

1 INTRODUCTION

The U.S. Department of the Interior (DOI), Bureau of Land Management (BLM), proposes to amend 10 land use plans in Colorado, Utah, and Wyoming, pursuant to the provisions of the Federal Land Policy and Management Act of 1976 as amended (FLPMA) (*United States Code*, Title 43, Section 1701 et seq. [43 USC 1701 et seq.]), and BLM planning regulations at Title 43, Part 1600, of the *Code of Federal Regulations* (43 CFR Part 1600), to designate public lands managed by the BLM as available or not available for application for commercial leasing for oil shale or tar sands development. This programmatic environmental impact statement (PEIS) is being prepared pursuant to Section 102 of the National Environmental Policy Act of 1969 (NEPA) (42 USC 4321 et seq.) to support that land use planning process. Prior to issuance of any commercial leases on lands that may be designated as available for application, the BLM must comply with all pertinent laws, regulations, and policies required to analyze the direct, indirect, and cumulative impacts of the proposed lease(s) for development of oil shale or tar sands resources, including, but not limited to, NEPA, National Historic Preservation Act of 1966 (NHPA), and Endangered Species Act of 1973 (ESA). NEPA analysis and other appropriate review would also be required before approval of a lease and subsequent plan of development on a lease, which would include analysis of particular activities at the specific location where development would occur (see the Oil Shale and Tar Sands Development text box). Appropriate stipulations and mitigation measures would be identified as part of both of these subsequent NEPA analyses.

Allocation

A land use allocation identifies activities and foreseeable development that are allowed, restricted, or excluded for specific areas covered by a land use plan. Lands identified as open to oil shale and tar sands development as a result of the analyses in this PEIS are those lands within which the BLM will accept future lease and subsequent project development applications for review. This land use allocation does not authorize any future lease or development proposal. BLM managers retain authority to approve, modify, or deny future lease and development proposals based on consideration of factors, including, but not limited to, impacts on natural and cultural resources, economic viability, community concerns, and any other pertinent factors. Land use planning decisions may be amended, and nothing in the decision based on this PEIS precludes the option to amend plans in the future.

The BLM administers approximately 245 million acres of public lands and 700 million acres of subsurface mineral estate in the United States. Management of these public lands must be conducted in accordance with the requirements of FLPMA (43 USC 1701 et seq.) and many other public laws. FLPMA requires the BLM to develop land use plans, also called Resource Management Plans (RMPs), to guide the management of the public lands it administers. In order for a commercial leasing program to occur on the public lands, the land use plans for the areas where leasing could occur must provide for such leasing.

In Section 369 of the Energy Policy Act of 2005, Public Law (P.L.) 109-58, also known as the “Oil Shale, Tar Sands, and Other Strategic Unconventional Fuels Act of 2005,” Congress declared that oil shale and tar sands (and other unconventional fuels) are strategically important domestic energy resources that should be developed to reduce the nation’s growing dependence

Oil Shale and Tar Sands Development

The BLM anticipates that oil shale and tar sands development would proceed in a decisionmaking process with three steps: (1) land use planning, (2) leasing, and (3) approval of a plan of development.

Land Use Planning: This PEIS is making decisions about which lands are allocated as open or closed to oil shale/tar sands development. Lands allocated as open are those within which the Secretary may initiate a call for nominations, to which project proponents may respond by submitting applications to lease lands where they propose to develop specific projects. The current experimental state of the oil shale and tar sands industries does not allow this PEIS to include sufficient specific information or cumulative impact analyses to support future leasing decisions within these allocated lands.

Leasing: Leasing is a federal action subject to all pertinent laws, regulations, and policies, including, but not limited to, the requirements of NEPA, NHPA, and ESA. The BLM must also review the technical and due diligence aspects of any proposal or ongoing activity, respectively, to ensure its initial and continued viability and must ensure the necessary coordination and consultation with other entities, including other federal agencies, tribes, states, local governments, and the public in its consideration of a lease application. The BLM's consideration of a proposal for an oil shale or tar sands lease must be sufficient to take into account predictable impacts of the action on natural and cultural resources, as well as other potential effects. If and when applications to lease oil shale or tar sands for commercial development are received and accepted by the BLM, it may be necessary to develop a reasonably foreseeable development scenario (RFDS). An RFDS is a critical component for the effects analysis required by NEPA, but the information contained in this PEIS is too speculative to permit adequate RFDSs for future leasing proposals. The analyses conducted as part of the review for a lease application may result in a decision to approve, modify, or deny a lease. The BLM may authorize a lease with stipulations and requirements for best management practices, and may amend local land use plans if necessary.

Project Development: After obtaining a lease, a project proponent must submit an application to approve a plan of development. The plan of development identifies the specifics of the development plan such as location, facilities, and timing. Approval of the plan of development is a federal action subject to all pertinent laws, regulations, and policies, including, but not limited to, the requirements of NEPA, NHPA, and ESA. The BLM must also review plans of development for other factors, including technical viability, and must ensure the appropriate consultation and coordination with other federal agencies, tribes, states, local governments, and the public. It is at this final stage, when the particulars of a project are known, that the BLM requires the most detailed analyses and may condition approval on specific requirements to avoid, minimize, or mitigate adverse impacts on various resources.

on oil from politically and economically unstable foreign sources. In addition, Congress declared that both research- and commercial-scale development of oil shale and tar sands should (1) be conducted in an environmentally sound manner using management practices that will minimize potential impacts, (2) occur with an emphasis on sustainability, and (3) benefit the United States while taking into account concerns of the affected states and communities. To support this declaration of policy, Congress directed the Secretary of the Interior (the “Secretary”) to undertake a series of steps, several of which are directly related to the development of a commercial leasing program for oil shale and tar sands. Those steps, contained in paragraphs (d), (e), and (n) of the Act, directed that the Secretary shall:

- “...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 in Colorado, Utah, and Wyoming”;
- “...Not later than 6 months after completion of the programmatic environmental impact statement...the Secretary shall publish a final regulation establishing such program”;
- “...Consult with the Governors of States with significant oil shale and tar sands resources on public lands, representatives of local governments in such States, interested Indian Tribes, and other interested persons, to determine the level of support and interest in the States in the development of tar sands and oil shale resources”; and
- “If the Secretary finds sufficient support and interest exists in a State, the Secretary may conduct a lease sale in that State under the commercial leasing program.”
- Land Exchanges – (1) “... To facilitate the recovery of oil shale and tar sands, especially in areas where Federal, State, and private lands are intermingled, the Secretary shall consider the use of land exchanges where appropriate and feasible to consolidate land ownership and mineral interests into manageable areas”; (2) “...identify public lands containing deposits of oil shale or tar sands within the Green River, Piceance Creek, Uintah, and Washakie geologic basins, and shall give priority to implementing land exchanges in those basins.”; and, “a land exchange...shall be implemented in accordance with Section 206 of FLPMA.”

In September 2008, pursuant to Section 369 of the Energy Policy Act of 2005, FLPMA, and NEPA, the BLM issued a Proposed Plan Amendments/Final Oil Shale and Tar Sands (OSTS) PEIS analyzing the environmental and socioeconomic impacts of amending 12 land use plans in Colorado, Utah, and Wyoming to designate public lands administered by the BLM as

available for commercial leasing for oil shale or tar sands development (BLM 2008a).¹ The November 17, 2008, ROD that followed this PEIS adopted the proposed land use amendments reflecting the allocation decisions analyzed in the 2008 OSTIS PEIS (BLM 2008b). These land allocation decisions, which are currently in effect, were challenged in a lawsuit brought by a coalition of environmental organizations in January 2009. As part of a settlement agreement entered into by the United States to resolve the lawsuit and in light of new information that has emerged since the 2008 OSTIS PEIS was prepared, the BLM has decided to take a fresh look at the land allocations analyzed in the 2008 OSTIS PEIS and to consider excluding certain lands from future leasing of oil shale and tar sands resources. Specifically, the BLM, through its planning process, intends to take a hard look at whether it is appropriate for approximately 2,000,000 acres to remain available for potential development of oil shale and approximately 431,000 acres of public land to remain available for potential development of tar sands.

