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# LAND AND RESOURCE MANAGEMENT ISSUES RELEVANT TO DEPLOYING IN-SITU THERMAL TECHNOLOGIES

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IN-SITU THERMAL TECHNOLOGIES**

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## **Abstract**

Utah is home to oil shale resources containing roughly 1.3 trillion barrels of oil equivalent and our nation's richest oil sands resources. If economically feasible and environmentally responsible means of tapping these resources can be developed, these resources could provide a safe and stable domestic energy source for decades to come. In Utah, oil shale and oil sands resources underlay a patchwork of federal, state, private, and tribal lands that are subject to different regulatory schemes and conflicting management objectives. Evaluating the development potential of Utah's oil shale and oil sands resources requires an understanding of jurisdictional issues and the challenges they present to deployment and efficient utilization of emerging technologies. The jurisdictional patchwork and divergent management requirements inhibit efficient, economic, and environmentally sustainable development. This report examines these barriers to resource development, methods of obtaining access to landlocked resources, and options for consolidating resource ownership.

This report also examines recent legislative efforts to wrest control of western public lands from the federal government. If successful, these efforts could dramatically reshape resource control and access, though these efforts appear to fall far short of their stated goals. The unintended consequences of adversarial approaches to obtaining resource access may outweigh their benefits, hardening positions and increasing tensions to the detriment of overall coordination between resource managers. Federal land exchanges represent a more efficient and mutually beneficial means of consolidating management control and improving management efficiency. Independent of exchange proposals, resource managers must improve coordination, moving beyond mere consultation with neighboring landowners and sister agencies to coordinating actions with them.

## Executive Summary

Utah contains extensive oil shale and oil sands resources. With roughly 1.3 trillion barrels of oil equivalent in oil shale, and our nation's richest oil sands resources, Utah is positioned to provide domestic energy resources capable of reducing dependence on foreign oil and spurring economic development—if the environmental, economic, and social costs of development can be overcome.

Oil shale and oil sands resources in Utah underlay a patchwork of federal, state, private, and tribal lands that are subject to different regulations and conflicting management objectives. The federal government manages the largest single share of oil shale and oil sands resources within Utah. The Bureau of Land Management (BLM) controls approximately 560,000 acres of oil shale that is available for application for commercial leasing, plus a similar quantity of oil sands bearing lands. These lands are managed under the penumbra of multiple-use, sustained-yield objectives set forth in the Federal Land Policy and Management Act (FLPMA). The State of Utah, the Ute Indian Tribe, and private entities also control sizeable blocks of resources—approximately 570,000 acres of oil shale and 360,000 acres of oil sands bearing lands. The State of Utah actively promotes oil shale development on state lands managed by the School and Institutional Trust Lands Administration (SITLA). SITLA manages these lands in order to maximize income for trust beneficiaries (e.g., public schools).

Impediments to commercial oil shale and oil sands development on federal public lands could shift development to non-federal lands. Furthermore, most BLM managed oil shale resources are found deep underground where they can be accessed only with in-situ technologies or underground mines. While extensive non-BLM lands are also subject to development utilizing in-situ and underground technologies, a much higher percentage of non-BLM lands can be developed utilizing surface mining methods. Multiple resource owners with different management objectives and heterogeneous resources could have technology forcing implications or otherwise impact energy policy.

Regardless of ownership, oil shale and oil sands development remains subject to federal environmental laws, including the Clean Air Act (CAA), Clean Water Act (CWA), Safe Drinking Water Act (SDWA), and Endangered Species Act (ESA). Development of federal land and resources also requires compliance with the National Environmental Policy Act's (NEPA) procedural requirements, usually fulfilled in an Environmental Impact Statement (EIS). While these federal laws create a broad regulatory floor, they do not directly address operational requirements for energy development. State regulatory programs are generally geared towards operational specifics associated with conventional oil and gas but do not address the full range of operational concerns that are likely to arise with oil shale or oil sands development. Filling these regulatory gaps, reconciling divergent management objectives, and defining the limits of competing authority over the same lands do not reflect new or unique problems, but they remain notable challenges.

Tribal lands pose unique jurisdictional and regulatory issues. Indian Country includes Indian reservations, dependent Indian communities, and Indian allotments, and can extend well beyond current reservation boundaries. Indian Country within eastern Utah includes the Uintah and Ouray Reservation as well as millions of acres of non-reservation land. The Uintah and Ouray Reservation is home to the Ute Indian Tribe, as well as oil shale, oil sands, and other energy resources. The Uintah and Ouray Reservation is a complicated patchwork of ownership, including Ute Indian Tribal lands, Ute Indian Allotted lands, Ute Indian Tribe and Ute Distribution Corp. jointly managed Indian trust minerals, as well as privately owned and federally owned minerals. On tribal lands, tribes may regulate non-Indian activities conducted through consensual business arrangements (e.g., by taxation and licensing). Tribes may also regulate conduct that threatens or directly affects the political integrity, economic security, or health and welfare of the tribe, regardless of land ownership within Indian Country. As a

result, tribes routinely tax oil and gas extraction from tribal lands. Tribes may also regulate developers on non-Indian fee land if their operations adversely affect the tribe (e.g., practices that cause water contamination).

States can assume jurisdiction to implement provisions of several key environmental laws, including the CAA and CWA, and Utah has assumed implementing authority under both acts. However, absent congressional authorization, states generally cannot assert regulatory authority within Indian Country. Various federal statutes grant tribes authority to assume primacy (also known as “treatment as states”) in administering environmental regulations within Indian Country, including the CWA and CAA. Until tribes are able to assume full responsibility for delegable programs, the Environmental Protection Agency (EPA) retains primacy, but encourages tribal participation. Under both the CWA and CAA, tribes may promulgate their own water and air quality standards, if approved by the EPA and at least as stringent as national standards. The Ute Tribe of Indians has not assumed regulatory jurisdiction, and until they do so, the EPA will continue to administer most major environmental laws within Uinta Basin Indian Country. Currently, sixty-eight percent of Utah’s natural gas production and seventy-nine percent of its oil production occurs within Indian Country, and energy developers must work with the EPA to obtain appropriate environmental permits for their operations.

While some tribes engage directly in mineral production, most large-scale tribal development is accomplished through non-Indian leasing and other agreements with tribes. Tribes have the sole authority for leasing mineral rights on tribal lands owned in fee. The Department of the Interior (DOI), in association with the tribe, administers mineral estates for lands held in trust by the federal government under the Indian Mineral Leasing Act, the Indian Mineral Development Act, and the Indian Tribal Energy Development and Self-Determination Act. Given the complexities involved with Indian Country jurisdiction, coordinated resource management is needed to avoid inconsistent regulation, unacceptable cumulative effects, and inadequate protection of transient resources.

Setting ownership of oil shale and oil sands aside, commercial oil shale and oil sands development is likely incompatible with intensive development of other mineral resources. Several new oil and gas field developments have been proposed in the Uinta Basin, overlapping areas that contain oil shale or oil sands resources. While most of these projects have not yet been approved, they create wide-ranging possibilities for future conflict and may result in a geographic shift of unconventional fuel development. Shifting development patterns could impact the choice of technologies and change the face of the emerging industry. Geographic shifts could also move development from federal to non-federal lands, or vice-versa, affecting changes in applicable policies and environmental controls that would apply.

A coordinated multi-jurisdictional response will be necessary to efficiently and expeditiously overcome barriers to resource development, such as access to landlocked resources and fragmented resource ownership. Accessing resources, such as private or SITLA managed lands surrounded by federal lands, requires federal approval. While the federal government cannot deny reasonable access to land-locked property, such access is subject to reasonable regulation and the line between reasonable and unreasonable restriction is often hotly disputed. State law controls access to resources surrounded by SITLA lands. SITLA recognizes four classes of roads across its lands and may seek compensation for access. Other legal mechanisms for obtaining access may also be available and the best course of action will depend on site-specific considerations.

Fragmented land ownership is not an insurmountable challenge. Land ownership can be consolidated and management can be coordinated in a variety of ways, including land exchanges. The BLM’s land exchange authority requires that the exchanged lands be in the same state and of equal value. Those seeking to utilize land exchanges to consolidate control over oil shale and oil sands

resources must equalize values and provide information regarding the plan of development. While equalizing values is difficult given the uncertain value of untapped resources and the technological limits of development, recent land exchanges offer a model for resolving these issues.

The State of Utah is committed to exercising and expanding local control over federal lands and recently passed two laws that could impact access to oil shale and oil sands, particularly those resources that are surrounded by federal lands. These new laws require the Utah Attorney General to initiate eminent domain action to obtain title to federal public lands that enhance the state's ability to access or manage SITLA lands, and to explore other legal avenues for obtaining control of federal public lands. As eminent domain powers are unavailable against the federal government, courts have consistently upheld federal control of these lands, recognizing that the United States is not obligated to dispose of public lands and can administer federal public lands in any way it chooses. The legislation is legally insufficient to achieve its stated purpose and an unfortunate side effect of the legislation may be a further eroding of federal-state relations that could make cooperative efforts more difficult.

Coordination and cooperation will be key to efficient resource management, and a reemergence of cross-jurisdictional planning efforts holds promise for the future. For these efforts to succeed, planning efforts must move beyond mere consideration of adjacent management objectives to true coordination between managers and efforts to identify common objectives. The extent to which the several competing resource managers can collaborate will in large part determine the future of oil shale and oil sands development within the Uinta Basin, as well as the impact such development will have on other resources.

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## List of Acronyms

ANILCA	Alaska National Interest Lands Conservation Act
BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
BPD	Barrel per Day
CAA	Clean Air Act
CBM	Coalbed Methane
CHLA	Combined Hydrocarbon Leasing Act
CWA	Clean Water Act
CO <sub>2</sub>	Carbon Dioxide
DOI	Department of the Interior
DOGMM	Utah Division of Oil, Gas, and Mining
EA	Environmental Assessment
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
EPAct 2005	Energy Policy Act of 2005
ESA	Endangered Species Act
FLPMA	Federal Land Policy and Management Act
GPT	Gallons per Ton
IBLA	U.S. Department of Interior Board of Land Appeals
ICSE	University of Utah Institute for Clean and Secure Energy
IMDA	Indian Mineral Development Act
IMLA	Indian Mineral Leasing Act
ITEDSA	Indian Tribal Energy Development and Self-Determination Act
LCC	Landscape Conservation Cooperatives
MGPA	Most Geologically Prospective Area for oil shale
MLA	Mineral Leasing Act
MPO	Mining Plan of Operations
NEPA	National Environmental Policy Act
NOSR	Naval Oil Shale Reserve
NPS	National Park Service
OSEC	Oil Shale Exploration Company
PEIS	Programmatic Environmental Impact Statement
PILT	Payment in Lieu of Taxes
PSD	Prevention of Significant Deterioration
RCRA	Resource Conservation and Recovery Act
RD&D	Research, Development, and Demonstration [Lease]
REA	Rapid Ecoregional Assessment
RMP	Resource Management Plan
ROD	Record of Decision
RS 2477	Revised Statute 2477 of 1866
SDA	Surface Damage Act
SITLA	Utah School and Institutional Trust Lands Administration
SOI	Secretary of the Interior
STSA	Special Tar Sands Area
SUWA	Southern Utah Wilderness Alliance

TAS	Tribal Treatment as States
UDWR	Utah Division of Wildlife Resources
URLEA	Utah Recreational Land Exchange Act
USFS	U.S. Forest Service
USGS	U.S. Geological Survey
USF&WS	U.S. Fish and Wildlife Service
WGA	Western Governors' Association
WSA	Wilderness Study Area

## **1. INTRODUCTION**

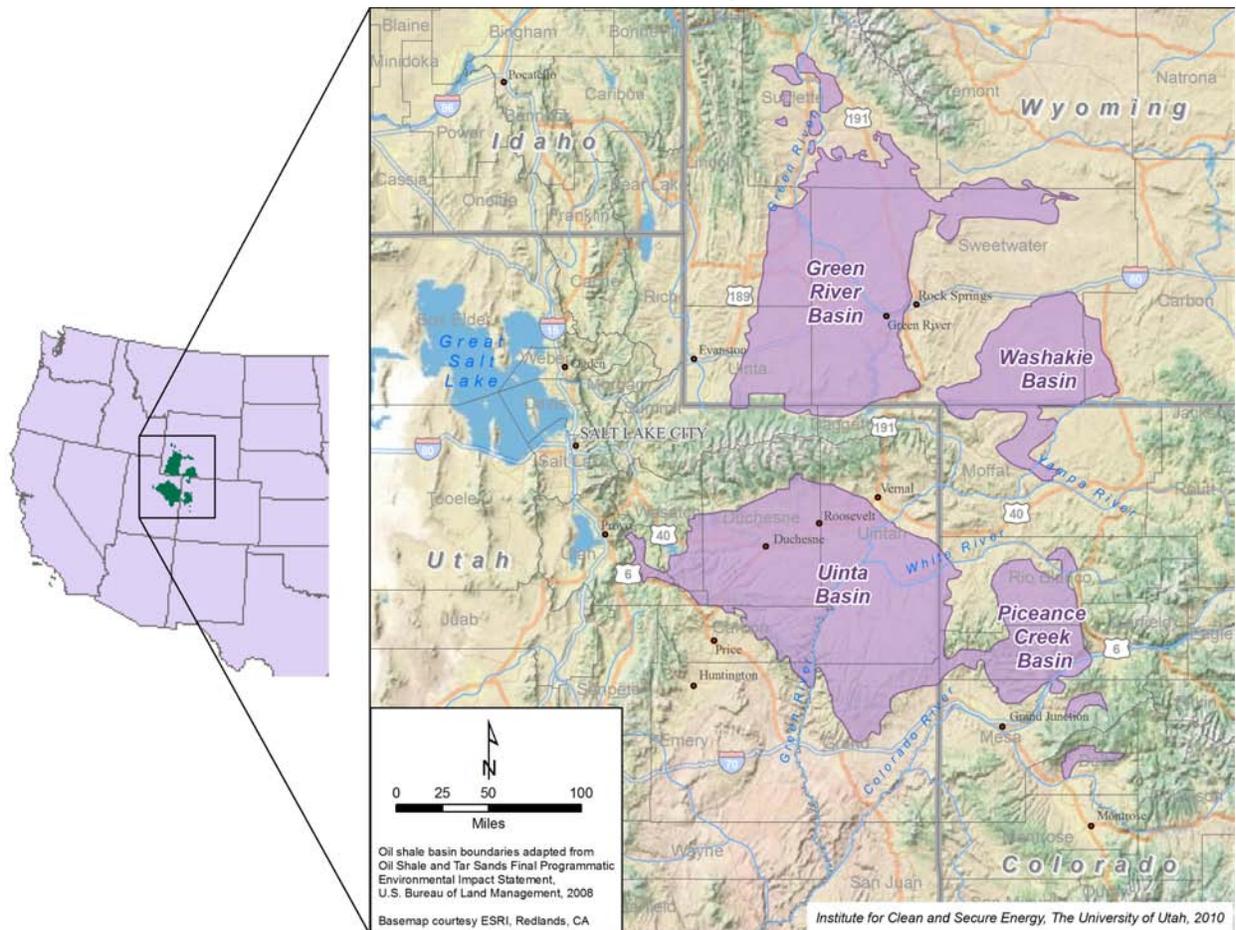
This report addresses land use issues associated with in-situ processing of oil shale and oil sands resources within Utah.<sup>1</sup> This report focuses on ownership and control of resources, the conflicting policies expressed by the various resource managers, how these conflicting policies may affect access to oil shale and oil sands resources, and ways of addressing these conflicts. The issues addressed in this report, while seen through the lens of oil shale and oil sands development, are emblematic of issues involved in other forms of energy development. Chapter one provides background information. Chapter two quantifies ownership of the oil shale and oil sands resources most susceptible to development. Chapter three looks to jurisdictional control and the management policies of major resource owners or managers. Chapter four discusses ways of improving coordination between resource managers.

### **1.1. WHY WE SHOULD CARE ABOUT OIL SHALE AND OIL SANDS**

Oil shale is a sedimentary rock containing kerogen. Heating oil shale drives off a vapor that can be distilled to yield a petroleum-like oil, combustible shale gas, and water. The physical process of heating shale and capturing resulting liquids and gasses (retorting) can occur in association with conventional (surface or underground) mining methods, or by in place liquification and gasification (in-situ retorting). The chemical process of pyrolysis converts the kerogen into synthetic crude oil.<sup>2</sup> Oil sands (sometimes called tar sands) are sandstones or friable sands impregnated with an extra-heavy crude oil known as bitumen. Oil sands are essentially petroleum reserves where lighter, more volatile hydrocarbons have escaped, leaving behind more viscous hydrocarbons. Liquid fuels can be derived from bitumen, but because of its high viscosity, bitumen is not recoverable with conventional petroleum production techniques; additional steps are required to decrease the viscosity. Like oil shale, oil sands production and refining can occur in association with conventional surface or underground mining methods or by in-situ retorting.<sup>3</sup>

The world's largest known oil shale deposits are contained in the Green River Formation, which covers portions of Colorado, Utah, and Wyoming<sup>4</sup> (see Figure 1). Widely cited estimates of the Green River Formation's in-place resources range from 1.5 to 1.8 trillion barrels.<sup>5</sup> Potentially recoverable oil shale resources are estimated at between 500 billion and 1.1 trillion barrels of oil.<sup>6</sup> At a mid-range estimate of 800 billion barrels, the Green River formation contains more than three times Saudi Arabia's proven oil reserves.<sup>7</sup> Current U.S. demand for petroleum products is about 20 million barrels per day; therefore, 800 billion barrels of shale could in theory meet all domestic oil demand for more than 100 years at the current rate of consumption.<sup>8</sup>

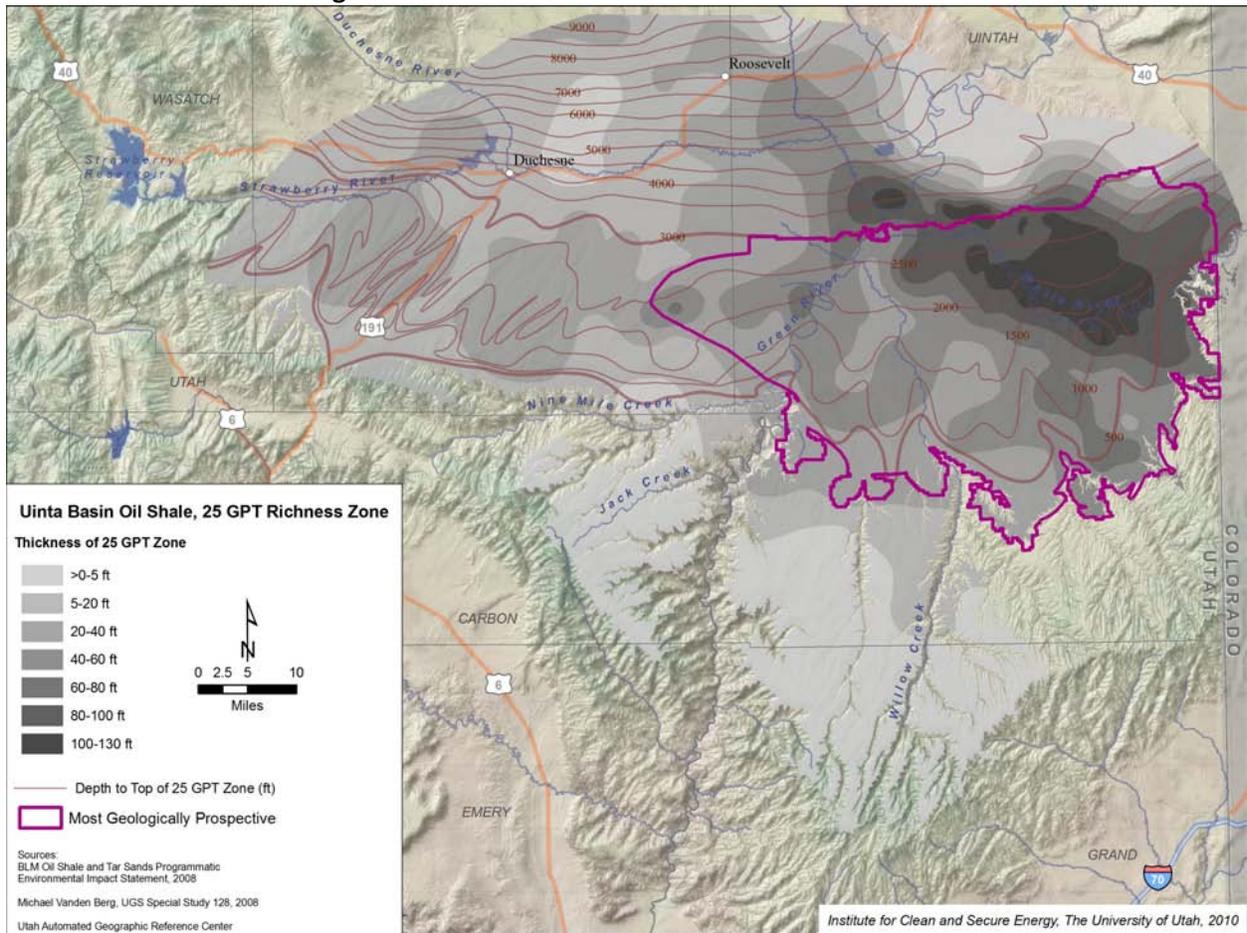
**Figure 1**  
**Oil Shale Location Map**



The most recent estimate puts Utah's total oil shale resources at approximately 1.32 trillion barrels,<sup>9</sup> though much of this is likely undevelopable due to physical or economic constraints. Resources

likely appropriate for commercial production represent an estimated 147.4 billion barrels of oil equivalent,<sup>10</sup> as shown in Figure 2. Utah is the only state with significant oil sands resources. Estimates put Utah's proven oil sands resources at over 11.5 billion barrels, plus an additional 20.7 billion unproven barrels.<sup>11</sup> Commercially viable oil sands have not been quantified due to uncertainty regarding resource attributes and development requirements. Oil sands resources within Utah are shown in Figure 3.

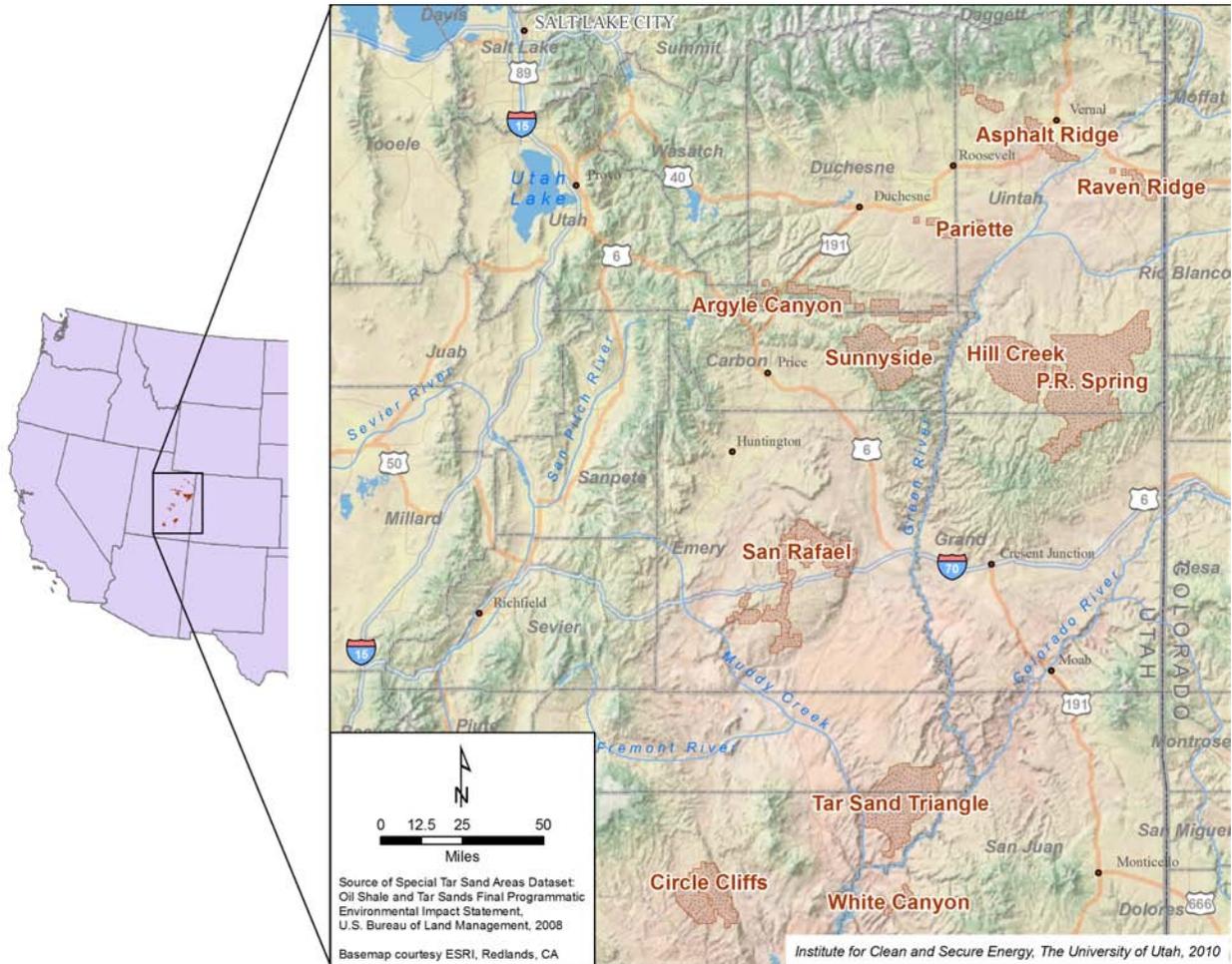
**Figure 2 Oil Shale Resources Within the Uinta Basin**



To put the volume of these potential supplies in perspective, the Prudhoe Bay Oil Field contains 13.5 billion barrels of oil and the mean estimate of recoverable oil from the coastal plains of the Arctic National Wildlife Refuge is 10.4 billion barrels.<sup>12</sup> Applying the domestic demand and consumption assumptions noted earlier, Utah contains enough oil shale to supply all domestic oil needs for more than

twenty-one years, as well as oil sands resources capable of producing a volume of oil roughly equivalent to the Prudhoe Bay Oil Field and the Arctic National Wildlife Refuge.

**Figure 3**  
**Special Tar Sands Areas**



While a commercial oil shale or oil sands industry has yet to develop in the United States, interest in these unconventional fuels grows as oil prices rise and domestic supplies decline. If developed responsibly, oil shale and oil sands could provide significant, secure domestic energy resources. However, a commercial oil shale or oil sands industry also holds the potential to irreparably harm water, air, wildlife, and other resources, if developed without adequate planning and care.<sup>13</sup> As demand for liquid transportation fuels is unlikely to decline within the foreseeable future, attention

should be paid to these potential energy sources to ensure that their development is evaluated based on the best available information and that, if development proceeds, it does so in a responsible manner.

## **1.2. THE PROBLEM AND ADVANTAGE OF NASCENT INDUSTRIES**

### **1.2.1. The Problem of Nascent Industries**

Commercial oil shale or oil sands production does not currently exist within the United States, and a million barrel-per-day (BPD) industry is still several decades away.<sup>14</sup> How such an industry will develop – if it develops at all – is unclear, including the production technologies employed, the water and energy inputs required, and the pollutant emissions released. The number, size, and distribution of these undefined facilities are likewise uncertain, effectively precluding accurate impact assessment at this time. Moreover, much of the best information available regarding oil shale production and refining was generated internationally or during the 1970s, under less stringent environmental regulations.<sup>15</sup> While past research left behind a wealth of information, this information is growing stale as decades of environmental regulation and technological development displace past assumptions and conclusions. Notably, much of the major research and development efforts currently underway focus on in-situ retorting while past efforts focused primarily on surface retorting.

We can look to Canada's development of Athabaskan oil sands as an indicator of likely impacts, but such analogies are problematic. Oil shale and oil sands are different resources, subject to different extraction, retorting, and refining requirements; and analogizing between the two fuels is problematic. Although Athabaskan oil sands development is a better predictor of impacts associated with oil sands development in Utah, relying on the Canadian experience is still problematic. The physical and chemical differences between the resources in Canada and the United States necessitate different mining and processing technologies,<sup>16</sup> making direct comparison difficult. As Argonne National Laboratory explains:

The properties and composition of the tar sands and the bitumen significantly influence the selection of recovery and treatment processes and vary among deposits. In the so-called 'wet sands' or 'water-wet sands' of the Canadian Athabasca deposit, a layer of water surrounds the sand grain, with the bitumen partially filling the voids between the

wet grains. The bitumen can be separated from the sand by using water. Utah tar sands lack the water layer; the bitumen is directly in contact with the sand grains without any intervening water and is sometimes referred to as 'oil-wet sands.' Processing beyond water washing is needed to recover the bitumen.<sup>17</sup>

Because Utah's oil sands lack the layer of water that surrounds the sand found in Alberta, oil sands development in Utah could require more water<sup>18</sup> – a potentially constraining resource in Utah.<sup>19</sup>

Canada's oil sands industry is also subject to different environmental regulations than their prospective American counterparts, both because of the age of some Canadian facilities and because of differences between the two countries' laws.<sup>20</sup> The Canadian oil sands industry began production in 1967<sup>21</sup> and Canadian regulations have evolved tremendously over that time. Operations that were approved more than forty years ago might not be able to obtain approval today in light of current environmental protections. Perhaps equally important, the regulations governing Canadian oil sands facilities are markedly different from those that would apply to newly developed American facilities.

Industry recognizes this changing business and regulatory environment, and has invested heavily in new, "greener" technologies.<sup>22</sup> Companies regularly tout in-situ processing's promise of eliminating spent shale disposal problems, reducing the footprint of next-generation facilities, and decreasing water usage.<sup>23</sup> However, as appealing as these prospects are, they represent new processes that have not been tested at commercial production levels or subjected to independent validation.

As a result, the debate over the impacts of commercial oil shale and oil sands development depends heavily on the assumptions associated with development, and most of the rhetoric does more to solidify entrenched assumptions and positions than to illuminate policy choices. For example, proponents of oil shale and oil sands development claim that impacts are manageable, but have yet to show viable commercial operations under contemporary environmental regulations. Opponents point to the prospect of landscape-level destruction, excessive water use, and other negative impacts, but apply dated assumptions to unrealistic scales to justify their pessimistic assessment.

Federal Research, Demonstration, and Development (RD&D) oil shale leases have the potential

to reduce uncertainty and inform decisions, but development of these leases has yet to occur. Furthermore, while climate change regulation is presumed to be on the horizon, the nature and extent of those regulations and their implications for energy producers and users are unknown. Reducing uncertainty and creating reliable parameters for evaluating emergent technologies is critical to the future of unconventional fuels. Until certainty improves, industry is unlikely to embrace complex emerging technologies, choosing instead to focus on improving the efficiency and lowering the cost of developing more conventional energy resources. While this approach is understandable, it runs the risk of displacing environmentally preferable technologies.

### **1.2.2. The Advantage of Nascent Industries**

New energy sources create economic, technological, and environmental opportunities. New industries are not constrained by dated technologies or existing infrastructure, but instead have the opportunity to develop facilities that incorporate state-of-the-art technologies and reflect current societal priorities. Cutting-edge technologies are not precluded by existing infrastructure or the inordinately high cost of retrofitting existing facilities. For example, most of the coal-fired electricity generating units in the United States are twenty to fifty-five years old, with an average age of over thirty-five years.<sup>24</sup> If growing concerns over climate change result in limits on carbon dioxide (CO<sub>2</sub>) emissions, many of these existing facilities will need to consider CO<sub>2</sub> capture and sequestration.

[R]etrofitting an existing coal-fired plant originally designed to operate without carbon capture will require major technical modification, regardless of . . . [the technology]. The retrofit will go well beyond the addition of an 'in-line' process unit to capture the CO<sub>2</sub>; all process conditions will be changed which, in turn, implies the need for changes to turbines, heat rate, gas clean-up systems, and other process units for efficient operation.<sup>25</sup>

If the original unit is fully paid off, the Massachusetts Institute of Technology estimates the cost of electricity after retrofit could be almost as much as that from a new coal-fired unit integrating CO<sub>2</sub> capture.<sup>26</sup> Not all existing coal-fired thermoelectric power generating facilities, however, will be able to incorporate carbon capture technologies; some facilities will lack the physical space required for new

systems or access to viable sequestration sites. A recent article captured the problem aptly: “Refitting an existing coal plant can be very costly. ‘It’s like trying to remodel your home into a mansion. . . . It’s more expensive, and it’s never quite right.”<sup>27</sup> In short, building for tomorrow may be preferable to renovating technologies of the past.

Plans for newly constructed oil shale or oil sands developments could incorporate emission controls and facility siting criteria, such as carbon capture and access to sequestration sites that did not exist when most existing power plants were constructed. Moreover, injecting CO<sub>2</sub> into oil shale or oil sands formations may displace kerogen and bitumen, creating a synergy between carbon sequestration and energy production.<sup>28</sup> Injecting superheated CO<sub>2</sub> to displace kerogen and permanently sequester the CO<sub>2</sub> would address one of the major concerns regarding fossil fuel development. Likewise, as in-situ thermal processing produces both synthesis gas and oil, facilities that maximize gas production could be co-located with combined-cycle thermoelectric power plants to produce relatively clean, lower CO<sub>2</sub> emitting electric power.

Colorado and Utah’s oil shale resources may contain as much as 1,300,000 and 800,000 barrels of oil equivalent per acre, respectively. By comparison, Alberta’s oil sands contain approximately 100,000 barrels of oil per acre, and Alaska’s North Slope even less.<sup>29</sup> Resources within the Aneth Oil Field, which is one of Utah’s largest fields, are estimated at approximately 28,000 barrels of original oil in place per acre, of which approximately 13,000 barrels per acre are considered recoverable.<sup>30</sup> Based on per-acre energy yield, oil shale development could, at least in theory, reduce surface disturbances by displacing more acreage-intensive sources of energy.

While development of the next generation of energy production facilities represents an important goal, it is unlikely to occur absent articulation of clear and stable regulatory requirements reflecting the minimum standards required for new facilities. However, changing national energy policy, climate change legislation, financial instability, and evolving environmental controls create systemic

uncertainty. Reducing such uncertainty by developing reliable parameters within which industry can develop emergent technologies is central to the future of all unconventional fuels.

### **1.3. A REASONABLE PATH FORWARD**

Commercial oil shale and oil sands development holds promise for reducing dependence on foreign oil and spurring economic development. If developed in a manner consistent with national energy and environmental priorities, oil shale and oil sands may also prove to be less damaging than continued reliance on existing sources of energy. The question is two-fold: what values are we, as a society, willing to forego to enable energy development, and can a commercial oil shale or oil sands industry be developed within those parameters? The path forward should address three fundamental objectives. First, oil shale and oil sands' place in our national energy future cannot currently be ascertained because of uncertainty regarding the required inputs, impacts, and tradeoffs. Continued research is needed to reduce this uncertainty and inform decisions. Federal RD&D leases provide the opportunity to test new technologies and verify their benefits as well as their consumptive needs and environmental impacts. RD&D efforts should be encouraged and conducted in an atmosphere that facilitates sound, transparent decision-making. Second, rules must be clearly stated and enforced, not in an effort to bar all action, but in an effort to bar ill-conceived and environmentally unacceptable actions. Climate change policies are needed to facilitate informed decision-making. Required environmental protections should be succinctly stated and enforced, establishing a clear and consistent floor for energy development and environmental protection. Third, in light of oil shale and oil sands' potential to displace or be displaced by other resources and energy development, decisions should not irretrievably commit resources to development that is unlikely to occur, especially if commitments would preclude development or development of more efficient or environmentally preferable sources of energy.

The aim of this report is to provide analysis that reduces uncertainty and informs decision-

making. The sections that follow discuss the nature of the resource and who controls it, requirements to develop resources under different jurisdictional scenarios, and ways to consolidate control and integrate oil shale and oil sands management across jurisdictions. The report concludes with a series of recommendations stemming from our assessment.

## **2. LAND AND RESOURCE OWNERSHIP**

Even the best technologies are of little value absent access to developable resources. The threshold question with regard to obtaining resource access is who owns or controls the resources in question. We begin with a review of the United States' acquisition of land and the evolution of federal land disposal policies, an understanding of which provides context for discussions to come. We next discuss the potential to sever ownership of surface resources from the underlying minerals and the implications that may result from such "split estates" for oil shale and oil sands development. With this context in place, we assess ownership and control of the most developable oil shale and oil sands resources in light of assumptions regarding resource conditions and development technologies. This detailed assessment of resource control allows us to identify those entities that are best positioned to shape commercial oil shale and oil sands development.

### **2.1. BACKGROUND AND HISTORICAL PERSPECTIVE**

A historical perspective of western public land development is important because many "modern problems in public land law grow directly out of that historical legacy. These stem largely from the patchwork, haphazard character of federal disposal policies, and the sometimes dizzying patterns of land ownership that have resulted."<sup>31</sup> Utah, like much of the southwestern United States, was part of Mexico until 1848, when the Treaty of Guadalupe Hidalgo<sup>32</sup> ended the Mexican-American war. In return for cessation of hostilities and \$15,000,000, Mexico conveyed to the United States title to approximately 525,000 square miles (336,000,000 acres). The land acquired became federal lands, and was administered as federal territory until becoming portions of modern-day Arizona, California, Colorado, Nevada, New Mexico, Utah, and Wyoming.<sup>33</sup>

For more than a century following the Treaty of Guadalupe Hidalgo, federal policy favored disposal of public lands. Public land disposal laws, such as the General Mining Law of 1872,<sup>34</sup> the Homestead Act,<sup>35</sup> the Desert Lands Act,<sup>36</sup> the Kinkaid Act,<sup>37</sup> and the Stock-Raising Homestead Act,<sup>38</sup>

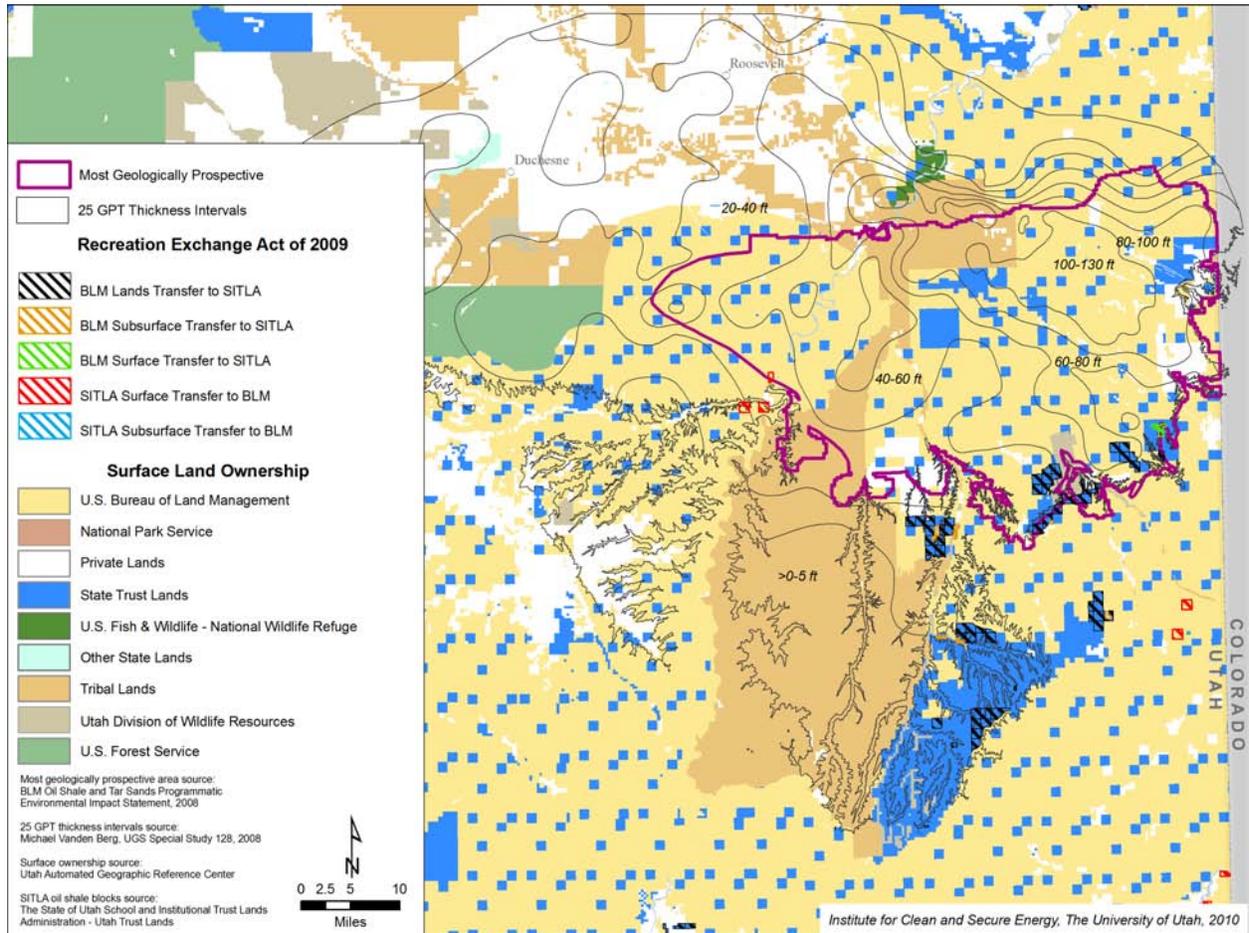
allowed corporations and individuals to obtain title to federal public lands, generally by doing little more than staking and developing a claim. Under these laws and other land grants, including land granted to Utah upon admission to the Union, the federal government has conveyed more than 7,500,000 acres (over 11,730 square miles)<sup>39</sup> of land to the State; 3,610,000 acres (5,642 square miles) to homesteaders;<sup>40</sup> 2,230,000 acres (3,484 square miles) to railroads;<sup>41</sup> and 1,200,000 acres (1,875 square miles) to mineral claimants.<sup>42</sup> Despite these extensive grants, almost two-thirds of the land within Utah remains under federal ownership and control.<sup>43</sup>

Although multiple statutes allowed disposal, the roots of a federal policy in favor of retention were well established by the turn of the twentieth century with creation of the National Park System and national forest withdrawals by Presidents Harrison, Cleveland, McKinley, Roosevelt, and Taft.<sup>44</sup> Disposals declined further as the federal government became increasingly leery of administrative actions that would fragment the public lands and complicate federal land management.<sup>45</sup> By the 1970s, the shift towards retention was well underway. In 1976, the Federal Land Policy and Management Act (FLPMA) formally changed federal public land management policy to one of retention, requiring that “the public lands be retained in Federal ownership, unless . . . it is determined that disposal of a particular parcel will serve the national interest.”<sup>46</sup>

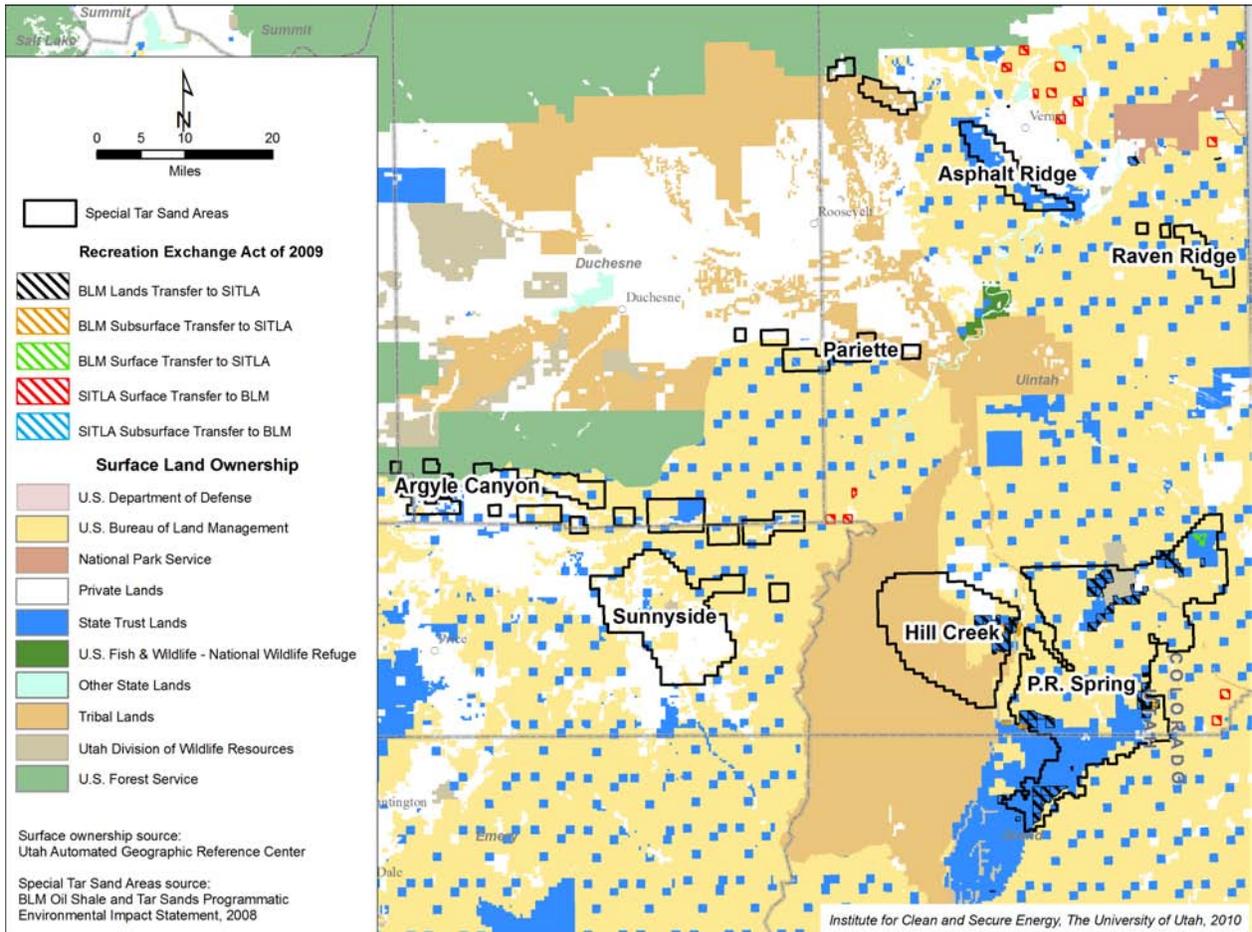
The disposal policy left an indelible mark upon the land, a mark evident on land ownership maps for eastern Utah (see Figures 4 through 6). Further complicating matters, minerals are recognized as a legal interest separate and distinct from the surface of the land and some federal land disposal programs were applied only to surface resources, allowing settlers to obtain title to the surface of the land while the federal government retained title to the subsurface minerals. Where the full estate (surface and mineral rights) was conveyed into private ownership, private owners remained free to sever the two interests and either sell or reserve certain interests through sale or other conveyance. Consequently, the Uinta Basin today is a patchwork of federal, state, tribal, and privately owned land,

both above and below the surface. Before quantifying surface and mineral resource ownership, we review mineral and surface estate severance, how split estate lands are managed, and the implications split estates may have for prospective oil shale and oil sands developers.

