsibilities of an agency in such a situation.⁵⁸ Agencies must obtain that information if it is relevant to a reasonably

⁵⁷ 40 C.F.R. § 1508.20.

⁵⁸ See 40 C.F.R. § 1502.22.

foreseeable significant impact, is essential to a reasoned choice among alternatives, and the overall cost to obtain it is not exorbitant.⁵⁹ The DPEIS does not meet this standard.

It appears instead that the BLM will tier subsequent NEPA analyses to the incomplete analysis contained in this DPEIS. “Tiering” is an established method of avoiding the unnecessary duplication of analysis and is valid so long as the underlying analysis is thorough and defensible. CEQ regulations explicitly provide for this:

Whenever a broad environmental impact statement has been prepared (such as a program or policy statement) and a subsequent statement or environmental assessment is then prepared on an action included within the entire program or policy (such as a site specific action) the subsequent statement or environmental assessment need only summarize the issues discussed in the broader statement and incorporate discussions from the broader statement by reference and shall concentrate on the issues specific to the subsequent action. The subsequent document shall state where the earlier document is available. Tiering may also be appropriate for different stages of actions.⁶⁰

Applying this approach to oil shale and tar sands development would be flawed. The DPEIS does not consider the cumulative impacts, so tiering subsequent individual lease analyses will result in the BLM never evaluating the cumulative impacts of lease sales. Unless the BLM adopts a policy of conducting full scale environmental impacts statements for each RMP prior to offering lease sales, the BLM will have not met its mandate under NEPA and FLPMA to evaluate the cumulative impacts and thus prevent undue degradation of public lands.

Federal Land Policy Management Act

Any policies toward the leasing and development of oil shale on federal public lands managed by the BLM must also comply with relevant aspects of the Federal Land Policy and Management Act (FLPMA).⁶¹ Congress enacted FLPMA “to provide guidance and a comprehensive statement of congressional policies concerning the management of the public lands”⁶² FLPMA establishes a policy of “multiple use” management pursuant to which BLM must “recognize competing values,” which is to be done by “using the Act’s procedures in a dynamic, evolving manner to accommodate these competing demands.”⁶³

FLPMA directs BLM to manage public lands for multiple uses and sustained yield.⁶⁴ The Secretary is required to “use and observe the principles of multiple use and sustained yield” in developing

⁵⁹ *Id.* at 1502.22(a); *Colo. Env'tl. Coal. v. Dombek*, 185 F.3d 1162, 1172 (10th Cir. 1999); *see also*, *Davis v. Mineta*, 302 F.3d 1104, 1114 n.5 (10th Cir. 2002) (NEPA is intended to focus the agency’s attention to environmental consequences and to provide relevant information needed for forming and implementing an agency decision.); *Blue Mountains Biodiversity Project v. Blackwood*, 161 F.3d 1208, 1216 (9th Cir. 1998) (An impacts analysis under NEPA should be done up front so that an agency “will not act on incomplete information only to regret its decision after it is too late to correct.” (quoting *Marsh v. Or. Natural Res. Council*, 490 U.S. 360, 378 (1989))).

⁶⁰ 40 C.F.R. §1502.20.

⁶¹ 43 U.S.C. §§ 1701-1785.

⁶² *Rocky Mtn. Oil & Gas Ass’n v. Watt*, 696 F.2d 734, 737 (10th Cir. 1982).

⁶³ *Id.* at 738; *see also* 43 U.S.C. §§ 1701 - 1702(c).

⁶⁴ 43 U.S.C. § 1732(a).

and revising land use plans.⁶⁵ “Multiple use” is defined as managing the lands so that the various resources (“recreation, range, timber, minerals, watershed, wildlife and fish, and natural scenic, scientific and historical values”) “are utilized in the combination that will best meet the present and future needs” of the public⁶⁶; “sustained yield” is defined as managing to maintain regular renewable resource outputs in perpetuity.⁶⁷

Congress also directed BLM to conduct inventories of the public lands and to incorporate those inventories into management decisions.⁶⁸ BLM is thus required to “take any action necessary to prevent unnecessary or undue degradation of the lands.”⁶⁹ RMPs, in turn, must “provide for compliance with applicable State and Federal air, water noise, or other pollution standards or implementation plans”⁷⁰ Implementing regulations specifically require that BLM ensure compliance with federal and state air quality standards.⁷¹

These provisions are applicable to all resource uses and decisions affecting BLM lands.⁷² It serves as a bedrock for all analyses in the DPEIS and activities undertaken pursuant to the RMP.

Amending Resource Management Plans

One of the fundamental principles governing the development of and amendments to RMPs is to “identify the actions needed to achieve desired outcomes, including actions to restore or protect land health.”⁷³ Those actions are not identified in the PEIS and, as discussed above, mitigation measures are largely undefined and speculative. Without this information, it is impossible to determine whether the other management goals set forth in each RMP can be met.

In amending the RMPs through the DPEIS, the BLM is circumventing agency policy. BLM policy provides that in order to amend RMPs to allow for oil shale development, the agency must identify the following:

1. Areas open to leasing, subject to existing laws, regulations, and formal orders, and the terms and conditions of the standard lease form.
2. Areas open to leasing, subject to moderate constraints such as seasonal and controlled surface use restrictions. (These are areas where it has been determined that moderately restrictive lease stipulations may be required to mitigate impacts to other land uses or resource values.)
3. Areas open to leasing, subject to major constraints such as no-surface-occupancy stipulations on an area more than 40 acres in size or more than 0.25 mile in width. (These are areas where it has been determined that highly restrictive lease stipulations are required to mitigate impacts to other lands or resource values. This category also includes areas where overlapping moderate constraints would severely limit development of fluid mineral resources.)
4. Areas closed to leasing. (These are areas where it has been determined that other land uses or resource values cannot be adequately protected with even the most restrictive lease stipulations; appropriate protection can be ensured only by closing the lands to leasing.) Identify whether such closures are discretionary or nondiscretionary; and if discretionary, the rationale.

⁶⁵ *Id.* at 1712(c)(1).

⁶⁶ *Id.* at 1702(c).

⁶⁷ *Id.* at 1702(h); *see also* Pub. Lands Council v. Babbitt, 529 U.S. 728, 738 (2000) (discussing standards); Pennaco Energy, Inc. v. U.S. Dept. of Interior, 377 F.3d 1147, 1151 (10th Cir. 2004) (discussing standards).

⁶⁸ 43 U.S.C. §§ 1711(a) (inventories), 1712 (resource management planning).

⁶⁹ *Id.* at § 1732(b).

⁷⁰ *Id.* at § 1712(c).

⁷¹ *See* 43 C.F.R. §§ 2920.7(b), 3162.5-1.

⁷² 43 U.S.C. § 1732(b).

⁷³ BLM Handbook H-1601-1 at II-4.

5. Resource condition objectives that have been established and specific lease stipulations and general/typical conditions of approval and best management practices that will be employed to accomplish these objectives in areas open to leasing.
6. For each lease stipulation, the circumstances for granting an exception, waiver, or modification. Identify the general documentation requirements and any public notification associated with granting exceptions, waivers, or modifications.
7. Whether the leasing and development decisions also apply to geophysical exploration.
8. Whether constraints identified in the land use plan for new leases also apply to areas currently under lease.
9. Long-term resource condition objectives for areas currently under development to guide reclamation activities prior to abandonment.⁷⁴

In addition to these requirements, FLPMA also requires that BLM land use plans be consistent with state, local and tribal government resource-related plans.⁷⁵ For example, it is the Wyoming Game and Fish Commission's policy that crucial habitat for wildlife species within the State should be managed to prevent "any loss of habitat function."⁷⁶ Some modification of crucial habitat is permitted but only if "habitat function is maintained (i.e., the location, essential features, and species supported are unchanged)."⁷⁷ Pursuant to the RMP amendments proposed in Wyoming, 362,792 acres of mule deer crucial winter habitat and 262,273 acres of elk crucial winter habitat will be opened to oil shale development. Despite this requirement, there is no discussion in the DPEIS as to whether the proposed RMP amendments are consistent with the resource management goals of the impacted states, local governments or tribes.

Analysis of Impacts to Human Health and the Environment

As noted above, the DPEIS identifies – but dismisses – significant impacts. A summation of the impacts and corresponding legal deficiencies follows.

Water Impacts

Water resources in the West are scarce and are under increased pressure from many forms of development. The DPEIS makes clear that water requirements for commercial development could be substantial. Yet the DPEIS greatly underestimates oil shale's likely water demands and fails to take into account numerous factors that limit water availability, especially when considered in the context of other current and anticipated activities that compete for the same resource.

Among other impacts the DPEIS fails to adequately analyze is the potential magnitude of converting water from agricultural uses to industrial uses. Large-scale oil shale and tar sands production likely will shift hundreds of thousands of acre-feet from agricultural use, resulting in the dry-up of hundreds of thousands of acres of agricultural lands. The DPEIS fails to adequately analyze this issue and the related issues of potential impacts including soil erosion, sediment loading in streams, and other environmental resource issues. As is the case in other sections of the DPEIS, the BLM's determination that oil shale development will not result in significant impacts to water is completely unfounded. The DPEIS does not adequately address cumulative impacts or provide reasonable mitigation measures.

There are many reasons why the BLM underestimates the impacts to water resulting from oil

⁷⁴ *Id.* at H-1601-1, Appendix C at 23-24.

⁷⁵ 43 U.S.C. § 1712(c)(9); *see also* 43 C.F.R. § 1610.3-2; BLM Handbook H-1601-1 at II-1 ("Land use plans must be consistent with State and local plans to the maximum extent consistent with Federal law.").

⁷⁶ Wyo. Game & Fish Comm'n Policy No. VII H (April 28, 1998) at 138.

⁷⁷ *Id.*

shale technology. These issues are discussed below.

One of the fundamental flaws in the DPEIS is that it overestimates the amount of water available to Upper Basin states under the 1922 Colorado River Compact. As David Atkins, a water expert specializing on water quality and quantity impacts from resource extraction, notes in his expert comments:

In section 3.4.1, the Draft PEIS provides a broad legal framework of the Upper Colorado River Basin's water resources, but this section dramatically overestimates the states' potential water surpluses listed in tables 3.4.1-2, 3.4.1-3, and 3.1.4-4. To realistically evaluate how much additional Colorado River Basin water could be developed in Colorado, Utah, and Wyoming, the Draft PEIS must analyze both the Upper and the Lower basins' outstanding legal issues, the implications of the most recent legal agreements, the scientific assumptions behind estimates, any authorized and/or proposed municipal or industrial water projects, flows to recover federally endangered fish in the Yampa and Green Rivers, and the predicted effects of climate change on Colorado River flows.

As water rights expert Bruce Lytle notes in his expert comments, projections of decreased water availability in the Colorado River basin could result in Colorado's allocation being much less than the 3 million acre-feet/year that the draft DPEIS assumes. Lytle notes that Utah, at least, does not believe that there is excess water available under its Compact entitlement.

The State of Colorado is in the early stages of a water availability study to answer how much water is available for the state to develop from the Colorado River. The results of this study will be critical in determining the broad-reaching effects of water availability on potential oil shale and tar sands development. Accordingly, the BLM should first review the outcome of Colorado's study before concluding there is sufficient water available for commercial oil shale development. This information, which will help identify impacts in western Colorado, Utah and Wyoming, as well as Colorado's Front Range, is also critical information in developing appropriate mitigation measures.

Should the water available from the Colorado River be less than the BLM anticipates, it increases the likelihood that water use by oil shale would result in an over-development of Colorado's Compact allocation. This situation, in turn, increases the likelihood of a "call" being placed on the river by Lower Basin states. Such an outcome would affect many cities, including millions of people who live *outside* the Colorado River basin (e.g., Colorado's Front Range). Such broad-reaching impacts were not considered in the DPEIS and thus draw into question the BLM's conclusion that oil shale and tar sands development will comply with the fundamental goals of NEPA and FLPMA.

The BLM compounds problems with their analysis by basing water availability on a daily production level that is roughly one order of magnitude less than government projections. The DPEIS estimates a daily production capacity of 350,000 bbl/day (50,000 bbl/day for surface retort; 200,000 bbl/day for *in situ* retort; and one 100,000 bbl/day for tar sands facility). This scenario of just three commercial plants (one for each general technology considered) operating at a production level far below current projections skews the BLM's analysis. The discrepancy between the production capacity of these facilities – 350,000 bbl/day – compared to the government's projections of 2.5 million bbl/day demonstrates that the DPEIS failed to analyze whether the requisite amount of water is available and the cumulative impacts to water resulting from development.