1.1 PURPOSE AND NEED

The BLM proposes to amend 10 land use plans in Colorado, Utah, and Wyoming to describe those areas that will be open and those that will be closed to application for commercial leasing, exploration, and development of oil shale² and tar sands resources. The analyses in this PEIS have been developed to evaluate the effects of this proposed action and its alternatives. The current land use plans in the study area describe land allocations analyzed in the 2008 OSTIS PEIS and approved in the subsequent ROD (BLM 2008a,b).

As noted above, the BLM has decided to reconsider the 2008 allocations. The purpose and need for this proposed planning action is to reassess the appropriate mix of allowable uses with respect to oil shale and tar sands leasing and potential development in light of Congress's policy emphasis on these resources. Specifically, the BLM will consider amending the applicable RMPs to specify whether any areas in Colorado, Utah, and Wyoming currently open for application for future leasing and development of oil shale or tar sands should not be available for such application for leasing and development. The BLM's focus in this planning initiative is on potential development of oil shale and tar sands as sources of energy consistent with congressional policy as expressed in the Energy Policy Act of 2005 that a commercial leasing program be established for these resources. Tar sands also have a commercial use as paving material. The phrase "available for application for leasing" is used above, and throughout the PEIS, rather than simply "available for leasing" to highlight that, unlike the BLM's practice with respect to oil and gas leasing, additional analysis, including but not limited to the NEPA, NHPA, and ESA, would be required prior to the issuance of any lease of oil shale or tar sands resources (see the Oil Shale and Tar Sands Development text box for more information).

¹ While the 2008 Record of Decision (ROD) amended 12 land use plans, some of these plans were subsequently incorporated into revised plans. Therefore, the study area is now covered by 10 land use plans, which are being considered for amendment in this planning process.

² See the description of oil shale in Section 2.3 of this document. This PEIS does not address opening or closing lands to development of other resources or the hydraulic fracturing of other types of shale for the production of oil and gas.

1.1.1 Specific Scope and Objectives of the PEIS

This *Proposed Land Use Plan Amendments for Allocation of Oil Shale and Tar Sands Resources on Lands Administered by the Bureau of Land Management in Colorado, Utah, and Wyoming and Final Programmatic Environmental Impact Statement* has been prepared pursuant to the requirements of FLPMA; NEPA; the President's Council on Environmental Quality's (CEQ's) NEPA implementing regulations; the BLM's land use planning regulations contained in 43 CFR Part 1600; the BLM's Land Use Planning Handbook (H-1601-1) (BLM 2005); the Department of the Interior NEPA Implementing Regulations contained in 43 CFR Part 46; and the BLM's NEPA Handbook (H-1790-1) (BLM 2008c).

On April 14, 2011, the BLM published in the *Federal Register* a Notice of Intent (NOI) to engage in land use planning and to prepare a new PEIS. That notice provided several reasons why the agency decided to take a fresh look at land use allocations made in the 2008 ROD. Chief among these was new information not available in 2008, including a recently completed U.S. Geological Survey (USGS) in-place assessment of oil shale and nahcolite resources in Colorado, Utah, and Wyoming (USGS 2010a,b; 2011) and a March 2010 U.S. Fish and Wildlife Service (USFWS) Notice of Petition Findings, Endangered Wildlife and Plants, 12-Month Findings to List the Greater Sage-Grouse as Threatened or Endangered (75 FR 13910), concluding that while listing was warranted, it was precluded by higher priority listing actions. The BLM is currently engaged in a National Greater Sage-Grouse Planning Strategy to identify necessary conservation measures and management restrictions for the maintenance and recovery of sage-grouse populations. As part of this sage-grouse planning process in Colorado, Utah, and Wyoming, the BLM is identifying those areas open or closed to mineral leasing and development and for those areas open to leasing, identifying major or moderate constraints (management actions) that may be required to mitigate impacts on sage-grouse or their habitat. In addition, the BLM has recently completed updating its inventory of lands having wilderness characteristics (LWC) (please note that acreage errors in the Draft PEIS have been corrected in this document) in each of the three states for the planning area. Furthermore, the status of several areas originally proposed to be Areas of Critical Environmental Concern (ACECs) in Utah has changed since the preparation of the 2008 OSTs PEIS. In light of the combined weight of these several developments, as well as other policy considerations, the BLM has decided to take another look at the land use plan allocations made in the 2008 ROD.

As was the case with the 2008 OSTs PEIS, the scope of the decisionmaking to be supported by the development of this PEIS is limited to an allocation decision. The analysis of potential impacts associated with oil shale and tar sands development in Chapters 4, 5, and 6 is programmatic in character and designed to disclose the potential impacts from future leasing and development, in order to provide the decision maker the available, essential information for making the allocation decision.

Consideration was also given to the possibility that the BLM might be able to issue additional research, development, and demonstration (RD&D) leases in the future. Section 369(c) of the Energy Policy Act of 2005 authorized the Secretary to make lands available to conduct research and development activities. Because impacts from new RD&D projects are expected to be qualitatively similar to those of commercial oil shale projects, but

smaller in scale until an RD&D lease is converted to a commercial lease and expanded to preference right acreage, land that will be open for commercial oil shale leasing will also be open for RD&D leasing. Therefore, although the term “commercial oil shale leasing” is used throughout this PEIS, this term is meant to encompass the issuance of RD&D leases as well.

The BLM also concluded that, as in the 2008 OSTTS PEIS and ROD, the NEPA and other applicable analyses supporting this planning initiative do not provide the required analyses for new RD&D leasing or conversion of RD&D leases to commercial leases. Rather, subsequent NEPA and other analyses at the leasing stage (whether oil shale, tar sands, or RD&D) will be required to determine the character and extent of the effect of oil shale and tar sands development when more specific information is known about the specific technologies being proposed and associated environmental consequences in the locations being proposed.

The BLM anticipates that oil shale development would proceed in a three-step decisionmaking process similar to that used for federal onshore oil and gas: (1) land use planning (i.e., amending RMPs), (2) leasing, and (3) project development. In the present experimental stage of the oil shale and tar sands industries, however, the BLM believes that the stages of NEPA compliance will be different from those used in oil and gas (see text box describing these steps).

As a result of the maturity of the oil and gas industry, the BLM is often able to include sufficient site-specific analysis in its NEPA documentation for amendments to RMPs so that an additional NEPA document is not required for issuing an oil and gas lease in conformance with the RMP. Nonetheless, the BLM also prepares a NEPA analysis before approving a plan of development or a drilling permit that would authorize significant disturbance of the leased area. The NEPA analysis for both decision levels includes cumulative effects analysis. Analysis of each oil and gas decision is based on technical information associated with the particular proposed action, as well as information about other reasonably foreseeable future actions in and near the area of the proposal.

In contrast, the present experimental state of the oil shale and tar sands industries does not allow this PEIS for land use plan amendments to include sufficient site-specific information or cumulative impact analysis to support issuance of a lease. Accordingly, prior to any actual oil shale or tar sands leasing, additional NEPA and other applicable analyses will be required. Those analyses could result in decisions not to lease in specific areas or to lease in particular areas with stipulations, such as a stipulation precluding disturbance of the surface.