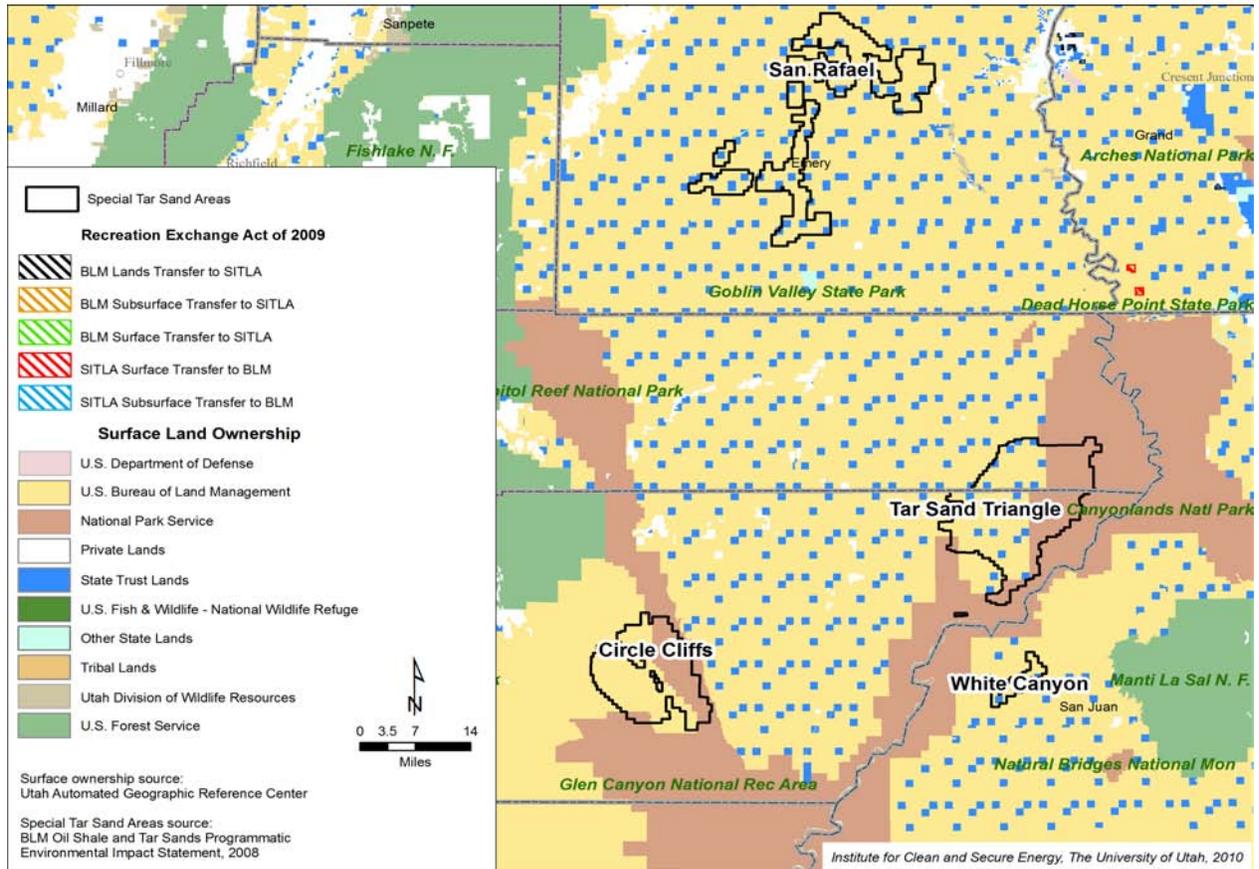
**Figure 4**  
**Surface Ownership Within the Uinta Basin**



**Figure 5**  
**Special Tar Sands Area Surface Ownership – North**



**Figure 6**  
**Special Tar Sands Surface Ownership – South**



## 2.2. SPLIT ESTATES

Many states, including all western states, allow for the separate ownership of land and mineral resources.<sup>47</sup> “[The] severance reflects the aim of public policy to assure a useable mineral supply and energy derived from the minerals, while keeping land surfaces available for individuals.”<sup>48</sup> The separation of surface and subsurface rights may occur through a variety of means, including by deed or reservation. Severance by mineral deed occurs when the owner of both the surface and mineral rights chooses to sell all or a portion of the mineral rights to another party while retaining the surface estate. The owner may also choose to sell the land to one party and the minerals to a different party. In either case, the proof of the sale (and severance) is known as a mineral deed and is recorded in government land title offices.<sup>49</sup> Severance by mineral reservation occurs when the owner of both the surface and

mineral rights sells the land, but retains (or reserves) all or a portion of the mineral rights. To preserve title to the subsurface estate, the mineral owner must record his mineral reservation with the appropriate government land title office.<sup>50</sup> Once the minerals are severed from the surface, the mineral estate becomes a separate property interest (or estate) in the land, and split estates exist any time the owners of the land are not the owners of the underlying minerals.

Tensions between surface and mineral owners have led to disputes over what materials are included within a specific mineral reservation. For example, in *Amoco Production Co. v. Southern Ute Indian Tribe*, the federal government issued surface land patents to various settlers, but reserved coal rights to the Southern Ute Indian Tribe. Despite arguments from the Tribe to the contrary, the United States Supreme Court held that coalbed methane gas (CBM) was not a substance reserved in “coal” subsurface ownership.<sup>51</sup> The Court reasoned that the applicable statute only covered minerals that were specifically contemplated by Congress at the time the statute was enacted, which did not include CBM.<sup>52</sup> Therefore, courts will often look to the instrument that divided the estate to determine the extent of a subsurface owner’s rights.

### **2.2.1. Conflicts Between Competing Estates**

Owners of the surface and underlying minerals often disagree about how, or even if, development should occur. The severance of the mineral and surface estates requires that an easement in favor of the mineral estate be implied to assure access to the surface for developing the underlying minerals, even when the severing document does not mention a right to use the surface. Consequently, the ownership of a mineral estate typically includes the right to access, use and occupy the surface as is necessary for mineral development.<sup>53</sup>

Generally, subsurface mineral rights are considered the dominant estate and take precedence over other rights associated with the property. Deference to the mineral estate was viewed as necessary for the communal good, to promote development and prosperity.<sup>54</sup> As a result, the surface

owner must accommodate the mineral owner, even if doing so causes harm to the surface. However, a mineral owner may be held liable if he is negligent or uses more land than reasonably necessary.

Eventually courts limited the harm to surface owners by requiring mineral owners to show due regard for the interests of surface estate owners and occupy only those portions of the surface that are reasonably necessary to develop the mineral estate.<sup>55</sup> This principle, known as the “accommodations doctrine,”<sup>56</sup> helps determine the relative rights between parties of split estates.<sup>57</sup> In essence, where there is an existing surface use that would otherwise be impaired, the subsurface owner may be required to adopt a less invasive means to recover the minerals, if available.<sup>58</sup>

*Getty Oil v. Jones*,<sup>59</sup> the first case to establish the accommodation doctrine, set forth three requirements to prove that a mineral owner’s use is unreasonable: (1) the surface owner’s use predates the mineral development; (2) the preexisting use is partially or completely precluded by the mineral development; and (3) a reasonable alternative exists to the mineral owner’s use.<sup>60</sup> Although a matter of considerable subjectivity, courts rely on judgments of reasonable action to determine whether harm could have been avoided and whether damages are owed as a result of that harm.

In conflicts arising on split estates, the surface owner usually has the burden of proving unreasonable action on the part of the mineral developer.<sup>61</sup> “The accommodation of the surface owner’s interests does not envision a balancing of surface owner harm or inconvenience against mineral owner rights, but rather, the surface owner must prove that the mineral owner’s use of the surface is not reasonably necessary as shown by reasonably available alternatives.”<sup>62</sup> However, even under the accommodation doctrine, if no other reasonable method exists for mineral development, then the mineral owner may proceed without the surface owners’ consent and without being liable for damages. Therefore, the overall dominance of the mineral estate remains intact, despite the application of such limiting principles. While litigation between surface and oil shale or oil sands owners has yet to occur, the principles developed in the fluid and solid mineral context are likely to apply.

Aside from the reasonableness standard, courts also recognize a right to lateral and subjacent support for a surface owner's land in its natural state.<sup>63</sup> Early legal decisions found the "natural state" to include all buildings and structures on the property at the time the mineral was severed as a property interest.<sup>64</sup> This right generally is characterized as a natural right belonging to owners of the overlying surface, but it may be subject to condemnation and adverse possession.<sup>65</sup> The right may also be waived, typically when the mineral estate is severed, through express or implied language.<sup>66</sup>

Limited published research addresses subsidence associated with in-situ oil shale or oil sands production. Available information indicates that subsidence is a product of overburden depth, resource richness and thickness, native and created porosity, and other factors unique to each target formation.<sup>67</sup> Deeper formations support more overburden and may be more susceptible to subsidence following pyrolysis. Accordingly, Burnham and McConaghy report that "[r]etorting 25 gal/ton shale creates ~30% porosity, which would predict at least 10% compaction."<sup>68</sup> Prospective in-situ oil shale and oil sands developers, owners of surface estates overlaying oil shale and oil sands resources, and regulatory agencies will need to address potential impacts to surface resources in planning for in-situ development of these resources.

### **2.2.2. Federal Split Estate Management**

Various federal laws granted land patents to private individuals but reserved the mineral rights to the federal government. Today, the Bureau of Land Management (BLM) manages approximately 58 million acres of split estate lands, primarily located in western states.<sup>69</sup> Although the BLM must comply with the provisions of the laws under which the surface was patented, many of those laws do not identify the rights of the surface owner on split estates.<sup>70</sup>

Section 1835 of the Energy Policy Act of 2005 (EPA 2005) required the Secretary of the Interior (SOI) to undertake a review of current policies and practices used in managing oil and natural gas resources on split estates. The BLM submitted its Split Estate Report to Congress in December of 2006

and subsequently revised its guidelines. To better define the rights of surface owners, the BLM has developed a policy similar to the accommodation doctrine for situations where the surface rights are privately owned, but the mineral rights are publicly held and managed by the federal government.<sup>71</sup>

Although the Split Estate Report did not specifically address oil shale or oil sands, the issues are not resource dependent and the review is most likely broad enough to encompass such resources. One of the main concerns of the Report was the need to engage private surface owners throughout the land use planning process.<sup>72</sup> The BLM's new guidelines address these concerns. Additionally, the BLM recognized that some situations required case-by-case review when applying regulations, such as the use of environmental best management practices.<sup>73</sup> As a result, the BLM has some flexibility to address the differences oil shale and oil sands management may present when compared to their traditional counterparts.

The BLM's Gold Book contains guidelines including a good faith effort to notify surface owners prior to entering the land, surface owner participation in onsite and final reclamation inspections, and a good faith effort to develop surface use agreements.<sup>74</sup> Generally, the BLM regulates mining practices in accordance with FLPMA's "unnecessary and undue degradation" standard, which defines unreasonable use as "surface disturbance greater than what would normally result when an activity is being accomplished by a prudent operator in usual, customary, and proficient operations of similar character."<sup>75</sup>

For example, in the Split Estates Report, the BLM did not recommend a surface owner consent provision similar to coal leasing under the Surface Mining Control and Reclamation Act. The BLM stated that such a provision was unwarranted "given the lesser intensity of oil and gas development on a parcel of ground in comparison to coal development and the provisions in place to involve surface owners in oil and gas development negotiations to address surface impacts."<sup>76</sup> Unlike traditional oil and gas, oil shale and oil sands can be extracted using surface mining techniques, and even in-situ processing may require

well densities resulting in greater impacts than conventional oil and gas development. As a result, clarification may be required to protect surface owners against the additional surface damage incurred by oil shale and oil sands development.

The BLM is aware of extensive oil shale and oil sands resources on split estates. In addition to the Split Estates Report, the BLM recently completed the final programmatic environmental impact statement (FINAL PEIS) for an oil shale and oil sands commercial leasing program, which included split estate lands.<sup>77</sup> While current BLM regulations may be intended to regulate all split estate conflicts, the FINAL PEIS recognized that additional policy, regulations, and administrative actions may be required to resolve split estate conflicts in the realm of oil shale and oil sands development.

### **2.2.3. State Split Estate Management**

Approximately three to five percent of domestic energy exploration and development occurs on privately owned surface estates of split estate lands.<sup>78</sup> Where the federal government owns the underlying mineral estate, federal law has preemptive power to override state regulation of the oil and gas industry.<sup>79</sup> As a result, state statutory requirements may be dismissed at the federal level if they conflict with the BLM's regulations. However, many states have enacted legislation regulating split estates that is applicable to situations between two private parties, or the state and a private party.

Split estates are common in Utah. Like many western states, Utah was once entirely public domain. Private parties secured ownership of federal lands occurred through federal land disposition acts, including railroad grants, mining laws and various homestead acts. Today, there are approximately 9.6 million acres of split estate lands in Utah with the potential for energy development.<sup>80</sup> In the absence of state legislation addressing the rights and interests of the state's surface owners, Utah courts have relied on the accommodation doctrine to determine the relative rights of split estates.<sup>81</sup>

Utah adopted the accommodation doctrine in *Flying Diamond Corp v. Rust*.<sup>82</sup> However, Utah's version of the doctrine is arguably more deferential to surface owners than the original Texas version.<sup>83</sup>

The Utah Supreme Court held that:

[W]herever there exist separate ownerships of interest in the same land, each should have the right to the use and enjoyment of his interest in the property to the highest degree possible not inconsistent with the rights of the other. We do not mean to be understood as saying that such a lessee must use any possible alternative. But he is obliged to pursue one which is reasonable and practical under the circumstances.<sup>84</sup>

Therefore, the mineral right remains dominant over the surface rights in order to extract the minerals.<sup>85</sup>

However, that right is qualified; the mineral owner may only exercise his rights as reasonably necessary and consistent with allowing the surface owner the greatest possible use of his property.<sup>86</sup> Although mineral estate owners are not required to use whatever alternative methods are available to keep surface damage to a minimum, they must employ those that are reasonable. Unlike the Texas court in *Getty*, the Utah court did not analyze or determine who holds the burden of proof to show that the mineral owner's actions were unreasonable and unnecessary. As a result, Utah courts may struggle to resolve close cases involving split estates since the burden of proof is undefined.<sup>87</sup>

Although the Utah legislature has attempted to pass surface protection acts, such attempts have failed. In 2010, Representative John Mathis introduced H.B. 309, the Surface Protection Act, which included procedures for the subsurface owner to follow when conducting oil and gas operations on split estates.<sup>88</sup> That bill was defeated in March 2010.<sup>89</sup>

To date, Utah courts have not addressed split estate issues relating to oil shale or oil sands. However, the common law doctrine of reasonable accommodation would most likely apply to oil shale and oil sands on split estates. First, oil shale and oil sands, unless specifically reserved, would be considered a mineral remaining in the subsurface estate. Second, judicial opinions do not narrow the doctrine to certain minerals and the Utah legislature, specifically viewing oil shale and oil sands as valuable minerals, has promoted their development.<sup>90</sup> No actions have been initiated in Utah to treat oil shale and oil sands differently from other minerals in split estate management.

Aside from utilizing the accommodation doctrine, other states have also enacted surface

damage acts (SDAs).<sup>91</sup> SDAs are “legislative attempts to improve accommodation measures on split estate lands through private land use agreements between split estate owners.”<sup>92</sup> SDAs are designed to compensate surface owners for damages caused by the mineral owner, promote better communication between split estate owners, and provide a mechanism for negotiation and conflict resolution.<sup>93</sup> Additionally, in some states, mineral rights may revert to the surface owner under certain conditions, such as death, failure to produce the minerals, or passage of a specified period of time.<sup>94</sup>

Outside of Utah, commercially viable oil shale resources are located in Colorado and Wyoming. Both of these states have adopted the accommodation doctrine, requiring the mineral estate owner to show due regard for the surface owner.<sup>95</sup> Notably, under Colorado’s version, if the surface owner can establish that the operator materially interfered with use of the surface, the burden of proof shifts to the mineral developer to demonstrate that their use was in fact reasonable.<sup>96</sup> Wyoming is the only state with oil shale resources to adopt a SDA.<sup>97</sup> Wyoming also established a Split Estate Initiative to foster cooperation between split estate owners. Goals of the initiative include minimizing or preventing conflict between landowners and operators, enhancing and encouraging responsible development of minerals, continued protection of surface resources values, and providing a forum for conflict resolution.<sup>98</sup>

Overall, no state with oil shale or oil sands resources has developed, through judicial or legislative action, regulations specific to oil shale or oil sands management on split estates. However, western states management of conventional oil and gas resources provide examples of ways to address surface owner rights and protections, which would most likely apply to all mineral development on split estates, including oil shale and oil sands.

### **2.3. OIL SHALE OWNERSHIP AND CONTROL**

This section discusses ownership and control of oil shale resources within Utah’s Uinta Basin. The most recent assessment of Utah’s oil shale puts total in-place resources for the Uinta Basin at an

estimated 1.32 trillion barrels of oil equivalent,<sup>99</sup> but not all of this resource is developable. This section applies a set of limiting assumptions to identify lands that are most likely to be developed and the entities that own or manage those lands. The process used to quantify resources in this report is detailed in Appendix A.

Ownership of the surface estate overlying oil shale resources is quantified at two geographic scales. The shaded oil shale area shown in Figure 2 is based on potential to produce at least twenty-five gallons of oil equivalent per ton of shale and a minimum thickness of five feet, as determined by the Utah Geological Survey.<sup>100</sup> The Most Geologically Prospective Area (MGPA), which is outlined in purple, was defined by the Department of the Interior (DOI) in its determination of lands available for application for commercial oil shale leasing based on the same twenty-five gallon per ton (GPT) requirement but with a twenty-five foot minimum thickness.<sup>101</sup> Federal lands outside this area would not be available for commercial oil shale leasing without amendment to existing land management plans.

The maps and figures also capture surface estate ownership at two different points in time. On August 19, 2009, President Obama signed into law the Utah Recreation Land Exchange Act (URLEA).<sup>102</sup> The Act exchanged certain state-owned lands in Grand and Uintah counties for federal lands within the same counties. The exchange affected surface and mineral ownership of oil shale bearing lands in the southern Uinta Basin as well as two of the eleven Special Tar Sands Areas (STSAs). Exchange finalization requires equalization of parcel values in accordance with FLPMA section 206.<sup>103</sup> Since final equalization has not yet occurred, the parcel identification contained in the Act represents the best information currently available regarding land tenure adjustments. Parcels changing ownership under the Act are shown in Figures 4 through 6.

It should be noted that surface ownership is an imperfect measurement of resource ownership, as the surface owner may not own the underlying minerals. Surface ownership is likewise an imperfect

measure of resource control because the mineral estate is generally treated as the dominant estate. Spatial information regarding mineral estate ownership across the areas of interest is currently unavailable and the analysis that follows is based on surface ownership. Surface ownership is not an indicator of the quantity of oil equivalent controlled by different entities because it does not account for differences in resource richness or thickness.

Table 1 describes ownership and control of the surface overlying oil shale resources that are at least five feet thick and capable of producing twenty-five gallons of oil equivalent or more per ton of shale.

**Table 1**  
**Surface Ownership of Oil Shale Bearing Lands Within the Uinta Basin (Acres)**

	BLM	Private	SITLA	Tribal <sup>104</sup>	Unavailable	TOTAL
<i>Most Geologically Prospective Area</i>						
Pre URLEA	569,730	56,930	98,390	109,020	10,650	844,720
Post URLEA	560,060	56,930	108,070	109,020	10,650	844,730
<i>Oil Shale Area Outside of the Most Geologically Prospective Area</i>						
Pre URLEA	169,470	91,250	22,690	177,800	195,320	656,530
Post URLEA	167,120	91,250	25,030	177,800	195,320	656,520
<i>TOTAL Oil Shale Area</i>						
Pre URLEA	739,200	148,180	121,080	286,820	205,970	1,501,250
Post URLEA	727,180	148,180	133,100	286,820	205,970	1,501,250

Lands identified as “Unavailable” in Tables 1 through 3 include Utah State Parks, state wildlife management areas, state sovereign lands underlying navigable waters, and Utah Department of Transportation rights-of-way. Unavailable lands also include National Forest System lands, all of which are outside the MGPA approved for application for commercial oil shale leasing in the Record of Decision for the Programmatic EIS (ROD). National Forest System lands could be leased only if Forest Plans are amended to allow for commercial oil shale development. BLM managed oil shale lands outside the MGPA should also be considered unavailable for commercial oil shale development because the ROD amended only land management plans within the MGPA; development of oil shale resources on other federal lands would require amendment to applicable Resource Management Plans (RMPs).<sup>105</sup>

Some oil shale resources are thicker or richer than others, and while some resources are located

near the ground surface, others are found under thousands of feet of overburden. In order to assess development potential for purposes of this report, limiting assumptions were applied consistent with those included in the DOI's 2008 RMP amendments identifying lands as open to application for commercial oil shale leasing. Lands containing oil shale resources covered by more than 3,000 feet of overburden were excluded as unrecoverable with current technology.<sup>106</sup> Based on spatial data provided by the Utah Geological Survey, the area described in Table 1 has been divided into zones with up to and including 500 feet of overburden and zones with between 501 and 3,000 feet of overburden. Consistent with DOI assumptions, areas with less than 500 feet of overburden could conceivably be mined using conventional surface mining techniques and zones with between 500 and 3,000 feet of overburden could only be recovered utilizing underground mining techniques or in-situ processing.<sup>107</sup> Table 2 shows surface ownership overlaying the 25 GPT resource and these development constraints. Lands with no more than 500 feet of overburden are labeled "ex-situ lands" while lands with 501 to 3,000 feet of overburden are labeled "in-situ lands." Calculations assume the URLEA is finalized in accordance with current configurations.

**Table 2**  
**Surface Ownership of Oil Shale Bearing Lands Within the Uinta Basin, Post Utah Recreational Land Exchange, By Development Constraints (Acres)**

	BLM	Private	SITLA	Tribal <sup>108</sup>	Unavailable	TOTAL
<i>Most Geologically Prospective Area</i>						
in-situ lands	481,390	18,350	78,110	84,360	3,120	665,330
ex-situ lands	78,670	38,580	29,960	24,660	7,530	179,400
<i>Oil Shale Area Outside of the Most Geologically Prospective Area</i>						
in-situ lands	113,850	72,550	14,670	105,070	168,930	475,070
ex-situ lands	53,270	18,700	10,360	72,730	26,390	181,450
<i>TOTAL Oil Shale Area</i>						
in-situ lands	595,240	90,900	92,780	189,430	172,050	1,140,400
ex-situ lands	131,940	57,280	40,320	97,390	33,920	360,850

The assumption that areas with less than 500 feet of overburden could be mined using surface mining processes was utilized by the BLM to establish the limit of federal public lands available for application for leasing and development utilizing surface mining methods. The cost of moving, stockpiling, and reclaiming mined areas represent more practical limits on surface mineability. Similarly,

the assumed 500-foot division between surface and subsurface mining does not represent a minimum depth for deployment of in-situ thermal processing technologies. The minimum developable depth for oil shale or oil sands recovered using in-situ processes is determined largely by the nature of the overlying cap rock and its ability to capture produced gaseous hydrocarbons. The 500-foot assumption remains a convenient surrogate that is consistent with the BLM’s current regulatory assumptions. Finally, the 3,000-foot limit on underground mining and in-situ processing is also a conservative estimate that again reflects an assumption used to bound the federal leasing program. While the assumptions used in this paper may result in overstatement of surfacing mining, they are presented as conservative estimates pending technological innovation and better information regarding development processes.

Table 3 shows how the URLEA affected ownership of lands containing oil shale resources. It is notable that almost nineteen square miles of oil shale bearing lands were conveyed to the State of Utah under the Act, and that over ninety-eight percent of the oil shale bearing lands conveyed to the State of Utah could be developed using surface mining methods, based on the assumptions discussed above.

**Table 3**  
**Change in Ownership Under the Utah Recreational Land Exchange Act (Acres)**

	BLM	Private	SITLA	Tribal	Unavailable
<i>Most Geologically Prospective Area</i>					
in-situ lands	-170	0	170	0	0
ex situ lands	-9,500	0	9,510	0	0
Total	-9,670	0	9,680	0	0
<i>Oil Shale Area Outside of the Most Geologically Prospective Area</i>					
in-situ lands	-50	0	40	0	0
ex situ lands	-2,300	0	2,300	0	0
Total	-2,350	0	2,340	0	0
<i>TOTAL Oil Shale Area</i>					
in-situ lands	-220	0	210	0	0
ex situ lands	-11,800	0	11,810	0	0
Total	-12,020	0	12,020	0	0

Table 4 shows the percentage of oil shale resources controlled by each of the four major classes of oil shale surface owners that are susceptible to ex-situ and in-situ mining methods based on the assumptions stated above. Notably, the vast majority of oil shale bearing lands under BLM control could be developed only with in-situ thermal processing or underground mining methods. In contrast, the

majority of privately owned oil shale bearing lands within the MGPA could be developed using surface mining methods. While the proportion of private lands susceptible to surface mining decreases when oil shale bearing lands outside the MGPA are considered, the comparative thickness of oil shale within the MGPA makes these lands a likely first target for development. Oil shale development of private land could drive different technologies and result in different environmental impacts than those likely to occur with development of federal public lands.

**Table 4**  
**Development Potential Post Utah Recreational Land Exchange (Acres)**

	BLM	SITLA	Private	Tribal
<i>Portfolio w/in Most Geologically Prospective Area</i>				
in-situ	86.0%	72.3%	32.2%	77.4%
ex-situ	14.0%	27.7%	67.8%	22.6%
<i>Portfolio w/in Oil Shale Area Outside of the Most Geologically Prospective Area</i>				
in-situ	68.1%	79.5%	58.6%	59.1%
ex-situ	31.9%	20.5%	41.4%	40.9%
<i>Portfolio w/in TOTAL Oil Shale Area</i>				
in-situ	81.9%	69.7%	61.3%	66.0%
ex-situ	18.1%	30.3%	38.7%	34.0%

Based on our analysis, within the MGPA (844,730 acres or 1,320 square miles), the BLM controls roughly two-thirds of the land surface, seventy-two percent of the surface overlying oil shale resources subject to in-situ or underground mining, and forty-four percent of the surface overlying resources subject to surface mining operations. Entities other than the BLM control roughly 180,820 acres (283 square miles) overlying oil shale resources subject to in-situ or underground mining and 90,470 acres (141 square miles) of land overlying resources subject to surface mining operations.

Oil shale resources outside the MGPA (656,520 acres or 1,026 square miles) are generally not as rich or thick, but still contain commercially recoverable resources. The 167,120 acres (261 square miles) outside of the MGPA and under the BLM’s control are currently unavailable for leasing. However, 91,250 acres (143 square miles) of private land and 25,030 acres (thirty-nine square miles) of School and Institutional Trust Lands Administration (SITLA) managed lands outside of the MGPA could be developed.

The BLM controls the largest single share of oil shale resources, roughly 560,000 acres (875 square miles), all of which is within the MGPA and roughly eighty-six percent of this resource is too deep for surface mining. In contrast, private entities control 56,930 acres (ninety square miles) within the MGPA and a total portfolio of almost 150,000 acres (230 square miles). Private lands within the MGPA are typified by shallow overburden and therefore often amenable to surface mining technologies. If industry develops on private land first, it could develop quite differently than if it developed on federal public lands, and different development technologies could result in disparate environmental impacts. SITLA has a total resource portfolio of approximately 133,000 acres (208 square miles), most of which is within the MGPA. While almost a third of SITLA's holdings are susceptible to surface mining methods, SITLA's shallow resources are also some of its thickest and richest. If combined, private and SITLA controlled resources cover roughly 165,000 acres (258 square miles) of land within the MGPA, over forty percent of which could be surface mined. At over 281,280 total acres (440 square miles) the combined private and SITLA holdings within the Uinta Basin could support a very large industry.

In combination, private entities, SITLA, and the Ute Indian Tribe control slightly more oil shale bearing lands than the BLM, but BLM-controlled lands generally contain richer resources. Because BLM-managed lands are heavily skewed towards deeper oil shale resources (eighty-six percent of the BLM's holdings), development of federal public lands is likely to involve in-situ or underground mining technologies. Conversely, the richest privately owned oil shale bearing lands contain limited overburden, private development could favor surface mining methods. SITLA and the Ute Indian Tribe have resource portfolios that favor in-situ processing and underground mining, however, detailed analysis of the quantity of oil equivalent controlled by each major player is needed to accurately predict what development on land under their control would likely look like.

#### **2.4. OIL SANDS OWNERSHIP AND CONTROL**

Utah contains over 11.5 billion barrels of proven oil sands resources, plus an unproven 20.7

billion barrels of oil equivalent – more than all other states combined.<sup>109</sup> The Uinta Basin contains twenty-four individual oil sands deposits and fifty additional deposits are scattered throughout southeastern Utah. Oil sands are found in as many as thirteen pay zones, with gross thickness of ten to 1,000 feet or more, and overburden thickness of zero to 500 feet.<sup>110</sup>

This report focuses on the richest and best-known oil sands resources within Utah: the eleven STSAs classified by the United States Geological Survey (USGS) and formalized in the Combined Hydrocarbon Leasing Act of 1981 (CHLA).<sup>111</sup> Each of the STSAs contains one or more oil sands deposit. The scope of this report is consistent with the BLM's analysis as part of its 2008 programmatic RMP amendments to address oil shale and oil sands development on public lands,<sup>112</sup> and reflects leasable federal oil sands resources.<sup>113</sup> While it is possible that development could occur on non-federal lands in other areas, the eleven STSAs contain Utah's richest oil sands resources and provide a good indicator of the issues likely to arise.

Passage of the URLEA affected ownership of oil sands resources within two of the eleven STSAs. Tables 5 and 6 summarize pre- and post-exchange surface estate ownership associated within each STSA. Information regarding BLM and SITLA lands is highlighted because only those lands were impacted by the exchange.

As noted with respect to oil shale, surface ownership is an imperfect measurement of resource ownership and control since split estate conditions may exist. Furthermore, resource thickness and richness may vary, and the tables presented below do not capture the true nature of the resource controlled by various entities. Spatial information regarding mineral estate ownership and mineral richness across the areas of interest is not currently available. Obtaining a better assessment of oil sands richness and extent, and determining control of these resources will be an important area for future research, if oil sands development is to proceed.

**Table 5**  
**Pre-Exchange Acreage Within Special Tar Sands Areas by Surface Owner**

	BLM	NPS	Private	SITLA	Tribal	UDWR	USFS	TOTAL
Argyle Canyon	1,220	-	12,690	3,130	-	-	5,210	22,250
Asphalt Ridge	5,320	-	7,300	17,020	7,510	-	1,980	39,130
Circle Cliffs	57,270	33,200	800	-	-	-	-	91,270
Hill Creek <sup>114</sup>	20,550	-	7,840	1,900	75,960	490	-	106,740
Pariette	12,330	-	6,210	1,500	2,570	-	-	22,610
P.R. Spring	186,880	-	7,940	71,360	100	7,520	-	273,800
Raven Ridge	14,350	-	20	2,160	-	-	-	16,530
San Rafael	115,570	-	-	15,110	-	-	-	130,680
Sunnyside	78,800	-	61,970	13,830	-	2,690	50	157,340
Tar Sand Triangle	82,980	60,750	-	11,250	-	-	-	154,980
White Canyon	8,050	-	50	2,390	-	-	-	10,490
<b>TOTAL</b>	<b>583,320</b>	<b>93,950</b>	<b>104,820</b>	<b>139,650</b>	<b>86,140</b>	<b>10,700</b>	<b>7,240</b>	<b>1,025,820</b>

**Table 6**  
**Post-Exchange Acreage Within Special Tar Sands Areas by Surface Owner**

	BLM	NPS	Private	SITLA	Tribal	UDWR	USFS	TOTAL
Argyle Canyon	1,220	-	12,690	3,130	-	-	5,210	22,250
Asphalt Ridge	5,320	-	7,300	17,020	7,510	-	1,980	39,130
Circle Cliffs	57,270	33,200	800	-	-	-	-	91,270
Hill Creek <sup>115</sup>	14,790	-	7,840	7,670	75,960	490	-	106,750
Pariette	12,330	-	6,210	1,500	2,570	-	-	22,610
P.R. Spring	164,280	-	7,940	93,890	100	7,520	-	273,730
Raven Ridge	14,350	-	20	2,160	-	-	-	16,530
San Rafael	115,570	-	-	15,110	-	-	-	130,680
Sunnyside	78,800	-	61,970	13,830	-	2,690	50	157,340
Tar Sand Triangle	82,980	60,750	-	11,250	-	-	-	154,980
White Canyon	8,050	-	50	2,390	-	-	-	10,490
<b>TOTAL</b>	<b>554,960</b>	<b>93,950</b>	<b>104,820</b>	<b>167,950</b>	<b>86,140</b>	<b>10,700</b>	<b>7,240</b>	<b>1,025,760</b>

The Circle Cliffs STSA includes the Grand Staircase National Monument and Capitol Reef National Park, both of which are off limits to oil sands development.<sup>116</sup> Lands within the Circle Cliffs STSA (except for private inholdings) are effectively unavailable for oil sands development. Other BLM managed lands within STSAs are subject to management requirements contained in one of five RMPs. These plans are likely to contain site-specific requirements (e.g., Wilderness Study Areas (WSA)), Non-WSA Lands with Wilderness Characteristics, Areas of Critical Environmental Concern, and River segments nominated for protection under the Wild and Scenic River Act) that indirectly preclude development of BLM-managed oil shale or oil sands bearing lands.<sup>117</sup> Additional research will be required to determine how much of

the MGPA and STSAs are potentially subject to development.

These uncertainties aside, it is clear that the BLM controls the majority of oil sands resources. Excluding National Parks, state wildlife refuges, and the BLM lands within the Grand Staircase Escalante National Monument, approximately 864,840 acres (1,351 square miles) of lands exist within the STSAs. The BLM controls roughly fifty-eight percent of this or 497,690 acres (778 square miles). Not all of the BLM lands are actually developable, as some are subject to independent management requirements that effectively preclude development (e.g., no surface occupancy requirements). A more detailed constraints analysis would be useful in refining control estimates and, at present, readers should recognize that BLM acreage figures might overstate how much federal land is actually available to prospective developers. While the BLM controls vast oil sands resources, SITLA, private, and tribal holdings are considerable and each of these ownership interests represents the largest single surface owner within one of the eleven STSAs. Together, these three entities control approximately 367,150 acres (574 square miles) within the STSAs. Therefore, while the BLM can exert considerable control over large-scale oil sands commercialization, other entities can strongly influence site-specific development. Non-federal entities may also be able to develop inholdings within federal land, potentially impacting federal land management or driving adoption of certain technologies.

### **3. LAND MANAGEMENT AND ACCESS TO RESOURCES**

Unconventional hydrocarbon development depends first and foremost on access to resources. Understanding the practical reality of access to resources requires an understanding of the policy perspectives applicable to resource bearing lands. This chapter begins with a summary of federal, state, and tribal management considerations before turning to leasing and the question of access to unconventional hydrocarbon resources. This chapter concludes by discussing the conflicts posed by concurrent development of other mineral estates.

#### **3.1. FEDERAL PUBLIC LAND REGULATION**

The federal government is the single largest manager of oil shale and oil sands resources. A previous Institute for Clean and Secure Energy (ICSE) report reviewed federal leasing and development policies;<sup>118</sup> the discussion that follows summarizes key federal provisions and updates prior discussions to reflect recent events. We begin with a brief summary of federal land planning requirements and the environmental review they entail. We then turn to the role states play in regulating development on federal public lands, followed by a summary of federal leasing programs, and ongoing litigation challenging federal programs. We conclude with an update on the status of oil shale and oil sands development on federal lands.

##### **3.1.1. Federal Public Land Planning**

The BLM controls the majority of federal oil shale and oil sands resources and is therefore the focus of this section. Neither the National Park Service (NPS) nor the United States Forest Service (USFS) control significant oil shale resources, and because energy development is inconsistent with NPS management objectives, the NPS is not likely to allow development of oil sands resources under its jurisdiction. The USFS controls less than one percent of lands within the STSAs and is subject to planning processes similar to those applicable to the BLM.

The BLM's planning and management obligations are set forth in FLPMA. The BLM's planning

process and plan implementation are subject to review under the National Environmental Policy Act (NEPA). Both acts are discussed in greater detail in ICSE's ANALYSIS OF ENVIRONMENTAL, LEGAL SOCIOECONOMIC AND POLICY ISSUES CRITICAL TO THE DEVELOPMENT OF COMMERCIAL OIL SHALE LEASING ON THE PUBLIC LANDS IN COLORADO, UTAH AND WYOMING UNDER THE MANDATES OF THE ENERGY POLICY ACT OF 2005 (ICSE POLICY ANALYSIS), and A TECHNICAL, ECONOMIC, AND LEGAL ASSESSMENT OF NORTH AMERICAN HEAVY OIL, OIL SANDS, AND OIL SHALE RESOURCES (ICSE UNCONVENTIONAL HYDROCARBON ASSESSMENT).

FLPMA sets forth the BLM's multiple-use, sustained-yield mandate.<sup>119</sup> Under FLPMA, the BLM must prepare and maintain an up-to-date inventory of all public lands and the resources thereon, giving priority to areas of critical environmental concern.<sup>120</sup> Based on this inventory, the BLM must develop, maintain, and revise RMPs for public lands.<sup>121</sup> RMPs are essentially zoning plans for federal public lands, describing what uses and protections are appropriate for areas based on existing conditions, multiple-use sustained-yield principles, and statutory requirements such as the Wilderness Act. These RMPs work in conjunction with the BLM's designation of certain federal lands as "available for application for commercial leasing and future exploration and development" of oil shale and oil sands resources to proscribe discretionary management actions.<sup>122</sup>

NEPA<sup>123</sup> is a purely procedural statute, requiring "in every recommendation or report on proposals for legislation and other major federal actions significantly affecting the quality of the human environment, a detailed statement by the responsible official on . . . the environmental impact of the proposed action."<sup>124</sup> Because of the scope of issues addressed and the likely impact of wide-ranging management decisions, RMPs constitute "major federal actions significantly affecting the quality of the human environment," and therefore require a detailed statement describing the environmental impacts of the proposed amendments.<sup>125</sup> While the level of detail and associated procedural requirements vary depending on the nature of the impacts anticipated, the fundamental test of NEPA adequacy is whether the federal agency took a "hard look" at the environmental consequences of the proposed action and

considered a reasonable range of alternate means to satisfy the underlying need for the project.<sup>126</sup> The BLM's FINAL PEIS for oil shale development did not evaluate the environmental impact of leasing specific parcels of land,<sup>127</sup> and an additional round of NEPA analysis will be required before leases can be issued.<sup>128</sup> This subsequent round of NEPA must address the reasonably foreseeable consequences of developing leased lands.<sup>129</sup> Additionally, a third round of NEPA analysis may be required before operational development can proceed, depending on the amount of information available and considered at the time the leasing analysis is completed. Many of the issues discussed elsewhere in this report will be considered in great detail during NEPA review, when more information is available.

Whether the BLM complied with FLPMA and NEPA's requirements in preparing amendments to RMPs covering eastern Utah is the subject of ongoing litigation, which is summarized in section 3.1.2.3.

### **3.1.2. Federal Oil Shale and Oil Sands Leasing Laws and Regulations**

Prior ICSE publications discuss federal oil shale and oil sands leasing programs,<sup>130</sup> and the sections below merely summarize these programs.

#### **3.1.2.1. Oil Shale**

The BLM has RD&D and commercial leasing programs. Under the RD&D model, a limited number of leases are available to investigate development technologies. If technologies prove to be commercially viable, the lessee can convert the RD&D lease into a commercial lease, securing the right to develop both the primary lease tract and an adjacent preference area. On June 9, 2005, the BLM published a notice in the Federal Register, initiating an RD&D leasing program by soliciting nominations of 160 acre primary lease tracts and 4,960 acre preference areas in Colorado, Utah, and Wyoming.<sup>131</sup> In response to nineteen nominations, the BLM issued six RD&D leases; five in Colorado and one in Utah. All six RD&D leases remain active, but none has proceeded to commercial development. The Oil Shale Exploration Company (OSEC) secured the only RD&D lease in Utah. The OSEC RD&D lease tract includes the existing White River Oil Shale Mine, an underground oil shale mine developed during the oil shale

boom/bust of the 1970s and 1980s that never began production. OSEC holds rights to significant adjacent private land and intends to utilize the existing mine in conjunction with surface retorting technologies.<sup>132</sup>

In November 2009, the BLM published a notice in the Federal Register inviting nominations for a potential second round of oil shale RD&D leases.<sup>133</sup> The BLM received three nominations: two in Colorado, from ExxonMobil Exploration, Co. and Natural Soda Holdings, Inc.; and one in Utah, from AuraSource, Inc. AuraSource proposes to use aboveground retorting technology to retort oil shale.<sup>134</sup> The BLM's Washington, D.C. Office completed its review of the nominations and, in October of 2010, announced that nominations were forwarded to the BLM's Colorado and Utah State Offices for the next phase in the review process.<sup>135</sup> The state offices will now assess the impacts of the proposed leases under NEPA, which can take eighteen months or more to complete, depending upon the complexity of the issues requiring analysis. If new RD&D leases are granted, the leases will include a nominated parcel of up to 160 acres, plus a preference area of up to 480 acres that would become available if the lessee can demonstrate commercial viability. The second-round leases contain a ten-year primary lease term and substantial diligence requirements not included in previous RD&D leases.<sup>136</sup>

Section 369 of EPOA 2005 authorized the SOI to establish regulations for a commercial oil shale leasing program. On November 18, 2008, the SOI issued final rules for oil shale management on public lands.<sup>137</sup> The commercial leasing rules allow issuance of exploration licenses covering up to 25,000 acres<sup>138</sup> and leasing of up to 5,760 acre tracts,<sup>139</sup> limiting leaseholders to no more than 50,000 acres in any one state.<sup>140</sup> Leases are subject to a \$2.00 per acre annual rental charge.<sup>141</sup> Production royalties start at 5 percent and increase to 12.5 percent over time.<sup>142</sup> NEPA compliance is required before issuing a lease or exploration license and approving a plan of development.<sup>143</sup>

The commercial leasing regulations recognize more information is needed and that environmental reviews conducted in accordance with NEPA must occur before leasing or development

can occur. Accordingly, an application to lease must include information regarding the technologies that would be used to develop the tract, and a “description of the known historical, cultural, or archaeological resources within the lease area.”<sup>144</sup> The application must also include a “description of how the proposed lease development would avoid, or, to the extent practicable, mitigate impacts on species or habitats protected by applicable state or federal law or regulations, and impacts on wildlife habitat management” before a lease can be offered for bid.<sup>145</sup>

On January 16, 2009, a coalition of environmental organizations filed two suits in Federal District Court for the District of Colorado, challenging the final leasing rule’s validity and the adequacy of the BLM’s NEPA analysis of lands available for application for commercial oil shale leasing.<sup>146</sup> Both suits remain pending. No commercial oil shale leases have been offered or issued, and federal lands are likely to remain unavailable for commercial oil shale development until these legal challenges are resolved.