The potential water demands from oil shale development of this magnitude are enormous. As Lytle notes, large-scale oil shale and tar sands production could require as much as 740,000 acre-feet of water annually. There are insufficient flows in most of the basins to provide water to the oil shale and tar sands industry and the DPEIS fails to include adequate evaluation of site-specific and basin-wide data.

Another flaw in determining water availability and impacts from development is that the DPEIS does not forecast realistic municipal and other water demands. Future municipal development, power production, in-stream flows for federally endangered fish, and other types of energy development are expected to rely on water from the Colorado River, yet these impacts are not sufficiently included in the DPEIS. When coupled with anticipated changes in climate, population, and land use both within and outside the Colorado River Basin, the DPEIS's widespread omissions render its water availability analysis incomplete and inaccurate.

Similarly, as Atkins notes, the BLM's assumptions about water demands connected with electricity generation are based on incorrect numbers. The DPEIS grossly underestimates water requirements for power generation required for *in situ* oil shale production, as well as for retort processes. These deficiencies are compounded when coupled with basic energy requirements for a growing population.

The DPEIS also fails to adequately analyze the potential impact of oil shale and tar sands development on groundwater rights and resources. As Lytle notes, oil shale development will impact the hydraulic interconnection of aquifers and cause permanent impacts to ground and surface water systems. These impacts, in turn, will affect water quality, existing groundwater rights, surface water flows, and the development of other surface and groundwater supplies.

Atkins further notes that because technology and conditions in the Colorado River Basin have change markedly since the last time large-scale oil shale development was proposed, the DPEIS should address the following additional concerns as well:

- The development of new, untested in-situ retort technology and its effects on water resources;
- An evolving understanding of water supply and demand, particularly in the Colorado River Basin;
- An emerging appreciation for the interdependence of energy and water resources; and
- A growing awareness of the scope of impacts that elevated levels of greenhouse gases – especially carbon dioxide – can have on everything from global climate to regional water supplies, and the feedback that could occur from carbon dioxide releases due to large-scale oil shale development.

Similarly, Lytle notes that the DPEIS's analysis is deficient in other areas related to water resources and water rights, including:

- The draft PEIS fails to evaluate site-specific water supplies in river basins where oil development many occur;
- The draft PEIS fails to assess impacts from oil shale development forcing the retirement of agricultural water rights and the dry-up of agricultural lands; and
- The draft PEIS fails to adequately address water rights issues related to hydraulic interconnection of aquifers, permanent changes to ground and surface water systems, water quality, and mitigation of impacts related to either surface or groundwater supply development.

The water availability and water rights analysis in the DPEIS is inadequate to determine the potential programmatic-level environmental impacts. This incomplete information and analysis of potential adverse impacts on water resources does not support the BLM's decision to amend 12 RMPs.

In addition to these comments, our comments also incorporate directly, and by reference, those offered by David Atkins⁷⁸ and Bruce Lytle.⁷⁹

Wildlife Impacts

Federal law directs the BLM to protect and enhance the diversity of all native wildlife on public lands. FLPMA requires management plans protect ecological and other values.⁸⁰ NEPA, in turn, requires the BLM to fulfill its trustee obligation for future generations, assure productive surroundings, avoid environmental degradation, preserve important natural aspects of our national heritage, and enhance the quality of renewable resources.⁸¹

As discussed above, one of the primary drivers for undertaking this programmatic assessment is to understand the impacts over a broad landscape. A landscape level analysis is a critical component of any NEPA analysis, even if the agency later conducts site-specific analyses. Protecting the biological diversity of wildlife can only be addressed appropriately at the planning level as habitat fragmentation, connectivity, and other factors affecting biological diversity are inherently landscape-level considerations. Relegating such analyses to future decisions on individual 5000-acre leases contravenes BLM's mandates under both NEPA and FLPMA and is thus inadequate.

The DPEIS presumes most oil shale and tar sands projects will disturb 100 percent of the leased surface. Given that the DPEIS amends 12 RMPs, 10 of which contain no oil shale provisions, the DPEIS should describe existing environmental conditions and impacts so that the public and decision makers can evaluate the potential ecological costs from development as a result of the leasing program.

As William Alldredge notes in his comments on the DPEIS,

Since the ROD was signed for each of the 12 RMPs affected by this PEIS analysis, landscapes influenced by those RMPs have experienced considerable change from a variety of anthropogenic actions, chief among which is gas and oil development (see USDI, BLM 2004, 2006, 2007a, 2007b, 2007c). My experience in these areas is that crucial wildlife habitats are even more crucial today and thus in need of greater protection if impacts are to be minimized or mitigated. This is especially true for big game winter ranges, transition ranges and migration corridors that overlap areas designated for potential leasing.⁸²

Alldredge, a professional wildlife ecologist, believes the BLM "must explain why protected areas and protective measures set forth in previous NEPA processes would be overridden by the deficient analysis in the Oil Shale Tar Sands PEIS."⁸³

While there are great uncertainties about the potential impacts, some of what is known is stunning: at least 735,000 acres of mule deer winter habitat, 649,700 acres of elk winter habitat and 501,503 acres of identified sage-grouse habitat is at risk.⁸⁴ Sage-grouse populations, which are on the

⁷⁸ Appendix 20.

⁷⁹ Appendix 21.

⁸⁰ 43 U.S.C. § 1701(a)(7)-(8)

⁸¹ 42 U.S.C. § 4331(b)(1)-(6)

⁸² A. William Alldredge, DPEIS Comments, pages 2-3. (Appendix 16).

⁸³ *Id.*

⁸⁴ DPEIS, Table 6.1.2-6 at 6-52.

verge of requiring listing under the Endangered Species Act, have declined precipitously over their entire range. Declines have been estimated at over 50% in occupied area and up to 80% decline in bird abundance, with complete extirpation in several states.

Other species which would be impacted include:

1. Midget Faded Rattlesnake
The midget faded rattlesnake is believed to be rare throughout its range, which includes northwest Colorado, northeast Utah, and southwest Wyoming and along the lower Green River and Bitter Creek valleys.
2. Pygmy Rabbit
The pygmy rabbit has been petitioned for listing under the Endangered Species Act, and the USFWS has issued a positive 90-day finding on this petition, indicating that there is substantial scientific information that listing may be warranted.⁸⁵
3. Wyoming Pocket Gopher
The Wyoming pocket gopher has recently been petitioned for listing under the Endangered Species Act.
4. White-Tailed Prairie Dog
White-tailed prairie dogs have declined to 8% of their native range in North America, and the survival of remaining populations is threatened.
5. Mountain Plover
Mountain plovers are often found closely associated with prairie dog colonies of all species.
6. Swift Fox
The swift fox was determined to be “warranted but precluded” for listing under the Endangered Species Act by the U.S. Fish and Wildlife Service in 1995.⁸⁶ The swift fox is listed as a Species of Special Concern by the Wyoming Game and Fish Department.
7. Burrowing Owl
Nationwide, the burrowing owl is a species on the decline. As of 1997, over half of the agencies across North America tracking burrowing owl population trends reported declining populations, while none reported increasing populations.

A more in depth discussion of these and other species is found in Appendix 14.

The mitigation measures identified in the DPEIS are inadequate. The steps identified are not sufficient either in their detail or to match the broad impacts that will likely result from oil shale and tar sands development. Future analyses that focus narrowly will not support valid cumulative impact analyses and thus will not provide a reasonable basis for identifying and implementing mitigation measures that address landscape levels impacts.

⁸⁵ 73 Fed. Reg. 1312.

⁸⁶ 60 Fed. Reg. 31663.

In addition to these comments, our comments also incorporate directly and by reference those offered by William Alldredge⁸⁷ and Erik Molvar.⁸⁸

Aquatic Species

Like wildlife, federal law requires the BLM to protect aquatic species and their habitats. These requirements extend to migration, breeding, foraging and other activities. Instruction Memorandum (IM) 97-118, which governs BLM Special Status Species management, requires that actions authorized, funded, or carried out by the BLM do not contribute to species becoming listed as a candidate species, or for candidate species becoming listed as threatened or endangered. Accordingly, it is vital that the agency identify BLM sensitive species early in the process in order to prevent species from becoming endangered.

The IM also encourages state directors to collect information on species of concern to determine if BLM sensitive species designation and special management are needed. For special status species, the BLM must

Identify strategies and decisions to conserve and recover special status species. Given the legal mandate to conserve threatened or endangered species and BLM's policy to conserve all Special Status Species, land use planning strategies and decisions should result in a reasonable conservation strategy for these species. Land use plan decisions should be clear and sufficiently detailed to enhance habitat or prevent avoidable loss of habitat pending the development and implementation of implementation-level plans. This may include identifying stipulations or criteria that would be applied to implementation actions. Land use plan decisions should be consistent with BLM's mandate to recover listed species and should be consistent with objectives and recommended actions in approved recovery plans, conservation agreements and strategies, MOUs, and applicable biological opinions for threatened and endangered species.⁸⁹

Roundtail chubs, flannelmouth suckers, and bluehead suckers are found in watersheds that will be affected by oil shale development. These species, which reside in large, slow-moving rivers as well as smaller tributary streams, "have experienced dramatic reductions in their range in western Wyoming since 1965, and may need immediate conservation attention."⁹⁰ In the Upper Colorado Basin, the roundtail chub has been extirpated from 45% of its historical range, bluehead suckers occupy about 45% of their historical range, and the flannelmouth sucker occupies about 50% of its historic range.⁹¹ All three of these species are on the BLM Sensitive Species list, and merit special conservation attention.

The DPEIS identifies three primary ways aquatic species would be impacted: (1) direct disturbance, (2) sedimentation, and (3) changes in water quantity and water quality. These impacts, the DPEIS makes clear, could occur during both construction and throughout oil shale and tar sands operations. Despite the aforementioned mandate that the BLM develop strategies to protect sensitive

⁸⁷ Appendix 16.

⁸⁸ Appendix 14.

⁸⁹ BLM Land Use Planning Handbook H-1601-1, Appendix C at 5.

⁹⁰ Wheeler, p. 54.

⁹¹ Bezzarides and Bestgen 2002.

species, the description of aquatic resources is vague and BLM presents little information about species distribution. Cumulative impacts are not sufficiently discussed, and without such information, the mitigation measures are perfunctory.

Reduced water volume in the Colorado River system will have direct and indirect impacts on the water quality and ecological health of aquatic and riparian systems. Contaminants that are washed into the rivers from oil and tar sands development will flow downstream. Depleted water volumes will reduce the amount of water available for diluting pollutants and carrying them downstream. Higher levels of pollutants will directly impact the ability of aquatic and riparian organisms to sustain themselves and increase the level of stress on the system dynamics.

Reduced water flows will also impact the ability of streams and rivers to remove excess nitrogen caused by human activities. Recent studies completed at Oregon State University identified the role that rivers play in filtering and denitrifying stream systems. Timing, distribution and volumes of water in a watershed directly impact the ability and level of de-nitrification and nutrient cycling that defines the overall health of the aquatic ecosystems.

In his expert comments,⁹² John Woodling identifies numerous deficiencies in the DPEIS, including:

1. The DPEIS' description of ambient aquatic resources in proposed oil shale and tar sands areas is lacking. It omits fish distribution data on the flannelmouth sucker and the mountain sucker, two BLM species of concern and Colorado species of concern in the White River and Piceance Creek.
2. The DPEIS does not adequately describe ambient aquatic resources in rivers downstream of oil shale areas in Colorado. It omits fish distribution data on demonstrating the presence of federally and state listed fish species, BLM species of concern and Colorado species of concern in the White River, Colorado River and Yampa River. These species include the four federally listed species, three species of concern to the BLM and one Colorado species of concern.
3. The DPEIS did not adequately describe impacts of water depletion on aquatic species, including whether depletions might trigger Section 7 consultations.⁹³
4. The DPEIS does not identify monitoring that could be used to develop mitigation measures necessary to lessen impacts to water quality and aquatic species.
5. The DPEIS does not identify mitigation measures that could reduce water quality and related impacts to aquatic species.
6. The DPEIS presumes native fish in river reaches downstream of land that may be developed are adapted to high sediment loads. This assumption is unsupported. The DPEIS further presumes these fishes are adapted to additional sediment loads.
7. The DPEIS does not include cumulative impacts to water quality. Water depletions may increase total dissolved salt loads, raise water temperature, and increase selenium levels. Together, these impacts may be far reaching, and could extend to downstream environments.
8. The DPEIS does not identify cumulative impacts resulting from the combination of oil shale and other development activities. For example, gas development is throughout the Piceance basin, but no mention is made concerning aquatic resources in the Piceance Creek basin.