Under all programmatic oil shale and tar sands alternatives analyzed in this PEIS, land use plans would continue to (under the No Action Alternative) or be amended to (1) identify the most geologically prospective oil shale or tar sands resources within each planning unit, (2) designate lands within the most geologically prospective areas as available or not available for leasing, and (3) identify any technology restrictions. In addition, the following decisions from the 2008 ROD will be carried forward through this planning process: the requirement for future consultation activities, as well as compliance with all pertinent laws, regulations, and policies, including NEPA, NHPA, and ESA analyses; and the specific decision that the BLM will

consider and give priority to the use of land exchanges to facilitate commercial oil shale development pursuant to Section 369(n) of the Energy Policy Act of 2005.

In summary, the PEIS is analyzing an allocation decision, the amendment of 10 existing land use plans to designate certain public lands as open, and certain other lands as closed for application for future oil shale and tar sands leasing.

If and when applications to lease are received and accepted, the BLM will conduct additional required analyses, including consideration of direct, indirect, and cumulative effects, reasonable alternatives, and possible mitigation measures, as well as assessment of the level of development that may be anticipated. On the basis of that analysis of future lease application(s), the BLM will establish general lease stipulations and best management practices (BMPs) and amend applicable land use plans, if necessary. After a lease is authorized, actual development will require additional analysis to address the site-specific conditions of the proposed development and to develop mitigating measures.

1.2 SCOPE OF THE ANALYSIS

The NOI to prepare the *Programmatic Environmental Impact Statement and Possible Land Use Plan Amendments for Allocation of Oil Shale and Tar Sands Resources on Lands Administered by the Bureau of Land Management in Colorado, Utah, and Wyoming* was published in the *Federal Register* (72 FR 21003–21005) on April 14, 2011. The NOI contained information regarding the need for the project, opportunities for public involvement, supplementary information regarding the project, planning criteria that would underlie the PEIS, and invited the public to comment on the proposed PEIS. Planning criteria are the standards, rules, and other factors used in formulating judgments about data collection, analysis, and decisionmaking associated with preparation of the PEIS. These criteria establish parameters and help focus preparation of the PEIS. The following are the planning criteria that were included in the NOI for the project and that have been considered during the preparation of the PEIS:

- A. The PEIS and plan amendments will be completed in compliance with FLPMA and all applicable laws.
- B. The BLM will work collaboratively with the states of Colorado, Utah, and Wyoming; tribal governments; county and municipal governments; other federal agencies; and all other interested groups, agencies, and individuals. Public participation will be encouraged throughout the process.
- C. The proposed plan amendments analyzed in the PEIS would amend the appropriate individual land use plans specifically to address allocation of BLM-administered lands as open or closed to leasing and development of oil shale and tar sands resources.

- D. Preparation of the PEIS and plan amendments will involve coordination with Indian tribal governments and will provide strategies for the protection of recognized traditional uses.
- E. The BLM will coordinate with local, state, and federal agencies in the planning process and development of the PEIS to strive for consistency with their existing plans and policies, to the extent practicable.
- F. Any decisions made on the basis of the planning process and development of the PEIS will take into account valid existing rights.

As stated in the NOI, this PEIS evaluates the potential impacts of designating lands as available or not available for commercial leasing of oil shale and tar sands resources that are located on public lands in Colorado, Utah, and Wyoming (Figures 1.2-1 and 1.2-2).

Specifically, the study area for the oil shale resources includes the most geologically prospective resources of the Green River Formation located in the Piceance, Uinta, Green River, and Washakie Basins.³ For this planning initiative the BLM continues to employ the standard it developed pursuant to the Energy Policy Act of 2005, which is to focus on the most geologically prospective resources, as defined by grade and thickness of the deposits. For the purposes of this PEIS, the most geologically prospective oil shale resources in Colorado and Utah are those deposits that yield 25 gal of shale oil or more per ton of rock (gal/ton) and are 25 ft thick or greater. In Wyoming, where the oil shale resource quality is not as high as it is in Colorado and Utah, the most geologically prospective oil shale resources are those deposits that yield 15 gal/ton or more of shale oil and are 15 ft thick or greater. Figure 1.2-1 shows the oil shale basins, which were mapped on the basis of the extent of the Green River Formation, and the most geologically prospective oil shale resources within those basins.⁴

³ The Piceance Basin is not referred to or described consistently in published literature. Some publications describe the Piceance Basin as an area encompassing more than 7,000 mi² and consisting of a northern province and a southern province, which are roughly separated by the Colorado River and Interstate 70 (I-70). Other publications refer to the southern province as the Grand Mesa Basin. Oil shale is present in both provinces, with the richest oil shale deposits in the north, and smaller, isolated deposits in the south. Various authors have used the terms “Piceance Basin” and “Piceance Creek Basin” to refer to either the overall basin or the northern area. In this PEIS, the focus is on the northern province, where the richest and thickest reserves are located, and the study area is referred to as the “Piceance Basin.”

⁴ Numerous sources of information were used to define the boundaries of the Green River Formation basins and the most geologically prospective oil shale resources. The basin boundaries were defined by digital data provided by the USGS taken from Green (1992), Green and Drouillard (1994), and Hintze et al. (2000). The most geologically prospective oil shale resources in the Piceance Basin were defined on the basis of digital data provided by the USGS taken from Pitman and Johnson (1978), Pitman (1979), and Pitman et al. (1989). In Wyoming, the most geologically prospective oil shale resources were defined on the basis of detailed analyses of available oil shale assay data (Wiig 2006a,b). In Utah, the most geologically prospective oil shale resources were defined by digital data provided by the BLM Utah State Office. (Utah Geological Service data from 2008 [Vanden Berg 2008] were examined and were determined to be consistent with this definition; i.e., were sufficiently similar as to not require modifying the most geologically prospective area in Utah.). Review of the new USGS assessment data shows increases in the amount of in-place resources available in all three basins; however, the USGS acknowledges that “much of this previously unassessed resource is of low grade and is unlikely to be developed.”