### **3.1.2.2. Oil Sands**

The General Mining Law of 1872<sup>147</sup> was enacted to promote mineral exploration and development in the western United States. Under the 1872 Act, prospectors could locate a mining claim on federal lands open to mineral entry.<sup>148</sup> Once a valuable mineral was discovered and required filings made, a claim was considered valid and the claimant could mine the resource without paying royalties to the federal government. Holders of valid claims could also “patent,” or buy the property for \$2.50 or \$5.00 per acre for claims.<sup>149</sup> Patented land becomes private property and can be used for any purpose. Recognizing that granting title to valuable mineral deposits without obtaining compensation did not well serve national interests, Congress passed the Mineral Leasing Act (MLA) of 1920. The MLA allows prospective developers to lease federal lands but title remains with the federal government.

Classifying oil sands under federal mineral law has proven difficult – they are neither fluid like conventional oil and gas, nor solid like coal – and in-situ processing does not fit well with early leasing models. The DOI initially interpreted the MLA as excluding oil sands, managing their development

instead under the 1872 Act.<sup>150</sup> In 1926, Executive Order No. 4371 withdrew lands known to contain oil sands or like substances from location claims under the General Mining Law, effectively freezing oil sands development on federal lands for the next thirty-four years. In 1960, Congress amended the MLA to allow oil sand leasing, providing separate oil and gas, and oil sand leases.<sup>151</sup> The 1960 amendment inserted the phrase “materials from which oil is recoverable only by special treatment after the deposit is mined or quarried” into the definition of “native asphalt, solid and semisolid bitumen, and bituminous rock” under the list of minerals available for leases.<sup>152</sup> This wording proved problematic as it obscured the line between heavy crude oil and oil sands, and resulted in a cessation of oil sand leasing in 1965.<sup>153</sup> Oil sands on federal lands remained unavailable until 1981, when Congress enacted the CHLA.<sup>154</sup> The CHLA provided for combined hydrocarbon leases in specified areas containing the bulk of the federally owned oil sands, all eleven of which are in Utah.<sup>155</sup> The CHLA made the distinction between heavy crude oil and oil sands developed through in-situ processing less important as both could be developed under the same leases. The CHLA states that combined hydrocarbon leases are the only type of lease permitted in STSAs,<sup>156</sup> and BLM regulations provide for the conversion of existing oil and gas leases in STSAs into CHLs.<sup>157</sup>

The Southern Utah Wilderness Alliance (SUWA) is currently challenging twenty-three CHLs issued in Utah,<sup>158</sup> alleging that conversion of oil and gas leases to CHLs was improper based on various procedural violations, and would allow development in environmentally sensitive areas.<sup>159</sup> Shortly after the federal court dismissed the case without prejudice for ripeness,<sup>160</sup> the Interior Board of Land Appeals (IBLA) issued a decision agreeing with SUWA that the BLM did not suspend the oil and gas claims and the lessees did not pay annual rent.<sup>161</sup> However, ultimately the IBLA found that the leases were still valid. Arguing that the ripeness problem has been resolved by final agency action, SUWA has filed a motion to alter or amend the court’s decision.<sup>162</sup> On appeal, SUWA is expected to challenge the IBLA ruling that the BLM is estopped from levying unpaid rent, which would mean that the twenty-three

oil and gas leases had terminated, preventing their reclassification into CHLs.

Most recently, section 350 of the EAct 2005 amended the MLA to allow different oil and gas leases and oil sands leases in certain STSAs.<sup>163</sup> To date, no oil sands leases have been issued under the EAct 2005, and the status of the disputed combined hydrocarbon leases remains unresolved.

### **3.1.2.3. Oil Shale Related Litigation**

The DOI has yet to issue the first commercial lease for oil shale development on federal public lands. Moreover, industry has yet to nominate any federal public land for commercial leasing, and commercial leasing appears unlikely until lawsuits involving development on public lands are resolved. In *Colorado Environmental Coalition v. Kempthorne*, the plaintiffs challenged the validity of the final oil shale leasing rule and the adequacy of the BLM's NEPA analysis of lands available for commercial oil shale leasing.<sup>164</sup> This challenge remains pending and settlement discussions are underway. In *Southern Utah Wilderness Alliance v. Allred*, plaintiffs allege that the BLM failed to comply with FLPMA and NEPA when it revised the RMPs covering eastern Utah.<sup>165</sup> Settlement negotiations have occurred, but according to the BLM's Utah State Director, the "plans stand as they are."<sup>166</sup> While the BLM does not intend to withdraw the plans at issue or restart the planning process, the BLM may consider plan amendments to reflect new information or changed conditions.<sup>167</sup> In *Western Watersheds Project v. Kempthorne*, the plaintiffs allege that the BLM failed to include adequate sage grouse protections in recent RMP amendments.<sup>168</sup> The suit also remains pending, but settlement negotiations are underway.<sup>169</sup> Federal public lands are likely to remain effectively closed to commercial oil shale development until these legal challenges are resolved.

### **3.1.2.4. Development Update**

Prior ICSE publications summarize development efforts underway on federal land.<sup>170</sup> No commercial oil shale leases have been issued and none of the six RD&D leases previously issued has proceeded to development. While most oil shale research is being conducted on non-federal lands,

recent interest in RD&D leasing merits discussion.

AuraSource, Inc., which applied for an RD&D lease in Utah, proposes to use aboveground retorting technology to retort oil shale.<sup>171</sup> If the RD&D lease is granted, AuraSource will join OSEC, which already holds a federal RD&D lease, and Red Leaf Resources, which holds leases to almost 17,000 acres of SITLA lands, as the leading candidates for oil shale development in Utah. Notably, all three companies propose to utilize technologies that rely on conventional mining methods and surface retorting.

Red Leaf Resources utilizes a modified in-situ retorting process that relies on conventional mining methods, and recently completed successful pilot-scale field testing.<sup>172</sup> OSEC and its business partners Petrobras and Mitsui recently concluded a commercial feasibility study for a 50,000 barrels-per-day oil shale project that would utilize underground mining combined with the Petrobras Petrosix surface retorting technology. Initial development would occur on OSEC's privately owned oil property, near OSEC's existing RD&D lease. While the results of the feasibility study are not public, OSEC describes the results as "very positive."<sup>173</sup>

### **3.2. STATE OIL SHALE AND OIL SANDS REGULATION**

The federal government is not alone in its ability to regulate oil shale and oil sands development. The State of Utah controls sizeable oil shale and oil sands resources, the leasing of which is at the state's discretion. The State of Utah also has limited authority to regulate development on federal lands pursuant to the state's police power jurisdiction. This section discusses state leasing programs, the state's ability to regulate activity on federal land, and state regulatory programs.

#### **3.2.1. Leasing Utah State Lands**

Due to ongoing litigation, federal public lands may remain effectively unavailable for commercial oil shale and oil sands development for the foreseeable future. Difficulty accessing oil shale and oil sands resources located on federal public lands does not preclude development, but instead shifts development to non-federal lands.

In contrast to the federal government, Utah is “open for business as it relates to oil shale” and actively promotes its development.<sup>174</sup> The State of Utah’s support is reflected in royalty reductions to encourage development of oil shale and oil sands,<sup>175</sup> a ten year exemption from severance taxes for oil shale and oil sands development,<sup>176</sup> exemptions for motor fuels derived from Utah oil shale or oil sands from state motor fuel taxes,<sup>177</sup> and a ten year tax exemption for “personal property or a product transferred electronically that are used in the research and development of coal-to-liquids, oil shale, or tar sands technology.”<sup>178</sup>

Development of non-federal oil shale and oil sands is an important issue within Utah, as 11.8 percent (133,100 acres or 208 square miles) of the oil shale and 16.4 percent (167,950 acres or over 262 square miles) of oil sands are located under lands managed by SITLA. SITLA has attempted to consolidate its holdings within the Uinta Basin and controls 40,320 acres (63 square miles) of oil shale bearing lands considered suitable for surface mining. Roughly 13.1 percent of developable oil shale and 10.2 percent (104,820 acres or over 163 square miles) of oil sands are privately owned; a disproportionate share of these oil shale resources are suitable for surface mining. Therefore non-federal actors are in a position to drive substantial development, which could indirectly drive surface mining and above ground retorting technologies.

When Utah was granted statehood in 1896, the federal government gave the State of Utah parcels of land to be managed for the financial support of public education and other public institutions. SITLA is the independent state agency created to manage these lands. SITLA is mandated to maximize income for current trust beneficiaries while preserving trust assets for future beneficiaries,<sup>179</sup> and leasing of minerals properties and royalties from mineral production are the largest sources of revenues from trust lands. Trust beneficiaries are public schools and institutions funded by revenue generated from trust lands – “beneficiaries do not include other governmental institutions or agencies, the public at large, or the general welfare of this state.”<sup>180</sup> SITLA, therefore, has a strong incentive to develop oil

shale and oil sands, and limited call to consider competing land uses.

SITLA controls sizeable oil shale and oil sands resources,<sup>181</sup> which it is statutorily authorized to lease.<sup>182</sup> SITLA may utilize competitive leases, non-competitive leases, or other business arrangements to convey interests in oil shale or oil sands.<sup>183</sup> Non-competitive leases (also known as over the counter leases) are available at SITLA's discretion when the area has been offered for competitive lease but no offers were received.<sup>184</sup> Leases are for a ten-year period that shall be continued if the leased substance is being produced in paying quantities or if the tract is subject to diligent operations reasonably calculated to advance or restore production of the leased substance and the operator pays annual minimum royalties.<sup>185</sup> Rental rates are no less than \$1 per acre, or fractional portion thereof, per year and no less than \$500 per tract per year.<sup>186</sup> Leases are subject to an eight percent production royalty based on the gross value, including all bonuses and allowances received by the lessee, of each product produced from the leased substance and sold under a bona fide contract of sale. SITLA has discretion to increase the royalty rate by up to one percent per year, to a maximum of 12.5 percent, after the first ten years of the lease.<sup>187</sup> Lessees, with SITLA's consent, may commit leased lands to unit, cooperative, or other plans of development,<sup>188</sup> and SITLA may require unit, cooperative, or other plans of development where necessary, provided that plans do not substantially impair the lessees' rights under the lease.<sup>189</sup> SITLA has entered into 99 active leases conveying rights to develop oil shale on over 97,848 acres of state land.<sup>190</sup>

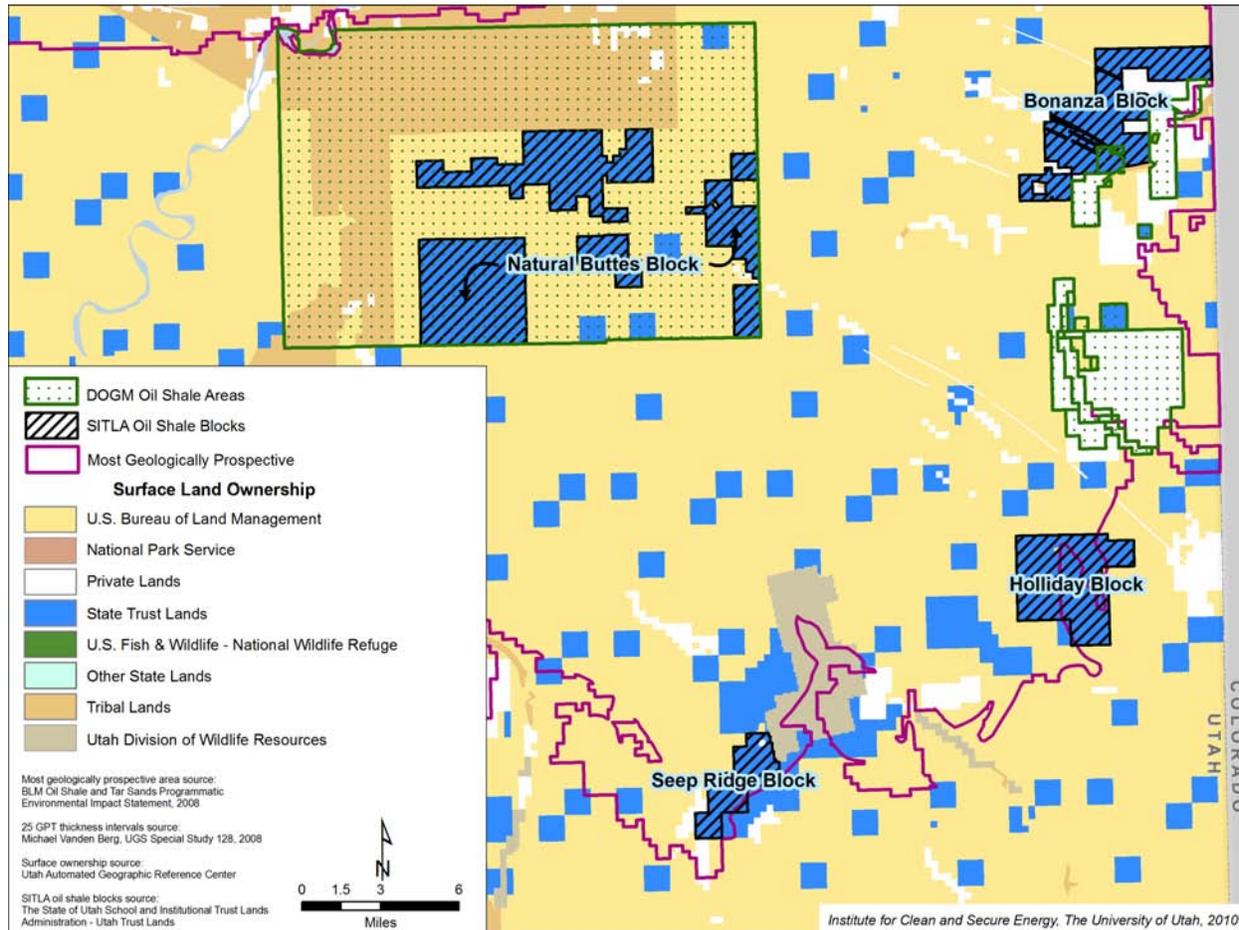
SITLA's regulations require submission and approval of an operating plan prior to any ground-disturbing activity. The operating plan must include access and infrastructure locations as well as a site reclamation plan.<sup>191</sup> SITLA may also require a cultural, paleontological and biological survey of leased lands; reasonable mitigation of impacts to other trust resources occasioned by surface or subsurface operations on the lease; and surface use or right-of-way agreements as necessary for the development of the lease or permit.<sup>192</sup> The Utah Division of Oil, Gas, and Mining's (DOG M) bonding requirements

(discussed in section 3.2.2) are applicable to SITLA leases, and SITLA may require supplemental bonding to ensure fulfillment of obligations beyond those required under the DOGM bond.<sup>193</sup>

SITLA can designate trust lands as part of a multiple mineral development area, requiring additional bonding or other financial assurances and indemnification against unreasonable and unnecessary damage to mineral deposits or improvements. SITLA may also impose reasonable requirements upon any mineral lessee who intends to develop minerals within the multiple mineral development area.<sup>194</sup>

SITLA has designated five oil shale “blocks,” within which future leasing will require consultation with the Associate Director for Hard Rock, Coal, and Other Minerals prior to offering tracts for lease.<sup>195</sup> The five designated blocks are the Magic Circle Block, the TOSCO or Sand Wash Block, the Bonanza Block, the Holiday Block, and the Seep Ridge Block.<sup>196</sup> These “blocks” are distinct from the “oil shale areas” designated by the Board of Oil, Gas, and Mining and discussed in section 3.2.2. Formal boundaries have not been established for the blocks,<sup>197</sup> but their approximate locations are labeled in Figure 7.

**Figure 7**  
**State Designated “Oil Shale Areas” and “Oil Shale Blocks”**



SITLA, in response to a request to lease additional state lands for oil shale development, recently offered a 944 acre parcel along the Mahogany Outcrop for competitive bid. The sale announcement differed from earlier oil shale lease offerings in that SITLA required a minimum \$1,000 per acre bonus bid accompanying lease applications.<sup>198</sup> No bids were received on the parcel and SITLA has no plans to offer the parcel for over-the-counter leasing.<sup>199</sup> While no lease was issued, the announcement is important because it reflects continued interest in obtaining access to near-surface oil shale resources as well as a more aggressive approach by SITLA to maximize economic returns for leasing.

### **3.2.1. State Regulation of Energy Development on Federal Public Lands**

Each state possesses broad police power to regulate activities within its borders in favor of the

general welfare of its citizens. This power is unique to states and based on a grant from the people to the state through the state constitution.<sup>200</sup> Although state police power is expansive, the Supremacy Clause of the United States Constitution limits the exercise of state power, providing that federal law is “the supreme law of the land.”<sup>201</sup> Accordingly, validly enacted federal laws, including agency regulations, supersede conflicting state law even though the preempted state law may have been an otherwise valid exercise of state police power. Thus, where Congress has enacted a law or an agency has promulgated regulations governing development on federal public lands, state regulatory jurisdiction is preempted to the extent that it conflicts with federal law.<sup>202</sup>

Congress may preempt state law in two ways. First, where Congress expresses its intent to entirely occupy a given regulatory field, congressional intent prevails and any state law within that field is preempted.<sup>203</sup> Second, where Congress has not expressly displaced state regulation in a particular field, state law is still preempted to the extent it actually conflicts with federal law<sup>204</sup> or frustrates the accomplishment of federal prerogatives.<sup>205</sup>

The United States Constitution provides, through the Property Clause, that “Congress shall have Power to dispose of and make all needful Rules and Regulations respecting the Territory or other Property belonging to the United States.”<sup>206</sup> The United States Supreme Court holds that power entrusted to Congress in the Property Clause “is without limitations.”<sup>207</sup> Thus, when Congress acts pursuant to the Property Clause, “the federal legislation necessarily overrides conflicting state laws.”<sup>208</sup> Nevertheless, the mere existence of the unlimited power of Congress to regulate federal property does not render state regulation of federally owned property preempted. Rather, to the extent that Congress has not acted to the contrary, each state “undoubtedly retains jurisdiction over federal lands within its territory.”<sup>209</sup>

Oil, gas, coal, oil shale, and oil sands are all subject to regulation under the MLA,<sup>210</sup> which controls the extent to which states can regulate the development of such resources on federal land.

Nowhere in the MLA does Congress express intent to fully occupy the field of regulating mineral resource extraction on federal lands.<sup>211</sup> In *Gas Development Corp. v. Black*,<sup>212</sup> the court reached this conclusion, explaining that “[t]he mere fact that Congress has seen fit to provide for some regulation of mineral leases does not warrant the conclusion that it intended to fully occupy the field.”<sup>213</sup> In fact, the MLA expressly indicates Congress’s intent to include states in the regulation of mineral resource extraction on federal lands.<sup>214</sup> Because Congress has not expressly occupied the field of regulating mining on federal lands, state exercises of police power in this domain are preempted only to the extent they conflict with federal law or frustrate federal prerogatives. The MLA has very few provisions that extend beyond protection of federal interests, leaving the state with wide latitude to regulate mining on federal lands pursuant to its police power. The MLA does include several provisions that concern well spacing, pooling, communitization, and the establishment of logical mining units for inter-jurisdictional resources, each of which limits state power to regulate. For example, the federal government must approve pooling or communitization agreements involving federal and non-federal lands.<sup>215</sup> However, the lack of other federal law dealing with pooling allows for state regulation in this field.<sup>216</sup>

Oil shale and oil sands are regulated under the MLA.<sup>217</sup> As a result, the preemption analysis remains the same; the state retains the ability to exercise police power to the extent that it does not conflict with or frustrate the purposes of federal regulation of oil shale and oil sands. As long as the existing federal regulatory framework remains in place,<sup>218</sup> the question will be whether a given state regulation conflicts with federal law on the same subject.

Existing federal oil shale leasing regulations do not address state authority.<sup>219</sup> Rather, the regulations set up procedures for the establishment and maintenance of oil shale leases on federal land. Some of the regulations are concerned with lease size,<sup>220</sup> while others restrict total ownership of leases.<sup>221</sup> The majority of the regulations concern lease development,<sup>222</sup> as well as rental and royalty rates.<sup>223</sup> Due to the Supremacy Clause and the threat of preemption, any state attempts to regulate oil

shale development must conform to these regulations.

Looking beyond the question of preemption to the potential for state-led development of oil shale and oil sands, federal regulation of coal may provide a model for broad state regulatory authority over mining on federal lands. The MLA authorizes the SOI to enter into cooperative agreements with states to share regulatory duties, such as royalty management, auditing, inspection, investigation, and enforcement.<sup>224</sup> The MLA also authorizes the SOI to delegate to the state all of its authority under leasing statutes, leases, and regulations to conduct audits, investigations, and inspections.<sup>225</sup> Such delegation authority could provide a basis for broad state regulatory authority that applied to oil shale. Indeed, an earlier section of the Act included in the same chapter as Section 196 provides that “[d]eposits of . . . oil shale . . . shall be subject to disposition in the form and manner provided by this chapter.”<sup>226</sup> A later section of the MLA reaffirms this proposition, asserting that, “provisions of this chapter shall also apply to all deposits of . . . oil shale.”<sup>227</sup> While authority for allowing cooperation to advance efficient and responsible development of unconventional hydrocarbon resources clearly exists, the greater challenge may be harmonizing development objectives.

### **3.2.2. State Regulation of Oil Shale and Oil Sands Development**

Most state statutes addressing hydrocarbon development were drafted with conventional oil and gas development in mind. Where programs are ambiguous in their application to oil shale and oil sands, development proposals could generate litigation to assure that oil shale and oil sands developments are subject to no less regulation than conventional hydrocarbon resources. Where oil shale and oil sands are expressly exempt from statutory programs, questions will undoubtedly arise as to the wisdom of providing less protection to state interests impacted by unconventional hydrocarbon development than to interests impacted by conventional hydrocarbon development.

DOG M administers the two primary mineral development related statutes: the Utah Oil and Gas Act,<sup>228</sup> and the Utah Mined Lands Reclamation Act.<sup>229</sup> The Oil and Gas Act is intended to promote

the efficient and coordinated development of oil and gas within Utah while preventing the waste of oil and gas resources.<sup>230</sup> The Act created the Utah Board of Oil, Gas and Mining, granting it the authority to regulate oil and gas. The Act also created and authorized DOGM to implement Board orders.<sup>231</sup> The Board, through DOGM, has jurisdiction over all facilities used to produce, store, treat, transfer, refine, or process oil and gas,<sup>232</sup> and exercises this jurisdiction to ensure that: wells are drilled, cased, operated, and plugged to prevent the escape of oil, gas, or water from the target reservoir; to prevent detrimental intrusion of water into oil or gas reservoirs; to prevent pollution of fresh water by oil, gas, or saline water; and to prevent blowouts, cavings, seepages, and fires.<sup>233</sup> This jurisdiction, however, does not extend to oil shale or oil sands, as oil and gas under the act expressly exclude “any gaseous or liquid substance processed from coal, oil shale, or tar sands.”<sup>234</sup> DOGM therefore has limited authority to ensure that oil shale and oil sands are developed in a manner consistent with state interests. DOGM may, however, regulate conventional oil and gas development to minimize conflicts with oil shale and oil sands.

Under the Utah Mined Lands Reclamation Act, DOGM approval is required before mining operations can proceed. Under the Act, DOGM may require “that mining operations be conducted to minimize or prevent hazards to public health and safety,”<sup>235</sup> and require a post-development reclamation plan and surety bond to cover the cost of reclamation as a condition of approval.<sup>236</sup> The application and bonding requirements apply to all surface operations associated with the exploration, development, or extraction of minerals and expressly include in-situ mining.<sup>237</sup> Bonding, however, does not apply to subsurface impacts, and the extent of DOGM’s authority to regulate surface and subsurface activities to “minimize or prevent hazards to public health and safety” is unclear and untested with respect to oil shale and oil sands development.

DOGM has promulgated regulations allowing it to designate oil shale areas.<sup>238</sup> These areas are subject to oil and gas well construction and abandonment standards intended to prevent resource

contamination. Within these areas, oil and gas operators must provide copies of the Application for a Permit to Drill to all oil shale owners or lessees within one-half mile of the proposed well. Likewise, when oil shale development occurs within one-half mile of oil or gas development, the operators must contact the Board for guidance.<sup>239</sup> To date, the Board has issued three orders defining oil shale areas.<sup>240</sup> The boundaries of these areas are shown in Figure 7. As discussed in section 3.1.2, DOGM programs apply to federal public lands where not preempted by federal regulatory efforts. The respective limits of state and federal jurisdiction will need to be clarified if development occurs.

With the State of Utah possessing only limited direct control over oil shale and oil sands development, protection of health and welfare depends heavily on indirect controls contained in environmental laws. Neither the Natural Gas Act nor the Mined Land Reclamation Act excludes oil shale or oil sands development, whether involving in-situ processing or otherwise, from applicable environmental regulations. Oil shale and oil sands development remain subject to regulation under federal and state environmental laws, the most prominent of which are the Clean Air Act (CAA), Clean Water Act (CWA), Safe Drinking Water Act (SDWA), Resource Conservation and Recovery Act (RCRA), and Endangered Species Act (ESA).

### **3.3. "INDIAN COUNTRY" AND REGULATION OF INDIAN LANDS**

Jurisdictional disputes frequently arise among states, tribes, and the federal government, as all three entities traditionally administer programs to protect environmental quality and all three entities are reluctant to cede jurisdiction or claims of sovereignty.<sup>241</sup> Determining jurisdiction depends heavily on where the regulated event takes place as well as the history between the federal government and the tribe, including reservation establishment. This section addresses the geographic area subject to unique jurisdictional or regulatory programs, including federal regulatory jurisdiction, and tribal and state civil jurisdiction, because of the area's connection to American Indians.

### 3.3.1. Defining “Indian Country”

In 1948, Congress codified a statutory definition of Indian Country that is used to this day for both civil and criminal cases:

(a) all land within the limits of any *Indian reservation* . . . notwithstanding the issuance of any patent, and including rights-of-way running through the reservation, (b) all *dependent Indian communities* . . . whether within the original or subsequently acquired territory thereof, and whether within or without the limits of a state, and (c) all *Indian allotments*, the Indian titles to which have not been extinguished, including rights-of-way running through the same.<sup>242</sup>

The term “Indian reservation” originally meant any land reserved from an Indian cession to the federal government, regardless of the form of tenure. The meaning has evolved to also include land set aside under federal protection for the residence or use of Indians, regardless of origin.<sup>243</sup> “Dependent Indian communities” are lands explicitly “set aside” by the federal government “for the use of the Indians as Indian land;”<sup>244</sup> and “under federal superintendence.”<sup>245</sup> Indian allotments are parcels allotted to individual tribal members under the Dawes Act.<sup>246</sup> Applying these tests to define the limits of Indian Country has proven to be a formidable challenge.<sup>247</sup>

Even where reservations were clearly established, the United States has a long history of removing lands from reservations and dedicating the lands to other uses. Where Congress has committed lands within reservation boundaries to non-Indian uses, the reservation may be diminished but the geographic extent of Indian Country may remain unchanged. Thus Indian Country is not reflected in the current reservation boundaries and may include significant non-reservation lands. The effect of rededication depends on congressional intent. It follows that determining whether the tribe, state, or federal government has jurisdiction to oversee resource development or administer environmental laws depends on the laws involved and the geographic extent of Indian Country. The evolving nature of the boundaries is complicated by the fact that Congress historically manifested almost complete indifference to reservation boundary definition because it believed reservations would

be eventually abolished.<sup>248</sup> “It is perhaps unsurprising that such a complex land ownership scheme, overlaid by such a complex regulatory scheme, might beget equally complex litigation.”<sup>249</sup>

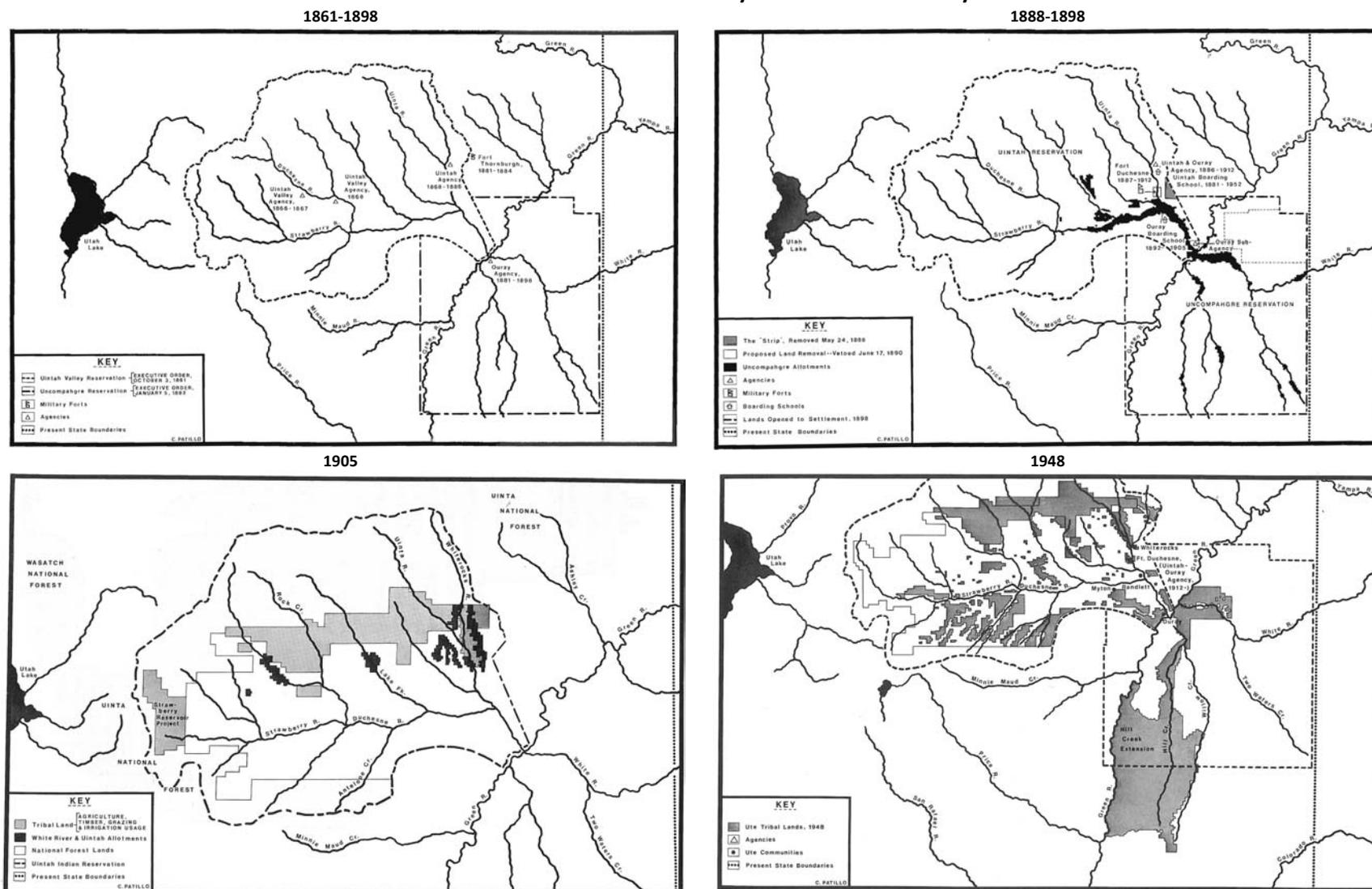
In Utah, oil shale and oil sands resources are located on the Uintah and Ouray Reservation, which is situated in the Uinta Basin and home to the Ute Indian Tribe. The Ute Tribe’s history, and the history of reservation establishment and disestablishment are extremely complex, as the Ute People include more than a dozen separate bands that occupied portions of Colorado, New Mexico, and Utah.<sup>250</sup> These several bands were forced onto one of several reservations in Colorado and Utah, and several bands were relocated to the Uintah and Ouray Reservation as other reservations were disestablished, opened to non-Indian settlement, or dedicated to other uses. Today, the Uintah, White River and Uncompahgre Bands occupy the Uintah and Ouray Reservation, but while all are part of the larger Ute People, each band has a separate history, traditions, and historic leadership.<sup>251</sup> Furthermore, the Uintah and Ouray Reservation is a complicated patchwork of ownership, including Ute Indian Tribal lands, Ute Indian Allotted lands, Ute Indian Tribe and Ute Distribution Corporation jointly managed Indian trust minerals, as well as privately and federal owned minerals.<sup>252</sup> Appendix B presents a timeline summarizing the history of the Uinta and Ouray Indian Reservation.<sup>253</sup>

Although the boundaries of the Ute Reservation are well settled today, the Ute Reservation was repeatedly opened to settlement. The federal government also diminished portions of the reservation in order to advance mineral development, create National Forest Reserves, develop water resources, and secure mineral rights.<sup>254</sup> Portions of lands removed from the reservation have since been returned to the Ute Indian Tribe.<sup>255</sup> Major changes in reservation boundaries are shown in Figure 8.

Dedicating reservation lands to other purposes, including opening a reservation to settlement, does not necessarily mean that the opened area loses its reservation status,<sup>256</sup> and after a series of cases involving lengthy discussions of legislative intent,<sup>257</sup> the 10th Circuit Court of Appeals held that Congress diminished the original Uintah and Ouray Reservation boundaries when lands were opened for

settlement.<sup>258</sup> However, many areas retained their status as Indian Country within the original boundaries, including all trust lands, National Forest System lands, the Uncompahgre Reservation,<sup>259</sup> and the three categories of non-trust fee lands under 18 U.S.C. § 1151.<sup>260</sup> Today, lands may be part of Indian Country even if not currently part of the reservation. The boundary of Indian Country within the Uinta Basin is shown in Figure 9. As can be seen from the map, Indian Country includes numerous small, isolated parcels of land and determining jurisdictional boundaries can be difficult.

**Figure 8**  
**Evolution of the Uintah and Ouray Reservation Boundary**



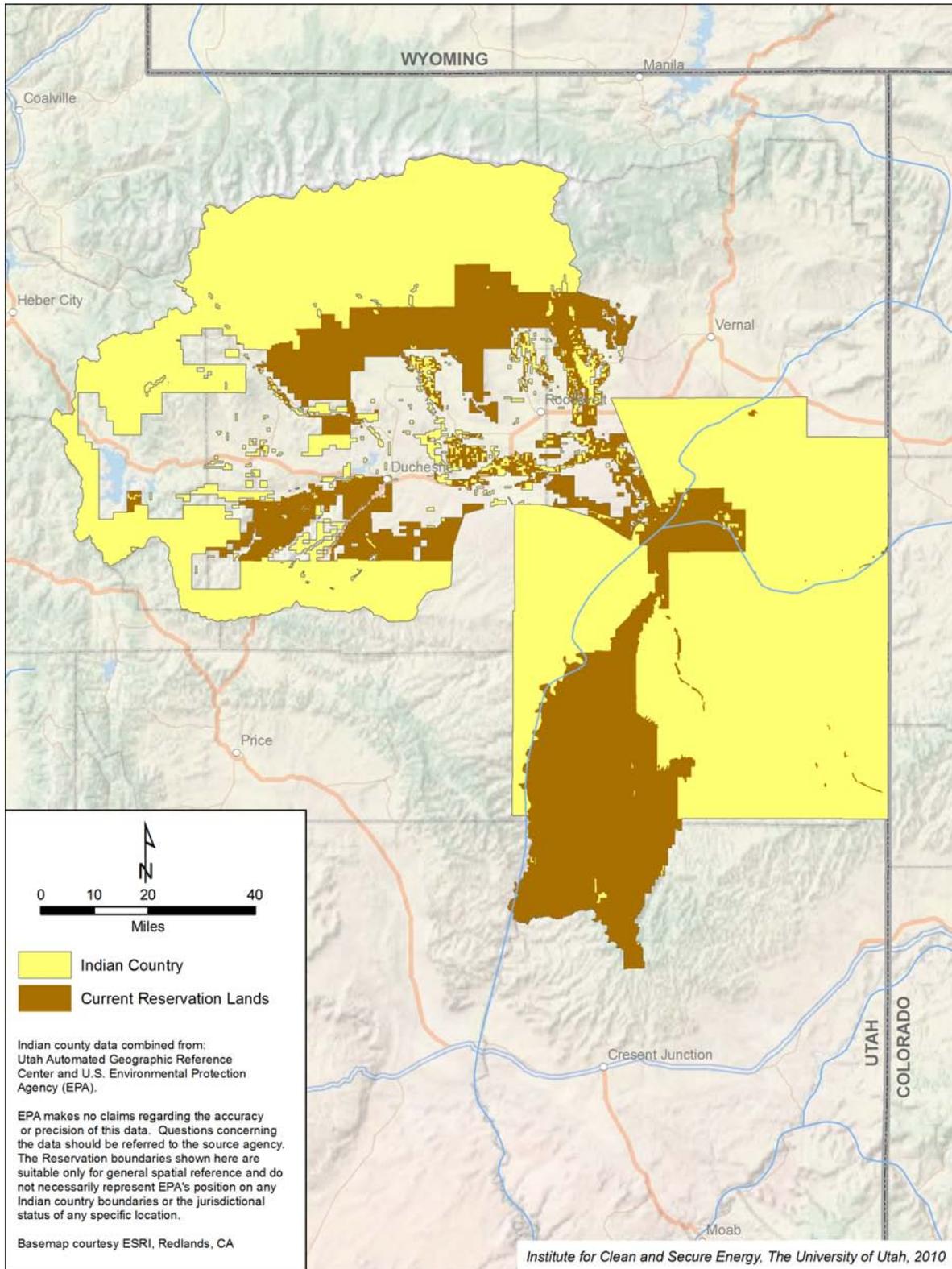
Source: FRED A. CONETAH, A HISTORY OF THE NORTHERN UTE PEOPLE (1982).

### 3.3.2. Tribal Jurisdiction

Within Indian Country, tribes may assert regulatory control over non-Indians on both tribal lands and lands held in fee by non-Indians.<sup>261</sup> However, tribal regulation of non-Indian activities on non-Indian fee land is limited to two instances:<sup>262</sup> (1) Tribes “may regulate through taxation, licensing, or other means the activities of nonmembers who enter into consensual relationships with the tribe or its members, through commercial dealing, contracts, leases, or other arrangements;”<sup>263</sup> and (2) Tribes may “exercise civil authority over the conduct of nonmembers on fee lands within its reservation when that conduct threatens or has some direct effect on the political integrity, the economic security, or the health and welfare of the tribe.”<sup>264</sup> Under the first instance, courts have consistently upheld tribal authority to tax non-Indians entering the reservation to engage in economic activity.<sup>265</sup> However, recently this power to tax was limited to tribal lands, and no longer pertains to activities on non-Indian fee lands.<sup>266</sup> The second instance is broader and still applies to all land within Indian Country, regardless of ownership.

Development of minerals on the Uintah and Ouray Reservation can trigger both types of regulation. Regulatory control may arise in mineral leases executed by the Ute Indian Tribe.<sup>267</sup> Tribes often include clauses within leases requiring non-Indian developers to acquiesce to jurisdiction in tribal court;<sup>268</sup> tribes also routinely tax oil and gas extracted from Indian Country. The second form of regulatory jurisdiction has been more difficult to establish, but may arise if development activities cause damage, such as water contamination, that adversely affects the tribe.<sup>269</sup>

**Figure 9**  
**Indian Country**



### **3.3.3. State Jurisdiction**

Generally, states do not have civil regulatory authority over tribal activities in Indian Country absent congressional authorization.<sup>270</sup> But even without congressional approval, a state may be able to show a strong enough state interest to warrant jurisdiction in some cases.<sup>271</sup> For example, the Supreme Court upheld state taxation of non-Indian mineral leases located on an Indian reservation.<sup>272</sup> Additionally, when a tribe reacquires in fee simple land formerly allotted and patented under an allotment act, the state may tax such lands, although not the sale of those lands.<sup>273</sup>

As a result, mineral leasing on Indian lands may be less appealing to developers because they may be subject to double taxation in addition to tribal court jurisdiction. However, many utility companies proceed to develop in Indian Country anyway since tribal tax has been upheld as prudent to include in the rate base.<sup>274</sup> Oil shale and oil sands developers may be able to at least partially offset potential double taxation by integrating on-site electricity generation that relies on synthesis gas produced from oil shale or oil sands.

### **3.3.4. The Leasing Process in Indian Country**

Some tribes engage directly in mineral production, but most large-scale development of tribal resources is accomplished through non-Indian leasing and other agreements with tribes.<sup>275</sup> Tribes have the sole authority for leasing mineral rights on tribal lands owned in fee. The DOI, in association with the tribe, administers the mineral estate for lands held in trust by the federal government.<sup>276</sup>

Leasing trust lands within Indian Country for mineral development is governed primarily by the Indian Mineral Leasing Act of 1938 (IMLA), the Indian Mineral Development Act of 1982 (IMDA), and the Indian Tribal Energy Development and Self-Determination Act of 2005 (ITEDSA).<sup>277</sup> Each act provides procedures whereby Indian lands might be leased, subject to the approval of the SOI. The IMDA and ITEDSA also expand tribal authority by authorizing tribes to directly negotiate and enter into mineral agreements (under the IMDA) or tribal energy resource agreements (under the ITEDSA). As a result,

tribes are increasingly able to choose what degree of control to exercise and the amount of risk to take.<sup>278</sup>

Within the Uintah and Ouray Reservation, Indian properties include approximately 1.2 million surface-owned acres (approximately 1,875 square miles), and 400,000 mineral-owned acres (approximately 625 square miles), and are owned by Ute Indian allottees, the Ute Indian Tribe, or jointly managed by the Ute Indian Tribe and Ute Distribution Corp.<sup>279</sup> Minerals owned by the tribe are leased directly through the Ute Energy and Minerals Department.<sup>280</sup> The Department has over forty active leases and 300 rights-of-way for oil and gas exploration ventures.<sup>281</sup> Minerals jointly managed by the Tribe and Ute Distribution Corp. may be leased by contacting the Bureau of Indian Affairs (BIA) who will then contact the Ute Indian Tribe and Ute Distribution Corp.<sup>282</sup> Similarly, the BIA will notify Indian allottees for a proposal of leasing or right-of-way consent.<sup>283</sup> Most leasing of trust assets on the Ute Indian Reservation occurs through mineral agreements under the IMDA.

### **3.3.5. Environmental Regulation in Indian Country**

Although the United States Supreme Court has limited tribal authority to regulate non-Indians on non-Indian fee land within Indian Country, some federal statutes grant tribes authority to assume primacy in administering environmental regulatory programs. The implementing regulations for these statutes frequently tiers to the previously discussed Indian Country definition for the geographic scope of authority.<sup>284</sup>

The federal government's stance on environmental regulation within Indian Country is laid out in the Environmental Protection Agency (EPA) Policy for the Administration of Environmental Programs on Indian Reservations.<sup>285</sup> The guidance document promotes working with tribes on a "one-to-one basis" through a government-to-government relationship and recognizes tribes as the primary parties for setting standards and managing programs for reservations.<sup>286</sup> Until tribal governments are able to assume full responsibility for delegable programs, the EPA retains management over such programs, but

still encourages tribal participation.