⁹² See Appendix 22.

⁹³ 16 U.S.C. §§ 1531 et seq. Section 7 of the Endangered Species Act directs all Federal agencies to use their existing authorities to conserve threatened and endangered species and, in consultation with the US Fish and Wildlife Service, to ensure that their actions do not jeopardize listed species or destroy or adversely modify critical habitat. Section 7 applies to management of Federal lands as well as other Federal actions that may affect listed species, such as Federal approval of private activities through the issuance of Federal permits, licenses, or other actions.

9. The DPEIS does not consider impacts from increased human populations, including increased nutrient loads resulting from increased domestic wastewater treatment plant effluent.
10. The DPEIS ignores key regulations and agreements that will influence oil shale and tar sands development. For example, the DPEIS does not mention the seven-state agreement limiting salt loading to the Colorado River by upstream states. The DPEIS likewise does not consider other water quality standards that will likely be impacted (e.g., selenium standard; temperature standards).

Overall, Woodling concludes, the DPEIS “does not accurately describe the aquatic resources found in waters that would be impacted by oil shale development and does not address regulations and processes that protect these resources.”⁹⁴

In addition to these comments, our comments also incorporate directly and by reference those offered by John Woodling and Erik Molvar.

Endemic Wildflowers

Several wildflowers have been protected under the Endangered Species Act specifically because of the threat of commercial development of oil shale. The BLM must analyze the impacts of oil shale and tar sands development on endemic wildflowers. A thorough analysis of direct, indirect, and cumulative effects of potential oil shale and tar sands development is essential before determining which areas should be available for leasing. The BLM must take a “hard look” at how each alternative would impact each of the special status species in Appendix E, and ensure that the agency is not contributing to the need to list any species, not undermining any existing recovery plans or Conservation Agreements, not sanctioning the adverse modification of designated critical habitat, or permitting leasing in areas where oil shale or tar sands development could jeopardize the future existence of any species.

The lack of analysis in the PEIS contravenes federal law. Rather than simply listing which oil shale or tar sands areas each special status species may occur within, the BLM should work with the Natural Heritage Programs to identify what proportion of the known occurrences of each species would be made available for leasing under each alternative, and should also disclose what proportion of the high-quality occurrences could be offered for lease. The areas that the BLM is considering opening to development are centers of endemism, and it is highly likely that the current alternatives would open to leasing every known occurrence of multiple species. The DPEIS, as noted throughout these comments, may be the sole decision point where the BLM evaluates the cumulative effects of full-scale development. This type of landscape analysis is precisely why a programmatic EIS must fully consider impacts from a new program before it is authorized. Deferring analysis until leases are issued or projects are approved results in a piecemeal approach where the BLM may not understand until it is too late that the best recovery habitat for an imperiled species has already been sacrificed. This situation is occurring right now with conventional oil and gas leasing in the West.

The DPEIS provides conflicting information about whether the BLM intends to undergo Section 7 consultation with the USFWS. Page 7-6 states that consultation on portions of the DPEIS will occur; page 4-99 suggests that BLM is making a “may affect” finding for a whole list of species; and pages 6-291 to -292 indicate that the BLM has made a no effect finding, will not prepare a Biological Assessment, and will not enter into Section 7 consultation at this time. The BLM essentially claims that opening an area to leasing has no effect on the environment and therefore consultation is not required.

⁹⁴ Appendix 22 at 6.

However, in a 2007 ruling federal court found that consultation should have taken place before the BLM made South Shale Ridge available for oil and gas leasing:⁹⁵

The Court draws some guidance from the ESA's regulations regarding the conferral process. Of particular note is 50 C.F.R. § 402.14(a), which directs that "[e]ach federal agency shall review its actions at the earliest possible time" to determine whether an action may affect protected species, and, if so, to engage in the appropriate level of conferral. This, in turn, suggests that the conference should occur as early as all of the necessary information is available; there is little logic in requiring an agency to make an early determination that conferral is required, only to allow the agency to postpone actually conferring until some indeterminate later date. Thus, the Court finds that the BLM's duty to confer with the FWS arises as of the time that it was possible for the two agencies to engage in meaningful conference regarding the decision to be made.⁹⁶

Accordingly, due to the likely impacts oil shale and tar sands development will have on listed species, the BLM must consult with the USFWS on the decision to amend these RMPs.

The specifics of how oil shale and tar sands development may proceed are not necessary for the two agencies to consult about potential impacts, for the USFWS has valuable information about steps the BLM should take to protect and recover imperiled species. Importantly, consultation is already stale on many if not all of these plans already. We are aware that the BLM has been working on programmatic BAs for years to remedy this, but that process has been stalled for some time now. Since the agency is already vulnerable to being brought up on Endangered Species Act violations, it makes little sense to further exclude input from the Service now.

For some special status species, the DPEIS omits or gets wrong basic life history needs. For example, Appendix E simply lists "not available" for the habitat description for *Astragalus coltonii* var. *moabensis*. However, a quick search on NatureServe (the Natural Heritage Program's national database) gives the following habitat description for this subspecies: "Pinyon/juniper and mountain brush communities 4400-6900 ft."⁹⁷ For *Cirsium ownbeyi*, the only county listed is Sweetwater, when both NatureServe and the USDA's PLANTS database indicate that it is also found in Uintah County, Utah. The DPEIS description of *Penstemon debilis* habitat – "Rocky clay loam soils of sagebrush hills and flats at elevations between 7,000 and 8,500 ft." – is incorrect.⁹⁸ This mistake is important, because this species is endemic to the areas under consideration for oil shale development.

Throughout the DPEIS the BLM refers only to *Sclerocactus glaucus*, when this taxon has now been split into three different species, including *Sclerocactus wetlandicus* and *Sclerocactus brevispinus*. Most if not all of the occurrences of these latter two species are within areas that the BLM proposes to open to oil shale and tar sands leasing, and this decision could constitute jeopardy. In September 2007, the USFWS ruled *Sclerocactus brevispinus* warrants uplisting to "Endangered" status. The finding made no mention of the additional threat of tar sands or oil shale, yet based on conventional oil and gas drilling

⁹⁵The Wilderness Soc'y v. Wisely, 524 F.Supp.2d 1285 (D. Colo. 2007).

⁹⁶*Id.* at 1301.

⁹⁷ NatureServe Explorer: An Online Encyclopedia of Life, <http://www.natureserve.org/explorer/> (last visited Mar. 19, 2008).

⁹⁸ DPEIS at E-15.

alone the USFWS stated, “The species cannot tolerate the cumulative effects from existing and proposed energy projects, especially due to the extent of roads within *S. brevispinus* habitat.”⁹⁹ Yet in the DPEIS the BLM once again fails to recognize that *Sclerocactus brevispinus* even exists. These examples are representative of the DPEIS's inadequate analysis of current conditions and potential impacts of commercial oil shale and tar sands leasing.

The DPEIS also fails to provide protections to oil shale endemics like *Penstemon grahamii*, despite the BLM's past assurances that this would occur. On May 10, 2006, Kathleen Clarke submitted to the USFWS official comments on the proposal to protect *Penstemon grahamii* under the Endangered Species Act. In her letter, Clarke committed that the PEIS would incorporate conservation measures for *penstemon*, including making the proposed critical habitat areas for *Penstemon grahamii* off-limits to oil shale and tar sands leasing:

The BLM will develop the necessary conservation measures to protect this and other species from the future potential impacts of oil shale and tar sands development. This will be accomplished through the recently initiated Programmatic Environmental Impact Statement (PEIS) for the Oil Shale/Tar Sands Commercial Leasing Program and concurrent development of the associated regulatory program. Required conservation measures for *P. grahamii* and other species will be generated through the PEIS process and will be applied to oil shale and tar sands development projects. While we cannot describe what the specific conservation measures will be, because they are yet to be developed, they will incorporate effective conservation measures for *P. grahamii* and other species.¹⁰⁰

Despite Clarke's commitment and the need to protect this species, the DPEIS opens most of the former critical habitat proposal for the *penstemon* to leasing. Contrary to NEPA's mandate, the DPEIS does not take the hard look required by law. The DPEIS does not evaluate conflicts between leasing and habitat critical to the recovery of *Penstemon grahamii* or other species, or seriously consider what changes in land use allocation or stipulations may be necessary to conserve this or any of the other oil shale endemic species. Taking these actions for *Penstemon grahamii* is especially critical because this species currently has no special status.

The BLM must take a close look at indirect and cumulative effects to these oil shale endemic species as well. For example, the Dudley Bluffs plants are already under considerable pressure from conventional oil and gas drilling, especially the Piceance Development Project. Like *Sclerocactus brevispinus*, currently authorized roads and wells may have already disturbed the Dudley Bluffs plants too much; adding a new industry to their habitat may be more than they or their pollinators can tolerate.

The DPEIS acknowledges that rare species are inherently more vulnerable to the effects of disturbance like that which would accompany oil shale or tar sands development. But the BLM must also consider how this program will contribute to climate change and therefore further imperil rare species in the region. Many of the rare plants that will be affected by oil shale and tar sands development are edaphic endemics - species tied to very specific substrates, many of them only found growing on oil shale. These species may be particularly hard-pressed to respond to climate change because the soils they rely on may be restricted to very narrow elevational and/or latitudinal bands that do not allow for refugia

⁹⁹ 72 Fed. Reg. 53217 (Sept. 18, 2007).

¹⁰⁰ *Id.* at 5-6.

from warmer, drier conditions. These plants are literally tied down to oil shale soils, and cannot march up a mountain or move north in response to climate change without leaving behind the soils they require. In facilitating the oil shale and tar sands industry, the BLM is dealing these endemics a double blow – fragmenting and degrading their habitat, and contributing even more greenhouse gases (both through oil shale and tar sands mining, and through meeting the tremendous energy needs that would have to power oil shale and tar sands extraction) which may speed species decline due to drought stress.

The Intergovernmental Panel on Climate Change has come to consensus on several factors relevant to the potential threat of climate change to endemic species, including:

- “With global average temperature changes of 2°C above pre-industrial levels, many terrestrial, freshwater and marine species (particularly endemics across the globe) are at a far greater risk of extinction than in the recent geological past (medium confidence)”¹⁰¹
- “Warming and drying trends are likely to induce substantial species-range shifts, and imply a need for migration rates that will exceed the capacity of many endemic species.”¹⁰²
- “The likely synergistic impacts of climate change and land-use change on endemic species have been widely confirmed.”¹⁰³

The DPEIS is exactly where the BLM should be taking a hard look at the indirect and cumulative impacts that oil shale and tar sands development would have on at-risk species like these.

Climate Change

Climate change is a subject that has been intensely studied by the world’s scientists, and broad consensus exists around its causes, magnitude and effects. The planetary warming that scientists predict will result from human emissions of heat-trapping gases is already underway. In February 2007, the Intergovernmental Panel on Climate Change (IPCC) declared, “[w]arming of the climate system is unequivocal,” and it is “very likely” that most of the warming since the middle of the 20th century is the result of human pollutants. Climate change is a global phenomenon with well-documented and serious local impacts. Those impacts affect the both ecosystems and the welfare of citizens not only around the world, but in the United States and the nation’s Western states in particular.

In addition to its other disruptive direct effects, oil shale and tar sands leasing, development and use poses serious climate threats: first, production of oil from shale and tar sands will likely result in the generation of huge quantities of greenhouse gas emissions and second, transportation fuels derived from oil shale and tar sands are highly energy intensive and have a carbon footprint that is known and calculated to be higher than conventional fuels, and significantly higher than other cleaner fuel alternatives.