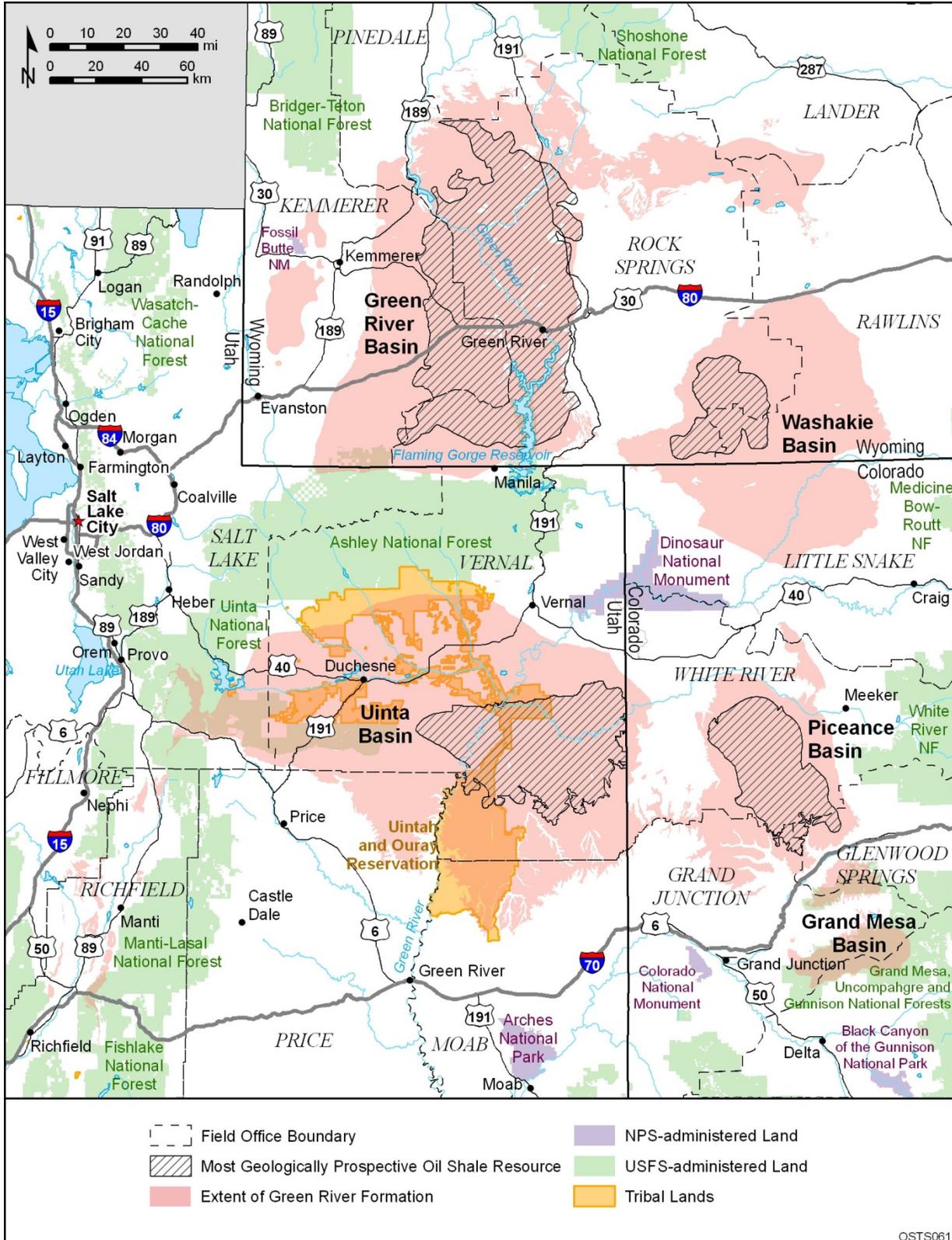


FIGURE 1.2-1 Most Geologically Prospective Oil Shale Resources within the Green River Formation Basins in Colorado, Utah, and Wyoming

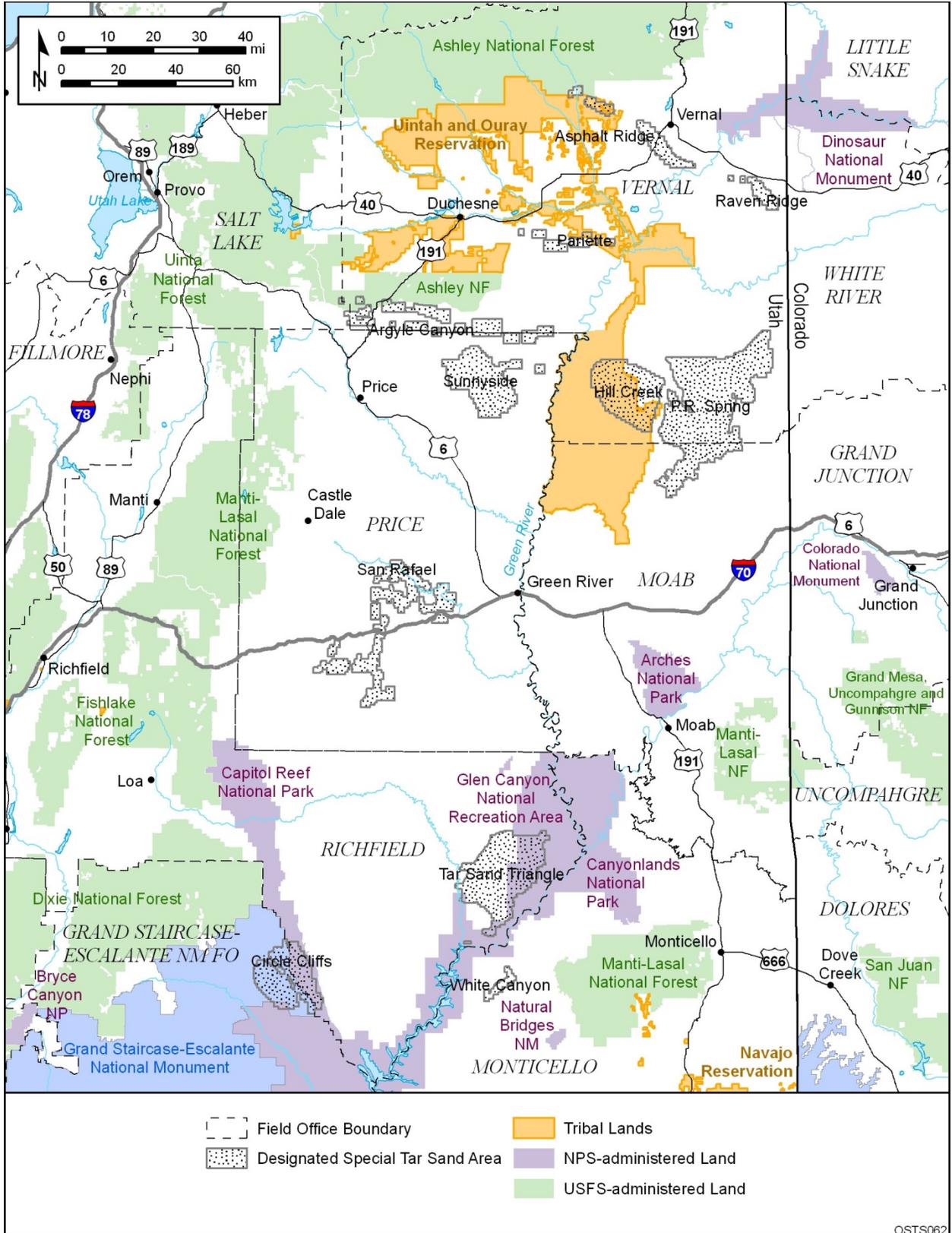


FIGURE 1.2-2 Special Tar Sand Areas in Utah

For tar sands resources, the study area includes those locations designated as Special Tar Sand Areas (STSAs) in the geologic reports (minutes) prepared by the USGS in 1980 (USGS 1980a–k) and formalized by Congress in the Combined Hydrocarbon Leasing Act of 1981 (P.L. 97-78).⁵ Eleven STSAs were identified across different sedimentary provinces in Utah (Figure 1.2-2): Argyle Canyon–Willow Creek (hereafter referred to as Argyle Canyon), Asphalt Ridge–Whiterocks and Vicinity (hereafter referred to as Asphalt Ridge), Circle Cliffs East and West Flanks (hereafter referred to as Circle Cliffs), Hill Creek, Pariette, P.R. Spring, Raven Ridge–Rim Rock and Vicinity (hereafter referred to as Raven Ridge), San Rafael Swell, Sunnyside and Vicinity (hereafter referred to as Sunnyside), Tar Sand Triangle, and White Canyon.

The oil shale and tar sands resources that fall within the defined study areas are located within the jurisdiction of 10 separate BLM field offices or administrative units. These include the Colorado River Valley (formerly the Glenwood Springs), Grand Junction, and White River Field Offices in Colorado; the Monticello, Price, Richfield, and Vernal Field Offices in Utah; and the Kemmerer, Rawlins, and Rock Springs Field Offices in Wyoming.⁶ The subsequent ROD will modify the decisions in the land use plans, as appropriate.

The scope of this PEIS includes public lands managed by the BLM where the federal government owns both the surface estate and subsurface mineral rights. In addition, BLM-managed lands where the federal government owns the subsurface mineral rights but the surface estate is owned by tribes, states, or private parties (i.e., split estate lands) are included in the scope of this analysis. Tribal lands where both the surface estate and subsurface mineral estate are owned by the tribe are not included in the scope of analysis of this PEIS.