Two of the most important environmental statutes triggered by mineral development, the CWA and CAA, have been amended to treat tribes as states (TAS).<sup>287</sup> Under the CWA, a state or tribe is eligible to promulgate its own water quality standards, subject to approval by the EPA and a requirement that state or tribal standards be at least as stringent as national standards.<sup>288</sup> As a prerequisite, tribes must show that they possess inherent authority over the activities affected by the water regulations.<sup>289</sup> EPA regulations allow a tribe to establish this authority by showing that impairment of the reservation's waters would affect "the political integrity, the economic security, or the health or welfare of the tribe."<sup>290</sup> Once a tribe is given TAS status, the EPA may authorize tribal water quality standards that are more stringent than federal or state standards.<sup>291</sup>

The CAA authorizes tribes and states to implement federal air quality standards through implementation plans and a centralized operating permit program, subject to EPA oversight.<sup>292</sup> Tribal implementation plans are applicable to all areas within tribal jurisdiction (e.g., the exterior boundaries of the reservation, allotted land, and dependent Indian communities).<sup>293</sup> Tribes may also redesignate the prevention of significant deterioration (PSD) status of lands within the exterior boundaries of their reservation, thereby allowing tribes to indirectly control activities outside their jurisdiction if they affect the air quality on the reservation.<sup>294</sup>

In the absence of an approved tribal program, the EPA is authorized to directly implement the CAA in Indian Country.<sup>295</sup> Because the Ute Indian Tribe has not gained TAS status, the EPA has jurisdiction over the Uintah and Ouray Reservation to implement federal environmental program. Indeed, final approval of Utah's CAA program exempted all "lands within the exterior boundaries of Indian Reservations" from state jurisdiction.<sup>296</sup> Currently, energy developers must work with the EPA to obtain the appropriate environmental permits for operation. EPA's role in administering the CAA and CWA within Indian Country is critically important because as of 2006, sixty-eight percent of all natural

gas wells and seventy-nine percent of all oil wells within Utah were located within Indian Country,<sup>297</sup> and therefore subject to EPA jurisdiction. According to the Western Energy Alliance (formerly IPAMS), which represents independent oil and gas producers, state agencies act on permit applications much more rapidly than their federal counterparts and operators are shifting investment from federal to non-federal lands to avoid delays.<sup>298</sup>

Despite the ability to regulate air and water pollution in Indian Country, tribal control of wastes generated from mineral development may be limited.<sup>299</sup> RCRA does not contain explicit statutory authority for tribes to assume responsibility for development of hazardous and solid waste management programs in Indian Country. Instead, the EPA currently treats Indian tribes as municipalities.<sup>300</sup> As a result, the EPA retains primary jurisdiction and tribes remain free from state regulation under RCRA.<sup>301</sup>

Oil shale and oil sands development on the Uintah and Ouray Reservation is not likely to be hindered by RCRA. Under the Bevill Amendment, solid waste from the extraction and beneficiation of oil shale and oil sands is exempt from hazardous waste under RCRA Subtitle C.<sup>302</sup> The EPA has also stated that spent oil shale is not likely to be a hazardous waste.<sup>303</sup> Therefore, such waste presently is only subject to non-hazardous solid waste regulation (Subtitle D). Regulations have not been promulgated for oil shale or oil sands under either EPA or the State of Utah's non-hazardous solid waste programs.

### **3.3.6. Implications**

Indian Country jurisdiction is a complicated and often misunderstood concept. Agency personnel may not understand either the geographic extent of Indian Country or why it is not synonymous with current reservation boundaries. No official map defining Indian Country jurisdiction within Utah exists, forcing federal, state, and tribal officials to rely on informal understandings and ad-hoc decision-making processes. The lack of clarity creates uncertainty for those potentially subject to regulation, as they question who will regulate their development or whether a project extending across

jurisdictional boundaries could be subject to conflicting requirements. Where energy development is proposed, operators may be forced to configure development proposals to address regulatory uncertainty rather than resource constraints; this may in turn lead to inefficient development, redundant infrastructure, and a greater overall level of impact.

Unclear jurisdictional boundaries increase the risk of inconsistent regulation, uncoordinated and incomplete cumulative effects assessments, and inadequate protection of transient resources, such as air quality related values. The nature and extent of these challenges depends in large part on the nature and extent of development. As discussed below, more than 24,000 new oil and gas wells are pending regulatory approval within the Uinta Basin. Air quality within the Uinta Basin is becoming problematic and, absent a concerted and coordinated regulatory program, will likely be a limiting factor for future energy development. Likewise, large-scale energy development will impact highly prized big game resources and stress species that are candidates for federal listing and protection under the ESA.

### **3.4. ACCESS TO OIL SHALE AND OIL SANDS RESOURCES**

Rights to develop oil shale and oil sands resources may have reduced value if physically surrounded by land controlled by other entities and the surrounding landholder withholds permission to cross the surrounding land. Because SITLA and private lands are often relatively small and scattered across the federal landscape, access issues are most likely to occur where federal public lands surround private or SITLA managed lands. This section begins by discussing means of accessing resources landlocked by federal lands, and then turns to a brief discussion of means of obtaining access to landlocked federal resources.

#### **3.4.1. Accessing Resources Landlocked by Federal Lands**

Under FLPMA, anyone desiring to cross or use National Forest System lands or BLM-managed lands for non-casual purposes must obtain a right-of-way from the relevant agency.<sup>304</sup> Rights-of-way are subject to agency regulation to protect other uses and values on federal land,<sup>305</sup> and FLPMA authorizes

the secretaries of Agriculture and the Interior to:

[G]rant, issue, or renew rights-of-way over, upon, under, or through such lands for . . . (2) pipelines and or other systems of transportation of distribution of . . . synthetic liquid or gaseous fuels, or any other refined product produced therefrom. . . (6) roads . . . or other means of transportation . . . [and] (7) such other necessary transportation or other systems of facilitation which are in the public interest and which require rights-of-way over, upon, under, or through such lands.<sup>306</sup>

Rights-of-way granted pursuant to FLPMA are subject to conditions necessary to “minimize damage to scenic and esthetic values and fish and wildlife habitat and otherwise protect the environment.”<sup>307</sup> The granting agency has considerable discretion to determine the appropriate right of way alignment as well as associated conditions of use. The decision to grant a right of way is a major federal action triggering NEPA’s analytical requirements, which means that obtaining a right-of-way across federal lands can be a long, complex, and costly process.

FLPMA’s requirements are, however, subject to “valid existing rights,”<sup>308</sup> the existence of which may limit federal land manager discretion. Within Utah, SITLA lands represent a particularly important class of valid existing rights. School trust land grants were not unilateral gifts from Congress, but part of a bilateral contract between the United States and newly admitted states; in return for receiving federal lands the states agreed to permanently hold the granted land or the proceeds from its sale in trust for public schools.<sup>309</sup>

Given the rule of liberal construction and the Congressional intent of enabling the state to use the school lands as a means of generating revenue, the court must conclude that Congress intended that Utah (or its lessees) have access to the school lands. Unless a right of access is inferred, the very purpose of the school trust lands would fail. Without access the state could not develop the trust lands in any fashion and they would become economically worthless. This Congress did not intend.<sup>310</sup>

In *Utah v. United States* (also known as the *Cotter* Decision), the Cotter Corp. held leases to develop uranium from SITLA lands. The leased lands were inaccessible except by crossing adjacent federal land. After leases were issued, the BLM inventoried the surrounding federal lands and determined they should be managed as a WSA. WSAs are subject to a non-impairment standard,

effectively precluding road construction.<sup>311</sup> To prevent impairment of wilderness values, the BLM sued to prevent the Cotter Corp. from building a road across federal public lands. Based on the rights set forth above, the court concluded that the State of Utah and its lessees must be allowed to access SITLA lands, but that the BLM can regulate access under statutes such as FLPMA.<sup>312</sup>

Accordingly, holders of SITLA leases for oil shale or oil sands are entitled to reasonable access across surrounding federal lands. Such access is, however, subject to reasonable regulation necessary to protect other resource values. Striking a balance between reasonable access and reasonable protection of competing resource values involves complex discretionary decisions on the part of the BLM. These decisions almost assuredly represent “major federal actions significantly affecting the quality of the human environment”<sup>313</sup> and therefore trigger NEPA.<sup>314</sup> Thus NEPA compliance remains relevant to development of SITLA leases.

A second potentially wide-ranging grant of access rights is contained in Revised Statute 2477 of 1866 (RS 2477), which provides, in its entirety, that: “The right of way for the construction of highways over public lands, not reserved for public uses, is hereby granted.”<sup>315</sup> FLPMA repealed RS 2477, but RS 2477 claims that existed prior to FLPMA’s enactment were unaffected by the repeal and may remain valid. RS 2477’s cursory and imprecise language has spawned years of litigation which is summarized in *Southern Utah Wilderness Alliance v. BLM*.<sup>316</sup> As the 10th Circuit Court of Appeals noted, “the establishment of R.S. 2477 rights-of-way required no administrative formalities: no entry, no application, no license, no patent, and no deed on the federal side; no formal act of public acceptance on the part of the states or localities in whom the right was vested.”<sup>317</sup> The absence of formal processes raise complicated questions of both fact and law, and while few RS 2477 claims have been resolved, it is now settled that:

- RS 2477 right of way grants became effective upon the construction or establishment of “highways,” in accordance with the state laws, over public lands not reserved for public uses. No application to or action on the part of the federal government was necessary.<sup>318</sup>

- “[I]n determining what is required for acceptance of a right of way under the statute, federal law ‘borrows’ from long established principles of state law.”<sup>319</sup> “Acceptance of an RS 2477 right of way in Utah [] requires continuous public use for a period of ten years.”<sup>320</sup> Occasional or desultory use is not sufficient,<sup>321</sup> but mechanical construction also is not required.<sup>322</sup>
- Where an RS 2477 right of way exists, state law defines the scope of the right of way and any improvements must be made in light of the traditional uses to which the right of way had been put prior to the enactment of FLPMA.<sup>323</sup>
- The holder of an RS 2477 right of way across federal land must consult with the appropriate federal land management agency prior to undertaking any right of way improvements beyond routine maintenance.<sup>324</sup>
- The BLM lacks authority to make binding determinations regarding the validity of the rights-of-way granted under RS 2477; while the BLM can make non-binding determinations for land use planning purposes, binding determinations are the sole provenance of the courts.<sup>325</sup>
- The party claiming rights-of-way against the federal government bears the burden of proof and cannot rely solely on the mere assertion of a right of way.<sup>326</sup>

While RS 2477 may prove to be a valuable tool in obtaining access to non-federal inholdings, especially non-SITLA inholdings that are not subject to the *Cotter* Decision, RS 2477 is probably the tool of last resort. Given the long history of RS 2477 litigation in Utah and the inability to resolve pending right of way claims, it is unlikely that this Recovery Era statute will provide a timely mechanism for obtaining access to inholdings within federal public lands. Developers requiring access across federal lands may be better off attempting to negotiate rights-of-way in accordance with FLPMA section 1761.

The Alaska National Interest Lands Conservation Act of 1980<sup>327</sup> (ANILCA) may provide an alternative mechanism for obtaining access to private lands surrounded by federal public lands. Section 3170(a) of ANILCA provides a right of access across National Forest System lands and has been interpreted to apply nationwide.<sup>328</sup> Subsection 3170(b) applies to federal public lands and reads:

Notwithstanding any other provisions of this Act or other law, in any case in which State owned or privately owned land, including subsurface rights of such owners underlying public lands, or a valid mining claim or other valid occupancy is within or is effectively surrounded by one or more conservation system units, national recreation areas, national conservation areas, or those public lands designated as wilderness study, the State or private owner or occupier shall be given by the Secretary such rights as may be necessary to assure adequate and feasible access for economic and other purposes to the concerned land by such State or private owner or occupier and their successors in

interest. Such rights shall be subject to reasonable regulations issued by the Secretary to protect the natural and other values of such lands.<sup>329</sup>

In *Montana Wilderness Ass'n v. Forest Service*,<sup>330</sup> the Ninth Circuit Court of Appeals held that ANILCA assured the right to access inholdings within National Forests throughout the United States, but assumed that because subsection 3170(b) defines "public lands" as limited to lands within Alaska,<sup>331</sup> subsection (b) is inapplicable outside of Alaska.<sup>332</sup> Because the court assumed without analysis that subsection (b) applied only within Alaska and because the court was not required to interpret subsection (b) to reach its conclusion, the court's remarks on this matter are not binding.

Shortly after *Montana Wilderness* was decided, a case involving access to Utah school trust lands landlocked by federal public lands came before the IBLA. In *Utah Wilderness Association*,<sup>333</sup> Shell Oil Company (Shell) leased SITLA lands that were completely surrounded by a BLM-managed WSA. Shell obtained the BLM's authorization to construct a road through the WSA in order to access its lease, and the Utah Wilderness Association appealed. The IBLA affirmed the BLM's decision that Shell had a right to access its lease holdings by virtue of ANILCA's subsection 3170(b).<sup>334</sup> In reaching its conclusion, the IBLA noted that the court in *Montana Wilderness* had assumed subsection (b)'s reach without analysis. The IBLA proceeded to review ANILCA's legislative history, concluding that "Congress intended subsections (a) and (b) to have similar scope."<sup>335</sup> In the IBLA's view, the intent of both subsections was to remove uncertainties regarding access to valid existing rights landlocked by federal land.

The breadth of rights afforded by ANILCA is not without limitation. While ANILCA provides access rights for inholders, it also contemplates reasonable government regulation,<sup>336</sup> and the review of alternative means of access afforded by NEPA analysis is consistent with the "adequate and feasible access" right of ANILCA. Therefore an Environmental Assessment (EA) or EIS will likely be required before construction of new access routes or improvement to existing routes can proceed.<sup>337</sup> The process to determine an acceptable access route may take several months or longer, especially where sensitive resources are involved. Prospective oil shale and oil sands developers with resources

surrounded by federal public lands should plan accordingly as they attempt to secure access.

A recent Federal District Court opinion out of Colorado raises another issue that deserves brief mention. In *San Luis Valley Ecosystem Council v. U.S. Fish and Wildlife Service*,<sup>338</sup> environmental plaintiffs challenged the Fish and Wildlife Service's (USF&WS) NEPA analysis and approval of two exploratory wells within the Baca National Wildlife Refuge. USF&WS approved the drilling plan because Lexam Exploration Inc. had obtained mineral rights prior to creation of the wildlife reservation and, in USF&WS's opinion, it lacked authority to limit development without affecting a "taking" of Lexam Exploration's property interests. Plaintiffs argued that the USF&WS failed to consider the possibility of acquiring Lexam's mineral rights. The USF&WS countered that no funds were allocated for such an acquisition and that Lexam was unwilling to sell. The judge found the record inadequate to determine whether the USF&WS had "meaningfully investigated the option of acquiring the mineral rights,"<sup>339</sup> criticizing the lack of "even an evaluation of the cost of acquisition" as evidence of "the failure to meaningfully evaluate this alternative."<sup>340</sup>

*San Luis Valley Ecosystem Council* may be limited by its unique facts. The mineral rights were within a National Wildlife Refuge, adjacent to both the Great Sand Dunes National Park and Preserve and conservation lands managed by the Nature Conservancy and Colorado State Parks, as well as being part of a "complex of lands, totaling more than 500,000 acres (over 781 square miles), containing one of the largest and most diverse assemblages of wetland habitats remaining in Colorado."<sup>341</sup> Where the resources subject to development pressures are less sensitive and the tradeoffs inherent in development less pronounced, acquisition of inheld mineral rights is less likely to represent a reasonable alternative. Nonetheless, federal agencies facing proposals to develop inheld mineral rights may be compelled to consider whether inholding acquisition would further agency objectives and if so, whether acquisition represents a feasible alternative under NEPA.

Difficulties accessing non-federal lands may severely complicate development of some oil shale

and oil sands deposits. Planning for access and coordination across jurisdictional lines will be essential to efficient and effective resource development.

### **3.4.2. Accessing Other Landlocked Resources**

Where access to oil shale or oil sands resources requires travel on existing roads across SITLA lands, access is controlled by state law and summarized in a Policy Statement adopted by the SITLA Board of Trustees.<sup>342</sup> SITLA recognizes four classes of roads across lands under its jurisdiction: Category 1 roads were established prior to the state's acquisition of title to the land in question. Appearance of a road on General Land Office survey plats predating state title is evidence of a valid existing right and the width of rights-of-way associated with Category 1 roads will ultimately conform to the scope of rights-of-way recognized on adjacent federal public lands. Category 2 roads were established after land title vested with the state and lack a grant of authority from SITLA, but were temporarily authorized by the legislature. Category 2 roads are recognized as valid and SITLA will work with other governmental entities to convert temporary rights into permanent easements where doing so does not impair trust management. Category 3 roads were established after state land acquisition, after January 1, 1992, and without SITLA authorization. SITLA will work to legitimize these roads consistent with state law and regulation.<sup>343</sup> Category 4 roads were established after state land acquisition and are subject to valid easements. Category 4 roads are managed pursuant to agreements and existing rules.<sup>344</sup> Because its role as fiduciary requires that SITLA receive fair market value for the use of trust assets, SITLA may seek compensation for access.

It is possible that the network of existing roads may be inadequate to facilitate access to all oil shale and oil sands resources. Those needing access across SITLA lands can apply for a right-of-entry permit. "[A] right-of-entry permit shall be required for any person to use, occupy, or travel upon Trust Lands Administration land in conjunction with any commercial enterprise without regard to the incidental nature of the use, occupancy, or travel," except for public roads or for uses "permitted under

some other land use authorization issued by [SITLA] and currently in effect.”<sup>345</sup> Fees for right-of-entry permits are based on the cost incurred in administering the permit and the “fair-market value of a proposed land use.”<sup>346</sup>

Alternatively, SITLA may issue easements on trust lands if it determines that the easements are in the best interest of the trust beneficiary.<sup>347</sup> “The charge for any easement . . . including those granted to municipal or county governments or agencies of the state or federal government, may be based on either the market value of the use or the market value of the land encumbered by the easement.”<sup>348</sup> Administrative rules, issued by SITLA, bar efforts to obtain an easement or other interest in trust lands by prescription, adverse possession, or other legal doctrine not expressly set forth in statute.<sup>349</sup>

The State of Utah also grants broad eminent domain powers,<sup>350</sup> which may be exercised for a long-list of “public” purposes.<sup>351</sup> While the statute does not define “public,” it lists acceptable grounds for eminent domain, including “roads, streets, and alleys for public vehicular use”<sup>352</sup> and “roads, railroads, tramways, tunnels, ditches, flumes, pipes, and dumping places to access or facilitate the milling, smelting, or other reduction of ores, or the working of mines, quarries, coal mines, or mineral deposits including minerals in solution.”<sup>353</sup> Because the term “mineral deposits” went undefined, it is unclear whether the term was intended to include oil shale and oil sands resources. The statute also specifically included “gas, oil or coal pipelines, tanks or reservoirs,”<sup>354</sup> and “byroads leading from a highway to an existing or proposed . . . development.”<sup>355</sup> The code does not, however, define “development,” and it is not clear whether kerogen or bitumen would be considered oil or gas until upgraded. While undefined statutory terms call into question the extent to which the state’s eminent domain law can be used to obtain access to landlocked oil shale and oil sands, the long list of enumerated uses indicate a broad grant of powers. Even if the statute is read narrowly, it provides a starting point for negotiating broader rights of access.

Under Utah law, eminent domain powers are not limited to government entities, but are

available to any government or “person” acting within the scope of the act.<sup>356</sup> The party acquiring an easement, right-of-way, or other interest in property through eminent domain proceedings must compensate the property owner for the value of every estate or interest in the property taken as well as for any damage that will accrue to portions of the property not subject to condemnation.<sup>357</sup> Eminent domain powers are not always necessary and negotiated surface use agreements may be a more effective means of securing access as they avoid the cost of litigation and do not create antagonistic relationships between the parties.

In addition to road and utility related eminent domain powers, the water code also grants broad eminent domain powers related to water development:

Any person shall have a right of way across and upon public, private and corporate lands, or other rights of way, for the construction, maintenance, repair and use of all necessary reservoirs, dams, water gates, canals, ditches, flumes, tunnels, pipelines and areas for setting up pumps and pumping machinery or other means of securing, storing, replacing and conveying water for domestic, culinary, industrial and irrigation purposes or for any necessary public use, or for drainage, upon payment of just compensation therefor, but such right of way shall in all cases be exercised in a manner not unnecessarily to impair the practical use of any other right of way, highway or public or private road, or to injure any public or private property.<sup>358</sup>

### **3.4.3. Seep Ridge Road**

While this report adopts a conceptual analysis of access-related issues, one specific project deserves mention. Road access into and out of the southern part of the Uinta Basin is limited, and especially difficult for projects that would be located along the Mahogany Outcrop. Trucks exiting the most geologically prospective oil shale area or the Hill Creek and PR Springs STSAs must drive north to either Ouray or Bonanza to connect with paved roads and Highway 40 (an east-west connector between Denver and Salt Lake City), or drive a roughly eighty-five mile long dirt and gravel road extending from a point nine miles south of Ouray, south across the Uintah-Grand County border to Interstate 70. This road is commonly referred to as the Seep Ridge Road (or the Divide Road / Hay Canyon Road in Grand County).

Uintah County proposes to pave, realign, and widen the 44.5 mile unpaved portions of Seep Ridge Road within Uintah County.<sup>359</sup> The proposed improvements would result in an estimated 29.8 miles of paved, two-lane road; plus 14.7 miles that would be widened to three lanes to provide climbing lanes for slow moving traffic. The speed limit would increase from 35 to 55 miles per hour on paved portions of the road.<sup>360</sup> The roughly forty-mile segment from the Grand County border south to Interstate 70 would remain unpaved.<sup>361</sup>

Uintah County contends that road improvements are needed to accommodate increasing light and heavy vehicle traffic on the road, primarily associated with energy development in the Book Cliffs area. The County's position is that the proposed improvements would provide an important link to existing rail lines, greatly improving refinery access. Proponents also contend that improvements will reduce dust resulting from existing traffic, increase recreational access to the Book Cliffs area, and improve road safety. Because rail access is available near Interstate 70, improved road access to the south could also enhance access to more distant refineries.

Opponents are concerned that the widened road will fragment important big game habitat and that increased traffic volumes and speed will result in increased animal strikes, impacting key deer, elk, and antelope populations. Concerns have also arisen regarding impacts to endemic plants. Grand County is concerned that improving the northern portion of the road will necessitate upgrades to the roughly forty miles of road south of the Uintah County border; an expense that the County is reluctant to assume. Grand County is also circumspect about the impacts of the project, fearing that the project will increase traffic on county roads and development in areas where county services are costly and difficult to provide.<sup>362</sup>

In May of 2009, the BLM released an EA for the proposed road improvements. The BLM's Washington D.C. Office has requested briefing on the project and a final decision is unlikely until the Washington Office concludes its review. The main area of concern appears to involve impacts to

Graham beardtongue (*Penstemon grahamii*), a BLM designated sensitive species endemic to the oil shale outcrops through which the road would pass.<sup>363</sup> The fate of the Seep Ridge Road paving project is significant to a wide range of interests, as it stands to improve market access for energy producers, but may do so at a high cost to an area prized for its wildlife and untrammelled character.

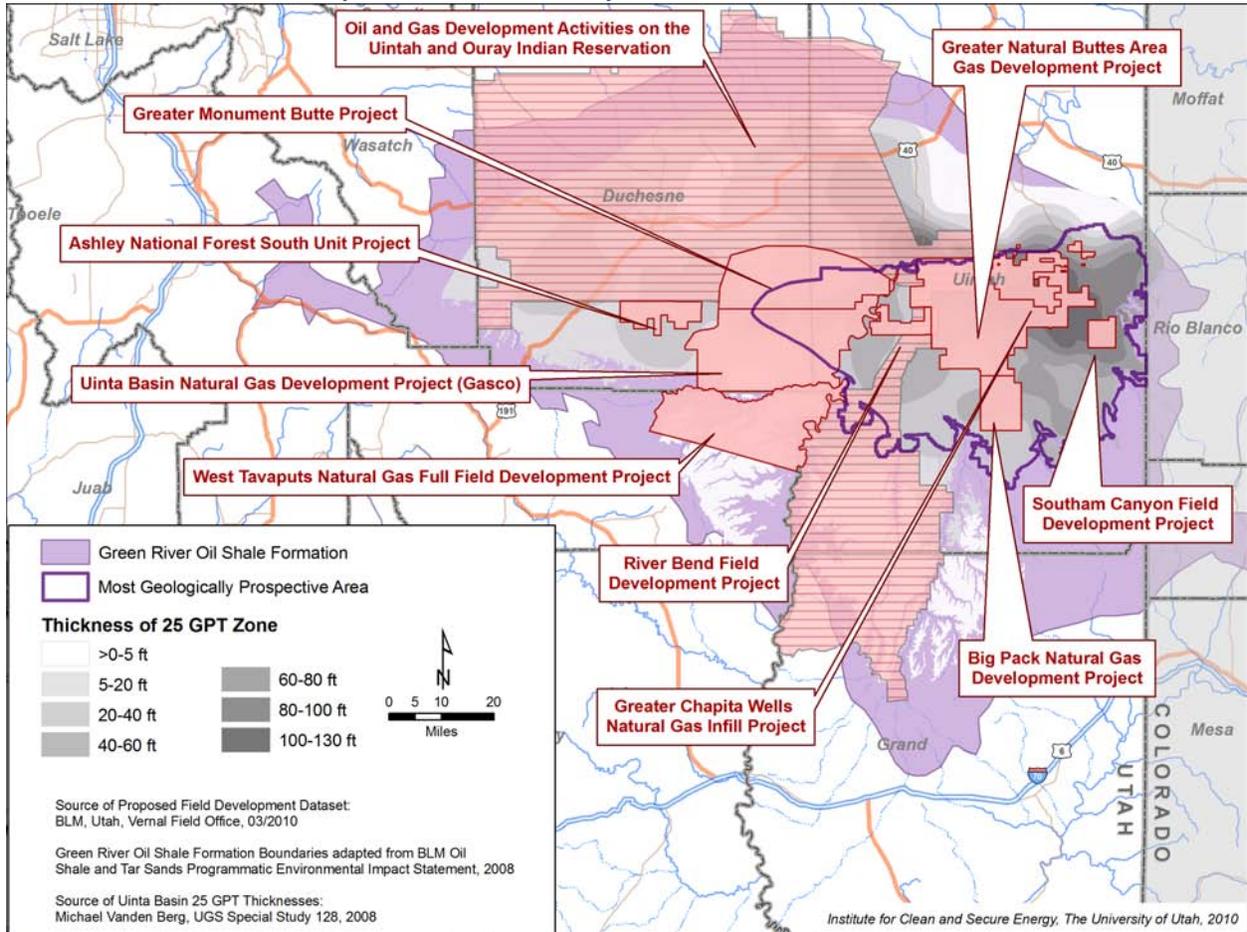
### **3.5. COMPETING MINERAL INTERESTS**

As discussed in previous ICSE reports, oil shale and oil sands bearing lands often contain other mineral resources, and commercial scale oil shale or oil sands development is likely incompatible with intensive development of other mineral resources.<sup>364</sup> Competing mineral resources are shown in Figure 10. Surface facilities associated with conventional mineral development could complicate or preclude siting of facilities needed for oil shale or oil sands development, and down-hole infrastructure could contaminate co-located resources or preclude oil shale and oil sands extraction.



Subsequent to issuance of previous ICSE reports, several new oil and gas field developments were proposed for portions of the Uinta Basin that also contain oil shale or oil sands resources. The proposed field developments are shown in Figure 11 and summarized in Table 7.

**Figure 11**  
**Proposed Oil and Gas Projects Within the Uinta Basin**



**Table 7**  
**Pending Oil and Gas Projects Overlying Oil Shale or Oil Sands Within the Uinta Basin<sup>365</sup>**

Project	Wells Proposed	Project Area (Acres)	Project Status
Uinta Basin Natural Gas Development Project [Gasco]	1,491	206,826	Proposed
Greater Chapita Wells Natural Gas Infill Project	7,028	48,027	Proposed
Greater Monument Butte	5,570	119,850	Proposed
Greater Natural Buttes Area Gas Development Project	3,675	162,911	Proposed
Oil and Gas Development Activities on the Uintah and Ouray Indian Reservation, River Bend Field Development	4,899	1,886,770	Proposed
South Unit Oil and Gas Development Project	484	16,719	Proposed
Big Pack Natural Gas Development	400	25,900	Proposed
Southam Canyon Field Development	664	34,471	Proposed
West Tavaputs Natural Gas Full Field Development Plan	249	10,575	Proposed
TOTAL	596	137,930	Approved
	25,236	2,624,860	

It is important to note that most of the projects identified in Table 7 have not been approved.

Project proponents may amend their proposals and the BLM may approve less than the entire proposal, approve a reconfigured proposal, or deny approval outright. Although potentially significant, the nature and extent of the conflicts remain subject to change and cannot be fully evaluated at this time.

Uncertainty remains, as projects are almost certain to evolve during the NEPA process.

While significant oil and natural gas development is either pending or proposed for oil shale and oil sands bearing lands, most proposed projects have thus far involved areas with deep oil shale resources, avoiding shallow (and often leaner) oil shale resources. Mapped oil and gas resources are concentrated in the area undergoing current development proposals and become more scattered to the south and east, near shallow oil shale resources.<sup>366</sup> Based on available information on oil and gas resources within the Basin, it appears that the more scattered nature of oil and gas reservoirs overlying shallow oil shale resources along the southern edge of the most geologically prospective oil shale area will pose less of a constraint on shallow oil shale development. Therefore, the likely surge in natural gas development within the Uinta Basin could indirectly favor oil shale and oil sands operations that involve surface mining. Most oil and gas developments within Utah occur in either the Uinta Basin or the

southeast portion of the state. The San Rafael, Tar Sands Triangle, Circle Cliffs, and White Canyon STSAs are therefore likely to experience fewer conflicts.

### **3.6. IMPLICATIONS**

As observed earlier in this report, oil shale and oil sands development cannot proceed without access to resources. The BLM controls access to more oil shale and oil sands resources than any other single entity, but commercial leases are unlikely to be issued until challenges to commercial leasing rules, commercial leasing area designation, and RMP requirements are resolved. Even when these issues are resolved, the BLM must still complete complex environmental reviews before federal lands can be leased, and these decisions will likely face lengthy legal challenges. With federal lands effectively unavailable, prospective oil shale and oil sands producers will seek alternatives to federal lands. After the BLM, the next largest resource owners within Utah are SITLA and private entities, and SITLA in particular appears to be receptive to commercial unconventional fuel development.

The consequence of shifting unconventional fuel development from federal to non-federal lands is multi-faceted, and runs the risk of reducing public involvement and transparency. Development of non-federal land will require neither preparation of land use plans under FLPMA nor trigger associated public input requirements. Development of non-federal lands is unlikely to require NEPA review and therefore will not necessitate rigorous analysis of alternatives or environmental impacts. Development of SITLA controlled resources will be managed with an eye towards maximizing financial returns for trust beneficiaries whereas development on BLM managed lands would necessarily require a balancing of broader multiple use objectives. The industry that results is likely to reflect the narrower objectives of the leasing agency. Moreover, shifting development onto non-federal lands may also frustrate efforts to fold unconventional hydrocarbons into national energy and environmental strategies.

Federal officials engaged in policy development should weigh and address the indirect consequences of federal inaction. RD&D leasing and development could answer important factual

questions. Clarifying federal energy, environmental, and greenhouse gas policies could provide valuable guidance for unconventional hydrocarbon development. Likewise, engaging in landscape-level resource management that promotes coordinated management of multiple resources across jurisdictional boundaries could improve the decision-making climate.

As noted with respect to ownership and control of oil shale resources, SITLA and private entities are minority owners of oil shale resources generally, but control access to significant oil shale resources and own large consolidated blocks of land along the Mahogany Outcrop. These lands generally have less overburden and are therefore amenable to development utilizing conventional surface mining techniques. As federally controlled oil shale resources are unlikely to see significant commercial development activity absent resolution of legal challenges to leasing regulations and land use plans, development interest naturally gravitates towards private and SITLA lands, many of which are already leased for oil shale development. The convergence of comparatively easy access to resources and the shallow nature of the resources located in this area may indirectly drive technology, favoring conventional or hybrid surface mining operations over in-situ development processes.

Likewise, the deeper, and often richer, oil shale resources in more central portions of the Uinta Basin's most geologically prospective area are more likely to be co-located with conventional oil and natural gas resources. The intense natural gas development proposed for these areas is likely incompatible with in-situ oil shale production. Thus, natural gas development may also indirectly drive technology, favoring conventional or hybrid surface mining operations over in-situ development processes, as access to areas developable under in-situ technologies becomes more difficult.

Whether conventional or hybrid surface mining and upgrading operations reflect national energy and environmental priorities is unclear, as the environmental tradeoffs associated with these types of development technologies are not well documented and a comprehensive federal policy statement has yet to emerge.

Forty years ago, the Public Land Law Review Commission voiced a concern regarding the “lack of coordination in land use planning among the Federal agencies and between the Federal agencies and those of other units of government, as well as the general public. The failure to coordinate plans, and the resulting actions, leads to program duplication and to inefficient accomplishment of federal and other governmental programs.”<sup>367</sup> Specifically, the Commission identified “the need to bring together the separate land use planning activities of all Federal agencies within a geographic region. While the planning and program decisions of one Federal land management agency obviously affect the plans and programs of other Federal agencies in the same region, there appears to be little meaningful coordination among them.”<sup>368</sup> The Commission also recognized that “Federal land use decisions obviously affect a wide variety of institutions outside the Federal agencies, particularly state and local governments. . . . [It is] essential to bring these institutions into the land use planning process so that they will have a voice in decisions that affect their interests.”<sup>369</sup>

The Commission, however, did not discuss the bilateral nature of the interaction. In states like Utah that received large, non-contiguous land grants at statehood, intermingled state, private, and tribal lands result in fragmented management authority and potentially incompatible management objectives. Development of inholdings within federal public lands can impact adjacent federal lands, potentially undermining federal management objectives. Furthermore, owners of inholdings within federal public lands have certain rights of access that cannot be denied by federal land management. Thus, access to state, private, or tribal inholdings may necessitate construction of roads or other infrastructure on federal lands. This infrastructure directly impacts resources on federal lands and can indirectly influence access to and management of proximate federal lands.

The FLPMA and NEPA processes applicable to resource management planning address coordination between resource managers. FLPMA requires the DOI, to the extent consistent with the laws governing the administration of the public lands, coordinate the land use inventory, planning, and management activities of or for such

lands with the land use planning and management programs of other Federal departments and agencies and of the States[, Indian tribes,] and local governments within which the lands are located . . . by, among other things, considering the policies of approved State and tribal land resource management programs. . . . Land use plans of the Secretary under this section shall be consistent with State and local plans to the maximum extent he finds consistent with Federal law and the purposes of this Act.<sup>370</sup>

NEPA requires that “[p]rior to making any detailed statement, the responsible Federal official shall consult with and obtain the comments of any Federal agency which has jurisdiction by law or special expertise with respect to any environmental impact involved.”<sup>371</sup> NEPA’s implementing regulations emphasize “cooperative consultation among agencies before the environmental impact statement is prepared rather than submission of adversarial comments on a completed document,”<sup>372</sup> and “[i]nvite the participation of affected Federal, State, and local agencies, and any affected Indian tribe, the proponent of the action, and any other interested person. . . .”<sup>373</sup> Similarly, in implementing the ESA, the SOI “shall cooperate to the maximum extent practicable with the States, . . . and is authorized to enter into cooperative agreements . . . with any State which establishes and maintains an adequate and active program for the conservation of endangered species and threatened species.”<sup>374</sup> In practice, implementing these requirements often reflects consideration or even consultation, but fails to achieve truly *coordinated* planning. The Commission partially recognized this problem, noting that:

While a policy requiring circulation of proposed land use plans developed by individual agencies to each other may appear to satisfy the need for coordination, we believe this approach embodies the major weakness, that the various classes of Federal lands involved have not been considered together at the inception of the planning process. Generally, the field administrator for each agency is working with a different set of program and policy assumptions, the he views his unit of Federal property largely as an entity isolated from surrounding private and other Federal land for policy and program planning purposes.<sup>375</sup>

Although the Commission’s comments are weighted heavily towards coordination between federal land managers, the Commission recognized the need to look beyond land ownership or management jurisdiction to plan at the landscape or river basin level: “the objectives of land use planning can be frustrated unless *all* land within the planning area is included, regardless of

ownership.”<sup>376</sup> It is critical that federal, state, and tribal leaders coordinate meaningfully if their efforts are to be synergistic rather than conflicting. Potential means of improving coordination are discussed in chapter four.

#### **4. LAND AND RESOURCE CONSOLIDATION AND REALLOCATION**

The problems posed by the fragmented pattern of land ownership within the Uinta Basin are a recurring theme within this report. Federal and state land managers recognize that fragmented ownership combined with divergent management objectives threaten to either impede development or result in development that neither maximizes efficiencies nor minimizes environmental degradation.<sup>377</sup> This section explores different means of consolidating ownership and coordinating management. We begin with a discussion of land exchanges, as they provide a proven and recently utilized means of consolidating fragmented lands. We next discuss how conventional minerals are managed across the jurisdictional patchwork and the issues involved in extending these management tools to oil shale and oil sands development. Much of this chapter is devoted to a discussion of recent state and federal legislative efforts aimed at extending state control over federal lands and the flaws inherent in these efforts. We conclude with a discussion of recent initiatives to improve cross-jurisdictional planning.

##### **4.1. LAND EXCHANGES**

For more than 150 years, the United States has disposed of and set aside public lands – providing grants to states, homesteaders, miners, and railroads; and reserving lands for Indian reservations, national parks, national forests, wildlife refuges, wilderness areas, military reservations, and other purposes. The result is a patchwork of ownership and varied management objectives that can severely complicate resource management. Land exchanges have proven useful in “rationalizing” land ownership and management.<sup>378</sup> While sometimes controversial, land exchanges may provide the single best mode for consolidate ownership and control over energy resources.

Recognizing that the “pattern of alternating land tenure creates extreme management difficulties, habitat fragmentation and, increasingly, user conflicts,” the BLM is seeking to consolidate and rationalize land ownership.<sup>379</sup>

Through consolidation of its protected land base and reduced fragmentation, the BLM will be better able to mitigate adverse impacts on wildlife habitat, recreation,

vegetation, cultural resources, and other values. To that end, the BLM will (1) pursue a program of land consolidation to address its checkerboarded lands – particularly in Nevada, Oregon, California, Wyoming, and Utah, where the problem is most acute, (2) seek to acquire properties adjacent to its current holdings, if needed to preserve ecosystem integrity, and (3) attempt to divest itself of the scattered and low-value landholdings that it has identifies for disposal through a land use planning process.<sup>380</sup>

The BLM’s land exchange authority is contained in FLPMA sections 205 and 206, which set forth the BLM’s authority to acquire and dispose of public lands.<sup>381</sup> Before a land exchange can occur, the SOI must “find[ ] that the values and the objectives which Federal lands or interests to be conveyed may serve if retained in Federal ownership are not more than the values of the non-Federal lands or interests and the public objectives they could serve if acquired.”<sup>382</sup> According to BLM regulations:

When considering the public interest, the authorized officer shall give full consideration to the opportunity to achieve better management of Federal lands and resources, to meet the needs of State and local residents and their economies, and to secure important objectives, including but not limited to: protection of fish and wildlife habitats, cultural resources, watersheds, and wilderness and aesthetic values; enhancement of recreation opportunities and public access; consolidation of lands and/or interests in lands, such as mineral and timber interests, for more logical and efficient management and development; consolidation of split estates; expansion of communities; accommodation of existing or planned land use authorizations (§ 254.4(c)(4)); promotion of multiple-use values; implementation of applicable Forest Land and Resource Management Plans; and fulfillment of public needs.<sup>383</sup>

Under FLPMA, exchanged lands must be in the same state and of equal value,<sup>384</sup> based on nationally approved appraisal standards.<sup>385</sup> The appraisal must set forth an opinion regarding the market value of the lands. “In estimating market value, the appraiser shall: (1) Determine the highest and best use of the property to be appraised;” and “(2) Estimate the value of the lands and interests as if in private ownership and available for sale in the open market.”<sup>386</sup> “Highest and best use means the most probable legal use of a property, based on market evidence as of the date of valuation, expressed in an appraiser's supported opinion.”<sup>387</sup> In order to equalize the value of parcels exchanged, the exchange may incorporate cash payments for up to twenty-five percent of the total values of the lands and interests exchanged.<sup>388</sup> Land exchanges under FLPMA can involve the surface estate, mineral interests, or both.<sup>389</sup>

Three areas of controversy are commonly associated with federal land exchange proposals: (1) accurate valuation of the lands (and potentially minerals) to be exchanged, (2) treatment of public interest considerations, and (3) procedural compliance with NEPA's "hard look" requirement. Two recent cases and the URLEA bring these issues into focus.

In *National Parks Conservation Association v. Bureau of Land Management*,<sup>390</sup> Kaiser Eagle Mountain Inc. (Kaiser) proposed to convey to the BLM 2,846 acres of private land near other BLM lands and within an area designated as critical habitat for the desert tortoise. In return, the BLM would convey to Kaiser 3,481 acres of public land and certain other property interests. The parcels to be acquired by Kaiser were adjacent to a large, existing open-pit iron ore mine owned and operated by Kaiser. Kaiser intended to develop the newly acquired properties into what would be the largest landfill in the United States. The BLM prepared an EIS for the proposed exchange in which it evaluated six different alternatives. A coalition of appellants challenged the EIS and alleged, in part, that the appraisal undervalued the lands to be conveyed by the BLM.

The appraisal found that the "highest and best use" of the public lands to be conveyed to Kaiser was "holding for speculative investment." The appraisal explicitly did "not take into consideration any aspects of the proposed landfill project."<sup>391</sup> The court found little merit in this approach, quoting its earlier holding in *Desert Citizens Against Pollution v. Bisson*:<sup>392</sup> "[T]he use of the land as a landfill was not only reasonable, it was the specific intent of the exchange that it be used for that purpose. There is no principled reason why the BLM, or any federal agency, should remain willfully blind to the value of federal lands by acting contrary to the most elementary principles of real estate transactions."<sup>393</sup>

Appellants also contended that the BLM failed to adequately consider the public interest. As the court explained, under FLPMA's implementing regulations, a determination that an exchange serves the public interest must be predicated on a finding that:

- (1) The resource values and the public objectives that the Federal lands or interests to be conveyed may serve if retained in Federal ownership are not more than the resource

values of the non-Federal lands or interests and the public objectives they could serve if acquired, and (2) The intended use of the conveyed Federal lands will not, in the determination of the authorized officer, significantly conflict with established management objectives on adjacent Federal lands and Indian trust lands. Such finding and the supporting rationale shall be made part of the administrative record.<sup>394</sup>

The court did not explain the nature of the analysis, noting merely that the EIS was over 1,600 pages in length and sufficient to support the BLM's assertion that it fully considered the public interest.<sup>395</sup> From a jurisprudential perspective, the court's reluctance to delve into the public interest review is not surprising given that, because of its fact-specific nature, the evaluation is afforded substantial deference.<sup>396</sup> *National Parks Conservation Ass'n v. BLM* stands as a reminder that foreseeable future land uses must be addressed in NEPA analysis for the exchange and that courts are likely to defer to agency public interest determinations.