Many of the public resources managed by the Department of the Interior are being harmed by climate change resulting from increased greenhouse gas emissions¹⁰⁴. The West in particular is being affected more by a changed climate than any other part of the United States outside of Alaska: compared

¹⁰¹ Fischlin et al., 213 (2007).

¹⁰² *Id.* at 226.

¹⁰³ *Id.* at 241 (citing Hannah et al., 2002a; Hughes, 2003; Leemans and Eickhout, 2004; Thomas et al., 2004a; Lovejoy and Hannah, 2005; Hare, 2006; Malcolm et al., 2006; Warren, 2006).

¹⁰⁴ See generally, GAO, Climate Change: Agencies Should Develop Guidance for Addressing the Effects on Federal Land and Water Resources (Aug. 2007).

to the 20th century average, the West has experienced an increase in average temperature during the last five years that is 70 percent greater than the world as a whole.

The attached discussion of global climate change and impacts from oil shale and tar sands development prepared by the Natural Resources Defense Council identifies five ways in which public land resources are already being adversely affected by climate change.¹⁰⁵

1. The West is getting hotter

The American West has heated up even more than the world as a whole. The West has also experienced more frequent and severe heat waves, with the number of extremely hot days increasing by up to four days per decade since 1950. These heat waves, particularly those with excessive nighttime heat, can be deadly. Climate change has eroded the severe winter cold of the West's mountains. This has resulted in declining springtime western snowpacks.¹⁰⁶

2. The West is getting drier

In the arid and semi-arid West, global warming is already having serious consequences for the region's scarce water supplies, particularly the snow that makes up most of the region's precipitation and, when melted, provides 70 percent of its water. Already, decreases in snowpack, less snowfall, earlier snow melt, more winter rain events, increased peak winter flows, and reduced summer flows have been documented.

3. Climate change is disrupting ecosystems

The IPCC also concluded that "recent warming is already strongly affecting" ecosystems and wildlife. Forests across the West have suffered as warming has extended the range of some damaging insects, such as bark beetles. Glaciers are melting across the West. The warming of the West is also disrupting the natural timing of seasons and leading to loss of wildlife.

4. Climate change is affecting wildlife

Greenhouse gas emissions are also having direct and indirect impacts on wildlife species, including numerous listed species. The IPCC has reported that 30 percent of animal and plant species could be at an increased risk of extinction if global warming continues unabated.¹⁰⁷

5. Warmer temperatures affect business, recreation, and tourism

In the first few years of the 21st century, western farmers and ranchers have suffered significantly from the combination of above-normal heat and drought. Across the country, four of the five top years for crop loss claims due to drought have been since 2000. Warming temperatures and other manifestations of a changing climate are already diminishing fishing and hunting opportunities in the

¹⁰⁵ Appendix 15.

¹⁰⁶ Mote P. W., Hamlet A. F., Clark M. P., and Lettenmaier D. P. 2005. Declining Mountain Snowpack in Western North America. *Bulletin of the American Meteorological Society*. 86: 39-49. See also Intergovernmental Panel on Climate Change (IPCC), "North America," in *Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, M.L. Parry and others, eds., Cambridge University Press, Cambridge, UK (2007), 621-22.

¹⁰⁷ IPCC, 2007: Summary for Policymakers. In: *Climate Change 2007: Fourth Assessment Report, Synthesis Report*, available at http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr_spm.pdf

West. Sea-run salmon stocks are in steep decline throughout much of North America.

BLM is required to analyze the impacts of climate change and take action to reduce it.¹⁰⁸ In 2007 the Supreme Court issued a decision that recognized the severity of the climate change crisis, and the U.S. Environmental Protection Agency's obligation to confront the problem. The Court noted "the enormity of the potential consequences associated with man-made climate change,"¹⁰⁹ and the contribution of carbon dioxide emissions to global warming.¹¹⁰ The Supreme Court's concluded, "[t]he harms associated with climate change are serious and well recognized,"¹¹¹ and that the federal government has a responsibility to take action to reduce it, even if such action may not completely reverse global warming.¹¹² BLM is not exempt from that responsibility.

In enacting FLPMA, Congress enacted a policy that "the public lands be managed in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archeological values..."¹¹³ Further, FLPMA directs BLM to manage the lands under its jurisdiction in such a manner that will "best meet the present and future needs of the American people;" "provide sufficient latitude for periodic adjustments in use to conform to changing needs and conditions;" and "take[] 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..."¹¹⁴ In addition, the statute requires BLM to "minimize adverse impacts on the natural, environmental, scientific, cultural, and other resources and values (including fish and wildlife habitat) of the public lands involved."¹¹⁵

As documented above, climate change is already threatening many of these very resources in the West including undoubtedly resources on BLM-administered lands. Accordingly, FLPMA imposes an obligation on BLM to take the effects of climate change into account in managing and in making decisions about various uses of the public lands under its stewardship.

In fact, an order issued by the Secretary of the Interior requires that:

Each bureau and office of the Department will consider and analyze potential climate change impacts when undertaking long-range planning exercises, when setting priorities for scientific research and investigations, when developing multi-year management plans, and/or when making major decisions regarding the potential utilization of resources under the Department's purview.¹¹⁶

Obviously, the proposed decisions that the DPEIS purports to address are covered by this order. Thus, the BLM's failure to address climate change impacts in this impact statement is not only inexplicable, it directly contravenes an explicit Secretarial order.

¹⁰⁸ Massachusetts v. EPA, 127 S. Ct. 1438 (2007),

¹⁰⁹ *Id.* at 1458.

¹¹⁰ *Id.* at 1457-58.

¹¹¹ *Id.* at 1455.

¹¹² *Id.* at 1458.

¹¹³ 43 U.S.C. at § 1701(a)(8).

¹¹⁴ *Id.* § 1702(c).

¹¹⁵ *Id.* § 1732(d)(2)(a).

¹¹⁶ U.S. Dept. of the Int., Sec. Order No. 3226 (Jan. 19, 2001), Section 3.

BLM is also required under NEPA to analyze climate change impacts that result from its actions. CEQ regulations require federal agencies to get information “essential to a reasoned choice among alternatives” when the overall costs of obtaining the information are “not exorbitant.”¹¹⁷ Modeling to predict effects of climate change on specific landscapes and wildlife populations is absolutely essential when planning whether to allow thousands of new wells, mining and the construction of associated large scale infrastructure. Programmatic NEPA analyses clearly provide the Interior Department the ability to address climate change in the most efficient and effective way.

Clearly, oil shale and tar sands leasing and development will result in increased greenhouse gas emissions and exacerbate climate change. The lifecycle emissions of oil shale- and tar sands-oil are well above those of conventional fuels or cleaner alternatives.¹¹⁸ The DPEIS acknowledges that climate change exists and will have environmental consequences.¹¹⁹ It also acknowledges that development of these resources is certain to require coal fired power and that construction of more such plants will be needed.¹²⁰ It also purports to predict the impacts of such use, albeit selectively – i.e., excluding greenhouse gas and climate change impacts.¹²¹

The DPEIS fails dismally to consider climate change on many fronts. Despite the legal mandates that require BLM to address climate change, the DPEIS does not discuss the potential direct, indirect and cumulative impacts on climate change from oil shale and tar sands development and use, let alone make any attempt to quantify them. It fails to quantify the carbon emissions from leasing, development and use and compare them to a baseline. It fails to analyze the direct, indirect and cumulative impacts that climate change and increased carbon emissions will have on the welfare of ecosystems and humans – both qualitatively and quantitatively. It also fails to analyze alternatives to oil shale and tar sands development in meeting energy needs.

Federal agencies generally and the BLM in particular are required to incorporate climate change and its impacts in their decision calculus under a number of mandates, including NEPA, FLPMA and Secretarial Order 3226. Thus, the current DPEIS is fatally flawed, violates NEPA and must be supplemented to integrate climate change in its analysis.

In addition to these comments, our comments also incorporate directly and by reference the Natural Resource Defense Council’s discussion of climate change impacts.¹²²

Air Resources

Despite the fact that, as the BLM recognizes, oil shale and tar sands development would negatively impact air quality, the DPEIS does not analyze impacts that would result from the actions authorized under the RMP amendments. The BLM instead defers all air quality analyses until specific oil shale and tar sands development projects are proposed – and in doing so fails to comply with both NEPA and FLPMA. Without such an analysis in the DPEIS, the BLM cannot determine how the activities authorized in the DPEIS affect air quality nor ensure development will prevent significant deterioration of air quality, as required by the Clean Air Act (CAA).¹²³

¹¹⁷ 40 C.F.R. § 1502.22(a).

¹¹⁸ See Brandt, A. R. and Farrell, A. E. Scraping the bottom of the barrel: CO2 emission consequences of a transition to low-quality and synthetic petroleum resources. *Climatic Change* (2007) 84:241–263.

¹¹⁹ See DPEIS at 3-95 to -98; 5-40 to -41.

¹²⁰ DPEIS at 6-112.

¹²¹ See DPEIS at 6-113.

¹²² Appendix 15.

¹²³ 42 U.S.C. § 85

This approach is unacceptable. Protecting air quality should be a priority, not just an afterthought. FLPMA requires the BLM to consider the relative value of the various resources, and clean air is increasingly becoming (along with undeveloped landscapes) a most valued, yet dwindling, resource. Oil shale and tar sands development activities directly contribute to air pollution in several ways, all of which should be addressed in the DPEIS.

Under NEPA, the BLM must conduct a comprehensive quantitative analysis of air quality impacts and evaluate the potential impacts of air pollution from commercial-scale oil shale and tar sands development on human health and the environment. Yet, as Megan Williams, an air quality expert, notes in her expert comments, “The BLM does not provide specific analyses of near-field, far-field or cumulative air quality impacts as required by NEPA for resource management plan amendments and environmental impact statements.”

NEPA mandates that environmental impact statements be done with "scientific integrity" and requires information be collected unless the costs would be exorbitant or the means to do so are unknown.¹²⁴ This standard can and should be met. The BLM is also required to assess and report on the cumulative impacts of expected emissions on the National Ambient Air Quality Standards (NAAQS), prevention of significant deterioration (PSD) increments, and air quality related values (AQRVs). The DPEIS bypasses this important analysis and reporting requirement, and also sidesteps requirements to identify alternatives or other mitigation measures sufficient to prevent expected impacts, including air quality violations.

Likewise, under the CAA, RMPs must manage actions on public lands to meet the air quality standards prescribed by Federal, State, and local laws, which includes improving air quality in non-attainment areas. FLPMA further mandates “[i]n the development and revision of land use plans, the Secretary shall . . . (8) provide for compliance with applicable pollution control laws, including State and Federal air, water, noise, or other pollution standards or implementation plans”¹²⁵ Taken together, under this regulatory framework, the BLM must conduct a full-scale quantitative analysis of the air quality impacts in both the study area and all affected areas. Otherwise, it is impossible to quantitatively show that production contemplated under the DPEIS and as provided in the RMP amendments will ensure attainment with all applicable standards.

BLM should proactively manage air quality. That means, among other things, gathering baseline air quality data; setting aggressive standards; requiring any actions on public lands to meet those standards; analyzing the cumulative impact of any proposed action with other past, present, and reasonably foreseeable actions; and establishing an effective monitoring program. It also could entail halting any actions that contribute to air pollution if such monitoring reveals that standards have been exceeded.

Because of oil and gas drilling and other activities in the study area, the BLM and industry are not starting with a clean slate. There are ongoing air quality concerns. As Williams notes in her comments, particulate matter concentrations are high as are ozone concentrations. Visibility in several Class I Areas in each state is already impacted. The final EAs for the five oil shale RD&D test sites in Colorado concluded there will be significant adverse effects on visibility at the Flat Tops Wilderness Area Class I area. Several RMPs in Utah have identified visibility impacts from oil and gas development in several Class I areas, including Canyonlands National Park and Capitol Reef National Park. In Wyoming, there

¹²⁴ See 40 CFR §1502.24.

¹²⁵ 43 U.S.C. § 1712(c)(8); see also 43 CFR § 2920.7(b)(3) (requiring the same for land use authorizations).

are serious concerns that visibility in the Bridger Wilderness Area and other nearby Class I areas as a result of oil and gas development in the Pinedale Anticline and Jonah Fields.