The BLM has determined that certain lands within the oil shale and tar sands resource areas are excluded from commercial leasing on the basis of existing laws and regulations, Executive Orders, administrative land use plan designations as noted below, or withdrawals. As a result, commercial leasing is excluded from Naval Oil Shale Reserves (NOSR) Numbers 1 and 3,⁷ all designated Wilderness Areas, Wilderness Study Areas (WSAs), other areas that are part of the National Landscape Conservation System (NLCS) managed by the BLM (e.g., National Monuments, National Conservation Areas [NCAs], Wild and Scenic Rivers [WSRs], and National Historic and Scenic Trails), and existing ACECs that are currently closed to mineral development. As discussed in Chapter 2, additional areas are closed and will not be available for the future opportunity to lease for oil shale and tar sands on the basis of local planning decisions.

⁵ The boundaries of the designated STSAs were determined by the Secretary of the Interior's orders of November 20, 1980 (45 FR 76800–76801), and January 21, 1981 (46 FR 6077–6078).

⁶ Although the P.R. Spring STSA extends into the Moab Field Office boundary, this area is administered by the Vernal Field Office under a Memorandum of Understanding (MOU) with the Moab Field Office. Under this agreement, the Vernal Field Office administers all resources and programs, including land use planning, for the entire P.R. Spring STSA.

⁷ These Reserves were erroneously included in the maps and acreage totals identified as open for oil shale leasing in the 2008 PEIS and ROD. As explained in Section 2.3.3 of this PEIS, this error has been corrected.

Ten land use plans will be amended to designate lands as available or not available for commercial oil shale leasing, and four land use plans will be amended to designate lands as available or not available for commercial tar sands leasing. Three of the plans that are to be amended contain both oil shale and tar sands resources.

The oil shale and tar sands plan alternatives are described in Chapter 2 of the PEIS, including summary tables comparing the potential impact of the alternatives. For information purposes, the tables also include information on potential impacts that could accompany future commercial development of oil shale and tar sands resources. Chapter 3 describes the affected environment of the study area. The potential impacts of commercial oil shale and tar sands development are described in Chapters 4 and 5, respectively. Chapter 6 assesses the impacts of the different alternatives evaluated in this PEIS, provides a comparison of the alternatives, and provides an assessment of cumulative impacts. Chapter 7 contains a summary of the consultation and coordination associated with the PEIS. Chapter 8 contains the list of preparers of the PEIS, and Chapter 9 is the Glossary. Appendices A and B provide overviews of the oil shale and tar sands technologies that might be used over the next 20 years. Appendix C details the proposed land use plan amendments associated with the proposed alternatives. Appendix D summarizes the potentially applicable federal, state, and county regulatory requirements for oil shale and tar sands development. Appendices E and F contain relevant biological data for the three-state study area and the proposed conservation measures for the preferred alternative. Appendix G details the methodology used for the socioeconomic assessment. Appendix H describes the approach used for interviewing selected residents of the oil shale and tar sands project area in the preparation of the 2008 PEIS, Appendix I provides the instream flow water rights in the Piceance Basin, Colorado, and Appendix J is the Summary of Public Scoping Comments for this PEIS. Appendix K contains relevant policy documents for the management of greater sage-grouse, and Appendix L presents correspondence pertaining to government-to-government and NHPA Section 106 consultation. Cooperating agency letters are provided in Appendix M.

The scope of the analysis for this PEIS does not include review of the decisions by the Secretary to issue the RD&D leases described in Section 1.4.1. Those leases authorize activities on six 160-acre parcels located in Colorado and Utah (see Figure 2.3-2 of this PEIS) and also identify conditions under which commercial development could occur on 4,970 acres of preference right lease areas (PRLAs) included in the leases. A total of 30,720 acres may be developed under the terms of these leases. A call for nominations for a second round of RD&D leases was published in the *Federal Register* on November 3, 2009. Three nominations were received (two in Colorado, one in Utah); the two Colorado proposed parcels completed NEPA analysis in September 2012 and were approved in October 2012, effective November 1, 2012. The applicant in Utah has not indicated a willingness to move forward in the lease approval process. Under the 2009 solicitation, certain provisions in the terms of the new RD&D leases have changed. The new leases contain terms that authorize RD&D activity on 160-acre parcels and also identify conditions under which commercial development could occur on an additional 480 acres of PRLAs included in each of the leases. A total of 1,280 acres may be developed under the terms of the two newly authorized leases. An additional 640 acres may be developed if the remaining proposal in Utah is granted. RD&D leases issued prior to the ROD for this planning initiative would be prior existing rights and are not the subject of decisions within this

PEIS, with the exception that all alternatives address the subsequent availability of the lands contained in the leases should the initial leaseholder relinquish the existing leases.

In accordance with Section 369(n) of the Energy Policy Act of 2005, and as carried forward from the 2008 ROD, the BLM will consider and give priority to the use of land exchanges, where appropriate and feasible, to consolidate land ownership and mineral interests within the oil shale basins and STSAs. However, because the possible locations for such future exchanges are unknown at this time, the scope of this PEIS does not include evaluations of potential impacts of such exchanges, and leasing for commercial development on these lands would be subject to additional NEPA review.

1.2.1 Public Involvement

An NOI to prepare a PEIS and possible land use plan amendments for allocation of oil shale and tar sands resources on lands administered by the BLM in Colorado, Utah, and Wyoming was published in the *Federal Register* on April 14, 2011 (BLM 2011). The NOI articulated a preliminary purpose and need for the proposed action of amending land use plans, identified planning criteria, initiated the public scoping process, and invited interested members of the public to provide comments on the scope and objectives of the PEIS, including identification of issues and alternatives that should be considered in the PEIS analyses.

During the scoping period, the BLM conducted public meetings in April and May of 2011, in Salt Lake City, Vernal, and Price, Utah; Rock Springs and Cheyenne, Wyoming; and Rifle and Denver, Colorado. Approximately 28,800 people participated in the scoping process by attending public meetings and/or submitting comments. The BLM published a scoping report in October 2011, summarizing and categorizing issues, concerns, and comments, and considered them in developing the alternatives in this 2012 PEIS. A summary of scoping comments is provided in Section J.3 of Appendix J of this document.

The BLM published a Notice of Availability for the *Draft Programmatic Environmental Impact Statement and Possible Land Use Plan Amendments for Allocation of Oil Shale and Tar Sands Resources on Lands Administered by the Bureau of Land Management in Colorado, Utah, and Wyoming* (BLM 2012) on February 3, 2012, and announced a 90-day public comment period that closed on May 4, 2012. Open house meetings were held during March 2012 to provide additional information on the Draft PEIS. Approximately 160,000 comment letters were received, about 600 of them contained substantive comments, and roughly 160,000 appeared to be similar or identical to one another (i.e., form letters). Comments on the Draft PEIS received from the public and cooperating agencies were considered and incorporated, as appropriate, into the proposed plan amendments. Issues identified in the comments include air quality, climate change, water quality and quantity, socioeconomic concerns, wildlife concerns, and cultural resources concerns, as well as concerns related to the agency's compliance with FLPMA, NEPA, and the Energy Policy Act of 2005. These issues are summarized and the resolution of them described in the Comment Response Document in Volume 5 of this Final PEIS.

Comments on the Draft PEIS received from the public, cooperating agencies, other federal agencies, as well as internal BLM review were considered and information incorporated

as appropriate into this Proposed RMP Amendments/Final PEIS. As a result of public comments and upon further review, corrections/revisions were made to the alternatives and changes were made from what was presented as the Preferred Alternative in the Draft PEIS. These changes have resulted in a Proposed Plan Amendment that references new acreage figures.