The analysis of future uses of exchanged lands was discussed in a 2009 opinion out of the 9th Circuit Court of Appeals,<sup>397</sup> and ASARCO's efforts in that case to exchange federal lands and consolidate its Ray Mine Complex operations are illustrative of the difficulties of exchanging federal lands for mineral development. ASARCO's Ray Mine Complex is the second most productive copper mine in Arizona and the third most productive copper mine in the United States. In 1994, ASARCO proposed a land exchange with the BLM in order to consolidate its holdings and expand its operations. The BLM would convey to ASARCO thirty-one parcels of public land totaling 10,976 acres.<sup>398</sup> These lands were already encumbered by 751 unpatented mining claims or mill site claims, 747 of which are held by ASARCO.<sup>399</sup> In return, ASARCO would convey to the BLM eighteen parcels of private land totaling 7,300 acres. The land conveyed to the BLM would include habitat for endangered desert tortoise, potential habitat for endangered birds, and high-value desert bighorn sheep habitat, some of which adjoin either the White Canyon Area of Critical Environmental Concern or the White Canyon Wilderness Area.<sup>400</sup>

The BLM prepared an EIS for the proposed exchange in which it assumed that, because ASARCO already held unpatented mining claims covering the area, mining would occur in the same manner and

with the same effect with or without the land exchange. This approach was criticized because if the parcels remained in federal control:

ASARCO will be required to obtain the approval of the BLM for one or more MPOs [(Mining Plan of Operations)] before it can conduct additional mining operations on those lands. It is highly likely that the process of obtaining BLM approval of one or more MPOs will substantially affect the manner in which mining operations will occur on the selected lands. By contrast, if the selected lands are conveyed to ASARCO in fee simple, ASARCO will be able to conduct its mining operations without being constrained in any way by the MPO process.<sup>401</sup>

Furthermore, the MPO process is subject to review and approval under NEPA and would therefore require the BLM to consider a reasonable range of development alternatives.<sup>402</sup> The court of appeals therefore concluded that assuming mining would take place in the same manner whether or not the exchange occurred “flies in the face of the evidence.”<sup>403</sup> The BLM’s public interest review also failed because the BLM did not consider adequately the environmental effect of development that would occur under federal control compared to private ownership.<sup>404</sup> The court’s ruling effectively requires the BLM to complete a draft MPO for the parcels involved and compare the environmental impact of mining conducted under federal control to mining conducted on private land.

The message of these cases for those seeking to utilize land exchanges to consolidate control over oil shale and oil sands resources is clear. The assessment process must equalize values and address the likely development of oil shale or oil sands resources. However, this will prove difficult given current uncertainty regarding the value of untapped resources and the technological limits of development. Furthermore, in assessing the public interest and conducting the required NEPA analysis, the BLM will need significant information regarding the plan of development. In order to avoid these complications, exchange backers may turn to Congress, and the recently authorized URLEA<sup>405</sup> provides an example of how this can be done.

Under the URLEA, the State of Utah will convey to the United States ninety-five parcels of land containing approximately 45,502 acres (seventy-nine parcels containing 40,611 acres of surface and

mineral rights, plus sixteen parcels containing 4,891 acres of mineral interest only), mostly along the Colorado River or in the scenic red rock country near Moab, Utah.<sup>406</sup> These lands are desirable to the BLM because they represent inholdings, the development of which would interfere with management of sensitive lands and scenic landscapes, including lands near Arches National Park. In return for these lands, the State of Utah will receive thirty-four parcels of land totaling approximately 35,564 acres, mostly in southern Uintah County (twenty-four parcels containing 33,664 acres of surface and mineral rights, nine parcels containing 1,290 acres of mineral interests only, and the surface estate for one 610 acre parcel). The lands conveyed to the State of Utah will consolidate control over lands containing oil shale and conventional fluid mineral resources.

One of the principal challenges faced by the URLEA's authors was how to account for the value of oil shale resources on lands that would be conveyed to the State of Utah. There is no benchmark against which to measure the amount of shale oil and synthesis gas that can be produced from a given resource or the cost of production absent a commercial oil shale industry. These foundational uncertainties undermine efforts to monetize the oil shale resources and equalize value across the exchange parcels. To prevent such uncertainty from dooming the URLEA, the Act reserves to the United States fifty percent of any payment received by the state as consideration for securing an oil shale lease or developing oil shale from the parcels involved in the exchange.<sup>407</sup> The share of rents and royalties reserved to the United States under the URLEA was intended to match the percentage of revenue that would accrue to the United States if oil shale resources were leased by the BLM, thereby equalizing values.<sup>408</sup> In light of this provision and its apparent protection of federal interests, Congress directed that federal lands that would be conveyed to the state be appraised without regard to the presence of oil shale.<sup>409</sup> Whether this provision will in fact guarantee that the United States receives a market rate of return is unclear as the State of Utah remains free to set oil shale lease terms, including royalty rates, and could set rates below those that would apply if the lands were leased under federal authority.<sup>410</sup>

Congress can also specifically exempt land exchanges from the NEPA process.<sup>411</sup> Even if not specifically excluded from NEPA, a strong argument can be made that no NEPA analysis is required on legislative exchanges. Because the primary purpose of the impact statement is to aid agency decisionmaking, nondiscretionary acts such as a congressionally directed conveyance of specific tracts of land are generally exempt from NEPA's EIS requirement.<sup>412</sup> Moreover, even if discretion is somehow involved in congressionally directed land exchanges, the exchange alone does not authorize any subsequent activity on the land and therefore is unlikely to represent a "major federal action."<sup>413</sup>

The URLEA provides a template for potential future land exchanges involving oil shale and oil sands resources. If additional land exchanges involving these resources are to occur, exchanges will likely incorporate similar provisions reserving to the United States economic interests in the proceeds generated from development that are comparable to the revenue returned to the federal treasury were these developments permitted by the BLM. From the perspective of budding oil shale and oil sands producers, it makes no difference whether they pay royalties to the State of Utah or the federal government; however, increased resource access and less burdensome environmental permitting may make state regulation preferable, and may provide an impetus for similar future exchanges.

#### **4.2. THE SALE OF FEDERAL PUBLIC LANDS**

In addition to exchanging away unwanted lands, the BLM has statutory authority to sell public lands where the land planning process determines: (1) that the tract at issue is difficult or uneconomic to manage as part of the public lands because of its location or other characteristics and the land is not suitable for management by another federal agency; (2) the tract was acquired for a specific purpose and the tract is no longer needed for that or any other federal purpose; or (3) disposal serves an important public objective "including but not limited to expansion of communities and economic development, which cannot be achieved prudently or feasibly on land other than public land and which outweigh other public objectives and values. . . ."<sup>414</sup> Public lands deemed appropriate for disposal under

an approved RMP can be sold only through competitive bidding unless equity or public policy requires otherwise. Such public policy considerations give preference to state and local governments, adjoining landowners, individuals, and other persons.<sup>415</sup> Where public lands are sold, they can be sold for no less than their fair market value.<sup>416</sup>

In 2008, the BLM completed revisions to the Vernal Field Office's RMP, which includes the MGPA for oil shale as well as most if not all of the Asphalt Ridge, Raven Ridge, Pariette, Argyle Canyon Hill Creek, and PR Spring STSAs. The RMP identified 32,067 acres as available for disposal.<sup>417</sup> Quantification of areas containing oil shale or oil sands resources is not readily available, but it appears to be minimal. The Price Field Office contains the Sunnyside and San Rafael STSAs and the Monticello Field Office contains the White Canyon STSA. Maps of parcels identified for disposal within these areas are not available.<sup>418</sup> The Richfield and Moab RMPs do not identify any oil shale or oil sands bearing lands as suitable for disposal.

The ability to obtain access to significant oil shale and oil sands resources through federal land sales appears to be limited by the small amount of land identified for disposal. Even if parcels were deemed suitable for disposal, the BLM would be required to obtain fair market value for all lands sold. As noted with respect to earlier discussions of land exchanges, accurately assessing the value of oil shale and oil sands bearing lands is exceedingly difficult because the cost, feasibility, and economic value of commodities produced remains speculative. The BLM is unlikely to make oil shale or oil sands bearing lands available for disposal in the absence of a reasonable estimation of their value, and such estimation presently appears infeasible.

#### **4.3. POOLING AND UNITIZATION**

The withdrawal of oil and natural gas from beneath one parcel will cause liquid or gaseous resources to flow towards the well, potentially reducing their availability to other mineral right owners. A set of rules has developed to ensure that such withdrawals do not drain adjacent property without

compensating the adjacent resource owner.

In conventional fluid mineral development, “unitization” is the practice of combining a majority of royalty and working interests over a producing formation to facilitate production over the entire reservoir in the most efficient and economic manner.<sup>419</sup> Unitization may be voluntary, but most states allow operators to compel unitization and to proceed despite being unable to reach agreement with all landowners, provided that a statutorily set percentage of landowners consent.<sup>420</sup>

Unitization is typically not required for solid mineral operations because solid minerals are not migratory and extraction can be tailored to target only those resources legally available to the operator. However, at least one author contends that in-situ mining of solid (non-flowing) minerals may require unitization-like processes.

From a practical standpoint, there is no way to determine with any degree of accuracy the portion of the mineral formation from which the minerals in the solution were leached. In the case of multiple land ownership, even if the ISL [(in-situ leaching)] operator controlled all of the lands underlying the ISL operation — and thereby was not exposed to liability for trespass, withdrawal of subjacent support, nuisance or conversion — without unitization, the operator would certainly be faced with an impossible task of accurately allocating the royalties among the respective landowners. As a result, unitization is probably as unavoidable for ISL operators conducted within solid mineral formations underlying multiple, separately owned tracts as for oil and gas operations.<sup>421</sup>

Whether in-situ oil shale or oil sands mining will require unitization depends largely upon the size and nature of individual developments; migration of solvents, heat, and hydrocarbons; and ownership of the mineral estate under development. Where in-situ operations are relatively small and produced from formations under consolidated ownership, unitization may not be required. Conflicts may be avoided by incorporating an un-mined buffer between in-situ operations and adjacent surface and mineral estates. Such un-mined buffers, however, represent unrealized revenue for both the operator and mineral estate owner. If in-situ processing occurs on smaller tracts, buffers may not be practicable. This may prove more problematic for smaller private or SITLA parcels located within the larger federal landscape. As in-situ processing technologies continue to develop, more will be learned

about their lateral reach and potential impacts to adjacent resources. Resolving these factual questions will determine the need for unitization-like rules.

While unitization may be necessary for in-situ processing to occur across fragmented surface and/or mineral ownership, conventional fluid mineral development provides an imperfect analogue. “[S]olid mineral operations, mineral and land owners, as well as many lawyers, may not be familiar or comfortable with the approach.”<sup>422</sup> Furthermore, while most states have statutes allowing the forced unitization of oil and gas resources, these statutes generally do not extend to solid minerals.<sup>423</sup> In Utah, for example, the Board of Oil, Gas, and Mining can define oil and gas pools, order pooling of oil and gas resources,<sup>424</sup> or establish drilling units for any “pool,”<sup>425</sup> but pool refers only to an “underground reservoir containing a common accumulation of oil or gas or both.”<sup>426</sup> Oil and gas excludes “any gaseous or liquid substance processed from coal, oil shale, or tar sands.”<sup>427</sup> The Board, through DOGM, therefore lacks authority to define oil shale and oil sands drilling units, or require pooling of oil shale and oil sands resources where necessary to ensure efficient and economic development, or avoid drainage.

For SITLA leases, SITLA’s Director may commit trust lands leased for oil shale and oil sands development to unit, cooperative or other plans of development with other lands,<sup>428</sup> and “may, with the consent of the lessee, modify any term of a lease for lands that are committed to a unit, cooperative, or other plan of development.”<sup>429</sup> SITLA cannot, however, compel unitization involving federal, tribal, or private interests.

If unitization cannot be compelled, negotiated agreements will need to address issues such as allocation of production royalties and costs among the mineral owners and mine operators. Private resource owners can negotiate such agreements, but negotiations may prove difficult because standardized terms have not yet developed and questions such as whether apportionment will be based on volumes measured at the wellhead or subsequent to initial processing will need to be addressed on a case-by-case basis. Government entities may lack statutory authority to negotiate such agreements,

complicating efforts to develop resources near non-private lands.

#### **4.4. UTAH LEGISLATION IMPACTING RESOURCE ACCESS**

During the 2010 legislative session, the Utah Legislature passed two bills that could impact access to energy resources, both of which were signed into law. Both laws, however, will likely do more to complicate federal-state relations than improve access. H.B. 324 requires the Utah Attorney General to initiate an eminent domain action<sup>430</sup> to obtain title to federal public lands that enhance the state's ability to access or manage SITLA lands. As envisioned in H.B. 324, eminent domain authority could resolve access issues and speed development of SITLA inholdings. H.B. 324 also grants the Utah Attorney General discretionary authority to file actions to force sale of federal public lands. H.B. 143 provides the legal authority to implement portions of H.B. 324, authorizing the exercise of eminent domain authority to obtain title to federal public lands. Despite a highly critical Legislative Review Note appended to both bills by the Office of Legislative Research and General Counsel, Governor Gary Herbert signed both bills into law on March 26, 2010. The Note states in part:

Based on the courts' previous application of the Property Clause, there is a high probability that a court would hold that the federal government is the sovereign of public lands surrendered to or withheld by the federal government at the time of Utah's acceptance into the Union. In short, the state has no standing as sovereign to exercise eminent domain or assert any other state law that is contrary to federal law on land or property that the federal government holds under the Property Clause.<sup>431</sup>

These bills represent the latest chapter in a long-standing dispute between the State of Utah and the federal government,<sup>432</sup> a review of which provides context to the current legislation. This section begins with a review of the State of Utah's path to statehood and the relationship between the federal and state governments, turning to actions to compel disposal of federal lands, and concluding with an assessment of eminent domain efforts.

##### **4.4.1. Background**

Utah, like much of the southwestern United States, was part of Mexico until 1848, when the Treaty of Guadalupe Hidalgo<sup>433</sup> ended the Mexican-American war. In return for cessation of hostilities

and \$15,000,000, Mexico conveyed to the United States title to approximately 525,000 square miles (336,000,000 acres) of land. The land acquired became federal lands and was administered as federal territory until becoming portions of modern-day Arizona, California, Colorado, Nevada, New Mexico, Utah, and Wyoming.<sup>434</sup>

In 1894, Congress enacted the Utah Enabling Act,<sup>435</sup> setting forth the terms and conditions upon which Utah could obtain statehood. Among the Enabling Act's several conditions, Utah was required to adopt the Constitution of the United States,<sup>436</sup> and "agree to declare that they forever disclaim all right and title to the unappropriated public lands lying within the borders" of what would become the State of Utah.<sup>437</sup> In return for Utah's assurances, the United States agreed to, among other things, admit Utah into the Union "on an equal footing with the original States."<sup>438</sup>

Recognizing the cost of establishing and operating government institutions, the United States agreed to grant the State of Utah, upon entry into the Union, four sections of land in every township<sup>439</sup> (approximately 5,844,000 acres),<sup>440</sup> plus title to approximately 1,570,000 acres of additional land.<sup>441</sup> These lands were granted in support of public schools and institutions.<sup>442</sup> In total, the United States granted the State of Utah title to approximately 7,500,000 acres (approximately 11,720 square miles), or 13.8 percent of the land within the state.<sup>443</sup> Under the Enabling Act, the State of Utah "shall not be entitled to any further or other grants of land for any purpose than as expressly provided in this Act."<sup>444</sup> While capping land grants, the United States did agree to provide five percent of the proceeds from the sale of federal public lands within Utah to the state:

That five per centum of the proceeds of the sales of public lands lying within said State, which shall be sold by the United States subsequent to the admission of said State into the Union, after deducting all the expenses incident to the same, shall be paid to the said State, to be used as a permanent fund, the interest of which only shall be extended for the support of the common schools within said State.<sup>445</sup>

The State of Utah accepted the terms contained in the Enabling Act, ratified the Utah Constitution in 1896 and became the forty-fifth state to join the Union. The Utah Constitution expressly

states that the “State of Utah is an inseparable part of the Federal Union and the Constitution of the United States is the supreme law of the land.”<sup>446</sup> The Utah Constitution also affirms that the state’s citizens “forever disclaim all right and title to the unappropriated public lands lying within the boundaries hereof.”<sup>447</sup>

Despite conveying more than 7,500,000 acres (over 11,720 square miles)<sup>448</sup> of land to the state, 3,610,000 acres (5,642 square miles) to homesteaders,<sup>449</sup> 2,230,000 acres (3,484 square miles) to railroads,<sup>450</sup> and 1,200,000 acres (1,875 square miles) to mineral claimants,<sup>451</sup> almost two-thirds of land within Utah remains under federal ownership and control.<sup>452</sup> In the minds of some, expansive federal land ownership disadvantages the state because federal statutes, policies, and discretionary decisions frustrate resource development that arguably deprives western states of valuable resources and the jobs resource production generates. Furthermore, fragmented ownership can complicate access to state and private lands, increasing the cost of development, reducing the economic value of resources that can be produced therefrom, and reducing the state’s tax base.

Frustrations regarding constraints on access to federal public lands peaked in 1976 with the passage of FLPMA. Prior to FLPMA’s enactment, federal laws allowed for “disposal” of federal lands by conveying land to private entities, though a shift towards retention was already underway well before FLPMA’s enactment.<sup>453</sup> FLPMA formally changed federal public land management policy by replacing public land disposal laws such as the Homestead Act,<sup>454</sup> the Kinkaid Act,<sup>455</sup> and the Stock-Raising Homestead Act<sup>456</sup> with a policy that “the public lands be retained in Federal ownership, unless . . . it is determined that disposal of a particular parcel will serve the national interest.”<sup>457</sup> Federal public lands are now managed “on the basis of multiple use and sustained yield,”<sup>458</sup> which expressly recognizes recreational, scenic, historic, and habitat values<sup>459</sup> that are often at odds with extractive uses. Increasing restrictions on public land grazing and resource extraction, the emerging environmental movement, and a sense that eastern bureaucrats were controlling lands that many westerners considered their own,

fueled what became known as the “Sagebrush Rebellion.”

#### **4.4.2. Ownership and Control of Public Lands**

The Sagebrush Rebellion’s central aim was to expand local control over federal public lands, and the equal footing doctrine played a central role in the rebels’ attempts to wrest control from the federal government. The equal footing doctrine holds that when “a new state is admitted to the Union, it is admitted with all the power of sovereignty that pertained to the original states,” and admission to the Union may not diminish these powers in ways that would be invalid if applied to an existing state.<sup>460</sup> The Utah Enabling Act, like acts enabling admission of most western states, explicitly guaranteed that the State of Utah would be admitted on an equal footing with the existing states.<sup>461</sup>

The equal footing doctrine, however, is not a literal guarantee of equality, and understanding the doctrine’s application to western states requires a review of the different paths to statehood. Prior to 1848, land within what is now Utah was part of Mexico. The United States and Mexico signed the Treaty of Guadalupe Hidalgo, and Mexico conveyed what is now Utah and part of several other states to the United States. The United States then managed the newly acquired land as federal territory until new western states were created and federal territory was granted to the newly admitted states. The State of Utah’s federal origin is in contrast to the original thirteen colonies and the resulting states , which existed prior to adoption of the Constitution and creation of the United States. The original thirteen colonies possessed undiminished territorial sovereignty until they agreed to form a central government and ceded certain specific powers to the federal government via the United States Constitution.<sup>462</sup> Stated simply, the original thirteen colonies and the states created therefrom, retained territorial sovereignty except where sovereignty was ceded to the federal government. Conversely, western states, which were created out of lands acquired by the federal government, depend on a grant of land and sovereign authority from the federal government.

Lands acquired by the Treaty of Guadalupe Hidalgo and not granted away remain under federal

ownership and control. The federal government’s power to manage these public lands is set forth in the Property Clause of the United States Constitution, under which Congress has the power to “dispose of and make all needful Rules and Regulations respecting the Territory or other Property belonging to the United States.”<sup>463</sup> Congressional power under the Property Clause “is subject to no limitations” – Congress has an “absolute right” to decide upon the disposition of federal land and “[n]o State legislation can interfere with this right or embarrass its exercise.”<sup>464</sup> “[I]nclusion within a State of lands of the United States does not take from Congress the power to control their occupancy and use . . . and to prescribe the conditions upon which others may obtain rights in them.”<sup>465</sup> With respect to managing wildlife on federal public lands, the Supreme Court has opined that “[t]he argument appears to be that Congress could obtain exclusive legislative jurisdiction over the public lands in the State only by state consent, and that in the absence of such consent Congress lacks the power to act contrary to state law. This argument is without merit.”<sup>466</sup>

The 1996 case of *United States v. Gardner*<sup>467</sup> is illustrative. In *Gardner*, the United States issued a permit to the Gardners to graze cattle on National Forest System lands. The United States then suspended the permit for two years following a wildfire, providing time for vegetation to reestablish. The Gardners did not graze their allotment the first year following the fire but resumed grazing the next year, ignoring an order to remove their cattle and pay fees for unauthorized grazing. The United States brought suit for damages to the range and to enjoin the Gardners from further grazing. The Gardners defended by challenging the federal government’s title to the land, contending that after receiving the land from Mexico via the Treaty of Guadalupe Hidalgo, “the United States was entitled to hold the land in trust for the creation of future states, and was not authorized to retain the land for its own purposes.”<sup>468</sup> The Gardners further contended that under the equal footing doctrine, “a new state must possess the same powers of sovereignty and jurisdiction as did the original thirteen states upon admission to the Union . . . [so] Nevada must have ‘paramount title and eminent domain of all lands

within its boundaries' to satisfy the Equal Footing Doctrine."<sup>469</sup>

The court found the Gardners' arguments unavailing, holding that the "United States [ ] was not required to hold the public lands in Nevada in trust for the establishment of future states. Rather, under the Property Clause, the United States can administer its federal lands any way it chooses, including the establishment of national forest reserves."<sup>470</sup> As for the equal footing doctrine, the court noted that the equal footing doctrine "applies to political rights and sovereignty, not the economic characteristics of the states."<sup>471</sup> The doctrine is not intended to "eradicate all diversity among states but rather to establish equality among the states with regards to political standing and sovereignty."<sup>472</sup> The court also noted that when Nevada obtained statehood, it "forever disclaim[ed] all right and title to the unappropriated public lands lying within said state, and that the same shall be and remain at the sole and entire disposition of the United States."<sup>473</sup> The disclaimer clause simply restated the status quo – that the United States had obtained all the territory in question via the Treaty of Guadalupe Hidalgo, subject to Property Clause management requirements, and was under no obligation to dispose of said lands.<sup>474</sup>

The court turned next to the Gardners' contention that federal ownership of public lands violated the Tenth Amendment to the Constitution<sup>475</sup> by invading the "core state powers reserved to Nevada."<sup>476</sup> The court recognized that under *Kleppe v. New Mexico*: "Absent consent or cession a State undoubtedly retains jurisdiction over federal lands within its territory, but that Congress equally surely retains the power to enact legislation respecting those lands pursuant to the Property Clause."<sup>477</sup> "The State of Nevada, then, was not being unconstitutionally deprived of the ability to govern the land within its borders. The state may exercise its civil and criminal jurisdiction over federal lands within its borders as long as it exercises its power in a manner that does not conflict with federal law."<sup>478</sup>

If *Gardner* had held that the equal footing doctrine demanded conveyance of all public lands to newly admitted states, any landowner tracing title to a post-statehood federal grant would find their

title to be questionable, if not entirely without value. Uncertainty would arise because, under the states' rights theory, the land was never the federal government's to convey.<sup>479</sup> Title to the over 7,000,000 acres (11,000 square miles) of land in Utah that was granted to miners, settlers, and railroads would be called into question and could create a cloud over future land transactions. This cloud would spread to other western states with expansive federal land grants.

Notably, federal public lands are generally exempt from state property taxes, and western states receive significant federal funds to offset the loss of tax base attributable to federal public lands. "Payments in Lieu of Taxes" (PILT) are federal payments to local governments that offset losses in property taxes revenue attributable to nontaxable federal lands.<sup>480</sup> PILT payments are made annually for tax-exempt federal lands, including lands administered by the BLM and USFS.<sup>481</sup> The formula used to compute payments is set by statute and based on population, receipt sharing payments, and the amount of federal land within an effected county.<sup>482</sup> PILT payments are in addition to other federal payments to states, such as rents and royalties from oil and gas leasing, livestock grazing, and timber harvesting. For fiscal year 2009, states received almost \$382,000,000 in PILT payments;<sup>483</sup> the State of Utah ranks third in PILT payments, receiving \$33,063,034.<sup>484</sup> Millard and San Juan counties each received over \$3,000,000; Garfield, Kane, Emery, and Tooele counties each received over \$2,000,000; eight other Utah counties received more than \$1,000,000 dollars.<sup>485</sup> If federal public lands were conveyed to the states, the states would no longer receive PILT funds and would incur additional management expenses. Whether the additional revenue that could be derived from public land development would offset increased state management costs and the lost federal funding is uncertain.<sup>486</sup>

Finally, even if the equal footing doctrine obligated the federal government to equalize grants to states, equalization may be impossible. As the Public Land Law Review Commission noted forty years ago:

To bring all the public land states, past and present, up to the point where each one would have received the same percentage of its area as Louisiana (36.2%) would require the federal government to liquidate every acre of the remaining public domain, including the major conservation programs of the National Park Service, the Forest Service, and the Fish and Wildlife Service. Even then, no state would approach the percentage of the area granted to Florida (64.3%).<sup>487</sup>

The Utah legislature appears to recognize that the federal government owns federal public lands and is no longer pressing arguments that the federal government is only a temporary trustee of the states' lands. During the floor debate, H.B. 143's chief sponsor, Representative Christopher Herrod conceded that "in the Utah Enabling Act . . . we gave up right and title to public land – I do not doubt that."<sup>488</sup> Senate sponsor Stephen Urquhart also appears to not dispute federal ownership of public lands.<sup>489</sup> But as the next section explains, the bill's sponsors do not concede that the United States is free of other obligations to convey federal public lands to the State of Utah.

#### **4.4.3. Obligations to Dispose of Federal Public Lands**

H.B. 324 authorizes the Utah Attorney General to enforce the Utah Enabling Act's provision to return five percent of the proceeds generated from the sale of public lands to the State of Utah.<sup>490</sup> Based on debate surrounding the proposed legislation, it appears the legislature believes the federal government is affirmatively obligated to dispose of federal land.

While the federal government is obligated to pay the state five percent of the proceeds from land sales it chooses to undertake, the federal government is not obligated to pursue any such sales. The "[Federal] Government has, with respect to its own lands, the rights of an ordinary proprietor, to maintain its possession and to prosecute trespassers. It may deal with such lands precisely as a private individual may deal with his farming property. It may sell or withhold them from sale."<sup>491</sup> "[I]t lies in the discretion of the Congress, acting in the public interest, to determine of how much of [its] property it shall dispose."<sup>492</sup>

To the extent that the power of disposition is thus expressly conferred, it is manifest that the Tenth Amendment [recognizing that the states retain all powers not delegated to the federal government] is not applicable. And the Ninth Amendment . . . in insuring

the maintenance of the rights retained by the people, does not withdraw the rights which are expressly granted to the federal government.<sup>493</sup>

The federal government is simply under no obligation to dispose of public lands, and disposal of federal property under the Property Clause “must be left to the discretion of Congress.”<sup>494</sup>

#### **4.4.4. Eminent Domain of Federal Public Lands**

H.B. 143 authorizes the State of Utah to exercise eminent domain authority on property possessed by the federal government.<sup>495</sup> Eminent domain is the power “of a governmental entity to take privately owned property, esp[ecially] land, and convert it to public use, subject to reasonable compensation for the taking.”<sup>496</sup> It is well settled that eminent domain is unavailable against the federal government. As explained by the Kentucky Supreme Court: “The state could never acquire any interest in lands conveyed to the United States because a state cannot take by eminent domain land owned by the United States for governmental purposes.”<sup>497</sup> Two cases involving federal lands in Utah affirm the point.

In *Utah Power & Light Co. v. United States*,<sup>498</sup> appellants constructed dams, reservoirs, pipelines, powerhouses, transmission lines, and associated structures within a National Forest. All of the facilities at issue were constructed without federal permission after Utah obtained statehood. The United States sued to enjoin continued occupancy and use of the federal lands and the power company defended, in part, by asserting that state law should govern the matter. In holding for the United States, the United States Supreme Court stated that “state laws, including those relating to the exercise of the power of eminent domain, have no bearing on a controversy such as is presented here, save as they may have been adopted or made applicable by Congress.”<sup>499</sup> Even where Congress expressly grants eminent domain powers, those powers may not extend to actions against the federal government.<sup>500</sup>

More recently, in *Utah v. Andrus*,<sup>501</sup> the Cotter Corporation, which held leases to develop minerals from beneath SITLA lands, found itself unable to develop the leases without building roads across surrounding federal lands. Cotter constructed roads across federal lands without first notifying

the BLM. The BLM requested that Cotter cease road construction activity, which Cotter did. When Cotter subsequently proposed to resume construction the BLM sued to enjoin Cotter from building roads on federal land. The State of Utah intervened to protect its interest in access to SITLA lands. The court concluded that “Utah does have a right of access to school trust lands. That right is subject to federal regulation when its exercise requires the crossing of federal property. Such regulations cannot, however, prohibit access or be so restrictive as to make economic development competitively unprofitable.” In reaching its conclusion, the court contrasted Cotter’s dilemma to the problem addressed in the Supreme Court’s opinion in *Leo Sheep Co. v. United States*,<sup>502</sup> where the United States had bulldozed a road across non-federal lands in order to obtain access to a reservoir site on federal land. As the court in *Andrus* pointed out, the federal government in *Leo Sheep Co.* “had the power to condemn the land in question. The defendants in this case [including the State of Utah] have no such power.”<sup>503</sup> The court in *Andrus* did not need to discuss the state’s power to condemn federal land in order to resolve the question before it; therefore, its associated comments can be treated as non-binding from a legal point of view.<sup>504</sup> However, in light of the contextual similarities between Cotter’s dilemma and the Utah legislature’s concerns, the court’s observations are of particular relevance, namely that the State of Utah lacks the power to condemn federal lands in order to access inheld SITLA property.

Testimony before the House Natural Resources, Agriculture, and Environment Committee indicates that H.B. 143’s sponsors appear to draw a distinction between lands that the federal government holds in its sovereign or governmental capacity from those it holds in a proprietary capacity.<sup>505</sup> While the comments are ambiguous, H.B. 143’s sponsors appear to recognize that lands held by the United States as sovereign are not subject to eminent domain proceedings, but the sponsors’ may believe that lands held by the United States as a proprietor can be condemned.

Generally, “proprietary capacity” reflects the “capacity of a city or town when it engages in a

business-like venture rather than a governmental function.” “Proprietary functions” include “conduct that is performed for the profit or benefit of the municipality, rather than for the benefit of the general public.”<sup>506</sup> “Governmental functions” reflect a “government agency’s conduct that is expressly or impliedly mandated or authorized by constitution, statute, or other law and that is carried out for the benefit of the general public.”<sup>507</sup> The term proprietary capacity is used in often haphazard ways, however, the United States District Court for the Southern District of Florida has offered a concise explanation: “When the government enters into ordinary contractual relations with its citizens, it may be said to be acting in a proprietary capacity. But when the government seeks to enforce a public right or protect a public interest it is acting in its sovereign capacity and cannot be disabled by the past actions of its officers or agents.”<sup>508 509</sup>

With respect to federal public lands, “all public lands of the nation are held in trust for the people of the United States.”<sup>510</sup> Managing federal public lands for national benefit is a quintessential governmental function, and in the context of leasing federal public lands for oil and gas exploration, there “is no merit to the proposition . . . that the United States, in leasing its public domain, acts in a proprietary capacity.”<sup>511</sup> The Tenth Circuit Court of Appeals, in explaining its holding, quoted its earlier opinion in *United States v. Ohio Oil Co.* to clarify its prior, imprecise use of the term proprietary.

[I]n all of his transactions with the lessee, the Secretary acted for and on behalf of the Government in a proprietary capacity, and that his contractual powers were measured by the basic enabling Act and the amendments thereto. He was specifically authorized to contract on behalf of the Government with its citizens, and in so doing, he was fulfilling the Constitutional power of Congress to dispose of, and make all needful regulations respecting, the territory of the United States. His powers were not strictly ministerial. He was charged with safeguarding the public interest, and was thus authorized not only to execute a naked lease contract, but was also originally authorized to prescribe necessary and proper rules and regulations to accomplish the purpose of the Act as amended.<sup>512</sup>

This language, the Tenth Circuit explained, demonstrates that “in executing an oil and gas lease to a portion of its public domain, [the federal government] is performing a governmental function, not a proprietary function.”<sup>513</sup> Public land management is a governmental function, and even in using the

phrase “proprietary capacity,” the court was referring to governmental functions.

Since public land management is intended to advance the public interest, the federal government conducts activities occurring on or involving federal public lands in its sovereign capacity. This protection of the public interest is exemplified by FLPMA’s charge to advance the “national interest” through careful planning and management<sup>514</sup>—planning that “consider[s] present and potential uses of the public lands,”<sup>515</sup> “give[s] priority to the designation and protection of areas of critical environmental concern,”<sup>516</sup> “consider[s] the relative scarcity of the values involved,”<sup>517</sup> and “weigh[s] the long-term benefits to the public against short-term benefits.”<sup>518</sup> FLPMA also sets forth objectives such as: receiving fair market value for the use of public lands; responding to the “Nation’s needs for domestic sources of minerals, food, timber, and fiber . . .”; and preserving and protecting, where appropriate, “the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resources, and archaeological values.”<sup>519</sup> These functions protect and advance the public’s interest, and therefore fall squarely within the federal government’s sovereign authority.

#### **4.4.5. Enclave Clause Claims**

H.B. 143’s sponsors may also be attempting to use the United States Constitution’s Enclave Clause to distinguish between classes of federal lands.<sup>520</sup> The Enclave Clause reserves to the federal government the power:

To exercise exclusive Legislation in all Cases whatsoever, over such District . . . as may, by Cession of particular States, and the Acceptance of Congress, become the Seat of the Government of the United State, and to exercise like Authority over all Places purchased by the Consent of the Legislature in which the Same shall be, for the Erection of Forts, Magazines, Arsenals, dock-Yards, and other needful Buildings.<sup>521</sup>

Federal enclaves represent “less than one percent of federal land”<sup>522</sup> and are limited to the District of Columbia and state lands ceded to the federal government. Federal public lands within Utah are not federal enclaves because the lands in question were not purchased from the state by the United States, but were acquired by the United States via the Treaty of Guadalupe Hidalgo. The Supreme Court left

little doubt as to the Enclave Clause's inapplicability to public lands when it explained: "The United States has large bodies of public lands. These properties are used for forests, parks, ranges, wild life sanctuaries, flood control, and other purposes which are not covered by [the Enclave Clause ]."<sup>523</sup>

While the Utah legislature is committed to improving access to SITLA inholdings, its latest efforts to do so are of questionable legal merit and are unlikely to improve access to unconventional fuels. At their core, the State of Utah's grievances reflect divergent objectives best addressed through the political process. However, H.B. 143 and H.B. 324 move the dispute out of the political arena and may do more harm than good by undermining the relationship between SITLA and the federal government.

#### **4.5. THE LIMITS OF THE FEDERAL GOVERNMENT'S POWER OF CONDEMNATION**

The United States Constitution prohibits the taking of private property for public use without payment of just compensation,<sup>524</sup> but the federal government has other means of acquiring land. FLPMA authorizes the SOI to acquire public lands, and expressly includes the power of eminent domain.<sup>525</sup> FLPMA, however, limits the BLM's condemnation power to "secur[ing] access to public lands, and then only if the lands so acquired are confined to as narrow a corridor as is necessary to serve such a purpose."<sup>526</sup> The BLM, therefore, can condemn routes across non-federal lands, but the BLM cannot rely on eminent domain powers to consolidate control over oil shale and oil sands resources. Lacking the power to unilaterally take control over oil shale and oil sands resources, the BLM's best option for consolidating ownership appears to involve the voluntary exchange of equivalently valued lands. As with the discussion of land exchanges, uncertainty regarding the value of oil shale and oil sands resources would stand as a substantial barrier to valuing the parcels at issue. Even if value could be ascertained, federal appropriations would be required for compensation payments, and current fiscal conditions make such large appropriations less likely.

#### **4.6. FEDERAL LEGISLATION IMPACTING RESOURCE ACCESS**

Attempts to expand state control over federal public lands are not limited to Utah's state

legislators. On May 19, 2010, United States Representative Jason Chaffetz introduced H.R. 5339, which would compel the federal government to sell some 132,000 acres (over 206 square miles) of public land in Utah and more than 3,000,000 acres (almost 4,690 square miles) in the western United States. The lands subject to sale were identified by the DOI pursuant to the 1996 Agriculture Reform Act<sup>527</sup> as suitable for sale or exchange to fund restoration of the Florida Everglades. Lands were identified based on the BLM's management plans and exclude: (1) lands currently subject to withdrawals; (2) "[l]ands contained in Recreation and Public Purpose applications, identified for state selection, Native American allotments, or local government purposes;" and (3) lands subject to existing exchange agreements.<sup>528</sup> The 1997 report identifying lands as suitable for disposal indicates the number and total acreage of parcels by county, but does not otherwise describe their location. Notably, the report also states that "many lands identified appear to have conflicts which may preclude them from being considered for disposal or exchange. . . . Conflicts include high disposal costs, critical natural or cultural resources and habitat, mineral claims and leases and hazardous conditions."<sup>529</sup>

Representative Chaffetz's bill did not emerge from committee before close of the 110th Congress and is unlikely to make much headway in its current form if reintroduced in the 111th Congress. Even if amended, the bill may not result in significant additional lands becoming available for oil shale and oil sands development. First, it is unclear which, if any, of the parcels identified in the 1997 report contain valuable oil shale and oil sands deposits. Second, lands subject to withdrawal are specifically excluded, and as of 1997, most public lands containing oil shale were still subject to withdrawal.<sup>530</sup> The broadest of these withdrawals have been rescinded, but treatment of post-1997 rescissions is not addressed in Representative Chaffetz's bill. Finally, the 1997 report appears to be little more than a list of parcels identified as available for disposal in then-current BLM management plans. Many of these plans have since been amended or replaced, including the plans covering eastern Utah. It is unlikely that Congress would proceed with disposal based Representative Chaffetz's bill given that it relies on

outdated assessments.

#### **4.7. THE REBIRTH OF ECOSYSTEM MANAGEMENT**

Ecosystem management refers to any cross-jurisdictional, landscape-level land and resource management strategy by which a full range of ecosystem functions is maintained while allowing for the desired range of resource production. Ecosystem management rose to prominence in the late 1980s and early 1990s when, at presidential direction, six federal agencies came together to develop coordinated management for lands within the range of the northern spotted owl.<sup>531</sup> Often easier to aspire to than implement, ecosystem management has not always lived up to its billing, but a reemergence has the potential to improve management coordination and shape the regulatory environment for oil shale and oil sands development. This section reviews several new planning efforts that incorporate ecosystem management and that could impact oil shale and oil sands development.

A recently released BLM memo demonstrates the growing recognition of the need to plan beyond jurisdictional boundaries. As the BLM explained:

The BLM recognizes that many problems and ecosystem considerations have a natural scale, and that its land-management decisions have ramifications beyond their immediate effect on BLM lands. Certain uses (such as the quality of air in a particular airshed, or the decline of sage grouse populations in a particular region) may be best assessed, not within the confines of an artificial planning boundary, but on scales that are suggested by the physical and biological features at issue (at the airshed, or regional sage grouse habitat levels, for example). The BLM is just beginning to use and rely on a set of “eco-regional assessments” that are designed, in part, to enable the BLM to meaningfully engage with problems and ecosystems that cross planning-boundary lines. As the BLM looks to the next quarter century, it proposes to make increasing use of its eco-regional assessments tool.<sup>532</sup>

The BLM is currently preparing Rapid Ecoregional Assessments (REAs) – landscape-level evaluations designed to identify areas of high ecological value within an ecoregion that may warrant conservation, adaptation, or restoration. REAs focus on areas facing pressure from climate change, wildfire, invasive species, and land use. REAs are intended to allow the BLM to address broad-scale issues that cross traditional administrative boundaries, and facilitate development of ecoregional

conservation strategies for native plant, wildlife, and fish communities on public lands. REAs are also intended to facilitate planning, environmental analysis, and decision-making for other regional resource values and uses.<sup>533</sup>

The USGS is developing the DOI's response to climate change through its National Climate Change and Wildlife Science Centers. Because climate change impacts occur at a very broad scale, federal, state, and tribal science and management agencies, academic institutions, non-governmental organizations, and others interested in wildlife conservation are involved in designing the center. Coordination of interagency and interorganizational efforts from across the country is needed for timely forecasting of responses at multiple spatial and temporal scales.<sup>534</sup>

The USF&WS is developing Landscape Conservation Cooperatives (LCCs). LCCs are science-management partnerships that inform integrated resource management actions within and across landscapes. LCCs include federal, state, tribal, local government, and non-governmental management organizations involved in land, water, wildlife and cultural resource management as well as interested public and private organizations.<sup>535</sup>

The Western Governors' Association's (WGA) ecosystem based Wildlife Council Pilot Projects is a regional decision support system for protecting crucial wildlife habitat and corridors across the region. Pilot Projects are intended to ensure that wildlife and local economies remain viable, and that each participating state applies common definitions for crucial habitat and wildlife corridors and coordinates its wildlife data with neighboring states. Landscape-scale mapping will improve understanding of potential impacts to crucial wildlife habitat and migration corridors, identifying opportunities to minimize impacts to wildlife while still pursuing development.<sup>536</sup>

The USFS is developing a new ecosystem based planning rule that recognizes watersheds, wildlife habitat, water resources, and wild lands extending across broad landscapes of varying ownerships and jurisdictions. Understanding and considering the plans and goals for surrounding land

managers is a key component of the new rule and will enhance National Forest System management. Where common goals exist, USFS management may be able to complement or contribute to shared goals; where management goals depart, USFS management should be informed by outside activities.<sup>537</sup> In Utah, the State Division of Wildlife Resources and other state agencies are partnering with the USGS, USF&WS, BLM, WGA, and USFS to ensure that state interests are addressed in ecosystem planning efforts.

A direct benefit of increased ecosystem planning is improved communication and coordination between state and federal agencies. Absent coordination, any of the major oil shale or oil sands resource owners could initiate development projects that compromise adjacent resource management. Such uncoordinated development could increase habitat fragmentation, prompt redundant infrastructure development, and impose indirect impacts on adjacent lands and resources. Where limited or sensitive resources such as water, wildlife, or air quality related values stand as limits to development, uncoordinated and inefficient development could indirectly constrain a commercial-scale oil shale and oil sands industry. It is therefore important to engage prospective oil shale and oil sands developers in new planning efforts, given their ability to shape the nascent unconventional fuels industry.

These parallel ecosystem management efforts are not without critics. The State of Utah, with the concurrence of Arizona, California, and Nevada recently expressed concern over what it described as the “great disconnect” between parallel planning efforts, noting that the lack of coordination between lead agencies is likely to result in duplicative and contradictory recommendations.<sup>538</sup> While multiple agency representation on each of the planning efforts is valuable, ecosystem planning must go beyond consultation between agencies if it is to yield meaningful coordination and integration. Current planning efforts, while laudable for their efforts to improve communication between agencies, fall short in terms of integration. Efforts to develop a common baseline of information by establishing common data

definitions, survey protocols, and planning methodologies are an important threshold for developing ecosystem descriptions that are compatible across projects. Furthermore, planning efforts must identify common objectives in order to ensure foster proactive solutions to conflicting agency mandates.

The recent economic downturn and associated reductions in tax revenues have left most state wildlife managers with dramatically shrunken budgets. The challenges of these budget constrictions are compounded by increased calls to cooperate with federal partners, something must give. State agencies may lack the resources to contribute to ecosystem planning efforts as an equal partner, and dedicating resources to ecosystem management may force agencies to reduce staffing elsewhere. Where resource manager input plays a critical role in development permitting, industry would benefit from establishing cooperative partnerships to support needed research and planning efforts.

## **5. CONCLUSION AND RECOMMENDATIONS**

Utah's oil shale and oil sands resources are massive in size and scope – too big to be ignored. More precisely, a decision to ignore the potential of oil shale and oil sands is unlikely to be shared by all, and those that choose to engage could make decisions that directly impact those who defer action. This reality does not advocate for or against development, but instead advocates for thoughtful, coordinated planning and decision-making.

While conventional wisdom holds that the federal government controls the fate of oil shale and oil sands development, this does not appear to be the case within Utah. Several different entities could drive development; and they could do so in different ways and with different consequences. While the federal government is the largest single owner of oil shale and oil sands resources within Utah, SITLA, private interests, and the Ute Indian Tribe each control expansive oil shale resources. Likewise, while the BLM manages the majority of land within congressionally designated STSAs, SITLA, private entities, and the Ute Indian Tribe also control sizeable resources and are each the principal owner within one STSA.