Part of the challenge industry faces in trying to develop oil shale and tar sands is that the increments are already consumed. As Williams notes, “the near-field modeling performed for the draft EGL oil shale RD&D EA showed that the EGL project alone would directly cause violations of the 24-hour average Class II PM₁₀ and SO₂ increments.” These impacts, which are potentially widespread, are missing from the DPEIS.

Williams further notes there are a number of other steps the BLM must take to comply with all applicable laws and regulations:

1. The BLM must acknowledge and address the potential enormous impacts that would result from the electricity requirements of commercial scale in-situ oil shale development;
2. The BLM must determine whether commercial-scale oil shale and tar sands development, along with all other ongoing development in the study area, will cause significant deterioration of air quality or impact visibility;
3. The BLM must disclose the magnitude of emissions authorized under the three alternatives of the DPEIS and perform a full-scale dispersion modeling analysis of the alternatives to evaluate the potential air quality impacts from a commercial-scale oil shale and tar sands leasing program; and
4. The BLM must include adequate plans to protect air quality in the affected areas as part of the RMP amendments and DPEIS.

In summary, the BLM’s charge under the NEPA, FLPMA and CAA is to demonstrate that every decision or action it takes will comply with applicable air quality requirements. Without further detail in the DPEIS, the BLM cannot meet this critical charge.

In addition to these comments, our comments also incorporate directly and by reference those offered by Megan Williams.¹²⁶

Socio-Economic Impacts

Over the past 30 years, western economies have shifted from largely extractive industries to more diversified economies based on recreation, tourism, knowledge-based industries and the professional and service sector (Bennett and McBeth 1998, Johnson 2001). A recent study examining the impact of public lands on economic well-being in 11 western states found that only 3% of western counties could be classified as resource-extraction dependent.¹²⁷ There is a vast and growing body of research that indicates that the environmental amenities provided by public lands are an important economic driver in the rural West (Rudzitis and Johansen 1989; Johnson and Rasker 1993, 1995; Rasker 1994; Power 1995, 1996; Duffy-Deno 1998; Rudzitis 1999; Rasker et al. 2004; Holmes and Hecox 2004). Given the changing nature of these economies, prioritizing oil shale and tar sands development at the expense of non-extractive economic drivers may harm the economy of the region in the long run by depleting the natural amenities currently responsible for the economic growth of western communities.

The western region of the United States is growing at a rate faster than any other region (U.S. Census Bureau 2001), and, counter to the norm, population growth has preceded employment growth in

¹²⁶ Appendix 19.

¹²⁷ R. Rasker, B. Alexander, J. van den Noort and R. Carter..2004. The Sonoran Institute, Public Lands Conservation and Economic Well-Being. Tucson AZ: The Sonoran Institute. Available at http://sonoran.org/index.php?option=com_docman&task=cat_view&gid=152&Itemid=74.

the rural West (Vias 1999), indicating that people migrate to the region for its amenity resources. Furthermore, counties with high levels of natural amenities (such as varied topography, access to water bodies, and a pleasant climate) are more likely to experience higher growth than those counties with fewer such amenities (McGranahan 1999). Along with this growth comes demographic change. As Shumway and Otterstrom (2001) point out, "Population change represents more than a simple redistribution of people; it is an indicator and, in many instances an instigator, of a wide range of economic, social, cultural, political/policy, and environmental changes." As more people move from urban areas to rural communities they bring with them expectations about how local public lands ought to be managed. Changing community values must be accounted for in land management planning.

It is especially important to consider these demographic and economic shifts given the location where this large-scale oil shale development is being proposed. Garfield County, Colorado and many of the towns throughout the county have had negative experience with the disruption that usually accompanies the booms and busts of natural resource extraction. Since the previous oil shale bust in 1981, the area has successfully made a transition from an economy that is dependent on extraction of natural resources to one that relies more heavily on the protection of the natural amenities. This area has developed a thriving retirement community, and has begun to market itself as a destination for outdoor recreation. The proposed oil shale development threatens these economic drivers. It is imperative that the relationship between protected public lands in the area and the local economy be given a more thorough comprehensive examination. See Haefele et al. (2006) for additional details on more complete socioeconomic analysis.

As rural communities diversify their economies, the framework for making public land management decisions must also evolve. Management plans for public lands need to account for all aspects of the economic and social systems of these communities, including investment and retirement income, recreation, tourism, and entrepreneurial businesses attracted to scenic locations, when evaluating alternatives. Management plans must also consider the increasing importance of industries and economic sectors that rely on these public lands, but not necessarily on the extraction of natural resources. As the population of the entire country grows, the presence of undeveloped lands becomes increasingly important because these lands strengthen western rural economies by meeting growing needs for clean air and water, wildlife habitat, and recreation opportunities.

Furthermore, many rural communities in the Rocky Mountain region are benefiting from the increase in demand for outdoors recreation, especially activities on federal public lands. The Outdoor Industry Foundation reported that more than 161 million Americans participated in outdoor recreation in 2005.¹²⁸ Another OIF (2006) analysis shows that the total economic contribution of active outdoor recreation is \$730 billion nationwide.¹²⁹ The total economic contribution to Colorado alone from active outdoor recreation, including hunting, fishing, and wildlife-watching, is more than \$10 billion, and results in 82,840 full-time jobs.¹³⁰

It is this framework that BLM needs to analyze and put in context when assessing the following impacts:

¹²⁸ Outdoor Industry Foundation. 2006. Outdoor Recreation Participation Study Eight Edition, For Year 2005. Trend Analysis for the United States. Boulder CO: Outdoor Industry Foundation.
<http://www.outdoorfoundation.org/pdf/ResearchParticipation2005.pdf>

¹²⁹ Outdoor Industry Foundation. 2006. The Active Outdoor Recreation Economy. Boulder CO: Outdoor Industry Foundation. Available at:<http://www.outdoorindustry.org/images/researchfiles/RecEconomypublic.pdf?26>.

¹³⁰ Active Outdoor Recreation Economy in Colorado Available at:
<http://www.outdoorfoundation.org/pdf/ResearchRecreationEconomyStateColorado.pdf> (Other states available at:
<http://www.outdoorfoundation.org/research.recreation.state.html>)

- Lands identified for oil shale development “are currently used for a wide variety of uses, including recreation, mining, hunting, oil and gas production, livestock grazing, wild horse and burro herd management, communication sites, and ROW corridors (e.g., roads, pipelines, and transmission lines). Commercial oil shale development activities would have a direct effect on these uses, displacing them from areas being developed to process oil shale.”¹³¹
- “Indirect impacts of oil shale development would be associated with changing existing off-lease land uses including conversion of land in and around local communities from existing agricultural, open space, or other uses to provide services and housing for employees and families that move to the region in support of commercial oil shale development. Increases in traffic, increased access to previously remote areas, and development of oil shale facilities in currently undeveloped areas would continue changing the overall character of the landscape that has already begun as a result of oil and gas development.”¹³²
- “Commercial oil shale development is largely incompatible with other mineral development activities and will likely preclude these activities while oil shale development and production are ongoing.”¹³³
- “Grazing activities would be precluded by commercial oil shale development in those portions” of the lease area. “[T]emporary or long-term reductions in authorized grazing use may be necessary because of loss of a portion of the forage base.”¹³⁴
- The number of new residents lured by commercial development of oil shale will substantially change demographics and social fabric of rural communities. Small isolated, close-knit, homogeneous communities with a strong orientation toward personal and family relationships will become more urban.¹³⁵
- “Because of the relative economic importance of oil shale developments in small rural economies and the lack of available local labor and economic infrastructure, large-scale oil shale developments are likely to cause a large influx of temporary population. . . . [L]ocal communities may be unable to quickly absorb new residents, resulting in impacts on local finances and public service infrastructure.”¹³⁶
- The new residential population would require the hiring of additional local public service employees, which would also require increases in local revenue and expenditures.¹³⁷
- Property value impacts could be substantial as a result of “deterioration in aesthetic quality, increases in noise, real or perceived health effects, congestion, or social disruption.”¹³⁸
- Water is likely to be transferred from traditional agricultural uses to industrial uses, resulting in the loss of traditional irrigated agriculture. Changes may also result in an increase in dryland agriculture, and depending on scale it may also result in a transition from traditional agriculture based community to a more urbanized lifestyle.¹³⁹

These impacts are significant. They are also wrongly dismissed by the BLM.

The BLM’s analysis does not properly evaluate impacts to the region of influence (ROI) and discounts the cost obligations thrust onto local governments who need to develop the infrastructure

¹³¹ DPEIS at 4-16.

¹³² *Id.*

¹³³ *Id.* at 4-17.

¹³⁴ *Id.* at 4-18.

¹³⁵ *Id.* at 4-144.

¹³⁶ *Id.* at 4-134.

¹³⁷ *Id.* at 4-140 to 4-141.

¹³⁸ *Id.* at 4-146.

¹³⁹ *Id.* at 4-144 to 4-145.

necessary to support oil shale and tar sands development. These obligations are most notable in the mitigation measures the BLM identifies, measures that are hypothetical in nature and that place the economic and social costs squarely on the backs of communities, not on industry who is seeking to benefit from exploitation of public resources.

Catherine Keske, an economist and assistant professor at Colorado State University, believes many of the costs and benefits identified in the DPEIS are speculative. She identifies six areas that require further investigation:

1. Use of IMPLAN modeling program
2. Economic costs to recreation, agricultural production, and agri-tourism
3. Non-market values
4. Limitation on the comments on the socio-economic section
5. Dynamics of a mineral economy
6. Market-based incentives to mitigate loss of ecosystem services

One example Keske identifies that highlights the limitations inherent in the BLM's analysis concerns Colorado's TABOR Act. TABOR is a set of constitutional provisions which limit revenue growth for state and local governments in Colorado. One of the provisions requires that any tax increase in any state or local government (counties, cities, towns, school districts and special districts) must be approved by the voters of the affected government. TABOR principally limits revenues state and local governments can collect and retain. Any revenues received in excess of this limit must be refunded to the voters.

Nowhere in the DPEIS is TABOR mentioned. Nowhere does the BLM identify the true impacts to local governments from what is essentially a federal government-private industry development plan that puts unfunded mandates on the backs of local governments. At the Denver BLM's DPEIS open house Argonne staff who drafted this section admitted they did not know about TABOR. Instead, they projected steady revenues, revenues which are currently insufficient to meet the current oil and gas boom in western Colorado and which governments cannot count on under TABOR limitations.

Another flaw in the BLM's approach is in using IMPLAN to identify impacts to each ROI. As Keske notes, IMPLAN was not appropriately used to measure the effects. The BLM must therefore fully discuss the assumptions used in the IMPLAN model, the shortcomings, and the risk and uncertainty due to the poor track record of the IMPLAN model in planning efforts.

The IMPLAN model was developed to conduct static analyses, not as a predictive model, and therefore it must be used with full awareness of this and other shortcomings. The model is based upon the economic base theory, which assumes a static economy – looking only at the export base at one point in time.

This model also does not consider the impacts of many other important variables that affect economic growth in the rural West. Such factors include the role that the region's natural amenities (for example hunting, fishing and recreational opportunities, open space, scenic beauty, clean air and clean water) and quality of life play in attracting and retaining entrepreneurs and highly skilled workers both of which are in turn associated with economic growth. IMPLAN also does not account for non-labor income, the bulk of which consists of investment and retirement earnings which is becoming increasingly important to rural economies of the West.

Economists have been skeptical of economic base theory as a predictive tool for decades. Tiebout points out that regions which fail to develop a local economy will be unable to support an export

economy.¹⁴⁰ It is the amenities which are often key to maintaining a diversified and functioning local economy. Richardson also concludes that economic base theory has been roundly disproved.¹⁴¹ Krikelas reviewed several empirical tests of the economic base hypothesis and found that fewer than 6% of them were able support the theory.¹⁴² Both Haynes and Horne¹⁴³ and Krikelas¹⁴⁴ discuss the limitations of economic base theory as a predictive tool for planning or for long-term policy analysis. Other critiques of economic base theory come from the U.S. Office of Technology Assessment,¹⁴⁵ and from economists with the U.S. Forest Service.¹⁴⁶ These scientists conclude that IMPLAN is not sufficient for assessing the overall impacts of land management on communities.