1.2.2 Environmental Impact Analysis in This PEIS

The analysis of environmental effects in this PEIS is made up of two main components. The first is an analysis of generic, hypothetical, commercial facilities for each of the major types of oil shale and tar sands technologies resulting in the development of impacting factors for affected environmental resources. In cases in which information on impacting factors was not available for commercial oil shale or tar sands technologies, such factors were developed from analogous experience in the oil and gas industry. These factors and the resulting environmental effects of generic commercial-scale facilities are described in Chapter 4 for oil shale technologies and in Chapter 5 for tar sands technologies. The second main component of the environmental impacts analysis draws on the expected environmental effects of oil shale RD&D projects on the six first-round 160-acre RD&D leases and the two 160-acre second-round leases mentioned above as analyzed in the Environmental Assessments (EAs) prepared for those projects. RD&D project summaries are provided in Appendix A. These components, along with information about the affected environment, presented in Chapter 3, form the basis of the discussion in Chapter 6 of possible environmental consequences of future leasing and development of these resources that might take place within the areas proposed for allocation under each alternative.

A reasonably foreseeable development scenario (RFDS) is an analytical tool, often used in the planning process that can inform analyses prepared pursuant to NEPA. An RFDS is a reasonable projection of the most likely anticipated oil shale and tar sands activity supported by a clear level of assumptions. An RFDS was not developed for this planning initiative, however, because information regarding possible development of these resources remains highly speculative. Analysis of the effects of development at the programmatic level will be qualitative to stay within the limited scope of the planning decisions to be made, as well as to reflect the limited and/or highly speculative nature of the information available.

If and when applications to lease oil shale and tar sands resources for commercial development are received and accepted by the BLM and when information is less speculative, it will be possible to develop an RFDS. That RFDS will be the critical component for performing a thorough effects analysis of oil shale and tar sands activities that could occur as a result of leasing. An RFDS for an area of proposed oil shale and tar sands leasing provides information for evaluating the type and extent of potential effects from oil shale and tar sands development that *could* occur. Effects analysis for leasing is broad and generalized because it is necessarily based on a *hypothetical* scenario of exploration and development.

At the project level, the plan of development provides the specific technical information necessary for the analysis of environmental consequences of these operations, including analysis of cumulative effects of the proposed action. An exploration or development permit is definitive

for activities that will involve ground disturbance, unlike the speculative RFDS used to analyze effects related to a leasing decision. Consequently, the nature and extent of effects from the proposed exploration or development action can be determined with a higher degree of accuracy and confidence than that associated with a planning- or leasing-level RFDS.

1.3 COOPERATING AGENCIES

The scope of the *Proposed Land Use Plan Amendments for Allocation of Oil Shale and Tar Sands Resources on Lands Administered by the Bureau of Land Management in Colorado, Utah, and Wyoming and Final Programmatic Environmental Impact Statement* is of interest to numerous federal, tribal, state, and local governments. The BLM invited 55 agencies to participate in the preparation of the PEIS as cooperating agencies. Fourteen agencies expressed an interest in participating as cooperating agencies, and MOUs between these agencies and the BLM were established. The following agencies are participating as cooperating agencies in the preparation of this PEIS:

- National Park Service (NPS);
- USFWS;
- State of Colorado Department of Natural Resources (Colorado DNR) and Department of Public Health and the Environment (CDPHE);
- State of Utah;
- State of Wyoming;
- Garfield County, Colorado;
- City of Rifle, Colorado;
- Carbon County, Utah;
- Duchesne County, Utah;
- Grand County, Utah;
- Uintah County, Utah;
- Lincoln County, Wyoming;
- Sweetwater County, Wyoming; and
- Coalition of Local Governments.

The roles and responsibilities of these cooperating agencies, and the extent of interactions between them and the BLM, are discussed in Chapter 7.

1.4 RELATIONSHIP OF THE PROPOSED ACTION TO OTHER BLM AND COOPERATING AGENCY PROGRAMS, POLICIES, AND PLANS

1.4.1 BLM's Oil Shale Research, Development, and Demonstration Program

On June 9, 2005, pursuant to its authority under Section 21 of the Mineral Leasing Act (MLA) (30 USC 241), the BLM initiated an oil shale RD&D program under which small tracts of land could be leased in support of activities to demonstrate the technical and economic feasibility of oil shale extractive technologies (70 FR 33753–33759). The BLM solicited the nomination of parcels, not to exceed 160 acres, to be used for oil shale RD&D activities. Applicants also were allowed to identify an additional contiguous 4,960 acres of land to be reserved as a PRLA for future commercial development, to be awarded subject to the following terms:

- (a) Upon documenting to the satisfaction of the authorized officer that it has produced commercial quantities of shale oil from the lease, the Lessee has the exclusive right to convert the research and development lease acreage to a commercial lease and acquire any or all portions of the remaining preference lease area up to a total of 5,120 contiguous acres upon:
 - (1) Payment of a bonus based on the Fair Market Value of the lease, to be determined by the Lessor utilizing criteria to be developed through the rulemaking described in subsection (b) or other process for obtaining public input;
 - (2) Documentation of the Lessee's consultation with state and local officials to develop a plan for mitigating the socioeconomic impacts of commercial development on communities and infrastructure;
 - (3) Provision of adequate bond to cover all costs associated with reclamation and abandonment of the expanded lease area; and
 - (4) BLM's determination, following analysis pursuant to NEPA, that commercial-scale operations can be conducted, subject to mitigation measures to be specified in stipulations or regulations, without unacceptable environmental consequences.
- (b) Such commercial lease shall contain terms consistent with regulations to be developed by the Secretary pursuant to section 21 of the Act and stipulations developed through appropriate NEPA analysis.
- (c) Such commercial lease may be issued for a term of 20 years and so long thereafter as shale oil is produced from the Leased Lands in commercial quantities. Such commercial lease shall be subject to payment of rents and royalties to the Lessor at the established rates at the time of lease conversion,

or at such reduced rate that the Lessee demonstrates is necessary to permit the economic development of the oil shale resource. The royalty shall be subject to the readjustment of lease terms at the end of the 20th lease year and each 20-year period thereafter.

The 160-acre RD&D leases were issued for 10-year terms with an option to extend them up to another 5 years. Prior to beginning RD&D activities, the lessees also must obtain permits from the BLM and other governmental agencies (e.g., state-issued air quality permits). These RD&D leases and the conversion right to commercial operations on preference acreage represent a prior existing right that may be exercised upon compliance with the terms of the lease.

The BLM received and reviewed a total of 20 nomination packages. Ultimately, six projects were selected for further consideration, including preparation of EAs under NEPA. The projects that were selected included five projects in the Piceance Basin, Colorado (one each submitted by Chevron Shale Oil Company and EGL Resources, Inc. [EGL],⁸ and three submitted by Shell Frontier Oil & Gas), and one project in the Uinta Basin, Utah (submitted by Oil Shale Exploration Company [OSEC]).⁹ The RD&D leases for the five Colorado projects were issued January 1, 2007; the lease for the Utah project was issued in June 2007. The RD&D leases are part of the baseline activities under all alternatives considered in the PEIS. More information about these RD&D projects is provided in Section 2.3 and Appendix A.

A second round of solicitations of interest in RD&D leases was issued by the BLM on November 3, 2009 (74 FR 56867). Any new RD&D lease would have to be consistent with the applicable BLM land use plans. Three nomination packages were submitted; all three were selected for further consideration, including preparation of EAs under NEPA. The projects that were selected include two projects in the Piceance Basin, Colorado (one from Exxon-Mobil Exploration Company and one from Natural Soda Holdings, Inc.) and one project in the Uintah Basin, Utah, submitted by Aurasource. Aurasource, the company in Utah, has not indicated a willingness to move forward in the lease approval process. The impacts of new RD&D leasing are anticipated to be qualitatively similar to those of commercial oil shale leasing as analyzed in this PEIS. **While the two Colorado leases have not yet been approved or issued, they are presented in this Final PEIS as approved, which shows what the allocation would look like, should these RD&D leases be issued.**

The RD&D impacts, however, are anticipated to be smaller in scale than those of commercial projects, at least until any RD&D lease might be converted to a commercial oil shale lease and expanded to include preference right acreage. Therefore, the analysis in this PEIS for commercial oil shale projects also provides sufficient analysis of RD&D projects for purposes of amending land use plans. New RD&D leases would be issued, if at all, only after site-specific analysis under NEPA. Conversion to commercial leases would also require an individualized NEPA document.