Each of these entities operates under different management objectives and through different regulatory programs. The BLM, which operates under a multiple-use sustained-yield mandate has embraced a cautious approach while SITLA is focused on maximizing economic returns, and the State of Utah is an aggressive promoter. Reconciling different management objectives across fragmented ownership poses a major challenge. If the various interests can be brought together and can coordinate successfully, the result could be effective investigation of resource potential and management that drives best-of-class technologies. If uncoordinated, opportunities could be lost or development could occur in haphazard ways that result in higher levels of impact, creating a race to the bottom.

While non-federal resources are scattered throughout the Uinta Basin, large blocks of SITLA and private lands are located along the Mahogany Outcrop, in areas that could be developed using surface

mining methods. Oil shale located along the edge of the Mahogany Outcrop is also not subject to the intensive natural gas development that is occurring in areas with deeper overburden. If natural gas displaces oil shale development and federal lands remain unavailable for development, the indirect effect may be to encourage development of areas available for surface mining. These are precisely the kinds of decisions that all of the interested parties should be engaged in addressing.

Efforts to improve access to resources are necessary to provide for coordinated development. While recent effort has been expended on legislation and threats of litigation, land exchanges and negotiated access agreements appear to be more effective measures. The reemergence of planning efforts that are based on resources rather than narrow jurisdictional interests hold promise, but success will turn on whether sustained and meaningful collaboration replaces mere consultation.

**APPENDIX A**  
**PROCESS USED TO ASSESS RESOURCE OWNERSHIP AND AREAS SUSCEPTIBLE TO SURFACE MINING**

Three spatial analyses were performed for this report: (1) calculation of acreage of land surface ownership within the Uinta Basin and Most Geologically Prospective Area (MGPA), (2) calculation of acreage of land surface ownership overlaying the 25 gallon per ton (GPT) richness zone, and (3) calculation of acreage of land surface ownership within the Utah Special Tar Sand Areas. Geographic information systems (GIS) software was utilized for the analyses, and the specific methodology is discussed below.

The surface ownership dataset used for all calculations, "State of Utah Land Ownership and Areas of Responsibility," was obtained from Utah Automated Geographic Reference Center (AGRC). The data is current as of June 1, 2010, and does not reflect the changes to land ownership that resulted from the Utah Recreational Land Exchange Act (Pub. L. 111-053) (URLEA). To compute surface ownership post land exchange, a second ownership dataset was created which reflects these changes. This post-land exchange ownership dataset was created by combining the land exchange dataset, "Recreational Exchange Act of 2009," provided by the State of Utah School and Institutional Trust Lands Administration (SITLA) and the ownership dataset from AGRC.

Calculation of acreage of land surface ownership within the MGPA (determined by the DOI) was performed using the MGPA dataset published on the Oil Shale and Tar Sands Programmatic EIS Information Center. This dataset consists of one polygon, as illustrated in Figure 2 of this report. To calculate surface ownership acreage, the pre- and post-land exchange ownership dataset were clipped to the extent of the MGPA polygon. Then acreage was tabulated for each surface owner type within these clipped dataset.

Calculation of acreage of land surface ownership within the Uinta Basin 25 GPT richness zone was performed using spatial data published in the Utah Geological Survey's BASIN-WIDE EVALUATION OF THE UPPERMOST GREEN RIVER FORMATION'S OIL-SHALE RESOURCE, UINTA BASIN, UTAH AND COLORADO, by Michael D.

Vanden Berg, Special Study 128 (SS-128) (2008). One of the datasets published in SS-128 depicts the thickness intervals (isopachs) of the 25 GPT oil shale richness zone. This dataset is illustrated in Figure 2 of the report. Because only that portion of the 25 GPT richness zone that is greater than five feet in thickness was considered for this analysis, the dataset was clipped to remove the zero to five foot thickness region, resulting in a final dataset which depicts those portions of the 25 GPT zone which are greater than five feet thick.

Another dataset published in SS-128 depicts the overburden thickness above the 25 GPT richness zone. Overburden thickness (depth to the top of the 25 GPT zone) is illustrated with lines of equal thickness (contours) in this dataset, with a contour interval of 1,000 feet. However, in order to determine which portions of the 25 GPT zone would be theoretically recoverable via ex-situ methods (i.e. less than 500 feet of overburden), creation of contours at an interval of 500 feet were necessary. To create the 500-foot interval overburden contours, raster datasets representing the surface of the 25 GPT zone and the ground surface above this zone were obtained from Michael Vanden Berg of the Utah Geological Survey. These two raster datasets were spatially subtracted to result in a raster dataset that represents thickness of the overburden above the 25 GPT zone. Overburden contours were then recomputed at a 500 foot interval. The resulting 500 foot interval overburden dataset was smoothed, and the 500 foot and 3,000 foot contour lines were isolated to form the final overburden dataset consisting of two lines which define that region of the 25 GPT richness zone that has 0-500 feet of overburden, 500-3,000 feet of overburden, and > 3,000 feet of overburden.

The two datasets described above (thickness and overburden) were then spatially combined to define those areas of the 25 GPT richness zone that could theoretically be recovered by in-situ methods (> 5 feet thick, 500-3,000 feet of overburden) and by ex-situ methods (>5 feet thick, <500 feet of overburden). These two regions were then combined with the pre- and post-URLEA ownership datasets to compute acreage in these regions.

Calculation of acreage of land surface ownership within the Utah Special Tar Sand Areas (STSAs) was performed using the tar sand areas dataset published by published the Oil Shale and Tar Sands Programmatic EIS Information Center. This dataset is illustrated in Figure 5 and Figure 6 of this report. The pre- and post-land exchange ownership datasets were clipped to the extent of each of the individual polygons that make up the STSA dataset. These clipped regions were then used to calculate and tabulate acreage within the STSAs for each category of landowner.

**APPENDIX B**  
**UINTAH AND OURAY RESERVATION – TIMELINE OF IMPORTANT EVENTS**

- **1844** The Fremont Expedition conducts the first official survey of lands occupied by the Utes and encourages white settlement.
- **July 24, 1847** Mormon pioneers arrive in the Salt Lake Valley.
- **Feb. 2, 1848** Treaty of Guadalupe Hidalgo transfers lands occupied by the Utes from Mexico to the United States. 9 Stat. 922.
- **Dec. 30, 1849** Treaty with Utah acknowledges that the Ute People are subject to the jurisdiction of the United States Government, promises peace, promises that the Ute People will confine themselves to their homelands, and that the United States will provide assistance to the Ute People as the U.S. deems appropriate. 9 Stat. 984-86. The treaty is ratified by Congress on Sept. 9, 1850.
- **Feb. 1851** Utah Territorial Indian Agency established by Congress.
- **1854** Peace agreement between Brigham Young and Ute Chief Wakara. Brigham Young was not authorized to enter into a treaty on behalf of the federal government and the Agreement was not ratified by Congress. FRED A. CONETAH, A HISTORY OF THE NORTHERN UTE PEOPLE 51-54 (Kathryn L. MacKay and Floyd A. O’Neil, eds., 1982).
- **Oct. 3, 1861** Executive Order by President Lincoln designates the Uintah Valley as a reservation for the Utes. Reservation boundaries defined as the entire valley of the Uinta River (now called the Strawberry River) within the Utah Territory. INDIAN AFFAIRS: LAWS AND TREATIES 900 (Charles J. Kappler, ed., 1904).
- **June 8, 1865** Spanish Fork Treaty provides that the Ute People cede all right, title and interest in their lands in Utah and move to the Uintah Valley Reservation in return for cash payments. The treaty was not ratified by Congress and payments were not made, but many Utes moved or were forcibly relocated. CONETAH at 54-55; Ute Indian Tribe v. State of Utah 521 F. Supp 1072, 1095 (D. Utah 1981).
- **March 6, 1880** Uncompahgre and White River Utes sign removal agreement, which Congress ratifies on June 15, 1880. Ch. 23, 21 Stat. 199-205. Under the Agreement, the White River Utes from Colorado are removed to the Uintah Valley Reservation. The 1880 agreement allowed the Uncompahgre Utes to settle upon agricultural lands on the Grand River (Colorado River) near the mouth of Gunnison River in Colorado, and other unoccupied agricultural lands in that vicinity and in the territory of Utah. Ultimately, a federal commission selected a rectangular area of land in eastern Utah, bordering Colorado, for the Uncompahgre Utes. See Rept. of the Comm. of Ind. Aff., 1881, at 37. In 1882, this area was formally set aside as the Uncompahgre Indian Reservation. This area was described as “a wild and ragged desolation.” H.Rep.No.3305, 51st Cong. 2d Sess. 4 (1890).
- **Jan. 5, 1882** Executive Order by President Arthur sets apart lands within the Green River and White River basins, southwest of the original Uintah Valley Reservation, for the Uncompahgre Indian Reservation. INDIAN AFFAIRS: LAWS AND TREATIES at 901.
- **Sept. 1, 1887** Executive Order withdraws certain reservation lands in order to create the Fort Duchesne Military Reservation.
- **May 24, 1888** The “Gilsonite Strip” (7,040 acres) is removed from the reservation and returned to the public domain, with all monies arising from the sale of these lands returned to the Indians of

the Uintah Valley Reservation. Ch. 310, 25 Stat. 157.

- **July 16, 1894** Congress passes the Utah Enabling Act, setting forth the provisions under which Utah can enter the Union. 28 Stat. 107-12.
- **Aug. 15, 1894** Indian Appropriations Act authorizes a commission “to allot in severalty to the Uncompahgre Indians within their reservation, in the Territory of Utah, agricultural and grazing lands according to the treaty of [1880]. . . .” Ch. 20, 28 Stat. 286, 337-38, Sect. 20. The Act also required the commission to report to the Secretary of the Interior portions of the reservation that are unsuited for allotment and therefore should be restored to the public domain. Sect. 20. After approval of the allotments, the remainder of the Reservation was opened to entry under the homestead and mineral laws. Sect. 21. The commission also negotiated with the Indians residing on the Uintah Indian Reservation for the relinquishment of all lands not needed for allotment. Any agreement with the Uintah Indians was to be reported and become operative only when ratified by Congress. Sect. 22. However, the Uintah and White River Utes were opposed to allowing allotments and refused to cede any of their lands to the government. Ultimately the Commission’s efforts to carry out the 1894 Act failed and it was relieved of its duties on February 4, 1896.
- **January 4, 1896** Utah becomes the 45th state to join the Union.
- **June 7, 1897** Congress enacts provisions mandating the allotment and opening of the Uncompahgre Reservation. Ch. 3, 30 Stat. 62. The Act required the Secretary of the Interior to allot agricultural lands to the Uncompahgre Ute Indians and to open all lands not allotted unless they contained minerals. No allotments were made before the land was opened to settlement, though Congress confirmed 83 allotments by separate legislation, and the Act extinguished the Uncompahgre Reservation. *Ute Indian Tribe v. State of Utah* 716 F.2d 1298, 1306-07 (10th Cir. 1983).
- **April 1, 1898** Pursuant to the 1897 Act, the Uncompahgre Reservation, excluding mineral entry, is opened to homesteaders before the remaining lands become public domain.
- **June 4, 1898** President is authorized and directed to create a commission to make allotment to Indians upon the Uintah Indian Reservation and to cede all unallotted lands to the United States. Ch. 376, 30 Stat. 429.
- **May 27, 1902** Indian Appropriations Act authorizes the SOI, with consent of the Uintah and White River Bands, to allot the Uintah reservation prior to October 1, 1903. Ch. 888, 32 Stat. 245, 263-264; *see also* 35 Cong. Rec. 6069 (1902). Surplus unallotted lands are restored to the public domain after October 1. The Act does not impair the rights of any mineral lease approved by the Secretary of the Interior.<sup>539</sup> The 1902 Act was not executed until funding was provided in the Indians Appropriations Act of March 3, 1903. Ch. 994, 32 Stat. 982, 997-998.<sup>540</sup> Indian consent was never obtained to the opening of the Uintah Reservation.<sup>541</sup>
- **March 3, 1903** Act reiterates 1902 Act’s direction to allot the Uintah reservation, subject to the consent of the Uintah and White River Bands, with surplus unallotted lands being restored to the public domain. Ch. 994, 32 Stat. 982, 997-98. The Uintah and White River Bands did not consent to allotment.
- **April 21, 1904** Act extends the deadline for allotting the Uintah reservation, subject to the consent of the Uintah and White River Bands, as set forth in the 1902 and 1903 acts. Ch. 1402, 33 Stat. 189, 207-08. The Uintah and White River Bands did not consent to allotment.
- **March 3, 1905** Indian Appropriations Act includes provisions providing for inclusion of Uintah

Valley Reservation timberlands in the Uintah Forest Reserve. Act also authorizes allotment, by Presidential proclamation, without first obtaining the consent of the Uintah and White River Bands. Ch. 1479, 33 Stat. 1048. The Act also opened certain unallotted lands under the homestead and town-site laws.<sup>542</sup>

- **July 14, 1905** Presidential Proclamations of July 14 (34 Stat. pt. 3, 3119) and July 31 (34 Stat. pt. 3, 3139) mirrored the terms of the 1905 Act and opened the Uinta Reservation for entry on August 28, 1905, without consent of the Uintah and White River Bands. From a reservation area of over 2 million acres, 1,010,000 acres were added to the Uintah Forest Reserve; 2,100 acres designated in townsites; 60,260 acres set aside for reclamation and reservoir purposes; 2,140 acres entered as mining claims; and 1,004,285 opened to homestead entry. Rept. of the Comm. of Ind. Aff., 1905, JX 323, at 501.
- **July 20, 1905** Executive Order (as amended on July 21, 1905) withdrew from availability for location and settlement certain unallotted lands that were previously within the reservation. Lands are withdrawn to protect water supplies.
- **Aug. 3, 1905** Presidential Proclamation sets aside lands for conservation of water supplies for Indians and for general agricultural development. 34 Stat. pt. 3, 3141.
- **May 4, 1909** The SOI issues orders withdrawing from availability for location and settlement certain unallotted lands that were previously within the reservation. Lands are withdrawn in order to facilitate water project development.
- **April 4, 1910** Congress appropriates approximately 56,000 acres of lands reserved in the Strawberry Valley for a federal water project. All right, title and interest of the Indians in the reservoir lands was extinguished. Ch. 140, 36 Stat. 269, 285.
- **Jan. 23, 1912** Executive Order withdraws from availability for location and settlement certain unallotted lands that were previously within the reservation. Withdrawn lands are dedicated to for hydroelectric power site development.
- **May 11, 1915** Executive order establishes Phosphate Reserve No. 24, Utah No. 3 on unallotted lands that were previously within the reservation.
- **July 28, 1916** The DOI issues orders temporarily withdrawing from availability for location and settlement certain unallotted lands that were previously within the reservation. Lands are withdrawn for reclamation purposes.
- **Dec. 16, 1916** President Taft issues an Executive Order withdrawing from availability for location and settlement approximately 90,000 acres of unallotted lands that were previously within the reservation. Lands are withdrawn to create Naval Oil Shale Reserve No. 2.
- **Oct. 18, 1918** The DOI issues orders temporarily withdrawing from availability for location and settlement certain unallotted lands that were previously within the reservation. Lands are withdrawn for reclamation projects.
- **Sept. 20, 1920** The DOI issues orders temporarily withdrawing from availability for location and settlement certain unallotted lands that were previously within the reservation. Lands are withdrawn for reclamation projects.
- **June 18, 1934** Congress passes the Wheeler-Howard Act (Indian Reorganization Act). Ch. 576, 48 Stat. 984.
- **1937** The Ute Tribe reorganizes themselves and is officially formed under the Indian

Reorganization Act.

- **Aug. 25, 1945** The SOI issues an Order of Restoration to restore tribal ownership to unallotted acreage (approximately 217,000 acres) within the Uintah and Ouray Reservation that remained unentered. 10 Fed. Reg. 12409.

A formal opinion by the DOI Solicitor concluded that the order restored tribal ownership to the mineral estate underlying fee-patented lands as well as to the unallotted and unappropriated lands of the reservation. 59 I.D. 393, 396 (1947).

- **March 11, 1948** Congress extends the Uintah and Ouray Reservations to include approximately 1/3 of lands situated within boundaries of the former Uncompahgre Reservation (“Hill Creek Extension”). Pub.L. 80-440, 62 Stat. 72. Title to the Hill Creek Extension was restored via purchase using tribal funds.
- **Jan. 20, 1953** Orders of July 28, 1916, October 18, 1918, and September 20, 1920 withdrawing lands for reclamation purposes are revoked in so far as they affect unallotted lands and approximately 15,000 acres of land are returned to the Uintah and Ouray Reservation. 18 Fed. Reg. 426-27.
- **June 29, 1956** The SOI issues an order restoring to the Uintah and Ouray Reservation approximately 5,360 acres previously dedicated to water and power projects. 21 Fed. Reg. 5015-16.
- **July 14, 1956** Congress restores the mineral estate beneath 36,000 acres of National Forest lands to the Ute Indian tribe. Ch. 603, 70 Stat. 546-49.
- **Oct. 1, 1959** The SOI issues an order restoring to the Uintah and Ouray Reservation approximately 9,803 acres previously dedicated to water projects, military reservations, and other purposes. 24 Fed. Reg. 8175.
- **December 4, 2000** Under the National Defense Authorization Act of 2000, Natural Oil Shale Reserve No. 2 (88,890 acres in Carbon and Uintah counties) is returned in fee to the Ute Indian Tribe. Pub.L. 106-398. President Taft originally set the Reserve aside in 1916.

## BIBLIOGRAPHY AND LIST OF AUTHORITIES

### BIBLIOGRAPHY

16 C.J.S. CONSTITUTIONAL LAW § 613 (2010).

38 AM. JUR. 2D *Gas and Oil* § 110 (2010).

57 AM. JUR. 2D *Municipal, etc., Tort Liability* § 47 (2009).

72 AM. JUR. 2D *States, Etc.* § 19 (2010).

Christopher M. Alspach, *Surface Use by the Mineral Owner: How Much Accommodation is Required under Current Oil and Gas Law*, 55 OKLA L. REV. 89 (2002).

E-mail from John W. Andrews, Associate Director/Chief Legal Counsel, Utah School & Institutional Trust Lands Administration, to John Ruple, Research Associate/Stegner Center Fellow, Univ. of Utah Inst. for Clean and Secure Energy (August 30, 2010, 9:41:08 AM MDT) (on file with authors).

John W. Andrews, *Swapping With the Feds: An Updated Look at Federal Land Exchanges*, 51 ROCKY MTN. MIN. L. INST. 8 (2004).

AuroSource, Inc., Technology Summary, <http://www.aurasourceinc.com/AuraFuel.htm>.

Martin Averill, *States Differ on Surface Rights*, ENERGY LITIGATION – ABA (Summer 2008).

JAMES T. BARTIS ET AL., OIL SHALE DEVELOPMENT IN THE UNITED STATES: PROSPECTS AND POLICY ISSUES (Rand Corp. 2005).

MICHAEL BEAN AND MELINDA ROWLAND, THE EVOLUTION OF NATIONAL WILDLIFE LAW (3d ed. 1997).

ROBERT E. BLACKETT, UTAH GEOLOGICAL SURVEY, TAR-SAND RESOURCES OF THE UINTAH BASIN, UTAH (1996).

BLACK'S LAW DICTIONARY (8th ed. 2004).

Michael W. Brown, *Coalbed Methane in Utah: Designing a Successful Approach*, 26 J. LAND RESOURCES & ENVTL. L. 357 (2006).

BUREAU OF INDIAN AFFAIRS, DEP'T OF THE INTERIOR, MINERAL & DEVELOPMENT GUIDE VOL. 1, HOW TO DO BUSINESS ON THE UINTAH & OURAY RESERVATION (2006).

BUREAU OF LAND MGMT., DEP'T OF INTERIOR, APPROVED RESOURCE MANAGEMENT PLAN AMENDMENTS AND RECORD OF DECISION FOR PROPOSED OIL SHALE AND TAR SANDS RESOURCE MANAGEMENT PLAN AMENDMENTS TO ADDRESS LAND USE ALLOCATIONS IN COLORADO, UTAH, AND WYOMING AND FINAL PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT (2008).

Bureau of Land Management, Dep't of the Interior, Press Release: BLM Advances Oil Shale Research Process (Oct. 13, 2010).

Bureau of Land Mgmt., Dep't of the Interior, Draft Discussion Paper, *Treasured Landscapes: Our Vision Our Values* 8 (2010).

Bureau of Land Mgmt., Dep't of the Interior, Environmental Notification Bulletin Board, <http://www.blm.gov/ut/enbb/search.php>.

BUREAU OF LAND MGMT., DEP'T OF THE INTERIOR, ENERGY POLICY ACT OF 2006 - SECTION 1835 SPIT ESTATE FEDERAL OIL AND GAS LEASING AND DEVELOPMENT PRACTICES, A REPORT TO CONGRESS (2006).

BUREAU OF LAND MGMT., DEP'T OF THE INTERIOR, GOLD BOOK: SURFACE OPERATING STANDARDS AND GUIDELINES FOR

OIL AND GAS EXPLORATION AND DEVELOPMENT (4th ed. 2007).

BUREAU OF LAND MGMT., DEP'T OF THE INTERIOR, LAND USE PLANNING HANDBOOK H1601-1 (2005).

BUREAU OF LAND MGMT., DEP'T OF INTERIOR, MONTICELLO FIELD OFFICE APPROVED RESOURCE MANAGEMENT PLAN AND RECORD OF DECISION (2008).

BUREAU OF LAND MGMT., DEP'T OF THE INTERIOR, PRICE FIELD OFFICE APPROVED RESOURCE MANAGEMENT PLAN AND RECORD OF DECISION (2008).

Bureau of Land Mgmt., Dep't of the Interior, Rapid Ecoregional Assessment, [http://www.dmg.gov/documents/BR\\_Rapid\\_Ecoregional\\_Assessment\\_BLM\\_102809.pdf](http://www.dmg.gov/documents/BR_Rapid_Ecoregional_Assessment_BLM_102809.pdf).

BUREAU OF LAND MGMT., DEP'T OF THE INTERIOR, SEEP RIDGE ROAD PAVING PROJECT ENVIRONMENTAL ASSESSMENT (2009).

BUREAU OF LAND MGMT., DEP'T. OF THE INTERIOR, SOLID MINERAL PROGRAMS ON THE NATION'S FEDERAL LAND: MINIMIZING THE HUMAN 'FOOTPRINT' ON THE LANDSCAPE (2010).

Bureau of Land Mgmt., Dep't of the Interior, Split Estate, [http://www.blm.gov/wo/st/en/prog/energy/oil\\_and\\_gas/best\\_management\\_practices/split\\_estate.html](http://www.blm.gov/wo/st/en/prog/energy/oil_and_gas/best_management_practices/split_estate.html).

Alan K. Burnham, Lawrence Livermore Nat'l Lab., & James R. McConaghy, Antero Energy, LLC, *Comparison of the Acceptability of Various Oil Shale Processes*, Colorado School of Mines' 26th Oil Shale Symposium (2006).

CANADIAN ASS'N OF PETROLEUM PRODUCERS, TECHNICAL REPORT, STATISTICAL HANDBOOK FOR CANADA'S UPSTREAM PETROLEUM INDUSTRY (2009).

Julie Cart, *Energy Dispute Over Rockies Riches*, LOS ANGELES TIMES Dec. 28, 2008.

R. MCGREGGOR CAWLEY, FEDERAL LAND, WESTERN ANGER: THE SAGEBRUSH REBELLION AND ENVIRONMENTAL POLITICS (1993).

THOMAS C. CHIDSEY, JR., ET AL., UTAH GEOLOGICAL SURVEY, OIL AND GAS FIELDS MAP OF UTAH (Feb. 2005 ed.)

GEORGE CAMERON COGGINS ET AL., FEDERAL PUBLIC LAND AND RESOURCES LAW (5th ed. 2002).

Memorandum from Bonnie R. Cohen, U.S. Department of the Interior, Assistant Secretary - Policy, Management and Budget to Don Young, Chairman, House Committee on Resources (May 27, 1997).

COHEN'S HANDBOOK OF FEDERAL INDIAN LAW (2009).

Paul Conable, Comment, *Equal Footing, County Supremacy, and the Western Public Lands*, 26 ENVTL. L. 1263 (1996).

FRED A. CONETAH, A HISTORY OF THE NORTHERN UTE PEOPLE (Kathryn L. MacKay and Floyd A. O'Neil, eds., 1982).

Conference of Western Attorneys General, AM. INDIAN LAW DESKBOOK (2004).

CONGRESSIONAL RESEARCH SERVICE, OIL SHALE: HISTORY, INCENTIVES, AND POLICY, A REPORT TO CONGRESS (2006).

CLIFFORD DUNCAN, A HISTORY OF UTAH'S AMERICAN INDIANS (Forrest S. Cuch, ed. 2000).

Dep't of Energy, Office of Petroleum Reserves – Strategic Unconventional Fuels, Fact Sheet: U.S. Oil Shale Resources (2007), [http://www.fossil.energy.gov/programs/reserves/npr/Oil\\_Shale\\_Resource\\_Fact\\_Sheet.pdf](http://www.fossil.energy.gov/programs/reserves/npr/Oil_Shale_Resource_Fact_Sheet.pdf).

Dep't of the Interior, Annual PILT Disbursement Summaries, <http://www.nbc.gov/pilt/pilt/states.cfm>.

Dep't of the Interior, Landscape Conservation, Cooperatives,  
<http://www.doi.gov/whatwedo/climate/strategy/LCC-Map.cfm>.

Dep't of the Interior, Public Land Statistics, [http://www.blm.gov/public\\_land\\_statistics/](http://www.blm.gov/public_land_statistics/).

Earthworks, Split Estate Information, <http://www.earthworksaction.org/SplitEstate.cfm>.

*Eminent Domain Authority: Hearing on H.B. 143 Before the Utah Legislature* (2010) (House and Senate Floor Debate).

ENERGY INFORMATION ADMIN., DEP'T OF ENERGY, ANALYSIS OF CRUDE OIL PRODUCTION IN THE ARCTIC NATIONAL WILDLIFE REFUGE, REPORT NO. SR-OIAF/2008-03 (May 2008).

ENERGY INFORMATION ADMIN., DEP'T OF ENERGY, ANNUAL ENERGY OUTLOOK (2009).

Envtl. Protection Agency, American Indian Tribal Portal, The Clean Air Act,  
[www.epa.gov/indian/laws/caa.htm](http://www.epa.gov/indian/laws/caa.htm).

Envtl. Protection Agency, EPA Policy for the Administration of Environmental Programs on Indian Reservations (1984).

Envtl. Protection Agency, Spent Oil Shale,  
[www.epa.gov/wastes/nonhaz/industrial/special/oil/oilshale.htm](http://www.epa.gov/wastes/nonhaz/industrial/special/oil/oilshale.htm).

Robert E. Forbis, Ctr. for Public Policy & Admin., Univ. of Utah, *Why Split-Estate Energy Development Should Concern Utah's Policymakers*, 2 ENERGY 8 (Aug. 30, 2006).

Forest Service, Dep't of Agriculture, The Forest Planning Rule,  
[http://www.fs.usda.gov/wps/portal/fsinternet!/ut/p/c4/04\\_SB8K8xLLM9MSSzPy8xBz9CP0os3gjAwhwtD Dw9\\_AI8zPyhQoY6BdkOyoCAGixyPg!/?ss=119987&navtype=BROWSEBYSUBJECT&cid=STELPRDB5180288&navid=091000000000000&position=Feature\\*&ttype=detail&pname=Planning%2520Rule-%2520Home](http://www.fs.usda.gov/wps/portal/fsinternet!/ut/p/c4/04_SB8K8xLLM9MSSzPy8xBz9CP0os3gjAwhwtD Dw9_AI8zPyhQoY6BdkOyoCAGixyPg!/?ss=119987&navtype=BROWSEBYSUBJECT&cid=STELPRDB5180288&navid=091000000000000&position=Feature*&ttype=detail&pname=Planning%2520Rule-%2520Home).

PAUL W. GATES, HISTORY OF PUBLIC LAND LAW DEVELOPMENT (1968).

Karen Greenwell, *Surface Access for Mining Uses*, 3 ROCKY MTN. MIN. L. INST. 17 (2010).

J. Wallace Gwynn, Utah Geological Survey, *Taking Another Look at Utah's Tar Sands Resources*, SURVEY NOTES VOL. 39 (Jan. 2007).

Letter from John Harja, Director, Utah Public Lands Policy Coordination Office, to Robert Abbey, Director, BLM (Aug. 3, 2010).

John Harja, Director, Public Lands Policy Coordination Office, testimony before the Utah Natural Res., Agric., and Env't Interim Comm. (Sept. 15, 2010).

THE HARVARD PROJECT ON AMERICAN INDIAN ECONOMIC DEVELOPMENT, THE STATE OF NATIVE NATIONS: CONDITIONS UNDER U.S. POLICIES OF SELF-DETERMINATION (2008).

Patty Henetz, *Delegation Slams Oil-Shale Moratorium: Hatch and Bennett Say One-Year Basin Hurts U.S. Energy Independence*, SALT LAKE TRIBUNE July 2, 2008.

Drake D. Hill & P. Jaye Rippley, *The Split Estate: Communication and Education Versus Legislation*, 4 WYO. L. REV. 585 (2004).

INTERSTATE OIL AND GAS COMPACT COMM'N, IOGCC MODEL STATUTE AND FIELDWIDE UNITIZATION REFERENCES (1999)

Bill Jackson, Grand County Roads Supervisor (personal communication, Oct. 6, 2010).

RONALD C. JOHNSON ET AL., U.S. GEOLOGICAL SURVEY, ASSESSMENT OF IN-PLACE OIL SHALE RESOURCES IN THE EOCENE GREEN RIVER FORMATION, UINTA BASIN, UTAH AND COLORADO (2010).

ROBERT KEITER ET AL., ANALYSIS OF ENVIRONMENTAL, LEGAL, SOCIOECONOMIC AND POLICY ISSUES CRITICAL TO THE DEVELOPMENT OF COMMERCIAL OIL SHALE LEASING IN PUBLIC LANDS IN COLORADO, UTAH AND WYOMING UNDER THE MANDATES OF THE ENERGY POLICY ACT OF 2005 (2009).

John S. Kirkham & Richard R. Hall, *Legal Issues in Solution and In Situ Mining*, 52 ROCKY MTN. MIN. L. INST. 17 (2006).

Christopher S. Kulander, *Split-Estate and Site Remediation Issues on Tribal Lands*, 126 TEXAS J. OIL, GAS, & ENERGY L. 125 (2007).

Mike Lee, Utah Senator, testimony before the Utah Natural Res., Agric., and Env't Comm. on H.B. 143 (Feb. 23, 2010).

John D. Leshy, *Unraveling the Sagebrush Rebellion: Law, Politics and Federal Lands*, 14 U.C. DAVIS L. REV. 317 (1980-81).

WILLIAM M. LILE ET AL., BRIEF MAKING AND THE USE OF LAW BOOKS (3d ed. 1914).

Mark Madsen, Utah Senator, testimony before Senate Floor on H.B. 143 (Mar. 9, 2010).

MASSACHUSETTS INSTITUTE OF TECHNOLOGY, THE FUTURE OF COAL (2007).

LoValerie Mullins, *The Equity Illusion of Surface Ownership in Coalbed Methane Gas; The Rise of Mutual Simultaneous Rights in Mineral Law and the Resulting Need for Dispute Resolution in Split Estate Relations*, 16 MO. ENVTL. L. & POL'Y REV. 109 (2009).

N.D. LEGISLATIVE COUNCIL, SURFACE OWNER PROTECTION ACTS AND OIL AND GAS DEVELOPMENT, PUBL'N NO. 19449 (Aug. 2010).

NATIONAL OIL SHALE ASS'N, OIL SHALE: AMERICA'S UNTAPPED ENERGY SOURCE (2010).

OFFICE OF NAVAL PETROLEUM AND OIL SHALE RESERVES, U.S. DEP'T OF ENERGY, SECURE FUELS FROM DOMESTIC RESOURCES: THE CONTINUED EVOLUTION OF AMERICA'S OIL SHALE AND TAR SANDS INDUSTRIES (Rev. ed. 2008).

OIL & GAS ACCOUNTABILITY PROJECT, OIL AND GAS AT YOUR DOOR? A LANDOWNER'S GUIDE TO OIL AND GAS DEVELOPMENT (2nd ed. 2005).

Oil Shale Exploration Co., Commercial Feasibility Study,  
<http://www.oilshaleexplorationcompany.com/content.aspx?id=17>.

Juan Palma, Utah State Director, Bureau of Land Management, testimony before the Utah Natural Res., Agric., and Env't Interim Comm. (Sept. 15, 2010).

POWDER RIVER BASIN RESOURCE COUNCIL, A LANDOWNER GUIDE TO THE WYOMING SPLIT ESTATE STATUTE (Oct. 2005)

PUBLIC LAND LAW REVIEW COMMISSION, ONE THIRD OF OUR NATION'S LAND (1970).

Red Leaf Resources, Pilot Test,  
[http://www.redleafinc.com/index.php?option=com\\_content&view=article&id=14:pilot-test&catid=12:results-demonstrated&Itemid=16](http://www.redleafinc.com/index.php?option=com_content&view=article&id=14:pilot-test&catid=12:results-demonstrated&Itemid=16).

RONALD D. ROTUNDA & JOHN E. NOVAK, TREATIES ON CONSTITUTIONAL LAW – SUBSTANCE AND PROCEDURE (4th ed. 2010)

Judith V. Royster, *Mineral Development in Indian Country: The Evolution of Tribal Control Over Mineral Resources*, 29 TULSA L.J. 541 (1994).

Judith V. Royster, *Practical Sovereignty, Political Sovereignty, and the Indian Tribal Energy Development and Self-Determination Act*, 12 LEWIS & CLARK L. REV. 1065 (2008).

John C. Ruple & Robert B. Keiter, *Water for Commercial Oil Shale Development in Utah: Allocating Scarce Resources and the Search for New Sources of Supply*, 30 J. LAND, RESOURCES & ENVTL. L. 95 (2010).

James L. Ryan, *SAND WARS: Mineral Reservation Policies Lead the Supreme Court to Determine Whether Sand Is a Valuable Mineral in the Nevada Desert*, 37 LOY. U. CHI. L.J. 213 (2005).

Nancy Saint-Paul, SUMMERS OIL AND GAS (3d ed. 2009).

Rebecca Tsosie, *The Conflict Between the "Public Trust" and the "Indian Trust" Doctrines: Federal Public Land Policy and Native Nations*, 39 TULSA L.REV. 271 (2003).

The Ute Indian Tribe, Energy & Minerals Department,  
<http://www.utetribe.com/mineralResourcesDevelopment/energyMinerals.html>.

U.S. Geological Survey, Dep't of the Interior, National Climate Change and Wildlife Science Center,  
<http://nccwsc.usgs.gov/>.

UNIV. OF UTAH, INSTITUTE FOR CLEAN AND SECURE ENERGY, MARKET ASSESSMENT OF HEAVY OIL, OIL SANDS, AND OIL SHALE RESOURCES (forthcoming 2011).

UNIV. OF UTAH INSTITUTE FOR CLEAN AND SECURE ENERGY, A TECHNICAL, ECONOMIC, AND LEGAL ASSESSMENT OF NORTH AMERICAN HEAVY OIL, OIL SANDS, AND OIL SHALE RESOURCES (2007).

Utah Board of Oil, Gas and Mining, Cause Nos. 190-5(b), 190-3, and 190-13.

Utah Board of Trustees of the School and Institutional Trust Lands Administration, Policy Statement No. 2005-01, Joint Planning (2005).

Utah Board of Trustees of the School and Institutional Trust Lands Administration, Policy Statement No. 2006-01, Roads and Access (2006).

Utah Board of Trustees of the School and Institutional Trust Lands Administration, Policy Statement No. 2006-04, Oil Shale Leasing on Trust Lands (2007).

Utah School and Institutional Trust Lands Administration, Public Room,  
<http://168.178.199.154/publms/contents.htm>.

Utah School and Institutional Trust Lands Administration, Utah Recreation Exchange Act of 2009,  
<http://tlamap.trustlands.utah.gov/plat/help/recexchange.htm>.

Utah School and Institutional Trust Lands Administration, Seep Ridge Oil Shale Leasing Unit Sale Announcement,  
[http://trustlands.utah.gov/oil\\_gas/documents/SeepRidgeOilShaleLeasing/UnitAnnouncement.pdf](http://trustlands.utah.gov/oil_gas/documents/SeepRidgeOilShaleLeasing/UnitAnnouncement.pdf).

Utah State Legislature, Bill Votes/Status, <http://le.utah.gov/~2010/status/hbillsta/hb0309.htm>.

MICHAEL D. VANDEN BERG, UTAH GEOLOGICAL SURVEY, BASIN-WIDE EVALUATION OF THE UPPERMOST GREEN RIVER FORMATION'S OIL-SHALE RESOURCE, UINTA BASIN, UTAH AND COLORADO (2008).

JOHN A. VEIL & MARKUS G. PUDER, ARGONNE NAT'L LAB., POTENTIAL GROUND WATER AND SURFACE WATER IMPACTS FROM OIL SHALE AND TAR SANDS ENERGY-PRODUCTION OPERATIONS (2006).

Western Governors' Assoc., Initiative on Wildlife Corridors and Crucial Habitat,

[http://www.westgov.org/index.php?option=com\\_content&view=article&id=123&Itemid=68](http://www.westgov.org/index.php?option=com_content&view=article&id=123&Itemid=68).

L.J. Weber et al., *Sequence Stratigraphy and Reservoir Delineation of the Middle Pennsylvanian (Desmoinesian), Paradox Basin and Aneth field, Southeastern USA*, in SOCIETY FOR SEDIMENTARY GEOLOGY SHORT COURSE NOTES, MILANKOVITCH SEA LEVEL CHANGES, CYLES, AND RESERVOIRS ON CARBONATE PLATFORMS IN GREENHOUSE AND ICE-HOUSE WORLDS (Read, J.F. et al., eds., 1995).

Mark Wimmer, BLM Planning Coordinator, Vernal Field Office (personal communication, Sept. 28, 2010).

Wyoming Split State Initiative, <http://www.wysei.com/split%estate>.

## LIST OF AUTHORITIES

### *U.S. Supreme Court Opinions*

Alaska v. Native Village of Venetie Tribal Gov't, 522 U.S. 520 (1998).

Amoco Production Co. v. Southern Ute Indian Tribe, 526 U.S. 865 (1999).

Ashwander v. Tennessee Valley Authority, 297 U.S. 288 (1936).

Atkinson Trading Co. v. Shirley, 532 U.S. 645 (2001).

Bennett v. Butterworth, 52 U.S. 865 (1999).

Burnet v. Coronado Oil & Gas Co., 285 U.S. 393 (1932).

California Coastal Com'n v. Granite Rock Co., 480 U.S. 572 (1987).

California v. Cabazon Band of Mission Indians, 480 U.S. 202 (1987).

Camfield v. United States, 167 U.S. 518 (1897).

Collins v. Yosemite Park & Curry Co., 304 U.S. 518 (1938).

Cotton Petroleum Corp. v. New Mexico, 490 U.S. 163 (1989).

County of Yakima v. Confederated Tribes and Bands of the Yakima Indian Nation, 502 U.S. 251 (1992).

Cummings v. Missouri, 71 U.S. 277 (1866).

Gibson v. Chouteau, 80 U.S. 92 (1872).

Hagen v. Utah, 510 U.S. 399 (1994).

Kleppe v. New Mexico, 426 U.S. 529 (1976).

Kleppe v. Sierra Club, 427 U.S. 390 (1976).

Leo Sheep Co. v. United States, 440 U.S. 668 (1979).

McKelvey v. United States, 260 U.S. 353 (1922).

Merrion v. Jicarilla Apache Tribe, 455 U.S. 130 (1982).

Kerr-McGee Corp. v. Navajo Tribe of Indians, 471 U.S. 195 (1985).

Montana v. United States, 450 U.S. 544 (1981).

New York v. United States, 326 U.S. 572 (1946).

Ohio v. Helvering, 292 U.S. 360 (1934).  
Rosebud Sioux Tribe v. Kneip, 430 U.S. 584 (1977).  
Solem v. Bartlett, 465 U.S. 463 (1984).  
South Dakota v. Bourland, 508 U.S. 679 (1993).  
United States v. Bevans, 16 U.S. 336 (1818).  
United States v. Gratiot, 39 U.S. 526 (1840).  
United States v. Sioux Nation, 448 U.S. 371 (1980).  
Utah Power & Light Co. v. United States, 243 U.S. 389 (1917).  
Williams v. Lee, 358 U.S. 217 (1959).

Federal Appellate Opinions

Arizona Public Serv. Co. v. EPA, 211 F.3d 1280 (D.C. Cir. 2001).  
Blue Legs v. USBIA, 867 F.2d 1094 (8th Cir. 1989).  
Brennan v. Udall, 379 F.2d 803 (10th Cir. 1967).  
Center for Biological Diversity v. Interior, 581 F.3d 1063 (9th Cir. 2009).  
City of Albuquerque v. Browner, 97 F.3d 415 (9th Cir. 1996).  
Desert Citizens Against Pollution v. Bisson, 231 F.3d 1172 (9th Cir.2000).  
Hale v. Norton, 476 F.3d 694, 700 (9th Cir. 2007).  
Hydro Resources, Inc. v. EPA, 608 F.3d 1131 (10th Cir 2010).  
Kirkpatrick Oil & Gas Co. v. United States, 675 F.2d 1122 (10th Cir. 1982).  
Montana v. EPA, 137 F.3d 1135 (9th Cir. 1998).  
Montana Wilderness Ass'n v. U. S. Forest Service, 655 F.2d 951 (9th Cir. 1981).  
Nat'l Coal Ass'n v. Hodel, 825 F.2d 523, 532 (D.C. Cir. 1987).  
Nat'l Parks Conservation Association v. Bureau of Land Management, 606 F.3d 1058 (9th Cir. 2010).  
Rosette v. United States, 277 F.3d 1222 (10th Cir. 2002).  
S. Utah Wilderness Alliance v. BLM, 425 F.3d 735 (10th Cir. 2005).  
Sierra Club v. Hodel, 848 F.2d 1068 (10th Cir. 1988).  
South Dakota v. Andrus, 614 F.2d 1190 (8th Cir. 1980).  
Transwestern Pipeline Co. v. Kerr-McGee Corp., 492 F.2d 878 (10th Cir. 1974).  
United States v. Essley, 284 F.2d 518 (10th Cir. 1960).  
United States v. Gardner, 107 F.3d 1314 (9th Cir. 1997).  
United States v. Ohio Oil Co., 163 F.2d 633 (10th Cir. 1947).

United States v. Vogler, 859 F.2d 638 (9th Cir.1988).  
Ute Indian Tribe v. Utah (II), 716 F.2d 1298 (10th Cir. 1983).  
Ute Indian Tribe v. Utah (III), 773 F.2d 1087 (10th Cir. 1985).  
Ute Indian Tribe v. Utah (V), 114 F.3d 1513 (10th Cir. 1997).  
Washington, Dept. of Ecology v. EPA, 752 F.2d 1495 (9th Cir. 1985).  
Wisconsin v. EPA, 266 F.3d 741 (7th Cir. 2001).  
Wyoming v. United States, 279 F.3d 1214 (10th Cir. 2002).

#### Federal Trial Court Opinions

Colorado Env'tl. Coalition v. Kempthorne, Nos. 1:09-CV-00085-JLK and 00991-JLK (D. Colo. 2008).  
Gas Development Corp. v. Black, No. 05-cv-01810-MSK-BNB, 2006 WL 2632569 (D. Colo. 2006).  
Nat'l Audubon Society v. Hodel, 606 F.Supp 825 (D. Alaska 1984).  
San Luis Valley Ecosystem Council v. FWS, 657 F.Supp. 2d 1233 (D. Colo. 2009).  
Southern Utah Wilderness Alliance v. Allred, No. 1:08-cv-02187 (D. D.C. 2009).  
Texas Oil & Gas Corp. v. Phillips Petroleum Co., 277 F. Supp. 366 (D. Okla. 1967).  
United States v. Brady, 385 F.Supp. 1347 (D. Fla. 1974).  
United States v. PPL Montana LLC, No. CV-07-40 (D. Mont. 2007).  
United States v. Nye County, Nevada, 920 F.Supp. 1108 (D. Nev. 1996).  
Utah v. Andrus, 486 F.Supp. 995 (D. Utah 1979).  
Utah v. United States, 486 F.Supp. 995 (D. Utah 1979).  
Ute Indian Tribe v. Utah (I), 521 F.Supp. 1072 (D. Utah 1981).  
Ute Indian Tribe v. Utah (IV), 953 F.Supp. 1473 (D. Utah 1996).  
Ute Mountain Ute Tribe v. Homans (D. N.M. Oct. 30, 2009) (No. 07-CV-00772 JAP/WDS).  
Western Watersheds Project v. Kempthorne, No. 08-cv-516-BLW (D. Id. 2009).