To best assess the impacts to each ROI, the BLM must complete a trend analysis of regional jobs and income in order to provide a better and more complete understanding of their economic past and their economic future. The Economic Profile System model developed by the Sonoran Institute in cooperation with the Bureau of Land Management (available at www.sonoran.org) is one way to easily develop trend analyses and a broader picture of the economy of the ROI and its component counties.

Based on the aforementioned, we further request that:

1. The BLM estimate the true costs associated with oil shale and tar sands development to private landowners;
2. The BLM identify the increased public service and infrastructure costs associated with oil shale and tar sands development; and
3. The BLM analyze the socio-economic costs to communities associated the potential future boom and bust cycles of oil shale and tar sands development.

A thorough discussion of these and other costs to communities from extractive industry development, as well as a more thorough critique of IMPLAN and economic base models can be found in Appendix 4 incorporated herein.

In addition to these comments, our comments also incorporate directly and by reference those offered by Catherine Keske.

Cultural and Paleontological Resources

Most if not all historical, archeological, cultural and paleontological resources (hereinafter, “cultural resources”) are strictly non-renewable; once marred or destroyed, they are forever lost to future generations. Such fragility demands utmost care and humility from BLM managers and planners. Each

¹⁴⁰ Tiebout, C.M. 1956. Exports and regional economic growth. *Journal of Political Economy* 64:160-64.

¹⁴¹ Richardson, H.W. 1985. Input-Output and Economic Base Multipliers: Looking backward and forward. *Journal of Regional Science* Vol. 25(4).

¹⁴² Krikelas, A.C. 1991. Industry structure and regional growth: A vector autoregression forecasting model of the Wisconsin regional economy. Ph.D. Dissertation. University of Wisconsin-Madison.

¹⁴³ Haynes, R. W.; Horne, A. L. 1997. Economic Assessment of the Basin. In T.M. Quigley and S.J. Arbelbide (eds.), *An assessment of ecosystem components in the Interior Columbia Basin and portions of the Klamath and Great Basins: Volume IV. 1715-1870*. USDA Forest Service, PNW-GTR-405, Pacific Northwest Research Station, Portland, OR.

¹⁴⁴ Krikelas, A.C. 1992. Why regions grow: A review of research on the economic base model. *Economic Review*. Vol. 77(4).

¹⁴⁵ U.S. Congress, Office of Technology Assessment. 1992. *Forest Service planning: Accommodating uses, producing outputs, and sustaining ecosystems*, OTA-F-505. Washington, DC.

¹⁴⁶ Hoekstra, T. W., G. S. Alward, A. A. Dyer, J. G. Hof, D. B. Jones, L. A. Joyce, B. M. Kent, R. Lee, R. C. Sheffield, R. Williams. 1990. Analytical tools and information. *Critique of Land Management Planning*, Volume 4. USDA Forest Service, FS-455. 47 pp.

RMP the BLM amends through the DPEIS should reflect and require a conservative approach to managing these priceless and irreplaceable resources.

Federal laws, regulations and executive orders require the BLM to protect properties of cultural and religious significance. FLPMA specifies the BLM must protect cultural resources,¹⁴⁷ while the National Historic Preservation Act of 1966 (“NHPA”)¹⁴⁸ provides for enhanced consideration of potential impacts to these resources through a cooperative federal-state program. NHPA compliance includes assessing the effects of management actions on historic and cultural resources listed or eligible for listing to the National Register of Historic Places.¹⁴⁹ Other governing laws include, but are not limited to, the Antiquities Act of 1906,¹⁵⁰ the Archaeological Resources Protection Act (ARPA),¹⁵¹ and the Native American Graves Protection and Repatriation Act (NAGPRA).¹⁵² BLM’s decisions regarding cultural resource management are also governed by NEPA. The BLM must adhere to these and other laws when amending and implementing each RMP, and must provide evidence of cultural resource consideration as part of the DPEIS prepared as part of the RMP revision process.¹⁵³

These responsibilities were reaffirmed by Executive Order 13287 (March 3, 2003): “[The BLM must ensure] the management of historic properties in its ownership is conducted in a manner that promotes the long-term preservation and use of those properties as Federal assets” It is within this broad context that the BLM must carefully consider federal management actions regarding oil shale and tar sands and the affects of such decisions on archaeological and historic resources of significance to all Americans.

While the BLM’s multiple-use mandate requires land managers to consider the value of cultural resources in their decision-making process, these resources are frequently given short shrift in this calculus. Their value is not easily measured, and as a result they are sacrificed in pursuit of more obviously economically profitable resources.

The DPEIS states these resources are significant and identifies four primary ways these resources could be impacted, each of which either degrades or destroys the resource. The DPEIS provides boilerplate language regarding NHPA, even though Section 106 consultations are designed to avoid, reduce, or mitigate the potential for adverse impacts on significant cultural resources. The NHPA requires more from the BLM.

RMPs serve as the principle guide for the BLM’s management of cultural resources.¹⁵⁴ As noted above, the BLM’s multiple-use mandate requires managers to balance resource use and resource preservation. The BLM Manual provides that land use plans should take into account the effects other land and resource uses may have on cultural resources. The Manual notes that the need for additional information should be evaluated, responsibilities assigned, and schedules established at the outset of the planning process.¹⁵⁵ In other words, not only must the BLM examine the effects of other land and resource uses on cultural resources, it must evaluate whether or not it possesses sufficient information to assess these potential resource conflicts. If the agency lacks enough information to make informed

¹⁴⁷ 43 U.S.C. §§ 1701(a)(8), 1702(c).

¹⁴⁸ 16 U.S.C. §§ 470 to 470x-6.

¹⁴⁹ *Id.* at § 470f.

¹⁵⁰ *Id.* at §§ 431-33.

¹⁵¹ *Id.* at §§ 470aa-mm.

¹⁵² 25 U.S.C. §§ 3001-13.

¹⁵³ *See* BLM Manual MS-8100.08.A.1.b.(3).

¹⁵⁴ *See* BLM Manual MS-8100.08.A.1.a

¹⁵⁵ *Id.* at MS-8100.08.A.1.b.(2).

decisions, it must collect data according to a plan and schedule established at the outset of the planning process. The BLM should clearly spell out the process the agency will follow in order to comply with the procedures outlined by the BLM Manual.¹⁵⁶

The BLM Manual also makes clear that the BLM can prevent unauthorized use of cultural properties through a variety of measures, including administrative protection measures.¹⁵⁷ The Manual specifically notes that the BLM's protective measures may include "withdrawal, closure to public access and off-road vehicles, special designations," etc.¹⁵⁸ The DPEIS should identify areas where cultural sites are at risk, and, because the DPEIS amends RMPs, should employ one or more of these administrative measures to protect these resources. The areas designated should be of sufficient size to allow viable protection of the resources; designation of just the site itself may not allow for effective management. More specifically, the BLM should consider closing culturally sensitive areas to oil shale and tar sands leasing.

The BLMs' argument that the RMP amendments through the DPEIS do not commit the agency to a particular course of action and thus do not need to be fully considered is specious. First, Congress' charge to the BLM was to assess the impacts resulting from oil shale and tar sands development. As Jerry Spangler notes in his comments,¹⁵⁹ there are significant cultural resources in the areas under consideration for oil shale and tar sands development. BLM's decision to defer identifying the direct, indirect and cumulative impacts of oil shale and tar sands development under a later date contravenes Congress' charge to evaluate the impacts.

Second, the BLM's intent in amending the RMPs is to facilitate commercial leasing. As Spangler comments, "identifying lands for potential oil shale and tar sands leasing without critical analysis of the environmental suitability of those lands for leasing puts the cart before the horse." It also contravenes NHPA. The Interior Board of Land Appeals has repeatedly rejected the BLM's position that assessing impacts to cultural resource at a later date was compliant. The IBLA emphasized NHPA compliance must be completed at each phase of a federal action.¹⁶⁰

Most importantly, Congress' stated intent in the Energy Policy Act of 2005 was that commercial development of oil shale and tar sands should "be conducted in an environmentally-sound manner using management practices that will minimize potential effects." By BLM's own admission, opening up 2 million acres to commercial development fails Congress' test.

For example, the baseline information provided in the DPEIS on paleontological resources in Wyoming is inadequate. Portions of the Washakie Basin area, including "most prospective" lands proposed for oil shale leasing under both action alternatives, include the Adobe Town member of the Washakie formation, a paleontological resource of worldwide importance. The Wasatchian-Bridgerian interface found here is one of only two exposures of this time sequence known in the Rockies. The other exposure is in Utah. Because the BLM has failed to grasp the importance of the fossil resources in the Washakie Basin, it has likewise failed to grasp the extreme magnitude of impacts to this area.

¹⁵⁶ *Id.* at MS-8100.08.A.1.b.(2)

¹⁵⁷ *Id.* at MS-8120.32.A

¹⁵⁸ *See id.* at MS-8120.32.A

¹⁵⁹ Appendix 17.

¹⁶⁰ IBLA 2004-124, in *SUWA v. UT* 055.

In addition to these comments, our comments also incorporate directly and by reference those offered by Jerry Spangler.¹⁶¹

Human Health

The public needs more information on human health impacts. Protecting human health is a pillar of NEPA, as one of the fundamental purposes of NEPA is “to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man.”¹⁶² NEPA’s objectives include assuring “healthful” surroundings and attaining beneficial uses of the environment without “risk to health or safety.”¹⁶³ Federal regulations clearly require federal agencies analyze health impacts. For example, under 40 C.F.R. 1508.27, agencies are directed to consider “the degree to which the proposed action affects public health or safety.”

Despite this mandate, the DPEIS does not sufficiently consider the degree to which the proposed action affects public health. For example, Tables 2.6-1 and 2.6-2, in comparing alternatives, only discuss health and safety impacts on workers, not on nearby residents. The DPEIS does not discuss the geographic areas where public health might be impacted, or how many people live within those areas and would be at increased risk of health impacts due to the proposed alternatives.

While there is discussion of potential impacts, it is vague. For example, Tables 4.13.1.1 and 4.13.1.4 state: “Potential adverse health and environmental impacts associated with improper management of hazardous materials could be significant. If hazardous materials are managed according to regulations, impacts are expected to be minimal or nonexistent.” The DPEIS does not identify what “significant” or “minimal” mean. Similarly, Tables 4.14.1 and 4.14.2 discuss risks coming from threats such as particles, fumes, chemicals, and contaminants, but do not specify what those might be or their known health threats.

The DPEIS should include a comprehensive discussion, both qualitative and quantitative, of the threats, the known health risks of those threats, and the populations at risk. In addition, the DPEIS should consider the increased burdens on the medical resources in these areas.

The DPEIS does not consider potential health impacts from increases in global warming. Such impacts include: more frequent and more intensive heat waves, which could result in more heat-related deaths; increases in local air quality problems, which could lead to increases in allergies, asthma, and more; and increases in the potential geographic range and virulence of tropical diseases, such as West Nile virus. Given the substantial increases in global warming that could result from oil shale and tar sands production and usage, the DPEIS should have included consideration of these risks.

Despite these potential risks, there is no evidence that agencies with relevant health expertise (such as local, regional, or state health agencies) were consulted in developing the DPEIS. There should be thorough consultation with all relevant health agencies. While health research is referenced, there was no discussion of the current health risks created in Canada by tar sands operations and the potential implications for U.S. development.

¹⁶¹ Appendix 17.

¹⁶² 42 USC § 4321.

¹⁶³ 42 USC § 4331.

There likewise does not appear to be any systematic or formal process utilized for evaluating substantive health issues. The DPEIS should incorporate one formal methodology to evaluate all health issues, including contaminant risks but also substance abuse and mental health risks.

Wyoming

In addition to the aforementioned issues and impacts, following are Wyoming-specific impacts.

The Adobe Town Very Rare or Uncommon Area should be Excluded from Leasing

The Draft PEIS does not sufficiently analyze the environmental impacts for locations within Wyoming, and therefore the only reasonable alternative is Alternative A – the “no action” alternative. For example, the BLM notes that certain lands are administratively closed to commercial leasing due to existing laws or regulations.¹⁶⁴ However the list of regulations does not include the State of Wyoming’s designation of the Adobe Town area as Very Rare or Uncommon under the state Environmental Quality Act. Adobe Town was so designated due to its geological, fossil, scenic, wildlife, and cultural/historical values. Non-coal surface mining (which would include oil shale) is expressly forbidden in Very Rare or Uncommon areas except in cases where surface mining would not detract from such qualities; in the case of this area, because scenic qualities are part of the designation, there is no possibility that an exemption for oil shale mining could be issued. While part of the Very Rare or Uncommon area is Wilderness Study Area which would not be made available for oil shale leasing under the DPEIS, the remainder is outside the WSA, including lands which fall within the proposed Washakie Basin leasing area.¹⁶⁵ A map of the Very Rare or Uncommon designation is provided as Appendix 5.