⁸ Since the issuance of its RD&D lease, EGL Resources, Inc., has become American Shale Oil, LLC.

⁹ Since the issuance of its RD&D lease, OSEC has become Enefit American Oil.

1.4.2 Combined Hydrocarbon Leasing Program and Leasing in STSAs Issued under the Revised MLA

The Combined Hydrocarbon Leasing Act of 1981 (P.L. 97-78) amended the MLA to authorize the Secretary to issue combined hydrocarbon leases (CHLs) in areas containing substantial deposits of tar sands, which were to be designated as STSAs. This Act further specified that a CHL was the only type of lease that could be offered in these STSAs, provided for the conversion of existing oil and gas leases or tar sands claims in these areas to CHLs, and established the maximum lease size as 5,120 acres. The Combined Hydrocarbon Leasing Act defined oil as all nongaseous hydrocarbons except coal, oil shale, gilsonite, and other vein-type solid hydrocarbons. Eleven STSAs were designated in 1980 and 1981. The BLM published regulations implementing the leasing provisions of this Act in February 1983 at 43 CFR Part 3140. Subsequently, the BLM prepared the *Utah Combined Hydrocarbon Leasing EIS* (BLM 1984). Tar sands resources located outside of these STSAs were not subject to the requirements of 43 CFR Part 3140 and are available for development under oil and gas leases.

Under the authority of the Combined Hydrocarbon Leasing Act, CHLs were issued in the mid-1980s and mid-1990s within the Pariette and P.R. Spring STSAs in the Vernal Field Office; 17 of these leases remain in existence (May 2012). Many are being held by oil and gas production. Also in the mid-1980s, a number of operators holding oil and gas leases within the designated STSAs applied to convert their leases to CHLs. In most instances, the conversion of these leases has not been completed; thus a number of pending conversion applications remain within the study area, specifically within the Circle Cliffs, Tar Sand Triangle, and P.R. Spring STSAs. The BLM is currently engaged in adjudication of these applications.

On May 18, 2006, pursuant to Section 350 of the Energy Policy Act of 2005, which amended the MLA to allow separate oil and gas leases and tar sands leases in designated STSAs, the BLM issued a final rule on leasing in STSAs (71 FR 28779, codified at 43 CFR Subpart 3141). The final rule authorizes the BLM to issue separate leases for exploration for and extraction of tar sands, separate leases for exploration for and development of oil and gas, and separate leases for CHLs within designated STSAs. Under the rule, all three types of leases would have primary terms of 10 years; CHLs and oil and gas leases would remain in effect as long thereafter as oil or gas is produced in commercial quantities; tar sands leases would remain in effect after the 10-year term as long as tar sands are produced in commercial quantities. The final rule increases the maximum acreage of CHLs or tar sands leases in an STSA from 5,120 to 5,760 acres, establishes the minimum acceptable bid for tar sands leases at \$2.00 per acre, and requires that tar sands leases be issued by competitive processes only. In addition, under the final rule, leasing in STSAs within NPS units is allowed only where mineral leasing is permitted by law and where the lands are open to mineral resource disposition in accordance with any applicable Minerals Management Plan. The NPS Regional Director also must find that leasing within an NPS unit would not result in any significant adverse impacts on the NPS unit or any contiguous unit.

Decisions in the ROD resulting from this PEIS regarding the availability of lands within the STSAs for future commercial leasing will not affect or be affected by the requirements established for tar sands leasing in the final rule.

1.4.3 Existing BLM Land Use Plans, Ongoing Planning Activities, and Resource Management Plan Revisions

The BLM develops land use plans to guide activities, establish management goals and approaches, establish land use allocations within a planning area, and provide management prescriptions for public lands. Current generation land use plans are called Resource Management Plans (RMPs); in the past, such plans were called Management Framework Plans (MFPs), and some MFPs are still in use. Decisions in existing BLM land use plans were incorporated into the analyses conducted in preparation of this PEIS and are discussed in Section 3.1.1. Of the existing land use plans within the study area, the BLM is currently engaged in planning efforts to revise, amend, or prepare new versions of four of the plans. The existing plans within the PEIS study area include the following:

- Colorado
 - Glenwood Springs RMP (BLM 1988, as amended by the 2006 Roan Plateau Plan Amendment [BLM 2006a, 2007, 2008d])^{10,11}
 - Grand Junction RMP (BLM 1987)
 - White River RMP (BLM 1997a, as amended by the 2006 Roan Plateau Plan Amendment [BLM 2006a, 2007, 2008d])
- Utah
 - Monticello RMP (BLM 2008e)
 - Price RMP (BLM 2008f)
 - Richfield RMP (BLM 2008g)
 - Vernal RMP (BLM 2008h)
 - Grand Staircase–Escalante National Monument (GSENM) Management Plan (BLM 1999)
- Wyoming
 - Green River RMP (BLM 1997b, as amended by the Jack Morrow Hills Coordinated Activity Plan [BLM 2006b])
 - Kemmerer RMP (BLM 2010)
 - Rawlins RMP (BLM 2008i)

With the exception of the RMP for the GSENM (BLM 1999), these existing BLM land use plans will be amended by decisions contained in the ROD for the PEIS. The proposed land use plan amendments are discussed in Chapter 2 and are presented in Appendix C.

When the amendments/revisions/replacements of four RMPs currently undergoing planning (Grand Junction, Colorado River Valley, Green River, and White River Field Office) were initiated, there was no reasonably foreseeable development projected for tar sands or oil

¹⁰ The Glenwood Springs Field Office moved to Silt, Colorado, and is now called the Colorado River Valley Field Office, although the current RMP is still titled the Glenwood Springs RMP. When the plan revision is approved, it will be called the Colorado River Valley RMP.

¹¹ The Glenwood Springs RMP and the White River RMP are currently undergoing revision.

shale over the life of these plans, and for that reason, identification of areas available for potential oil shale or tar sands leasing was not considered as part of those planning processes. The mineral reports prepared to accompany the three RMPs did identify oil shale resources, but did not project any leasing or development because of prevailing and anticipated economic factors. The fourth RMP effort, the amendment of the White River RMP, is being conducted specifically to consider the amendment of that RMP to allow additional oil and gas development activity. It was recognized at the time that this PEIS would consider the issue of oil shale management for the White River RMP area.

On December 13, 2005, the BLM published a NOI in the *Federal Register* initiating a PEIS to support a commercial oil shale and tar sands leasing program on federal lands in these three states. Early in the development of the draft, the scope of that PEIS was revised to focus only on decisionmaking regarding allocation of lands as open or closed, because the BLM determined that the analysis of environmental consequences of commercial oil shale and tar sands development would not be sufficiently detailed to support lease issuance. The BLM made this determination on the basis that the development technologies for in situ production of oil shale were just emerging and that, therefore, there was a lack of information regarding resource use and associated impacts.

In the time since the 2008 OSTIS PEIS and ROD, the BLM has not received any new information from the existing RD&D lessees that could provide sufficiently detailed analysis of the environmental consequences of commercial oil shale development to support lease issuance. The situation is similar with respect to the lack of information regarding the technological and environmental requirements of commercial tar sands development. Consequently, as with the 2008 OSTIS PEIS and ROD, this PEIS is similar in scope, supporting only resource allocation decisionmaking that identifies the BLM-managed lands for which applications to lease oil shale and tar sands resources would or would not be accepted in the future. That is, although applications would be accepted for areas that may be identified as available for commercial leasing, the BLM will need to comply with all applicable laws, regulations, and policies, including but not limited to the requirements of NEPA, NHPA, and ESA before any leasing of the area would be considered (see text box describing the steps in the development decisionmaking process).