#### State Court Opinions

Com., Natural Res. and Env'tl. Prot. Cabinet v. Stearns Coal and Lumber Co., 678 S.W.2d 378 (Ky. 1984).  
Flying Diamond Corp. v. Rust, 551 P.2d 509 (Utah 1976).  
Gerrity Oil & Gas v. Magness, 946 P.2d 913 (Colo. 1997).  
Getty Oil Co. v. Jones, 470 S.W.2d 618 (Tex. 1971).  
Mingo Oil Producers v. Kamp Cattle Corp., 776 P.2d 736 (Wyo. 1989).  
Pennsylvania Coal Co. v. Sanderson, 6 A. 453 (Pa. 1886).

Sanford v. Arjay Oil Co., 686 P.2d 566 (Wyo. 1984)

Smith v. Linmar Energy Corp., 790 P.2d 1222 (Utah Ct. App. 1990).

State v. Reber, 20040371-CA (Utah Ct App. 2005).

Willman v. Washington Utilities & Transp. Comm'n, 117 P.3d 343 (Wash. 2005).

Interior Board of Land Appeals

Utah Wilderness Assoc., 80 IBLA 64 (1984).

William C. Kirkwood, 175 IBLA 292 (2008).

Federal Constitutional Provisions

U.S. CONST. amend. V.

U.S. CONST. art. IV, § 3, cl. 2.

U.S. CONST. art I, § 8, cl. 17.

U.S. CONST. art. VI, cl. 2.

Federal Statutory Provisions

16 U.S.C. § 1535.

42 U.S.C. § 6903.

16 U.S.C. §§ 3101-233.

42 U.S.C. § 6921.

18 U.S.C. § 1151.

42 U.S.C. § 7410.

25 U.S.C. §§ 331-334, 339, 341, 342, 348, 349,  
354 and 381.

42 U.S.C. § 7474.

25 U.S.C. § 396.

42 U.S.C. § 7601.

25 U.S.C. § 677.

43 U.S.C. §§ 161-284.

25 U.S.C. § 2102.

43 U.S.C. §§ 291-302.

25 U.S.C. §§ 3501-3506.

43 U.S.C. § 224.

30 U.S.C. §§ 21-42.

43 U.S.C. § 315.

30 U.S.C. §§ 181-412.

43 U.S.C. §§ 321-339.

30 U.S.C. § 1273.

43 U.S.C. § 932.

31 U.S.C. §§ 6901-6903.

43 U.S.C. §§ 1601-1629h.

33 U.S.C. § 1377.

43 U.S.C. § 1701.

42 U.S.C. § 300.

43 U.S.C. § 1702.

42 U.S.C. § 2304.

43 U.S.C. § 1711.

42 U.S.C. §§ 4321-4370.

43 U.S.C. § 1712.

43 U.S.C. § 1713.

43 U.S.C. § 1715.  
43 U.S.C. § 1716.  
43 U.S.C. § 1719.  
43 U.S.C. §§ 1761-70.  
43 U.S.C. § 1782.  
43 U.S.C. § 2306.  
Pub. L. 86-705, 74 Stat. 781 (1960).  
Pub. L. 97-78, 95 Stat 1070 (1981).

Pub. L. 104-127, 110 Stat 888 (1996).  
Pub. L. 104-333, 110 Stat 4093 (1996).  
Pub. L. 106-398, 114 Stat 1654 (2000).  
Pub. L. 109-58, 119 Stat 594 (2005).  
Pub. L. 111-53, 123 Stat. 1982 (2009).  
9 Stat. 922 (1848).  
28 Stat. 107-112 (1894).  
Public Lands Order 2795 (Oct. 19, 1962).

#### Federal Regulatory Provisions

30 C.F.R. § 944.30.  
36 C.F.R. § 254.3.  
40 C.F.R. § 50.1.  
40 C.F.R. § 52.21.  
40 C.F.R. § 122.2.  
40 C.F.R. § 144.3.  
40 C.F.R. § 261.4.  
40 C.F.R. § 1501.

40 C.F.R. § 1508.25.  
43 C.F.R. § 2200.  
43 C.F.R. § 2201.3.  
43 C.F.R. § 3140.  
43 C.F.R. § 3715.5.  
43 C.F.R. § 3827.20.  
43 C.F.R. §§ 3900-3936.40.

#### Federal Regulatory Documents

38 FED. REG. 33186 (Nov. 30, 1973).  
45 FED. REG. 33066 *et seq.* (May 19, 1980)  
45 FED. REG. 76800 *et seq.* (Nov. 20, 1980)  
46 FED. REG. 6077 *et seq.* (Jan. 21, 1981)  
56 FED. REG. 64876 *et seq.* (Dec. 12, 1991).  
60 FED. REG. 30192-01 (June 8, 1995).

64 FED. REG. 8247-01 (Feb. 19, 1999).  
67 FED. REG. 11706 *et seq.* (Mar. 15, 2002)  
70 FED. REG. 33753-02 (June 9, 2005).  
73 FED. REG. 69414 *et seq.* (Nov. 18, 2008).  
74 FED. REG. 567867 *et seq.* (Nov. 3, 2009).  
74 FED. REG. 830 *et seq.* (Jan. 8, 2009).

#### Presidential Executive Orders

Executive Order 6016 (Feb. 6, 1933)  
Executive Order 7038 (May 13, 1935)

Executive Order 5327 (Apr. 15, 1930)

State Statutory Provisions

COLO. STAT. § 34-60-127.

UTAH ADMIN. CODE R649-2.

UTAH ADMIN. CODE R649-3.

UTAH ADMIN. CODE R850-22.

UTAH ADMIN. CODE R850-40.

UTAH ADMIN. CODE R850-41.

UTAH CODE ANN. § 40-6.

UTAH CODE ANN. § 40-8.

UTAH CODE ANN. § 53C-1.

UTAH CODE ANN. § 53C-2.

UTAH CODE ANN. § 59-12.

UTAH CODE ANN. § 59-13.

UTAH CODE ANN. § 59-5.

UTAH CODE ANN. § 65A-6.

UTAH CODE ANN. § 67-5.

UTAH CODE ANN. § 73-1.

UTAH CODE ANN. § 78B-6.

UTAH CODE ANN. § 850-22-500(7).

WYO. STAT. ANN. § 30-5-101(a)(vii).

WYO. STAT. ANN. § 30-5-402 *et seq.*

State Constitutional Provisions

UTAH CONST. art. 1, § 3.

UTAH CONST. art. 3, § 2.

## ENDNOTES

<sup>1</sup> Unless the context indicates otherwise, within this report “the State of Utah” refers to the government of the State of Utah; “Utah” refers to the geographic area within the boundaries of the state.

<sup>2</sup> JAMES T. BARTIS ET AL., OIL SHALE DEVELOPMENT IN THE UNITED STATES: PROSPECTS AND POLICY ISSUES ix (Rand Corp. 2005).

<sup>3</sup> BUREAU OF LAND MANAGEMENT, DEP’T OF THE INTERIOR, PROPOSED OIL SHALE AND TAR SANDS RESOURCE MANAGEMENT PLAN AMENDMENTS TO ADDRESS LAND USE ALLOCATIONS IN COLORADO, UTAH, AND WYOMING AND FINAL PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT B-3 – B-5 (2008) [hereinafter FINAL PEIS].

<sup>4</sup> While Utah’s resource base is smaller than those located in Colorado, Utah’s oil shale resources are often found close to the surface and in seams of appreciable thickness. *Id.* at 7.

<sup>5</sup> *Id.* at 6.

<sup>6</sup> *Id.* at 8-9.

<sup>7</sup> *Id.* at 1.

<sup>8</sup> *Id.* at 9.

<sup>9</sup> RONALD C. JOHNSON, ET AL., U.S. GEOLOGICAL SURVEY, ASSESSMENT OF IN-PLACE OIL SHALE RESOURCES IN THE EOCENE GREEN RIVER FORMATION, UINTA BASIN, UTAH AND COLORADO 1 (2010).

<sup>10</sup> Based on resources capable of producing at least 25 GPT of shale and less than 3,000 feet below the surface. If shales bearing 15 GPT and subject to the same overburden constraints were developed, available resources increase to 292.3 billion barrels. MICHAEL D. VANDEN BERG, UTAH GEOLOGICAL SURVEY, BASIN-WIDE EVALUATION OF THE UPPERMOST GREEN RIVER FORMATION’S OIL-SHALE RESOURCE, UINTA BASIN, UTAH AND COLORADO 7 (2008).

<sup>11</sup> UNIVERSITY OF UTAH INSTITUTE FOR CLEAN AND SECURE ENERGY, A TECHNICAL, ECONOMIC, AND LEGAL ASSESSMENT OF NORTH AMERICAN HEAVY OIL, OIL SANDS, AND OIL SHALE RESOURCES 3.15 (2007) [hereinafter ICSE UNCONVENTIONAL HYDROCARBON ASSESSMENT].

<sup>12</sup> U.S. ENERGY INFORMATION ADMINISTRATION, ANALYSIS OF CRUDE OIL PRODUCTION IN THE ARCTIC NATIONAL WILDLIFE REFUGE, REPORT NO. SR-OIAF/2008-03 (May 2008), *available at* <http://www.eia.doe.gov/oiaf/servicerpt/anwr/methodology.html>.

<sup>13</sup> Recent oil and gas development within the Uinta Basin and associated concerns regarding air quality related values provide an example of the consequences of less than ideally planned and coordinated development. Because the BLM is mandated to comply with federal air quality standards, lawsuits have already halted issuance of federal oil and gas leases, based at least in part on the potential for new development to result in Clean Air Act violations. *See, e.g.,* SUWA v. Allred, 2009 WL 765882 (Jan. 17, 2009 D.D.C.). The legal threshold for when BLM must refrain from issuing leases in order to avoid air quality violations is largely untested, and in an exercise of caution, BLM has voluntarily halted issuance of new leases and completion of NEPA studies to allow it more time to develop methods to monitor and manage clean air issues on its lands. Personal communication with Leonard Herr, Utah BLM Air Quality Specialist, Nov. 16, 2010.

<sup>14</sup> *See, e.g.,* ENERGY INFORMATION ADMINISTRATION, U.S. DEPARTMENT OF ENERGY, ANNUAL ENERGY OUTLOOK 38 (2009) (“EIA estimates that the earliest date for initiating construction of a commercial project is 2017. Thus, with the leasing, planning, permitting, and construction of an in situ oil shale facility likely to require some 5 years, 2023 probably is the earliest initial date for first commercial production.”); *see also id.* at 80 (projecting that oil shale production will not exceed 200,000 BPD in 2030).

<sup>15</sup> Since the 1970s, facilities using surface retorting technologies have operated in several countries, including Estonia, China, and Brazil. While these facilities provide valuable information, it is uncertain whether process

redesign will be required prior to domestic deployment in order to facilitate compliance with U.S. environmental requirements.

<sup>16</sup> JOHN A. VEIL & MARKUS G. PUDER, ARGONNE NAT'L LAB., POTENTIAL GROUND WATER AND SURFACE WATER IMPACTS FROM OIL SHALE AND TAR SANDS ENERGY-PRODUCTION OPERATIONS 9 (2006).

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

<sup>18</sup> FINAL PEIS, *supra* note 3, at 5-35.

<sup>19</sup> See John C. Ruple & Robert B. Keiter, *Water for Commercial Oil Shale Development in Utah: Allocating Scarce Resources and the Search for New Sources of Supply*, 30 J. LAND, RESOURCES & ENVTL. L. 95 (2010) (discussing water resources issues associated with oil shale development).

<sup>20</sup> The U.S. and Canadian regulatory programs will be compared in ICSE's MARKET ASSESSMENT OF HEAVY OIL, OIL SANDS, AND OIL SHALE RESOURCES (forthcoming 2011).

<sup>21</sup> CANADIAN ASS'N OF PETROLEUM PRODUCERS, TECHNICAL REPORT, STATISTICAL HANDBOOK FOR CANADA'S UPSTREAM PETROLEUM INDUSTRY Table 3.2a (2009), available at <http://www.capp.ca/GetDoc.aspx?DocID=146286>.

<sup>22</sup> See generally OFFICE OF NAVAL PETROLEUM AND OIL SHALE RESERVES, U.S. DEP'T OF ENERGY, SECURE FUELS FROM DOMESTIC RESOURCES: THE CONTINUED EVOLUTION OF AMERICA'S OIL SHALE AND TAR SANDS INDUSTRIES (Rev. ed. 2008), for profiles of companies engaged in oil shale and oil sands research and technology development.

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

<sup>24</sup> MASSACHUSETTS INSTITUTE OF TECHNOLOGY, THE FUTURE OF COAL 17 (2007) [hereinafter THE FUTURE OF COAL].

<sup>25</sup> *Id.* at xiv.

<sup>26</sup> *Id.* at 29.

<sup>27</sup> James Fallows, THE ATLANTIC, *Dirty Coal, Clean Future* (Dec. 2010) (quoting a Chinese coal-fired power plant manager).

<sup>28</sup> The Department of Interior hints at such a possibility in its FINAL PEIS, see *supra* note 3, at A-29. The National Oil Shale Association also states that one prospective oil shale developer is investigating the use of superheated CO<sub>2</sub>. NATIONAL OIL SHALE ASS'N, OIL SHALE: AMERICA'S UNTAPPED ENERGY SOURCE (2010).

<sup>29</sup> Dep't of Energy, Office of Petroleum Reserves – Strategic Unconventional Fuels, Fact Sheet: U.S. Oil Shale Resources (2007), available at [http://www.fossil.energy.gov/programs/reserves/npr/Oil\\_Shale\\_Resource\\_Fact\\_Sheet.pdf](http://www.fossil.energy.gov/programs/reserves/npr/Oil_Shale_Resource_Fact_Sheet.pdf).

<sup>30</sup> Aneth Field acreage provided by the Utah Geological Survey. Aneth Field reserves are from L.J. Weber et al., *Sequence Stratigraphy and Reservoir Delineation of the Middle Pennsylvanian (Desmoinesian), Paradox Basin and Aneth field, Southeastern USA*, in SOCIETY FOR SEDIMENTARY GEOLOGY SHORT COURSE NOTES, MILANKOVITCH SEA LEVEL CHANGES, CYCLES, AND RESERVOIRS ON CARBONATE PLATFORMS IN GREENHOUSE AND ICE-HOUSE WORLDS (Read, J.F. et al., eds., 1995).

<sup>31</sup> GEORGE CAMERON COGGINS ET AL., FEDERAL PUBLIC LAND AND RESOURCES LAW 147 (5th ed. 2002).

<sup>32</sup> 9 Stat. 922 (1848).

<sup>33</sup> *Id.*; see also *United States v. Nye County, Nevada*, 920 Fed. Supp. 1108, 1110 (D. Nev. 1996) (noting that lands were ceded to the United States).

<sup>34</sup> 30 U.S.C. §§ 21-42.

<sup>35</sup> 43 U.S.C. §§ 161-284 (repealed 1976).

<sup>36</sup> 43 U.S.C. §§ 321-39.

<sup>37</sup> 43 U.S.C. § 224 (repealed 1976).

<sup>38</sup> 43 U.S.C. §§ 291-302 (repealed 1976).

<sup>39</sup> By comparison, the land granted by the federal government to the State of Utah exceeds the entire land base contained in eight states: Maryland, Vermont, New Hampshire, Massachusetts, New Jersey, Hawaii, Connecticut, Delaware, or Rhode Island.

<sup>40</sup> PAUL W. GATES, HISTORY OF PUBLIC LAND LAW DEVELOPMENT 797 (1968).

<sup>41</sup> *Id.* at 385.

<sup>42</sup> Dep't of the Interior, Public Land Statistics 2000, Table 3-2 (2001) *available at* [http://www.blm.gov/public\\_land\\_statistics/](http://www.blm.gov/public_land_statistics/).

<sup>43</sup> The federal government administers 66.8 percent of mineral rights and 64.5 percent of surface rights. BLM administered public lands account for 43.3 percent of all lands within Utah. Dep't of the Interior, Public Land Statistics, Table 1-3 (FY2008) *available at* [http://www.blm.gov/public\\_land\\_statistics/](http://www.blm.gov/public_land_statistics/).

<sup>44</sup> *See* PUBLIC LAND LAW REVIEW COMMISSION, ONE THIRD OF OUR NATION'S LAND 42 (1970).

<sup>45</sup> *See generally* R. MCGREGGOR CAWLEY, FEDERAL LAND, WESTERN ANGER: THE SAGEBRUSH REBELLION AND ENVIRONMENTAL POLITICS 11 (1993) and throughout early chapters.

<sup>46</sup> 43 U.S.C. § 1701(a)(1). Note, FLPMA allows for the sale of federal public lands if the tract to be sold is difficult and uneconomic to manage as part of the public lands and unsuitable for management by another federal agency; the tract was acquired for a specific purpose and no further federal use for the tract exists; or disposal will serve important public objectives. 43 U.S.C. § 1713(a).

<sup>47</sup> *See* OIL & GAS ACCOUNTABILITY PROJECT, OIL AND GAS AT YOUR DOOR? A LANDOWNER'S GUIDE TO OIL AND GAS DEVELOPMENT II-3 (2nd ed. 2005); James L. Ryan, SAND WARS: Mineral Reservation Policies Lead the Supreme Court to Determine Whether Sand Is a Valuable Mineral in the Nevada Desert, 37 LOY. U. CHI. L.J. 213, 229-30 (2005) ("The right of the sovereign to sever land into surface and mineral components dates back to the Middle Ages.").

<sup>48</sup> Ryan, *supra* note 47, at 229-30.

<sup>49</sup> Earthworks, Split Estate Information, <http://www.earthworksaction.org/SplitEstate.cfm>.

<sup>50</sup> *Id.* The Stock-Raising Homestead Act of 1916 is an example of a mineral reservation where Congress provided homesteaders with surface rights, but retained the mineral estate for the federal government.

<sup>51</sup> 52 U.S. 865 (1999). *See also* Rosette v. United States, 277 F.3d 1222 (10th Cir. 2002) (holding that geothermal resources are reserved in subsurface rights since Congress most likely did not intend such rights to be retained in the surface owners for agricultural purposes); Brennan v. Udall, 379 F.2d 803 (10th Cir. 1967) (holding that oil shale is included in the reservation of "oil" in the Agricultural Entry Act of 1914).).

<sup>52</sup> *Amoco Production Co.*, 52 U.S. at 880; Ryan, *supra* note 47, at 243-44.

<sup>53</sup> For example, the surface use is for the limited purpose of oil and gas development and does not include other uses, such as residential or agricultural. 38 AM. JUR. 2D *Gas and Oil* § 110. *See also* Stock-Raising Homestead Act, 43 U.S.C. § 299 (providing that any person who acquired from the U.S. the right to mine and remove mineral deposits may enter and occupy the surface as required for all purposes reasonably incident to the mining).

<sup>54</sup> *See* Pennsylvania Coal Co. v. Sanderson, 6 A. 453, 459 (Pa. 1886) ("[T]o encourage the development of the great natural resources of a country trifling inconveniences to particular persons must sometimes give way to the necessities of a great community.")

<sup>55</sup> Ryan, *supra* note 47, at 230; *see also* Sanford v. Arjay Oil Co., 686 P.2d 566, 572 (Wyo. 1984) (holding that the amount of land reasonably necessary is a question of fact, but includes space required for mining purposes, such as storage and removal).

<sup>56</sup> The principle has also been called the “alternative means doctrine” and “due-regard” approach.

<sup>57</sup> *See* Christopher M. Alspach, *Surface Use by the Mineral Owner: How Much Accommodation is Required under Current Oil and Gas Law*, 55 OKLA L. REV. 89 (2002).

<sup>58</sup> 38 AM. JUR. 2D *Gas and Oil* § 110; *see also* N.D. LEGISLATIVE COUNCIL, SURFACE OWNER PROTECTION ACTS AND OIL AND GAS DEVELOPMENT, PUBL’N NO. 19449 (Aug. 2010) (“The accommodation doctrine requires the mineral owner to consider the rights of the surface owner and to accommodate the existing uses of the surface if those uses do not unreasonably interfere with the mineral owner’s operations.”), *available at* <http://www.legis.nd.gov/assembly/61-2009/docs/pdf/19449.pdf>.

<sup>59</sup> 470 S.W.2d 618 (Tex. 1971).

<sup>60</sup> *Id.* at 622.

<sup>61</sup> *See* Karen Greenwell, *Surface Access for Mining Issues*, 3 ROCKY MTN. MIN. L. INST. 17 (2010) (examining recurring areas of conflict with split estates).

<sup>62</sup> Drake D. Hill & P. Jaye Rippley, *The Split Estate: Communication and Education Versus Legislation*, 4 WYO. L. REV. 585, 594 (2004).

<sup>63</sup> LoValerie Mullins, *The Equity Illusion of Surface Ownership in Coalbed methane Gas; The Rise of Mutual Simultaneous Rights in Mineral Law and the Resulting Need for Dispute Resolution in Split Estate Relations*, 16 Mo. ENVTL. L. & POL’Y REV. 109, 144 (2009) (“[T]he right of subjacent support incurs strict liability on mineral owners who damage surface lands by failing to support surface structures from under ground.”).

<sup>64</sup> Greenwell, *supra* note 61.

<sup>65</sup> *Id.*

<sup>66</sup> *Id.*

<sup>67</sup> Alan K. Burnham, Lawrence Livermore Nat’l Lab., & James R. McConaghy, Antero Energy, LLC, *Comparison of the Acceptability of Various Oil Shale Processes*, Colorado School of Mines’ 26th Oil Shale Symposium (2006), *available at* <http://www.ceri-mines.org/documents/A14b-AlanBurnhampaper.pdf>.

<sup>68</sup> *Id.* at 9.

<sup>69</sup> Dep’t of the Interior, Bureau of Land Management, Split Estate, [http://www.blm.gov/wo/st/en/prog/energy/oil\\_and\\_gas/best\\_management\\_practices/split\\_estate.html](http://www.blm.gov/wo/st/en/prog/energy/oil_and_gas/best_management_practices/split_estate.html).

<sup>70</sup> *Id.*

<sup>71</sup> *Id.*

<sup>72</sup> BUREAU OF LAND MANAGEMENT, DEP’T OF THE INTERIOR, ENERGY POLICY ACT OF 2006 - SECTION 1835 SPIT ESTATE FEDERAL OIL AND GAS LEASING AND DEVELOPMENT PRACTICES, A REPORT TO CONGRESS (Dec. 2006), [hereinafter SPLIT ESTATE REPORT]. Suggested surface owner involvement includes notification of lease and Application of Permit to Drill approval, provided Surface Use Plan of Operations, and review of final reclamation. *Id.* at 13-18.

<sup>73</sup> *Id.* at 16.

<sup>74</sup> BUREAU OF LAND MANAGEMENT, DEP’T OF THE INTERIOR, GOLD BOOK: SURFACE OPERATING STANDARDS AND GUIDELINES FOR OIL AND GAS EXPLORATION AND DEVELOPMENT (4th ed. 2007).

<sup>75</sup> Mullins, *supra* note 63, at 145; 43 C.F.R. § 3715.5

<sup>76</sup> SPLIT ESTATE REPORT, *supra* note 72, at 20.

<sup>77</sup> The Energy Policy Act of 2005 also identified oil shale as a strategically important domestic resource and directed the Department of the Interior to promote its commercial development. In the FINAL PEIS, the BLM selected Alternative B as the proposed plan amendment, which designates 1,991,222 acres for leasing, including split estate lands within the most geologically prospective oil shale areas.

<sup>78</sup> Robert E. Forbis, Ctr. for Public Policy & Admin., Univ. of Utah, *Why Split-Estate Energy Development Should Concern Utah's Policymakers*, 2 ENERGY 8 (Aug. 30, 2006), available at [http://www.imakenews.com/cppa/e\\_article000638684.cfm?x=b11,0,w#\\_ednref1](http://www.imakenews.com/cppa/e_article000638684.cfm?x=b11,0,w#_ednref1).

<sup>79</sup> Mullins, *supra* note 63, at 177-178.

<sup>80</sup> Forbis, *supra* note 78.

<sup>81</sup> *Id.*

<sup>82</sup> 551 P.2d 509, 511 (Utah 1976).

<sup>83</sup> Michael W. Brown, *Coalbed Methane in Utah: Designing a Successful Approach*, 26 J. LAND RESOURCES & ENVTL. L. 357, 360 (2006). "Utah perpetuated the common law tradition of according the mineral estate dominance," but did not expressly adopt the Texas version laid out in *Getty Oil Co.* *Id.*

<sup>84</sup> *Flying Diamond Corp.*, 551 P.2d at 511.

<sup>85</sup> In 2009, Senator Sheldon Killpack introduced S.B. 68, the Mining Protection Amendments, which specifically provided that the mineral estate is the dominant estate, in addition to various protections for specified mining uses. Although the protections passed, including an easement for reasonable access and reasonable use of the surface, the enrolled substitute bill did not include the dominant estate language.

<sup>86</sup> *Smith v. Linmar Energy Corp.*, 790 P.2d 1222, 1224 (Utah Ct. App. 1990) (citing *Flying Diamond Corp.*, 551 P.2d 509 (Utah 1976)).

<sup>87</sup> Brown, *supra* note 83, at 370.

<sup>88</sup> Procedures included notice, disclosing information, surface use agreements, and bonds.

<sup>89</sup> Utah State Legislature, Bill Votes/Status, <http://le.utah.gov/~2010/status/hbillsta/hb0309.htm>.

<sup>90</sup> See UTAH CODE ANN. § 65A-6-4 (providing terms for mineral leases, including oil shale and oil sands).

<sup>91</sup> The following states apply the accommodation doctrine: Utah, Texas, West Virginia, Arkansas, Colorado, Wyoming, North Dakota and New Mexico. Only a few more states have enacted SDAs: Illinois, Indiana, Kentucky, Montana, New Mexico, North Dakota, Oklahoma, South Dakota, Tennessee, West Virginia, and Wyoming. Martin Averill, *States Differ on Surface Rights*, ENERGY LITIGATION – ABA (Summer 2008).

<sup>92</sup> Mullins, *supra* note 63, at 172.

<sup>93</sup> Christopher S. Kulander, *Split-Estate and Site Remediation Issues on Tribal Lands*, 2 TEX. J. OIL GAS & ENERGY L. 125, 138 (2007).

<sup>94</sup> Earthworks, Split Estate Information, <http://www.earthworksaction.org/SplitEstate.cfm>.

<sup>95</sup> *Gerrity Oil & Gas v. Magness*, 946 P.2d 913 (Colo. 1997) (reinterpreting the reasonableness test to include an equal burden on the mineral owner to prove its action had not caused harm). See also COLO. STAT. § 34-60-127 (legislative adoption of the *Gerrity* decision); *Mingo Oil Producers v. Kamp Cattle Corp.*, 776 P.2d 736 (Wyo. 1989).

<sup>96</sup> COLO. STAT. § 34-60-127.

<sup>97</sup> WYO. STAT. ANN. § 30-5-402 *et seq.*

<sup>98</sup> Wyoming Split State Initiative, <http://www.wysei.com/split%estate>. See also Brown, *supra* note 83, at 372-373 (discussing the Wyoming Initiative).

<sup>99</sup> JOHNSON ET AL., *supra* note 9, at 1.

<sup>100</sup> See VANDEN BERG, *supra* note 10, at 6,10, see also Michael D. VANDEN BERG, UTAH GEOLOGICAL SURVEY, UTAH'S ENERGY LANDSCAPE 6-7 (2009) (applying a four foot minimum thickness to define developable coal resources).

<sup>101</sup> FINAL PEIS, *supra* note 3, at 2-11.

<sup>102</sup> Pub. L. 111-53, 123 Stat. 1982.

<sup>103</sup> 43 U.S.C. § 1716.

<sup>104</sup> Tribally controlled surface acres within the MGPA include 57,675 acres of split estate lands where the mineral estate was retained by the federal government (lands within the Hill Creek Extension). FINAL PEIS, *supra* note 3 at 2-31.

<sup>105</sup> Federal designations such as Wilderness Areas or Wilderness Study Areas will make additional lands unavailable for commercial oil shale leasing. On December 22, 2010, Secretary of the Interior Ken Salazar issued Secretarial Order 3310, setting forth departmental requirements to inventory and protect lands with wilderness characteristics. While it appears that the inventory of lands with wilderness characteristics that was completed prior to finalizing the Vernal RMP utilized criteria consistent with the Secretarial Order, it is less clear whether the BLM applied criteria consistent with those set forth in the Secretarial Order in deciding which inventoried areas should receive continued protection. How the Secretarial Order impacts the availability of federal oil shale resources represents an important question for future research.

<sup>106</sup> FINAL PEIS, *supra* note 3, at 2-11.

<sup>107</sup> *Id.* at 2-16.

<sup>108</sup> Tribally controlled surface acres within the MGPA include 57,675 acres of split estate lands where the mineral estate was retained by the federal government (lands within the Hill Creek Extension). *Id.* at 2-31.

<sup>109</sup> UNCONVENTIONAL HYDROCARBON ASSESSMENT, *supra* note 11, at 3.15.

<sup>110</sup> J. Wallace Gwynn, Utah Geological Survey, *Taking Another Look at Utah's Tar Sands Resources*, SURVEY NOTES VOL. 39, n. 1 (Jan. 2007), available at <http://geology.utah.gov/surveynotes/snt39-1.pdf>.

<sup>111</sup> See FINAL PEIS, *supra* note 3, at 2-39.

<sup>112</sup> *Id.* at 2-39.

<sup>113</sup> See BUREAU OF LAND MANAGEMENT, DEP'T OF INTERIOR, APPROVED RESOURCE MANAGEMENT PLAN AMENDMENTS AND RECORD OF DECISION (ROD) FOR PROPOSED OIL SHALE AND TAR SANDS RESOURCE MANAGEMENT PLAN AMENDMENTS TO ADDRESS LAND USE ALLOCATIONS IN COLORADO, UTAH, AND WYOMING AND FINAL PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT (2008) [hereinafter OIL SHALE ROD].

<sup>114</sup> Tribally controlled surface acres within the Hill Creek STSA include 57,705 acres of split estate lands where the mineral estate was retained by the federal government (lands within the Hill Creek Extension). FINAL PEIS, *supra* note 3 at 2-13.

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

<sup>116</sup> *Id.* at 28.

<sup>117</sup> As explained in footnote 103, recently issued Secretarial Order 3310 directs BLM management of lands with

wilderness characteristics, and is likely to impact the amount of federally controlled oil sands that can be leased. How the Secretarial Order impacts the availability of federal oil sands resources represents an important question for future research.

<sup>118</sup> See Robert Keiter et al., ANALYSIS OF ENVIRONMENTAL, LEGAL, SOCIOECONOMIC AND POLICY ISSUES CRITICAL TO THE DEVELOPMENT OF COMMERCIAL OIL SHALE LEASING IN PUBLIC LANDS IN COLORADO, UTAH AND WYOMING UNDER THE MANDATES OF THE ENERGY POLICY ACT OF 2005 (2009) [hereinafter ICSE POLICY ANALYSIS], and UNCONVENTIONAL HYDROCARBON ASSESSMENT, *supra* note 11.

<sup>119</sup> See 43 U.S.C. §§ 1701(7) and 1702(c).

<sup>120</sup> 43 U.S.C. § 1711(a). Almost all developable federal oil shale bearing lands within Colorado, Utah, and Wyoming are managed by the BLM.

<sup>121</sup> 43 U.S.C. § 1712(a).

<sup>122</sup> OIL SHALE ROD, *supra* note 113, at ii and 41.

<sup>123</sup> 42 U.S.C. §§ 4321-4370d.

<sup>124</sup> 42 U.S.C. § 4332(2)(C).

<sup>125</sup> 42 U.S.C. § 4332(2)(C). See generally, BUREAU OF LAND MGMT., DEP'T OF THE INTERIOR, LAND USE PLANNING HANDBOOK H1601-1 (2005) (discussing the combined process used for preparing RMPs and EISs).

<sup>126</sup> *Kleppe v. Sierra Club*, 427 U.S. 390 (1976).

<sup>127</sup> The BLM initially intended that its programmatic EIS would contain sufficient information to support commercial leasing. However, uncertainty regarding the number and size of facilities, as well as the technologies involved and individual facilities' location within the most geologically prospective area prevented BLM from completing the "hard look" required to support a final decision. Therefore, the Record of Decision for the FINAL PEIS determines only which areas will be open to consideration for commercial leasing applications. See FINAL PEIS, *supra* note 3, at 1-3 – 1-5.

<sup>128</sup> OIL SHALE ROD, *supra* note 113, at 38.

<sup>129</sup> NEPA analysis must address actions that are connected to the decision to be made. Actions are connected if they (1) automatically trigger other actions that may require an EIS; (2) cannot or will not proceed unless other actions are taken previously or simultaneously; or (3) are interdependent parts of a larger action and depend on the larger action for their justification. 40 C.F.R. § 1508.25(a)(1).

<sup>130</sup> See ICSE POLICY ANALYSIS, *supra* note 118 and ICSE UNCONVENTIONAL HYDROCARBON ASSESSMENT, *supra* note 11.

<sup>131</sup> 70 FED. REG. at 33753.

<sup>132</sup> See SECURE FUELS FROM DOMESTIC RESOURCES, *supra* note 22, at 56-57.

<sup>133</sup> 74 FED. REG. 567867-69 (Nov. 3, 2009).

<sup>134</sup> See AuraSource, Inc., Technology Summary, <http://www.aurasourceinc.com/AuraFuel.htm>.

<sup>135</sup> Press Release, Dep't of the Interior, Bureau of Land Management, BLM Advances Oil Shale Research Process (Oct. 13, 2010), available at [http://www.blm.gov/wo/st/en/info/newsroom/2010/october/NR\\_10\\_13\\_2010b.html](http://www.blm.gov/wo/st/en/info/newsroom/2010/october/NR_10_13_2010b.html).

<sup>136</sup> 74 FED. REG. 567867-69 (Nov. 3, 2009).

<sup>137</sup> See 73 FED. REG. 69414 – 487 (Nov. 18, 2008).

<sup>138</sup> 43 C.F.R. § 3910.31(c).

- <sup>139</sup> 43 C.F.R. § 3827.20.
- <sup>140</sup> 43 C.F.R. § 3901.20.
- <sup>141</sup> 43 C.F.R. § 3903.40.
- <sup>142</sup> 43 C.F.R. § 3903.52.
- <sup>143</sup> 43 C.F.R. § 3900.50.
- <sup>144</sup> 43 C.F.R. § 3922.20(c)(9).
- <sup>145</sup> 43 C.F.R. § 3922.20(c)(7).
- <sup>146</sup> Colorado Env'tl. Coal. v. Kempthorne, 1:09-CV-00085-JLK and 00091-JLK (D.Colo. pending).
- <sup>147</sup> Codified as amended at 30 U.S.C. § 22 – 54.
- <sup>148</sup> 30 U.S.C. § 29.
- <sup>149</sup> Five dollars per acre applies to “lode” or hard rock mineral claims, 30 U.S.C. § 28; \$2.50 per acre applies to “placer” or unconsolidated mineral claims. 30 U.S.C. § 37.
- <sup>150</sup> ROBERT E. BLACKETT, UTAH GEOLOGICAL SURVEY, TAR-SAND RESOURCES OF THE UINTAH BASIN, UTAH 22 (1996).
- <sup>151</sup> Pub. L. 86-705, 74 Stat. 781-91 (1960).
- <sup>152</sup> Pub. L. 86-705 § 7(a), 74 Stat. 781, 790 (1960).
- <sup>153</sup> BLACKETT, *supra* note 150, at 22 (1996).
- <sup>154</sup> Pub. L. 97-78, 95 Stat. 1070-72 (1981).
- <sup>155</sup> The eleven Special Tar Sands Areas are: Argyle Canyon, Asphalt Ridge, Circle Cliffs), Hill Creek, Pariette, P.R. Springs, Raven Ridge, San Rafael Swell, Sunnyside, Tar Sand Triangle, and White Canyon. See 45 FED. REG. 76800-01 (Nov. 20, 1980) and 46 FED. REG. 6077-78 (Jan. 21, 1981) (designating special tar sand areas).
- <sup>156</sup> Combined Hydrocarbon Leasing Act, Pub. L. 97-98 (2008).
- <sup>157</sup> 43 C.F.R. § 3140.
- <sup>158</sup> Plaintiff's Motion to Alter or Amend Judgment, S. Utah Wilderness Alliance v. Sierra, No. 2:07cv199 (DAK) (D. Utah 2008).
- <sup>159</sup> *Id.*
- <sup>160</sup> Ripeness reflects the legal requirement that the facts underlying a dispute must have developed sufficiently to permit an intelligent and useful decision to be made. When a dispute is not yet ripe, courts will decline to hear the case.
- <sup>161</sup> William C. Kirkwood, 175 IBLA 292 (2008).
- <sup>162</sup> Plaintiff's Motion to Alter or Amend Judgment, S. Utah Wilderness Alliance v. Sierra, No. 2:07cv199 (DAK) (D. Utah 2008).
- <sup>163</sup> Energy Policy Act § 350, P.L. 109-58 (2008), codified at 30 U.S.C. § 226..
- <sup>164</sup> (Nos. 1:09-CV-00085-JLK and 00991-JLK) (D. Colo. 2008).
- <sup>165</sup> (No. 1:08-cv-02187) (D. D.C. 2009)
- <sup>166</sup> Juan Palma, Utah State Director, Bureau of Land Management, testimony before the Utah Natural Res., Agric., and Env't Interim Comm. (Sept. 15, 2010), audio transcripts available at

<http://www.le.utah.gov/asp/interim/Commit.asp?Year=2010&Com=INTNAE>.

<sup>167</sup> *Id.*

<sup>168</sup> (No. 08-cv-516-BLW) (D. Id. 2009).

<sup>169</sup> John Harja, Director, Public Lands Policy Coordination Office, testimony before the Utah Natural Res., Agric., and Env't Interim Comm. (Sept. 15, 2010), audio transcripts available at <http://www.le.utah.gov/asp/interim/Commit.asp?Year=2010&Com=INTNAE>.

<sup>170</sup> See ICSE UNCONVENTIONAL HYDROCARBON ASSESSMENT, *supra* note 11, and ICSE POLICY ANALYSIS, *supra* note 118. See also SECURE FUELS FROM DOMESTIC RESOURCES, *supra* note 22.

<sup>171</sup> See AuroSource, Inc., Technology Summary, <http://www.aurosourceinc.com/AuraFuel.htm>.

<sup>172</sup> Red Leaf Resources, Pilot Test, [http://www.redleafinc.com/index.php?option=com\\_content&view=article&id=14:pilot-test&catid=12:results-demonstrated&Itemid=16](http://www.redleafinc.com/index.php?option=com_content&view=article&id=14:pilot-test&catid=12:results-demonstrated&Itemid=16).

<sup>173</sup> OSEC, Commercial Feasibility Study, <http://www.oilshaleexplorationcompany.com/content.aspx?id=17>.

<sup>174</sup> Julie Cart, *Energy Dispute Over Rockies Riches*, LOS ANGELES TIMES Dec. 28, 2008 (quoting then Governor, Jon Huntsman, Jr.). Utah's current governor, Gary Herbert, and Utah's two senators are also strong oil shale supporters. See Patty Henetz, *Delegation Slams Oil-Shale Moratorium: Hatch and Bennett Say One-Year Basin Hurts U.S. Energy Independence*, SALT LAKE TRIBUNE July 2, 2008.

<sup>175</sup> UTAH CODE ANN. § 53C-2-414.

<sup>176</sup> UTAH CODE ANN. § 59-5-120.

<sup>177</sup> UTAH CODE ANN. § 59-13-201(3)(a)(iii).

<sup>178</sup> UTAH CODE ANN. § 59-12-104(63).

<sup>179</sup> UTAH CODE ANN. § 53C-1-102(2).

<sup>180</sup> UTAH CODE ANN. § 53C-1-102(2)(d).

<sup>181</sup> Several other state agencies manage lands containing oil shale or oil sands resources. However, these agencies control a very small fraction of the resource base and manage for interests other than energy development. For example, the Utah Division of Wildlife Resources controls one-percent of the land overlying oil sands resources within designated STSAs, more than any state agency other than SITLA. Because the Division of Wildlife Resources controls only limited resources and manages lands as trustee and guardian of the state's wildlife resources rather than to promote energy development, their role as a potential lessee is not discussed further.

<sup>182</sup> UTAH ADMIN. CODE R850-22-200.

<sup>183</sup> UTAH ADMIN. CODE R850-22-300(1).

<sup>184</sup> UTAH ADMIN. CODE R850-22-300(1)(b)(i).

<sup>185</sup> UTAH ADMIN. CODE R850-22-500(4)(a).

<sup>186</sup> UTAH ADMIN. CODE R850-22-500(1).

<sup>187</sup> UTAH ADMIN. CODE R850-22-500(2).

<sup>188</sup> UTAH ADMIN. CODE R850-22-500(5).

<sup>189</sup> UTAH CODE ANN. § 850-22-500(7).

<sup>190</sup> Figures are as of October 31, 2008. Statistics were compiled from data provided by SITLA and are *available at* <http://168.178.199.154/publms/contents.htm>. These figures reflect active leases; an additional 71 inactive leases cover over 96,281 acres.

<sup>191</sup> UTAH ADMIN. CODE R850-22-700(1).

<sup>192</sup> UTAH ADMIN. CODE R850-22-700(2).

<sup>193</sup> UTAH ADMIN. CODE R850-22-800(1).

<sup>194</sup> UTAH ADMIN. CODE R850-22-1000(1).

<sup>195</sup> See Utah Board of Trustees of the School and Institutional Trust Lands Administration, Policy Statement No. 2006-04, Oil Shale Leasing on Trust Lands (Nov. 27, 2007).

<sup>196</sup> *Id.*

<sup>197</sup> Personal Communication, John W. Andrews Associate Director/Chief Legal Counsel, Utah School and Institutional Trust Lands Administration (Nov. 17, 2010).

<sup>198</sup> Utah School and Institutional Trust Lands Administration, Seep Ridge Oil Shale Leasing Unit Sale Announcement, *available at* [http://trustlands.utah.gov/oil\\_gas/documents/SeepRidgeOilShaleLeasing/UnitAnnouncement.pdf](http://trustlands.utah.gov/oil_gas/documents/SeepRidgeOilShaleLeasing/UnitAnnouncement.pdf).

<sup>199</sup> E-mail from John W. Andrews, Associate Director/Chief Legal Counsel, Utah School & Institutional Trust Lands Administration, to John Ruple, Research Associate/Stegner Center Fellow, Univ. of Utah Inst. for Clean and Secure Energy (August 30, 2010 9:41:08 AM MDT) (on file with authors).

<sup>200</sup> See 16 C.J.S. CONSTITUTIONAL LAW § 613 (2010). Although the U.S. government does not possess a general police power, the exercise of enumerated federal powers is highly analogous to state exercise of police power. *Id.*

<sup>201</sup> U.S. CONST. art. VI, cl. 2.

<sup>202</sup> This limitation is expressed in Utah law, which provides that the rules of the Oil & Gas Division apply to federal land “to the extent lawfully subject to the state’s power.” UTAH ADMIN. CODE R649-2-2 (2010).

<sup>203</sup> *California Coastal Com’n v. Granite Rock Co.*, 480 U.S. 572, 581 (1987) (citing *Pacific Gas & Electric Co. v. State Energy Resources Conservation & Development Com’n*, 461 U.S. 190, 203-04 (1983); *Fidelity Federal Savings & Loan Ass’n v. De la Cuesta*, 458 U.S. 141, 153 (1982); *Rice v. Santa Fe Elevator Corp.*, 331 U.S. 218, 230 (1947)).

<sup>204</sup> *Granite Rock Co.*, 480 U.S. at 581 (citing *Florida Lime & Avocado Growers, Inc. v. Paul*, 373 U.S. 132, 142-43 (1963)). State law “conflicts” with federal law “when it is impossible to comply with both state and federal law.” *Id.*

<sup>205</sup> *Granite Rock Co.*, 480 U.S. at 581.