Lands with Wilderness Qualities, ACECs and SMAs

The BLM has not provided baseline information on lands with wilderness characteristics outside WSAs in Wyoming.¹⁶⁶ Specifically, the BLM has concluded on the basis of its own inventories that lands in the Adobe Town area possess all wilderness characteristics.¹⁶⁷ Of these, Areas A, E and F fall partly within the area open to oil shale leasing in Alternatives B and C.¹⁶⁸ In addition, BLM wilderness inventories of the Kinney Rim North and South units, have come up with mixed results, resulting in units that possess all wilderness characteristics in one inventory evaluation but not a conflicting one, and other areas possessing at least some wilderness characteristics in both wilderness inventory evaluations.¹⁶⁹ It is notable that a significant portion of the Kinney Rim South WCA falls within the Rawlins Field Office, but the DPEIS fails to recognize this fact.¹⁷⁰

As the DPEIS states, “The BLM has not explicitly excluded leasing within lands it believes may have one or more characteristics of wilderness under any of the alternatives.”¹⁷¹ This approach violates NEPA’s requirement that a range of reasonable alternatives be considered. In addition, given the fact that lands with seasonal stipulations and ACECs are excluded from leasing consideration under Alternative C, it is arbitrary and capricious and an abuse of discretion for BLM to fail to consider placing lands with wilderness qualities off-limits, as wilderness resources are at least as sensitive as seasonal wildlife ranges, and equally (if not more) irreplaceable.

¹⁶⁴ DPEIS at 1-7.

¹⁶⁵ See DPEIS Figure 3.1.1-15.

¹⁶⁶ DPEIS at 3-37.

¹⁶⁷ Appendix 6, see DPEIS 3-38.

¹⁶⁸ DPEIS at 2-26, 2-31, 3-37.

¹⁶⁹ See Appendix 6, excerpted from the Pacific Rim Shallow Gas Exploration and Development Project EA (Rock Springs Field Office, BLM, 2004); see DPEIS Table 3.1.1-11; see also Appendix 8, maps of Kinney Rim North and South units.

¹⁷⁰ DPEIS at 3-38.

¹⁷¹ DPEIS at 2-52.

According to the DPEIS, only ACECs that are currently closed to oil and gas development would be withdrawn from oil shale leasing.¹⁷² This would open up most (if not all) Wyoming ACECs to oil shale leasing, despite the fact that oil shale development is very clearly much greater in impact than oil and gas drilling and is clearly incompatible with the maintenance of the environmental values for which the ACECs were designated. All designated ACECs and SMAs should be exempted from oil shale leasing and development unless the values for which they were designated would not be impacted by oil shale related activities.

Public Recreation

As noted earlier, BLM states that oil shale activities are largely incompatible with public recreation.¹⁷³ Yet the BLM did not thoroughly assess the impacts on the following areas of high recreational value that fall within the “most prospective” oil shale area in Wyoming, where oil shale leasing should be entirely precluded:

Greater Red Creek ACEC, Red Creek WSA, and Sugarloaf Basin SMA – These areas were established under the Green River RMP and constitute an outstanding big game hunting resource. According to the Wyoming Game and Fish Department, the elk hunt in this area is the single most sought-after tag in the entire state. Oil shale activities would be certain to drive away elk and destroy the recreational quality of this area.

Adobe Town State Very Rare or Uncommon Area – The scenic and wilderness qualities in this area and its viewshed need to be protected from oil shale leasing in order to maintain the scenic and wilderness qualities in this area. Oil shale leasing should be precluded from this area in order to maintain FLPMA-required consistency with the state designation preventing non-coal surface mining.

Kinney Rim North and Kinney Rim South citizens’ proposed wilderness areas – These lands provide a roadless, primitive/semi-primitive recreation experience, and represent an increasingly rare large tract of public land in the Red Desert that is free of industrial development.

The Flaming Gorge National Recreation Area – This area lays entirely within the area proposed for oil shale leasing in Wyoming. National Recreation Areas are not specifically listed as units of the National Landscape Conservation System that will be excluded from oil shale leasing.¹⁷⁴ However, all of this NRA as well as its viewshed should be excluded from oil shale leasing consideration in order to preserve the scenic and recreational qualities found here.

Jack Morrow Hills planning area – This is an area highly important for both dispersed recreation and elk hunting. It contains the Boars Tusk and White Mountains Petroglyph Site, both of which are culturally important to Native American tribes. In addition, an archaeological site in the northwest corner of this area is an ACEC and its setting needs to be protected as well. The “most prospective” oil shale area in Wyoming includes portions of the Jack Morrow Hills planning area, a subset of the Rock Springs Field Office set aside from the Green River RMP in the 1990s for special planning due to its outstanding wildlife resources and strong public interest.¹⁷⁵

¹⁷² DPEIS Table ES-1.

¹⁷³ DPEIS at 4-19.

¹⁷⁴ DPEIS at 1-7.

¹⁷⁵ Appendix 9.

Heart of the West Wildland Network Design

The Heart of the West conservation plan is a science- and GIS-based blueprint for sustainable development in the Wyoming Basin ecoregion. It was submitted to BLM during the oil shale and tar sands scoping period so that the BLM could develop an alternative that prevented oil shale leasing in core areas and corridors identified through rigorous science-base modeling. There is no action alternative that the BLM put forward in the EIS that reflects the “sustainable use areas” identified through the Heart of the West process.

Historic Trails

Lands within 0.25 mile of Historic Trails would be ineligible for oil shale leasing under the action alternatives.¹⁷⁶ This distance is an inadequate buffer to prevent degradation of the setting of the trails, which contributes significantly to their historical importance. In Wyoming, the Cherokee Trail, Oregon/California/Mormon/Pony Express Trail, Overland Trail, and Lander Cutoff of the Oregon Trail all cross areas proposed for oil shale leasing in both alternatives. In the context of visual resources, BLM has defines foreground-middleground as 0 to 5 miles, and in this area, “management activities can be seen in detail.”¹⁷⁷ There should be at least one alternative that provides adequate protection to prevent the degradation of the settings of these important historical resources; certainly, BLM has not made the case that such an alternative would be unreasonable.

Geological Standards for Leasing Should not Differ Among States

BLM states that in Utah and Colorado, the most geologically prospective oil shale deposits are 25 gallons per ton and 25 feet thick, while in Wyoming the most geologically prospective oil shale deposits are 15 gallons per ton and 15 feet thick.¹⁷⁸ This determination is arbitrary and capricious and an abuse of discretion

Of course, the most geologically prospective deposits in Wyoming are those exceeding 25 gallons per ton and 25 feet in thickness. These are by definition more geologically prospective than deposits averaging 15 feet thick and 15 gallons per ton. It is illogical for the BLM to assign a different standard for Wyoming oil shale as the geologic properties do not change when one crosses the state line. Wyoming shows a much greater “geologically prospective” oil shale area than either Utah or Colorado precisely because the standards have been lowered for Wyoming.¹⁷⁹ Adding to the arbitrary nature of this delineation is that Wyoming has the lowest-quality oil shale deposits of all three states.

Colorado

In addition to the aforementioned issues and impacts, following are Colorado-specific impacts.

The commitment of more than 350,000 acres of public land to a single-use does not comply with multiple-use mandates of FLPMA

The DPEIS clearly states commercial oil shale development activities will directly displace other land uses from development areas.¹⁸⁰ Displaced uses in Colorado will include: recreation, mining, hunting, oil and gas production, livestock grazing, wild horse and burro herd management, communication sites, and ROW corridors. The most geologically prospective oil shale development areas in Colorado also overlap with important wildlife and plant habitat, other ecological resources, unique geologic features, irreplaceable paleontological and cultural resources, and sensitive natural landscapes.

¹⁷⁶ DPEIS at 2-20.

¹⁷⁷ DPEIS at 4-110.

¹⁷⁸ DPEIS at 2-10.

¹⁷⁹ DPEIS Figure 2.3-1

¹⁸⁰ DPEIS at 4-16.

The preferred alternative will open more than 350,000 acres of public land to industrial development of oil shale in Colorado. The result, of course, will be displacement of all other uses and values. Given the stated impacts detailed in the DPEIS, the BLM cannot pave the way for commercial-scale oil shale development on the “preferred” scale while complying with the multiple-use mandate of FLPMA.¹⁸¹

BLM’s preferred alternative does not protect ACECs.

According to the DPEIS, BLM intends to exclude from leasing only those Areas of Critical Environmental Concern (ACECs) where leasing is not currently allowed. This commitment is insufficient to protect all designated ACECs and the values for which they were designated. FLPMA defines ACECs as “areas within public lands where special management attention is required to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources, or other natural systems or processes, or to protect life or safety from natural hazards.”¹⁸² While all ACECs are designated to protect different and unique values, commercial-scale oil shale development will undermine the values for which these ACECs were designated.

In fact, the Draft PEIS admits the likely impacts to ACECs stemming from oil shale development: “commercial development in both existing and potential ACECs could result in direct and indirect loss of the relevant and important (R&I) values that support either designation or identification of areas leading to the removal/nondesignation of the ACECs.”¹⁸³ This tradeoff is unacceptable. These areas should remain unavailable for oil shale development.

East Fork Parachute Creek – The Area was designated as an ACEC for visual, wildlife, fisheries, botanical and ecological values.¹⁸⁴ East Fork Parachute Creek is a biologically significant tributary to the Colorado River.¹⁸⁵ Any oil shale development in this area will likely have significant impacts on the important values for which this ACEC was designated.

The Creek provides year-round habitat for Colorado River Cutthroat Trout (CRCT). The CRCT is the only native trout in the Colorado River basin. The CRCT has been designated a “special status species” by the BLM and is classified as a “sensitive species” by Regions 2 and 4 of the US Forest Service, and the states of Colorado, Utah, New Mexico and Wyoming.¹⁸⁶

East Fork Parachute Creek is also identified as one of the five areas containing conservation populations by the *Conservation Agreement and Strategy for Colorado River Cutthroat Trout in the States of Colorado, Utah, and Wyoming*.¹⁸⁷ These populations also meet the BLM’s own criteria for a conservation population.¹⁸⁸ The Conservation Agreement gives highest priority for management and protection to streams identified as containing conservation populations. Populations of CRCT in East Fork Parachute Creek are at least 90% genetically pure.¹⁸⁹ The BLM considers the entire watershed to be

¹⁸¹ 43 USCS § 1701(a)(7).

¹⁸² 43 USC 1702(a).

¹⁸³ DPEIS at 4-20.

¹⁸⁴ Roan Plateau Plan Amendment (2002), at 20.

¹⁸⁵ ROD Designating ACECs for the Roan Plateau RMPA and EIS (2008), at 5.

¹⁸⁶ *Conservation Status of Colorado River Cutthroat Trout*, USDA Forest Service (1996), at 1; Available at: http://www.fs.fed.us/rm/pubs_rm/rm_gtr282.pdf.

¹⁸⁷ Available at: <http://www.fws.gov/mountain-prairie/species/fish/crct/CRCT/>.

¹⁸⁸ A conservation population is defined as: “A reproducing and recruiting population of native cutthroat trout that is managed to preserve the historical genome and/or unique genetic, ecological, and/or behavioral characteristics within a specific population and within geographic units.” See Roan Plateau Planning Area Proposed Plan/Final EIS, pp. 3-114.

¹⁸⁹ Roan Plateau Plan Amendment (2002), at 20.

important to the long-term functionality of vital ecosystem processes that maintain upland and stream habitats important to these fishes.¹⁹⁰ Also, the BLM declared, “these streams are regionally and nationally important producers of native, genetically pure and naturally reproducing Colorado River cutthroat trout,” going on to proclaim that these streams should be given the “highest priority for management and protection.”¹⁹¹

The importance of these trout populations is clear. This area must be protected from oil shale development in order to ensure the subspecies continues reproducing and recruiting. Oil shale development will likely result in increased sedimentation, reductions in water quantity and quality, ground water flow alteration, and increased likelihood of water contamination with toxic byproducts. These impacts will add stresses to CRCT populations and, in so doing, may undermine one of the values this ACEC was designated to protect.