The ROD for the Final OSTIS PEIS will amend the land use plans existing at the time of its adoption, identifying those areas designated as open or closed for application for future oil shale and tar sands leasing.

1.4.4 Leasing

As part of the site-specific analysis to be carried out prior to issuance of any oil shale or tar sands leases, the environmental consequences to specific resource values and uses within the areas and any alternative actions would be analyzed. At that time, at the site-specific level, the competing resource values will be analyzed and weighed as required by FLPMA and NEPA and other applicable laws, and a decision will be made regarding management of the specific parcel of land. If, pursuant to the lease evaluation and land use planning process, the BLM determines

that leasing and subsequent development of the oil shale or tar sands resources would cause significant impacts, the BLM can require the applicant to mitigate the impact so that it is no longer significant or move the proposed lease location. If neither of these options resolves the anticipated conflicts, the BLM can decide either that the importance of development of the oil shale and tar sands resources outweighs protection of the competing resource value and approve the application, or that the resource value outweighs the advantages of development and deny the application.

This preleasing NEPA and other coordinated analyses would include the same opportunities for public involvement and comment that are part of this PEIS process and every other planning and NEPA process the BLM undertakes. The decisions associated with the PEIS will be incorporated into the ongoing RMPs as they are finalized or will amend the existing RMPs, depending on the order in which the documents are completed with respect to the completion of the PEIS.

Although the BLM handbooks provide for stipulations for oil and gas leases to be made part of the land use plans, that guidance is not applicable to the present analysis to amend land use plans for development of oil shale or tar sands. Oil and gas is a mature industry in which there is long experience with leasing stipulations to conserve and to protect affected resources. The present experimental stage of the oil shale and tar sands industries weighs against emplacing lease stipulations in the RMPs at this time. Instead, the BLM will develop appropriate lease stipulations and either (1) include them in appropriate RMPs as part of future amendments or (2) include them in commercial lease sale announcements. That will allow the BLM to refine lease stipulations over time based on the latest information regarding oil shale or tar sands technologies and their impacts, without unnecessary rounds of amendments to the land use plans. This PEIS does discuss various mitigation requirements, methods, and objectives that will inform both (1) the lease stipulations developed for particular lease sales or for future amendments to RMPs and (2) the conditions of approval for plans of development.

1.4.5 Cooperating Agency Plans and Programs

As discussed in Section 1.3, this PEIS has been prepared in cooperation with 14 federal, state, and local governmental organizations. Management plans and programs established by these cooperating agencies have been considered in the preparation of this PEIS on the basis of information provided by the agencies. An allocation decision identifying lands as available for application to lease permits the BLM to consider only applications to lease and does not grant any property right. It does not authorize any ground-disturbing activities, nor is it an irreversible or irretrievable commitment of resources under NEPA. The BLM will cooperate with state, local, and tribal governments to promote consistency with their land use plans, where possible. For example, the City of Rifle has indicated to the BLM, on a preliminary basis, that it believes the BLM's allocation decisions to be in conflict with its plan regarding economic development. Further details regarding the comments of other cooperating agencies, and the BLM's response to these comments may be found in Appendix M, as well as in the Comment Response Document in Volume 5 of this PEIS.

1.4.6 Other BLM Programmatic Energy-Related Land Use Planning Initiatives

1.4.6.1 BLM and U.S. Forest Service (USFS) Energy Corridor Designation (2008)

In accordance with Section 368 of the Energy Policy Act of 2005, the BLM and USFS, working with the U.S. Department of Energy (DOE) and U.S. Department of Defense (DoD), prepared a PEIS evaluating issues associated with the designation of energy corridors on federal lands in 11 Western states, including Colorado, Utah, and Wyoming. On the basis of this Final West-wide Energy Corridors PEIS (DOE and DOI 2008), the BLM and USFS amended their respective land use plans to designate a series of energy corridors across the western states. These potential amendments do overlap the planning areas included within the OSTs PEIS area. In addition, the designation of energy corridors may affect energy development throughout the western United States, including commercial oil shale and tar sands development, because the location of energy corridors may facilitate development by removing administrative and planning barriers for potential pipelines, electric transmission lines, and associated infrastructure. The Final West-wide Energy Corridors PEIS is available at <http://corridoreis.anl.gov>.

1.4.6.2 BLM and USFS Programmatic EIS for Geothermal Leasing (2008)

In accordance with the Energy Policy Act of 2005 (P.L. 109-58), the BLM and USFS proposed a program to facilitate geothermal leasing on lands administered by the BLM and the USFS (National Forest System [NFS] lands) that have geothermal potential in 12 western states, including Alaska, some of which overlap the OSTs PEIS study area. Under the proposal, the BLM and USFS would do the following: (1) identify public and NFS lands with geothermal potential as being legally open or closed to leasing; (2) issue or deny geothermal lease applications pending as of January 1, 2005; (3) identify public lands that are administratively closed or open, and under what conditions; (4) develop a comprehensive list of stipulations, BMPs, and procedures to serve as consistent guidance for future geothermal leasing and development on public and NFS lands; and (5) amend BLM land use plans to adopt the resource allocations, stipulations, BMPs, and procedures. The program is described and analyzed in the Final PEIS for Geothermal Leasing in the Western United States published in October 2008 (BLM 2008j). A ROD for the program was issued in December 2008 (BLM 2008k).

1.4.6.3 BLM and DOE Programmatic EIS for Solar Energy Development (initiated 2009)

On March 11, 2009, the Secretary of the Interior issued Secretarial Order 3285, which announced a policy goal of identifying and prioritizing specific locations best suited for large-scale (i.e., utility-scale) production of solar energy on public lands (Secretary of the Interior 2010). The Secretarial Order directs the DOI to work with individual states, tribes, local governments, and other interested stakeholders to identify appropriate areas for generation and necessary transmission of solar energy, to develop BMPs for renewable energy and transmission projects on public lands to ensure the most environmentally responsible development and

delivery, and to establish clear policy direction for authorizing the development of solar energy on public lands. The proposed Solar Energy Development Program has been designed to meet these requirements and to serve as an analytical tool to assist the BLM in considering replacement of its current solar energy development policy with a comprehensive Solar Energy Development Program that would allow the permitting of future solar energy projects to proceed in a more standardized and efficient manner. The program is described and analyzed in the Draft Solar PEIS published in December 2010 (BLM and DOE 2010), the Supplement to the Draft published in October 2011 (BLM and DOE 2011), and the Final PEIS published in July 2012 (BLM and DOE 2012). Some of the public lands within the Solar Energy Development Program planning area overlap with the OSTs PEIS study area.

1.4.6.4 DOE Uranium Leasing Programmatic EIS (initiated 2011)

The DOE Office of Legacy Management (LM) is preparing a PEIS for the DOE Uranium Leasing Program (ULP). DOE LM currently manages this ULP and administers 31 lease tracts in the Uravan Mineral Belt in southwestern Colorado. Twenty-nine of these lease tracts are actively held under lease. The lease tracts lie in San Miguel, Montrose, and Mesa Counties in western Colorado and do not directly overlap the OSTs PEIS study area, although the area of potential cumulative effects for certain resources examined in relation to the ULP tracts may eventually be determined to extend to the OSTs PEIS study area.

1.5 REFERENCES

Note to Reader: This list of references identifies Web pages and associated URLs where reference data were obtained. It is likely that at the time of publication of this PEIS, some of these Web pages may no longer be available or their URL addresses may have changed.

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