Other values for which this ACEC was designated include scenery as well as unique and rare plant communities. Of special note is a 200-foot canyon waterfall. The BLM has described the waterfall on the level of a “national park quality scenic attraction.” The ROD for the Designation of ACECs for the Roan RMPA and EIS designated the lower stretches of the East Fork of Parachute Creek as a VRM 1.¹⁹²

A rare community of Mancos columbine and a BLM “sensitive plant,” Eastwood’s monkeyflower, are also present in the unique hanging gardens in this ACEC. Also exceptional are several plant communities such as the Colorado blue spruce/red osier dogwood; the boxelder, narrowleaf cottonwood, red osier dogwood community; and the Indian ricegrass shale barrens community. These communities are considered rare on global and statewide scales.

There are also a few imperiled plants in this ACEC that may be particularly susceptible to oil shale development. Utah fescue, for example, is a perennial grass and an oil shale endemic species found within East Fork Parachute Creek ACEC. Southwest stickleaf, a BLM sensitive species, is an oil shale endemic that frequently occurs in the area. The Roan Plateau Final EIS makes it clear that this ACEC “contains a diversity of rare or uncommon riparian plant communities and BLM sensitive plant species.”¹⁹³ The EIS goes on to say: “the rare plants and plant communities found in this drainage are of excellent condition and abundance and are vulnerable to adverse change.”¹⁹⁴

Trapper/Northwater Creek ACEC – This area was designated for wildlife, fisheries, botanical and ecological values. Trapper and Northwater Creeks are tributaries to the Colorado River. The creeks provide year-round habitat for CRCT. This ACEC is a critical conservation area for the CRCT. Three of the five conservation populations of Colorado River cutthroat trout that exist atop the plateau are found within this ACEC. Included in these are “core conservation populations,” identified by a genetic purity of 99% or higher.¹⁹⁵

The BLM considers the entire watershed vital to the long-term functionality of ecosystem processes that maintain upland and stream habitats important to these fishes.¹⁹⁶ The BLM also said, “These streams are regionally and nationally important producers of native, genetically pure and naturally

¹⁹⁰ *Id.*

¹⁹¹ *Id.*

¹⁹² ROD (2008), at A-8.

¹⁹³ Roan Plateau FEIS (2006), at 3-116.

¹⁹⁴ *Id.*

¹⁹⁵ *Id.* at 3-116.

¹⁹⁶ Roan Plateau Plan Amd. (2002), at 27.

reproducing Colorado River cutthroat trout.”¹⁹⁷ The nearly pure genetic populations of CRCT that exist in this area are irreplaceable, and should be protected from any habitat degradation that may accompany development of oil shale in the area.

Botanical and ecological values sought to be protected in this ACEC include, hanging garden sullivaniana and Utah fescue. Combining known occurrences of hanging garden sullivaniana in the Trapper/Northwater Creek ACEC with known occurrences in the East Fork Parachute Creek ACEC, accounts for 62% of total known occurrences.¹⁹⁸ Utah fescue is a perennial grass and an oil shale endemic. The Indian ricegrass shale barrens community can also be found in this ACEC. This community is found in only three other Western Colorado counties.¹⁹⁹

The important CRCT populations as well as rare plant communities and species in this ACEC should be protected. Opening this area to oil shale development may undermine protection of these values and undermine stated BLM management priorities.

The Duck Creek, Ryan Gulch, Dudley Bluffs ACECs – These areas are located within the White River Field Office in the northern portion of the Piceance. These ACECs provide habitat for several federally and state-listed threatened plant species and candidate species.²⁰⁰ Federally threatened, endangered, proposed, and candidate species include the Dudley Bluffs bladderpod, the Piceance twinpod, the Ute-lady’s tresses orchid, the Graham beardtongue, and the White River beardtongue.

Along with important and imperiled plant species, these ACECs also retain unique and irreplaceable cultural resources.²⁰¹ Among cultural resources of note is a Wickiup Village in and around the Duck Creek ACEC.²⁰² This village is listed on the National Register of Historic Places and is one of the cultural resources that should remain unharmed by oil shale development. Other cultural resources in these ACECs identified by the cultural resource interpretation program undertaken by the White River Field Office should also be preserved.

The Draft PEIS is unclear on whether these ACECs are currently closed to mineral development and therefore closed to prospective oil shale development. The resources and values contained in all ACECs must be fully protected from oil shale development, including Duck Creek, Ryan Gulch, and Dudley Bluffs ACECs.

BLM’s proposal fails to protect the Trapper/Northwater Watershed from oil shale development.

Not all of Trapper and Northwater Creeks are included in the Trapper/Northwater Creek ACEC. In fact, vital segments in the high reaches of this watershed were excluded from the ACEC. This omission threatens nearly all of the Northwater Creek and a significant portion of the Trapper Creek populations of CRCT. Sediment caused by surface disturbing activities may choke aquatic insects and trout eggs. In the event of a spill or a mining mishap, toxic effluent may do the same. In this drainage, downstream habitat is the best CRCT habitat. Below the confluence of Trapper and Northwater Creeks this drainage attains the volume and depth necessary to maintain suitable CRCT habitat. Allowing oil shale development, or any surface disturbing development, in the upstream portion of the Northwater

¹⁹⁷ Roan Plateau FEIS (2006), at 3-116.

¹⁹⁸ Roan FEIS (2006), at 3-117.

¹⁹⁹ *Id.*

²⁰⁰ DPEIS at 3-125.

²⁰¹ *Id.*

²⁰² White River Field Office RMP Amd. (2007), at 4-69.

drainage may compromise the integrity of CRCT populations lower in the watershed. In order to protect this sensitive resource, oil shale development be prohibited in the entire drainage.

BLM should protect all areas eligible for Wild and Scenic designation as well as important watersheds.

Colorado's surface water resources should be protected from impacts of oil shale development.

BLM examined the eligibility of streams and stream segments for Wild and Scenic River status in 2002. The eligibility report showed portions of East Fork Parachute Creek, East Middle Fork Parachute Creek, Trapper Creek, and Northwater Creek are all eligible for Wild and Scenic River status.²⁰³ These streams are all “free-flowing” and contain outstandingly, remarkable values – unique, rare, or exemplary botanical/ecological, scenic features or fishery values that are significant on a regional or national scale. These river segments hold many and various important values and should not be sacrificed to commercial oil shale development. These areas, along with all watersheds eligible for Wild and Scenic designation, should be protected from development.

Even those streams and stream segments not eligible for Wild and Scenic status deserve protection. At the very least, protective Watershed Management Areas (WMAs) should be designated and utilized to protect important Colorado watersheds overlapping with oil shale development areas. Watersheds of concern include: Clear Creek, Spring Creek, Corral Gulch, Ryan Gulch, Black Sulphur Creek, Fawn Creek, Hunter Creek, Willow Creek, West Fork Parachute Creek, Parachute Creek, Piceance Creek, and Dry Fork Piceance Creek. Protection of these important streams is important to protect values associated with fisheries, botanical resources, and municipal water quality.

The ROD for the Designation of ACECs for the Roan RMPA and EIS implemented a WMA for Parachute Creek.²⁰⁴ This management tool was implemented to protect important watershed values in Parachute Creek from looming threats like natural gas development. Similar measures should be implemented to protect other Colorado watersheds from detrimental oil shale development.

The BLM must protect any and all areas with wilderness qualities outside of Wilderness Study Areas.

Though we do not have a complete list of areas within the geologically prospective study area with wilderness qualities, all such areas should be preserved as wilderness quality lands. For example, the most recent Wilderness Character Inventory of the East Fork Parachute Creek watershed found that 10,389 acres met the criteria for a Wilderness Study Area (WSA).²⁰⁵ Because this area retains such a wealth of visual, botanical, wildlife, and ecological values, and because it meets the BLM criteria for a Wilderness Study Area, it should be excluded from areas open to oil shale development. All areas that meet the BLM criteria for Wilderness Study Areas and all wilderness quality lands should be protected from oil shale development.

While the PEIS excludes numerous sensitive areas from oil shale leasing, these areas will not escape unacceptable indirect impacts and must be analyzed more thoroughly.

The Draft PEIS explicitly excludes from oil shale leasing designated wilderness areas, WSAs, lands within the National Lands Conservation System (NLCS) like National Monuments, National Conservation Areas, Wild and Scenic Rivers, and National Historic and Scenic Trails. The BLM also excludes Areas of Critical Environmental Concern (ACECs) that are closed to mineral development.

²⁰³ Roan FEIS (2006), at 3-121.

²⁰⁴ ROD (2008), at 6.

²⁰⁵ Roan Plateau RMPA (2002), at 20.

Importantly, however, indirect impacts from commercial scale oil shale are still likely to impact these areas.

More specifically, PSD Class 1 Areas in Western Colorado, like the Maroon Bells-Snowmass Wilderness Area and the Flat Tops Wilderness Area, may already be experiencing air quality deterioration as a result of increased oil and gas activities on the West Slope. As discussed above, further deterioration of air quality in these airsheds contravenes federal law. The DPEIS raises this issue, but fails to analyze it. Colorado National Monument and Dinosaur National Monument are both Colorado Category 1 Areas. Though not as stringently regulated, these areas may experience deteriorating visibility, nitrogen and sulfur deposition, changes in water chemistry, as well as impacts to vegetation and human health. These impacts should be understood and documented before the BLM undertakes revision of numerous RMPs opens the door to extensive oil shale development.

Given what we know about the energy needs of this industry and the likely sources of generation for that energy, it is irresponsible for the BLM to pave the way for more than 350,000 acres of oil shale development in Western Colorado without an adequate air quality analysis. Such activity may require a dozen or more large new power plants. Obvious results will include deterioration of distant and pure airsheds. No RMP revisions should be authorized until we have a clear picture of the impacts to sensitive lands.

Utah

Utah's spectacular public lands included in the planning area – particularly the regions near the Circle Cliffs special tar sands area (STSA), the San Rafael STSA, the Tar Sands Triangle STSA, the White Canyon STSA, the PR Springs STSA, the Hill Creek STSA, the Argyle Canyon STSA, the Sunnyside STSA, and the areas with wilderness characteristics found within the most geologically prospective oil shale resource – would be irrevocably impacted by the development of oil shale and tar sands. The greatest tar sands resource are in Utah. Yet, with tar sands development in Alberta serving as industry's model for environmental protection, these critical resources – geologic, wildlife, cultural, water, and many more – would be placed at great risk. Doing so violates NEPA, FLPMA and other environmental laws.

In addition to the aforementioned issues raised throughout these comments, Utah-specific impacts, issues and concerns are incorporated directly as Appendix 23.

APPENDICES:

1. Governor Bill Ritter, Unconventional Fuels Letter, September 2007
2. Western Governors Association, Letter, June 12, 2007
3. Senator Ken Salazar, Press Release, March 13, 2008
4. The Wilderness Society: *The Economic & Social Impacts of Oil and Gas Development*
5. Adobe Town Very Rare or Uncommon map
6. BLM wilderness inventory evaluation of Adobe Town
7. BLM wilderness inventory evaluations, Kinney Rim North unit
8. Maps of Kinney Rim North and South units
9. Special Values of the Jack Morrow Hills
10. State of Wyoming sage grouse lek data overlay of oil shale prospective area
11. ESA petition, Wyoming pocket gopher
12. Wyoming pocket gopher technical conservation assessment
13. Presentation of Dr. Jay Lillegraven for Adobe Town Very Rare or Uncommon hearing
14. Erik Molvar: Wildlife Impacts
15. Natural Resources Defense Council: Climate Change
16. Independent Expert Comment: A. William Alldredge
17. Independent Expert Comment: Jerry D. Spangler
18. Independent Expert Comment: Dr. Catherine M. Keske
19. Independent Expert Comment: Megan Williams
20. Independent Expert Comment: David Atkins
21. Independent Expert Comment: Bruce Lytle
22. Independent Expert Comment: John Woodling
23. Southern Utah Wilderness Alliance - Utah Impacts
24. Bibliography