<sup>206</sup> U.S. CONST. art. IV, § 3, cl. 2.

<sup>207</sup> See, e.g., *Kleppe v. New Mexico*, 426 U.S. 529, 539 (1976).

<sup>208</sup> *Id.*

<sup>209</sup> *Id.*

<sup>210</sup> 30 U.S.C. §§ 181 and 226.

<sup>211</sup> See 30 U.S.C. §§ 181-412.

<sup>212</sup> No. 05-cv-01810-MSK-BNB, 2006 WL 2632569 (D. Colo. 2006).

<sup>213</sup> *Id.* at \*3. See also *Texas Oil & Gas Corp. v. Phillips Petroleum Co.*, 277 F. Supp. 366 (C.D. Okla. 1967) (“Congress has not undertaken to assume exclusive control of federal mineral lands under the Act”). It should be noted,

however, that the court in *Texas Oil & Gas Corp.* based its holding on 30 U.S.C. § 189, a savings clause, which is of questionable import to interpreting congressional intent. *Cf.* *Wyoming v. United States*, 279 F.3d 1214 (10th Cir. 2002) (noting the “opaque” meaning of a similar savings clause, but ultimately concluding that the clause evidenced a congressional intent not to fully preempt state law in the field).

<sup>214</sup> For MLA provisions that expressly provide for cooperation between states and the federal government in the regulation of mineral resource extraction on federal lands, *see* 30 U.S.C. §§ 184a, 196, 203, 402. Utah law also reflects a cooperative approach to oil and gas regulation. *See* UTAH ADMIN. CODE R649-2-7 (providing for cooperation with BLM representatives in the naming of oil and gas fields or pools).

<sup>215</sup> 30 U.S.C. § 226(m); *see also* *Kirkpatrick Oil & Gas Co. v. United States*, 675 F.2d 1122 (10th Cir. 1982).

<sup>216</sup> *See, e.g.*, UTAH CODE ANN. § 40-6-8 (setting forth detailed regulatory guidelines for pooling).

<sup>217</sup> 30 U.S.C. §§ 181, 226; *see also* 43 C.F.R. § 3900.2.

<sup>218</sup> Were new federal legislation to be enacted expressing an intent to fully occupy the field of regulating mining on federal lands, state action would be entirely preempted, though enactment of such legislation is not probable.

<sup>219</sup> *See* 43 C.F.R. §§ 3900-3936.40.

<sup>220</sup> 43 C.F.R. § 3927.20 (providing that the maximum size of an oil shale lease is 5,760 acres).

<sup>221</sup> 43 C.F.R. § 3901.20 (stating that no entity may hold more than 50,000 acres of federal oil shale leases on public lands).

<sup>222</sup> *See, e.g.*, 43 C.F.R. § 3927.50 (requiring diligent development of leases); 43 C.F.R. §§ 3930.10, 3930.12, 3930.13 (establishing performance standards); 43 C.F.R. §§ 3931.41, 3931.70, 3931.100 (setting forth requirements for exploration plans, production maps, and production reports).

<sup>223</sup> *See, e.g.*, 43 C.F.R. § 3903.30 (providing payment procedures); 43 C.F.R. § 3903.40 (establishing rental rates); 43 C.F.R. § 3903.52 (setting forth royalty rates).

<sup>224</sup> 30 U.S.C. § 196(a). Utah has entered into a similar agreement with the United States pursuant to the Surface Mining Control and Reclamation Act, 30 U.S.C. § 1273(c). *See* Utah Surface Coal Mining Cooperative Regulatory Agreement, 30 C.F.R. § 944.30.

<sup>225</sup> 30 U.S.C. § 196(b).

<sup>226</sup> 30 U.S.C. § 181.

<sup>227</sup> 30 U.S.C. § 182. Furthermore, a BLM brochure explains that “several states have entered into cooperative agreements with Federal agencies” to provide for the regulation of oil shale. DEP’T. OF THE INTERIOR, BUREAU OF LAND MANAGEMENT, SOLID MINERAL PROGRAMS ON THE NATION’S FEDERAL LAND: MINIMIZING THE HUMAN ‘FOOTPRINT’ ON THE LANDSCAPE (2010) (see heading titled “Can I start mining after I file my mining claim”), *available at* [http://www.blm.gov/wo/st/en/prog/more/non-energy\\_minerals/solid\\_minerals\\_brochure.html](http://www.blm.gov/wo/st/en/prog/more/non-energy_minerals/solid_minerals_brochure.html).

<sup>228</sup> UTAH CODE ANN. §§ 40-6-1 – 19.

<sup>229</sup> UTAH CODE ANN. §§ 40-8-1 – 23.

<sup>230</sup> UTAH CODE ANN. §§ 40-6-1 and 40-6-3.

<sup>231</sup> UTAH CODE ANN. §§ 40-6-4 and -15.

<sup>232</sup> UTAH CODE ANN. § 40-6-5(2)(a).

<sup>233</sup> UTAH CODE ANN. § 40-6-5(2)(d).

<sup>234</sup> UTAH CODE ANN. §§ 40-6-2(12)(b) and (6)(b).

<sup>235</sup> UTAH CODE ANN. § 40-8-7(1)(j).

<sup>236</sup> UTAH CODE ANN. § 40-8-7.

<sup>237</sup> UTAH CODE ANN. § 40-8-4(14)(a).

<sup>238</sup> UTAH ADMIN. CODE R649-3-31(2).

<sup>239</sup> UTAH ADMIN. CODE R649-3-31(13) and (6).

<sup>240</sup> See Utah Board of Oil, Gas and Mining, Cause Nos. 190-5(b), 190-3, and 190-13.

<sup>241</sup> See *e.g.*, Hydro Resources, Inc. v. U.S. E.P.A., 608 F.3d 1131 (10th Cir 2010) (determining which agency had jurisdiction in administering SDWA permitting requirements for proposed uranium mine).

<sup>242</sup> 18 U.S.C. § 1151 (emphasis added). Although originally intended for the Federal Criminal Code, the definition has been extended to civil cases as well. See *Alaska v. Native Village of Venetie*, 522 U.S. 520, 527 (1998); see also 40 C.F.R. § 144.3 (EPA regulations defining “Indian lands,” over which it retains jurisdiction, as synonymous with “Indian Country” under § 1151 for purposes of administering the SDWA).

<sup>243</sup> 1-3 COHEN’S HANDBOOK OF FEDERAL INDIAN LAW § 3.04(2)(c)(ii) (2009).

<sup>244</sup> *Alaska v. Native Village of Venetie Tribal Government*, 522 U.S. 520, 527 and 532 (1998).

<sup>245</sup> *Id.* at 527.

<sup>246</sup> The General Allotment Act of 1887, commonly known as the Dawes Act, 24 Stat. 388, was based upon the theory that Indians would be readily assimilated into white society if they owned a parcel of land and followed agricultural pursuits. The Dawes Act, as amended, called for the allocation of 80 acres of agricultural land or 160 acres of grazing land to all members of a tribe. 26 Stat. 794, 25 U.S.C. § 331, codified as amended at 25 U.S.C. §§ 331-334, 339, 341, 342, 348, 349, 354 and 381. These allotments were held in trust for individual tribal members by the United States – legal title was held by the United States and the allottee was given beneficial title (the right to live on, use and profit from the allotment). Additional lands were held in common by the tribe and the remaining lands were subject to disposal as “surplus” lands. 24 Stat. 388, 389-90, 25 U.S.C. § 348. Trust allotments should not be confused with “trust lands,” which are lands acquired by the United States on behalf of individual Indians and tribes under 25 U.S.C. § 465 or another express congressional grant. For more information, see CONFERENCE OF WESTERN ATTORNEYS GENERAL, AM. INDIAN LAW DESKBOOK 57-59 (2004) (discussing the difference between trust allotments and trust lands) [hereinafter DESKBOOK].

<sup>247</sup> During the 1980s, disputes over criminal jurisdiction on non-Indian lands within the Uintah and Ouray Reservation were heavily litigated in both federal and state courts, resulting in the U.S. Supreme Court case of *Hagen v. Utah*, 510 U.S. 399 (1994). Reservation boundaries were also the subject of almost two decades of litigation, resulting in two lengthy federal district court opinions, three federal appellate court opinions, and two additional trips to the Supreme Court. See *Ute Indian Tribe of the Uintah and Ouray Reservation v. State of Utah*, 114 F.3d 1513 (10th Cir. 1997) and cases discussed therein.

<sup>248</sup> See *Ute Indian Tribe v. Utah*, 521 F. Supp. 1072, 1081 (D. Utah 1981) (citations omitted) *reversed* on other grounds at 773 F.2d 1087 (10th Cir. 1985) (explaining that “[t]he issue was of no great importance in the early 1900’s as it was commonly assumed that all reservations would be abolished when the trust period on allotted lands expired. There was no pressure on Congress to accelerate this time table, so long as settlers could acquire unused land. Accordingly, Congress did not focus on the boundary question.”).

<sup>249</sup> *Hydro Resources, Inc. v. EPA*, 608 F.3d 1136, 1140 (10th Cir. 2010).

<sup>250</sup> CLIFFORD DUNCAN, A HISTORY OF UTAH’S AMERICAN INDIANS (Forrest S. Cuch, ed. 2000) and FRED A. CONETAH, A HISTORY OF THE NORTHERN UTE PEOPLE (Kathryn L. MacKay and Floyd A. O’Neil, eds., 1982).

<sup>251</sup> *Id.*

<sup>252</sup> Bureau of Indian Affairs, Dep't of the Interior, Mineral & Development Guide Vol. 1, How to do Business on the Uintah & Ouray Reservation (2006) [hereinafter Business on the Uintah & Ouray Reservation].

<sup>253</sup> For a comprehensive history of Native Americans within the State of Utah, see CLIFFORD DUNCAN, *supra* note 250, CONETAH, *supra* note 250, at 51-54, and Ute Indian Tribe v. Utah, 521 F. Supp. 1072 (D. Utah 1981) *reversed* on other grounds at 773 F.2d 1087 (10th Cir. 1985).

<sup>254</sup> Congress removed a 7,040-acre tract known as the Gilsonite Strip in 1888; removed 1,010,000 acres of land for National Forests in 1905; and withdrew 56,000 acres of land for a reclamation project in 1910. In the early 20th century, the President of the United States issued a series of executive orders setting aside three federal oil shale reserves. Naval Oil Shale Reserve (NOSR) No. 2 (88,890 acres) was created out of reserved lands. CONGRESSIONAL RESEARCH SERVICE, OIL SHALE: HISTORY, INCENTIVES, AND POLICY, A REPORT TO CONGRESS 2 (Apr. 13, 2006).

<sup>255</sup> In 1948 the reservation was increased by 510,000 acres by the addition of the Hill Creek Extension. Ute Indian Tribe v. Utah, 716 F.2d 1298, 1301 (10th Cir. 1983). See also, the National Defense Authorization Act of 2000, Pub. L. 106-398 § 3405(b) and (c) (transferring approximately 84,000 acres of NOSR No. 2 to the Ute Indian Tribe).

<sup>256</sup> Rosebud Sioux Tribe v. Kneip, 430 U.S. 584 (1977). Only Congress can terminate a reservation and such a determination must either be expressed on the face of the Congressional Act or clear from the surrounding circumstances and legislative history. *Id.*; see also Solem v. Bartlett, 465 U.S. 463, 470 (1984); DESKBOOK, *supra* note 246, at 74.

<sup>257</sup> Ute Indian Tribe v. Utah (I), 521 F.Supp. 1072 (D.Utah 1981); Ute Indian Tribe v. Utah (II), 716 F.2d 1298 (10th Cir. 1983); Ute Indian Tribe v. Utah (III), 773 F.2d 1087 (10th Cir. 1985); Hagen v. Utah, 510 U.S. 399 (1994); Ute Indian Tribe v. Utah (IV), 953 F.Supp. 1473 (D.Utah 1996); Ute Indian Tribe v. Utah (V), 114 F.3d 1513 (10th Cir. 1997).

<sup>258</sup> *Ute Indian Tribe (V)*, 114 F.3d at 1528. In other words, lands that passed in fee to non-Indians, pursuant to the 1902-1905 allotment legislation, are no longer Indian Country.

<sup>259</sup> The current Uintah & Ouray Reservation is formed from portions of two prior reservations: the Uintah Valley Reservation, originally inhabited by the Uintah and White River bands; and the Uncompahgres Reservation, originally inhabited by the Uncompahgres band. In 1937, the three bands formed together to create the Ute Indian Tribe. The 1997 *Ute Indian Tribe (V)* case found the Uncompahgres was part of Indian Country. Cases after 1997 have also recognized the Uncompahgres reservation as Indian country. See *State v. Reber*, 20040371-CA Utah Ct. of Appeals Nov. 10, 2005).

<sup>260</sup> *Ute Indian Tribe (V)*, 114 F.3d at 1530. As previously mentioned, the three categories of non-trust fee lands include reservations, dependent Indian communities, and Indian allotments.

<sup>261</sup> Christopher S. Kulander, *Split-Estate and Site Remediation Issues on Tribal Lands*, 126 TEXAS J. OIL, GAS, & ENERGY L. 125, 130 (2007); see also Judith V. Royster, *Mineral Development in Indian Country: The Evolution of Tribal Control Over Mineral Resources*, 29 TULSA L.J. 541, 604 (1994).

<sup>262</sup> *Montana v. United States*, 450 U.S. 544, 565 (1981). See *South Dakota v. Bourland*, 508 U.S. 679, 689 (1993) (“[W]hen an Indian tribe conveys ownership of its tribal lands to non-Indians, it loses any former right of absolute and exclusive use and occupation of the conveyed lands. The abrogation of this greater right . . . implies the loss of regulatory jurisdiction over the use of the land by others.”).

<sup>263</sup> *Montana*, 450 U.S. at 565.

<sup>264</sup> *Id.* at 566.

<sup>265</sup> *Merrion v. Jicarilla Apache Tribe*, 455 U.S. 130 (1982); see also *Kerr-McGee Corp. v. Navajo Tribe of Indians*, 471

U.S. 195 (1985).

<sup>266</sup> *Atkinson Trading Co. v. Shirley*, 532 U.S. 645, 647 (2001).

<sup>267</sup> *Kulander*, *supra* note 261, at 131.

<sup>268</sup> *Id.*

<sup>269</sup> *Id.*

<sup>270</sup> *California v. Cabazon Band of Mission Indians*, 480 U.S. 202, 207 (1987).

<sup>271</sup> *Williams v. Lee*, 358 U.S. 217, 219-20 (1959) (holding that state jurisdiction is permitted only “where essential tribal relations were not involved and where the rights of Indians would not be jeopardized. . .”).

<sup>272</sup> *Cotton Petroleum Corp. v. New Mexico*, 490 U.S. 163, 169-70 (1989). The Ute Mountain Ute Tribe is currently in litigation to try and distinguish *Cotton Petroleum*. The Tribe is seeking injunctive relief against imposition of state (NM) tax on non-tribal operators extracting oil and gas, arguing that they do not receive any services from the state and few tribal members live in the state of New Mexico. The Tribe prevailed before the district court. *Ute Mountain Ute Tribe v. Homans* (D. N.M. Oct. 30, 2009) (No. 07-CV-00772 JAP/WDS). The case is currently on appeal in the U.S. Court of Appeals 10th Circuit (No. 09-2276).

<sup>273</sup> *County of Yakima v. Confederated Tribes and Bands of the Yakima Indian Nation*, 502 U.S. 251 (1992).

<sup>274</sup> *Willman v. Washington Utilities & Transp. Comm’n*, 117 P.3d 343 (Wash. 2005).

<sup>275</sup> THE HARVARD PROJECT ON AMERICAN INDIAN ECONOMIC DEVELOPMENT, *THE STATE OF NATIVE NATIONS: CONDITIONS UNDER U.S. POLICIES OF SELF-DETERMINATION*, 4 (2008).

<sup>276</sup> Under the trust doctrine, Congress enjoys a fiduciary's power to manage the affairs of the Indian nations, including their lands and resources. Rebecca Tsosie, *The Conflict Between the “Public Trust” and the “Indian Trust” Doctrines: Federal Public Land Policy and Native Nations*, 39 TULSA L.REV. 271, 277 (2003); *see also* *United States v. Sioux Nation*, 448 U.S. 371 (1980).

<sup>277</sup> 25 U.S.C. § 396-a-g (IMLA); 25 U.S.C. § 2102(a) (IMDA); 25 U.S.C. §§ 3501-3506 (ITEDSA); *see also* DESKBOOK, *supra* note 246, at 85 (providing a history of mineral leasing and related statutes).

<sup>278</sup> Tsosie, *supra* note 276, at 277; *see also* Judith V. Royster, *Practical Sovereignty, Political Sovereignty, and the Indian Tribal Energy Development and Self-Determination Act*, 12 LEWIS & CLARK L. REV. 1065, 1081 (2008).

<sup>279</sup> *Business on the Uintah & Ouray Reservation*, *supra* note 252.

<sup>280</sup> The Ute Energy and Minerals Department is responsible for the development of natural resources owned by the Ute Indian Tribe and works closely with state and federal agencies. The Ute Indian Tribe, Energy & Minerals Department, <http://www.utetribe.com/mineralResourcesDevelopment/energyMinerals.html>.

<sup>281</sup> *Id.*

<sup>282</sup> In 1954, Congress enacted the Ute Partition and Termination Act “to provide for the partition and distribution of the assets of the Ute Indian Tribe . . . between the mixed-blood and full-blood members thereof . . .” 25 U.S.C. § 677. The Ute Distribution Corporation was created to manage all unadjudicated or unliquidated assets not distributed in accordance with the Act.

<sup>283</sup> *BUSINESS ON THE UINTAH & OURAY RESERVATION*, *supra* note 252.

<sup>284</sup> *See, e.g.*, 40 C.F.R. § 144.3 (EPA regulations defining “Indian lands” as synonymous with “Indian Country” under § 1151 for purposes of administering the Safe Drinking Water Act), 40 C.F.R. § 50.1(i) (same under the Clean Air Act), *and* 40 C.F.R. § 122.2 (same under the Clean Water Act).

<sup>285</sup> Env'tl. Protection Agency, EPA Policy for the Administration of Environmental Programs on Indian Reservations (1984). The policy was reaffirmed in 2001, 2004, 2005, and 2009. The EPA recently released a proposed Policy on Consultation and Coordination with Indian Tribes in 2010.

<sup>286</sup> The EPA explained that it will determine whether a tribe possesses inherent tribal authority over non-consenting non-Indians on fee lands based on federal common law principles, including *Montana v. United States*. Final Rule, Amendments to Water Quality Standards Regulation that Pertain to Standards on Indian Reservations, 56 FED. REG. 64, 878, 64,876 (1991).

<sup>287</sup> Clean Air Act Amendments of 1990, 42 U.S.C. § 7601(d); Clean Water Act Amendments of 1987, 33 U.S.C. § 1377. See also Clean Air Act, 42 U.S.C. § 7601(d)(2); Clean Water Act, 33 U.S.C. § 1377(e). The Safe Drinking Water Act Amendments of 1986 also included a TAS provision. 42 U.S.C. § 300j-11(a); 42 U.S.C. § 300j-11(b)(1) (for requirements).

<sup>288</sup> 33 U.S.C. § 1377(e) (providing that tribes may be treated as states). Indeed, state or tribal standards may be more stringent than federal standards. 33 U.S.C. § 1370. See also DESKBOOK, *supra* note 246, at 355-360 (discussing tribal assumption under the CWA). Other delegable CWA programs include water quality certification for federal permits or licenses (CWA § 401); permitting under the National Pollutant Discharge Elimination System program (CWA § 402); and permitting for discharges of dredged or fill material (CWA § 404).

<sup>289</sup> *Wisconsin v. EPA*, 266 F.3d 741, 748 (7th Cir. 2001).

<sup>290</sup> *Wisconsin*, 266 F.3d at 748 (7th Cir. 2001); see also 56 FED. REG. at 64877. There is a presumption that health and welfare will always be impacted by water pollution. *Montana v. EPA*, 137 F.3d 1135 (9th Cir. 1998).

<sup>291</sup> *Wisconsin*, 266 F.3d at 749-50; 56 FED. REG. at 64887; see also *City of Albuquerque v. Browner*, 97 F.3d 415 (9th Cir. 1996). For clarification, the EPA has the ultimate authority to decide whether or not to issue a permit and to force upstream state NPDES dischargers to comply with downstream tribal standards.

<sup>292</sup> 42 U.S.C. § 7410; 42 U.S.C. § 7601(d)(2)(B) (authorizing tribes to assume program authority "within the exterior boundaries of the reservation and other areas within the tribe's jurisdiction."). See DESKBOOK, *supra* note 246, at 363-369 (discussing tribal assumption under the CAA).

<sup>293</sup> 42 U.S.C. § 7410(o); see also *Arizona Public Serv. Co. v. EPA*, 211 F.3d 1280 (D.C. Cir. 2001) (holding that the tribe's authority to propose tribal implementation plans extends over all land within a reservation, allotted lands and dependent Indian communities, so long as the tribe has inherent jurisdiction over them).

<sup>294</sup> 42 U.S.C. § 7474(c); 40 C.F.R. 52.21 (defining Indian Reservation as any federally recognized reservation established by Treaty, Agreement, executive order, or act of Congress); DESKBOOK, *supra* note 246, at 366. See *United States v. PPL Montana LLC*, U.S. District Court for the District of Montana, Cause No. CV-07-40 (2007) (where the Northern Cheyenne tribe in Montana redesignated its reservation as a Class I attainment area, affecting power plant operations located 15 miles from the reservation). Notably, EPA's authority to redesignate PSDs extends to all of Indian country.

<sup>295</sup> See EPA, American Indian Tribal Portal, The Clean Air Act, [www.epa.gov/indian/laws/caa.htm](http://www.epa.gov/indian/laws/caa.htm); 64 FED. REG. 8247 (1999) (codified at 40 C.F.R. § 71.4(b)) (final rule governing the issuance of operating permits to stationary sources in Indian country).

<sup>296</sup> Clean Air Act Final Approval of Operating Permits Program, Approval of Construction Permit Program Under Section 112(l), State of Utah, 60 FED. REG. 30,192 (1995).

<sup>297</sup> Current Utah Oil and Gas Production, April 2006, [http://airquality.utah.gov/Public-Interest/Current-Issues/Oil\\_and\\_Gas/pdf/Indian\\_Country.pdf](http://airquality.utah.gov/Public-Interest/Current-Issues/Oil_and_Gas/pdf/Indian_Country.pdf).

<sup>298</sup> Independent Petroleum Association of Mountain States, *Rockies Regional Competitiveness IPAMS Member*

*Regional Survey Results* (2010), available at: <http://www.westernenergyalliance.org/wp-content/uploads/2010/02/IPAMS-Survey-Results-Competitiveness-updated-May-2010.pdf>.

<sup>299</sup> Royster, *supra* note 278, at 631.

<sup>300</sup> 42 U.S.C. § 6903(13). As municipalities, tribes may apply for federal funding to develop solid waste management programs and are subject to citizen suits to enforce applicable solid waste management regulations. See *Blue Legs v. USBIA*, 867 F.2d 1094, 1097 (8th Cir. 1989). *DESKBOOK*, *supra* note 246, at 366-369. However, the EPA has indicated that tribes may receive TAS status under RCRA in the future. See Royster, *supra* note 278, at 631 (citing 57 FED. REG. 52,024 (1992)).

<sup>301</sup> See *Washington, Dept. of Ecology v. EPA*, 752 F.2d 1495 (9th Cir. 1985) (holding that the State of Washington did not have jurisdiction in Indian Country under RCRA).

<sup>302</sup> 42 U.S.C. § 6921(b)(3)(A)(ii) (exempting solid waste from the extraction, beneficiation, and processing of ores and minerals); 40 C.F.R. § 261.4(b)(7); *id.* § 261.4(a)(5) (exempting materials subject to in-situ mining techniques that are not removed from the ground as part of the extraction process); 45 FED. REG. 33066, 33101 (1980) (discussing in-situ solvent contaminated earth).

<sup>303</sup> The EPA, Spent Oil Shale, [www.epa.gov/wastes/nonhaz/industrial/special/oil/oilshale.htm](http://www.epa.gov/wastes/nonhaz/industrial/special/oil/oilshale.htm).

<sup>304</sup> 43 U.S.C. §§ 1761-70.

<sup>305</sup> 43 U.S.C. § 1765.

<sup>306</sup> 43 U.S.C. § 1761(a).

<sup>307</sup> 43 U.S.C. § 1765 (a)(ii).

<sup>308</sup> 43 U.S.C. § 1701(h). See also, *Sierra Club v. Hodel*, 848 F.2d 1068, 1087-88 (10th Cir. 1988).

<sup>309</sup> See *Utah v. United States*, 486 F.Supp. 995, 1001 (D. Utah 1979).

<sup>310</sup> *Id.* at 1002.

<sup>311</sup> 43 U.S.C. § 1782(c).

<sup>312</sup> *Utah v. United States*, 486 F.Supp. at 1009.

<sup>313</sup> 42 U.S.C. § 4332(2)(C).

<sup>314</sup> See *Sierra Club v. Hodel*, 848 F.2d 1068, 1090-91 (10th Cir. 1988) (holding that BLM actions to insure county road construction proposal did not exceed the scope of its right-of-way through public lands did not constitute “major federal action,” but the BLM’s duty to prevent unnecessary degradation of adjoining wilderness study areas elevated situation to one of major federal action).

<sup>315</sup> 14 Stat. 251, 253 (1866), 43 U.S.C. § 932 (1970), *repealed by* FLPMA, Pub. L. No. 94-579, § 706(a), 90 Stat. 2743, 2793 (1976).

<sup>316</sup> 425 F.3d 735 (10th Cir. 2005). This opinion is sometimes referred to as the “McConnell Opinion,” for the judge who drafted it.

<sup>317</sup> *S. Utah Wilderness Alliance v. BLM*, 425 F.3d 735, 741 (10th Cir. 2005).

<sup>318</sup> *Id.* at 755. The term “highway is interpreted broadly; “Highways are the means of communication and of commerce. The more difficult and rugged is the country, the greater is their necessity and the more reason exists to encourage and aid their construction.” *Id.* at 782.

<sup>319</sup> *Id.* at 748.

<sup>320</sup> *Id.* at 771.

<sup>321</sup> *Id.*

<sup>322</sup> *Id.* at 777-78.

<sup>323</sup> *Sierra Club v. Hodel*, 848, F.2d 1068, 1083-84 (10th Cir. 1988).

<sup>324</sup> *S. Utah Wilderness Alliance v. BLM*, 425 F.3d 735, 745 (10th Cir. 2005).

<sup>325</sup> *Id.* at 757-58.

<sup>326</sup> *Id.* at 768.

<sup>327</sup> 16 U.S.C. §§ 3101-233.

<sup>328</sup> *See Montana Wilderness Association v. U. S. Forest Service*, 655 F.2d 951, 957 (9th Cir. 1981) (holding that owner of timber lands surrounded by National Forests “has an assured right of access to its lands” pursuant to ANILCA’s “nation-wide grant of access.”).

<sup>329</sup> 16 U.S.C. § 3170(b).

<sup>330</sup> 655 F.2d 951 (9th Cir. 1981).

<sup>331</sup> 16 U.S.C. § 3102(3).

<sup>332</sup> *Montana Wilderness Association*, 655 F.2d at 954 – 55.

<sup>333</sup> 80 IBLA 64 (1984)

<sup>334</sup> *Id.* at 77.

<sup>335</sup> *Id.* at 73.

<sup>336</sup> *See United States v. Vogler*, 859 F.2d 638 (9th Cir.1988) (requiring a miner to apply for a permit to transport off-road vehicles through part of the national park system did not deprive the miner of “adequate and feasible” access provided for in ANILCA).

<sup>337</sup> *See Hale v. Norton*, 476 F.3d 694, 700 (9th Cir. 2007) (holding National Park Service decision to require NEPA analysis for bulldozer access to park inholding was reasonable).

<sup>338</sup> 657 F.Supp. 2d 1233 (D. Colo. 2009).

<sup>339</sup> 657 F. Supp. 2d at 1247.

<sup>340</sup> 657 F. Supp. 2d at 1247, n.4.

<sup>341</sup> 657 F. Supp. 2d at 1237 (quoting the USF&W Conceptual Management Plan).

<sup>342</sup> Board of Trustees of the School and Institutional Trust Lands Administration, Policy Statement No. 2006-01, Roads and Access (2006), *available at* [http://trustlands.utah.gov/board/board\\_policy\\_statements.html](http://trustlands.utah.gov/board/board_policy_statements.html).

<sup>343</sup> *See* UTAH CODE ANN. § 53C-2-301 et seq. and UTAH ADMIN. CODE R850-40.

<sup>344</sup> *See* UTAH ADMIN. CODE R850-40.

<sup>345</sup> UTAH ADMIN. CODE R850-41-200(2).

<sup>346</sup> UTAH ADMIN. CODE R850-41-600.

<sup>347</sup> UTAH ADMIN. CODE R850-40-200(1).

<sup>348</sup> UTAH ADMIN. CODE R850-40-400.

<sup>349</sup> UTAH ADMIN. CODE R850-40-300. SITLA's authority to exempt itself from common law causes of action is not stated and may be subject to dispute or challenge.

<sup>350</sup> Eminent domain is the "inherent power of a governmental entity to take *privately* owned property, esp[ecially] land, and convert it to public use, subject to reasonable compensation for the taking." BLACK'S LAW DICTIONARY (8th ed. 2004) (emphasis added).

<sup>351</sup> UTAH CODE ANN. § 78B-6-501.

<sup>352</sup> UTAH CODE ANN. § 78B-6-501(3)(e).

<sup>353</sup> UTAH CODE ANN. § 78B-6-501(6)(a).

<sup>354</sup> UTAH CODE ANN. § 78B-6-501(6)(d).

<sup>355</sup> UTAH CODE ANN. § 78B-6-501(7)(d).

<sup>356</sup> See, e.g., UTAH CODE ANN. § 78B-6-505, (discussing procedures for "persons" seeking to acquire property via eminent domain).

<sup>357</sup> UTAH CODE ANN. § 78B-6-511.

<sup>358</sup> UTAH CODE ANN. § 73-1-6.

<sup>359</sup> BUREAU OF LAND MANAGEMENT, DEP'T OF THE INTERIOR, SEEP RIDGE ROAD PAVING PROJECT ENVIRONMENTAL ASSESSMENT 2-1 (2009).

<sup>360</sup> *Id.* at 2-8 and 2-2.

<sup>361</sup> Personal communication with Bill Jackson, Grand County Roads Supervisor (Oct. 6, 2010).

<sup>362</sup> *Id.*

<sup>363</sup> Personal Communication with Mark Wimmer, BLM Planning Coordinator, Vernal Field Office (Sept. 28, 2010).

<sup>364</sup> See ICSE POLICY ANALYSIS, *supra* note 118, at A-55 – A-60.

<sup>365</sup> Information regarding specific projects is available through the BLM's electronic Environmental Notification Bulletin Board, <https://www.blm.gov/ut/enbb/search.php>.

<sup>366</sup> See THOMAS C. CHIDSEY, JR., ET AL., UTAH GEOLOGICAL SURVEY, OIL AND GAS FIELDS MAP OF UTAH (Feb. 2005 ed.)

<sup>367</sup> PUBLIC LAND LAW REVIEW COMM'N, *supra* note 44, at 57.

<sup>368</sup> *Id.*

<sup>369</sup> *Id.*

<sup>370</sup> 43 U.S.C. § 1712(c)(9).

<sup>371</sup> 42 U.S.C. § 4332.

<sup>372</sup> 40 C.F.R. § 1501(b).

<sup>373</sup> 40 C.F.R. § 1501.7(a)(1).

<sup>374</sup> 16 U.S.C. § 1535(a) and (c)(1).

<sup>375</sup> PUBLIC LAND LAW REVIEW COMM'N, *supra* note 44, at 60.

<sup>376</sup> *Id.* at 61 (emphasis added).

<sup>377</sup> See Board of Trustees of the School and Institutional Trust Lands Administration, Policy Statement No. 2005-01 (noting that "actions taken by other agencies can often impact the ability to manage trust lands for their highest

and best use,” and that “[i]nvolvement in those planning processes may prevent adoption of plans that have the potential to negatively affect trust lands.”). The BLM also recognizes that “land management decisions have ramifications beyond their immediate effect on BLM lands.” The BLM is developing processes to “meaningfully engage with problems and ecosystems that cross planning area boundaries lines.” Dep’t of the Interior, Bureau of Land Management, Draft Discussion Paper, *Treasured Landscapes: Our Vision Our Values* 8 (2010) (on file with authors) [hereinafter *Treasured Landscapes Discussion Paper*].

<sup>378</sup> See John W. Andrews, *Swapping With the Feds: An Updated Look at Federal Land Exchanges*, 51 ROCKY MT. MIN L. INST. 8-2 (2004).

<sup>379</sup> *Treasured Landscapes Discussion Paper*, *supra* note 377, at 7.

<sup>380</sup> *Id.*

<sup>381</sup> See 43 U.S.C. §§ 1715(a) and 1716(a).

<sup>382</sup> 43 U.S.C. § 1716(a).

<sup>383</sup> 36 C.F.R. § 254.3(b)(1).

<sup>384</sup> 43 U.S.C. § 1716(b).

<sup>385</sup> 43 U.S.C. § 1716((f)(2)(A).

<sup>386</sup> 43 C.F.R. § 2201.3-2(a)(1)-(2).

<sup>387</sup> 43 C.F.R. § 2200.0-5(k).

<sup>388</sup> 43 U.S.C. § 1716(b). The SOI and the other parties involved in the exchange may agree to employ bargaining or other processes to determine the value of properties involved. 43 U.S.C. § 1716(d)(4).

<sup>389</sup> 43 U.S.C. § 1719(a).

<sup>390</sup> 606 F.3d 1058 (9th Cir. 2010).

<sup>391</sup> 606 F.3d at 1069.

<sup>392</sup> 231 F.3d 1172, 1184 (9th Cir.2000).

<sup>393</sup> *Nat’l Parks Conservation Association v. Bureau of Land Management*, 606 F.3d 1063, 1068 (9th Cir. 2010).

<sup>394</sup> 43 C.F.R. § 2200.0-6(b).

<sup>395</sup> 606 F.3d at 1069.

<sup>396</sup> See *Nat’l Coal Ass’n v. Hodel*, 825 F.2d 523, 532 (D.C. Cir. 1987). A more extensive analysis of the public interest review is contained in *National Audubon Society v. Hodel*, a 1984 case challenging an exchange of National Wildlife Refuge lands proposed under ANILCA and the Alaska Native Claims Settlement Act. 43 U.S.C. §§ 1601-1629h. In *National Audubon*, the District Court enjoined the exchange because the Secretary disregarded evidence of likely environmental impacts and ignored protections already afforded by law, thereby overstating the benefit to the government. 606 F.Supp 825, 846 (D. Alaska 1984).

<sup>397</sup> *Center for Biological Diversity v. Interior*, 581 F.3d 1063, 1067 (9th Cir. 2009).

<sup>398</sup> 2,780 acres of which reflect split estate lands; the remaining 8,196 acres are held in their entirety by BLM.

<sup>399</sup> *Center for Biological Diversity*, 581 F.3d at 1067.

<sup>400</sup> *Id.* at 1066.

<sup>401</sup> *Id.* at 1073-74.

<sup>402</sup> *Id.* at 1073.

<sup>403</sup> *Id.* at 1075.

<sup>404</sup> *Id.* at 1075-76. Though not part of the litigation, the Federal Land Transaction Facilitation Act reflects an additional potential complication to selling or exchanging federal public lands. The Act directs the Secretaries of the Interior and Agriculture to “establish a program . . . to complete appraisals and satisfy other legal requirements for the sale or exchange of public lands identified for disposal under approved land use plans (*as in effect on [the effective date of the Act,] July 25, 2000*). . . .” 42 U.S.C. § 2304(a) (emphasis added). Land use plan revisions over the past decade reflect a more recent assessment of what lands are suitable for disposal, yet pre-July 25, 2000 assessments remain binding for purposes of the Act. Pending legislation would resolve this discrepancy by deleting references to the effective date of the legislation. See S. 1787 and H.R. 3339 111th Cong. (2009-10). Revisions to the Act enjoyed bipartisan support but were not passed into law before the close of the session. The inability to amend the Act does not prevent land exchanges; it merely complicates efforts to fund appraisals. Nothing in the Act “precludes, preempts, or limits the authority to exchange land” under FLPMA. 43 U.S.C. § 2306(c). Moreover, Congress can pass legislation expressly authorizing land exchanges, as it did with the URLEA.

<sup>405</sup> Pub. L. 111-53 (2009).

<sup>406</sup> Maps of the parcels involved in the exchange are available at <http://tlamap.trustlands.utah.gov/plat/help/recexchange.htm>. The number of parcels involved in the exchange and their acreage are subject to change as needed to equalize land and resource values.

<sup>407</sup> Pub. L. 111-53 at § 3(f).

<sup>408</sup> Under the MLA, which applies to oil shale and oil sands, fifty percent of all money received from sales, bonuses, and royalties shall be paid to the treasury of the state within which the deposits are or were located. 30 U.S.C. § 191(a). Note that the State of Utah is under no obligation to impose rents or royalties equal to what the BLM would require under federal leasing rules, therefore actual returns to the federal treasury may differ from what would have been earned had the resource been leased by the BLM.

<sup>409</sup> Pub. L. 111-53 at § 3(f)(5)(A).

<sup>410</sup> Utah and the BLM currently impose royalty rates that increase over time, but royalties under the two leasing systems accelerate at different rates. Federal oil shale leasing rules are the subject of pending litigation and have been criticized harshly for their royalty provisions.

<sup>411</sup> For example, in 1996 Congress authorized a package of eleven land exchanges, one of which was specifically excluded from NEPA review. See Pub. L. 104-333.

<sup>412</sup> See *South Dakota v. Andrus*, 614 F.2d 1190, 1193 (8th Cir. 1980).

<sup>413</sup> As the Eighth Circuit Court of Appeals noted with respect to mineral patents issued under the 1872 Mining Act, the granting of a mineral patent (which conveys title from the United States to a private party whenever certain conditions are met) “does not enable the private party [ ] to do anything. Unlike the case where a lease, permit or license is required before the particular project can begin, the issuance of a mineral patent is not a precondition which enables a party to begin mining operations.” *South Dakota v. Andrus*, 614 F.2d 1190, 1194 (8th Cir. 1980). Like issuance of a mineral patent, a congressionally directed exchange of properties is a ministerial action that does not involve BLM discretion, and the conveyance does not enable a party to begin mining operations. Finalizing such an exchange is therefore arguably not a major federal action subject to NEPA requirements.

<sup>414</sup> 43 U.S.C. § 1713(a).

<sup>415</sup> 43 U.S.C. § 1713(f).

<sup>416</sup> 43 U.S.C. § 1713(d).

<sup>417</sup> BUREAU OF LAND MANAGEMENT, DEP'T OF THE INTERIOR, THE VERNAL FIELD OFFICE PROPOSED RESOURCE MANAGEMENT PLAN AND FINAL ENVIRONMENTAL IMPACT STATEMENT, Figure 6 (2008).

<sup>418</sup> See Price RMP Record of Decision / Approved Management Plan, *available at* [http://www.blm.gov/ut/st/en/fo/price/planning/rod\\_approved\\_rmp0.html](http://www.blm.gov/ut/st/en/fo/price/planning/rod_approved_rmp0.html) (noting Map R-19, Parcels for Disposal through Sale will be developed after the ROD.). See also Appendix J to the Monticello RMP Record of Decision / Approved Plan, *available at* [http://www.blm.gov/ut/st/en/fo/monticello/planning/Monticello\\_Resource\\_Management\\_Plan.html](http://www.blm.gov/ut/st/en/fo/monticello/planning/Monticello_Resource_Management_Plan.html).

<sup>419</sup> See Nancy Saint-Paul, SUMMERS OIL AND GAS § 54.1 (3d ed. 2009).

<sup>420</sup> See INTERSTATE OIL AND GAS COMPACT COMMISSION, IOGCC MODEL STATUTE AND FIELDWIDE UNITIZATION REFERENCES 9 (no date) (as of 2000, the minimum percentage required to ratify unitization agreements ranged from 51 to 80 percent for IOGCC member states with forced pooling statutes).

<sup>421</sup> John S. Kirkham & Richard R. Hall, *Legal Issues in Solution and In Situ Mining*, 52 ROCKY MTN. MINERAL L. INST. 17-9 (2006).

<sup>422</sup> *Id.* at 17-9.

<sup>423</sup> *Id.* at 17-9 – 17-10.

<sup>424</sup> UTAH CODE ANN. § 40-6-6.5(2).

<sup>425</sup> UTAH CODE ANN. § 40-6-6(1).

<sup>426</sup> UTAH CODE ANN. § 40-6-2(18).

<sup>427</sup> UTAH CODE ANN. §§ 40-6-2(12)(b) and (6)(b).

<sup>428</sup> UTAH ADMIN. CODE R850-22-500(5)(a).

<sup>429</sup> UTAH ADMIN. CODE R850-22-500(5)(b).

<sup>430</sup> Eminent domain is the “inherent power of a governmental entity to take *privately* owned property, esp. land, and convert it to public use, subject to reasonable compensation for the taking.” BLACK’S LAW DICTIONARY (8th ed. 2004) (emphasis added).

<sup>431</sup> Legislative Review Notes were attached the introduced version of both bills and can be found at <http://le.utah.gov/session/2010/bills.htm>.

<sup>432</sup> For a detailed review of the states’ position and its role in the Sagebrush Rebellion, see generally, CAWLEY, *supra* note 45, and John D. Leshy, *Unraveling the Sagebrush Rebellion: Law, Politics and Federal Lands*, 14 U.C. DAVIS L. REV. 317 (1980-81).

<sup>433</sup> 9 Stat. 922 (1848).

<sup>434</sup> 9 Stat. 922, *see also* United States v. Nye County, Nevada, 920 Fed. Supp. 1108, 1110 (D. Nev. 1996) (noting that lands were ceded to the United States).

<sup>435</sup> 28 Stat. 107-12 (1894).

<sup>436</sup> 28 Stat. 107-12 at § 3.

<sup>437</sup> 28 Stat. 107-12 at § 3[2].

<sup>438</sup> 28 Stat. 107-12 at § 4.

<sup>439</sup> A township contains thirty-six sections; each section is normally one square-mile in size (640 acres). The State received sections 2, 16, 32, and 36, which are non-contiguous.

- <sup>440</sup> GATES, *supra* note 40, at 804.
- <sup>441</sup> 28 Stat. 107-12 at §§ 7-8, and 12. Approximately 94,000 additional acres of land were granted to the state under separate statutory authority.
- <sup>442</sup> 28 Stat. 107-12 at §§ 6-8 and 12.
- <sup>443</sup> GATES, *supra* note 40, at 806.
- <sup>444</sup> 28 Stat. 107-12 at § 12.
- <sup>445</sup> 28 Stat. 107-12 at § 9.
- <sup>446</sup> UTAH CONST. art. 1, § 3.
- <sup>447</sup> UTAH CONST. art. 3, § 2.
- <sup>448</sup> By comparison, the land granted by the federal government to the State of Utah exceeds the entire land base contained in eight states: Maryland, Vermont, New Hampshire, Massachusetts, New Jersey, Hawaii, Connecticut, Delaware, and Rhode Island.
- <sup>449</sup> GATES, *supra* note 40, at 797.
- <sup>450</sup> *Id.* at 385.
- <sup>451</sup> Dep't of the Interior, Public Land Statistics 2000, Table 3-2 (2001), [http://www.blm.gov/public\\_land\\_statistics/](http://www.blm.gov/public_land_statistics/).
- <sup>452</sup> The federal government administers 66.8 percent of mineral rights and 64.5 percent of surface rights. BLM administered public lands account for 43.3 percent of all lands within Utah. Dep't of the Interior, Public Land Statistics, Table 1-3 (FY2008), [http://www.blm.gov/public\\_land\\_statistics/](http://www.blm.gov/public_land_statistics/).
- <sup>453</sup> See, e.g., section 2.1. But while multiple statutes allowed disposal, the roots of a policy in favor of retention had already taken root around the turn of the twentieth century with creation of the National Park System and national forest withdrawals by Presidents Harrison, Cleveland, McKinley, Roosevelt, and Taft. See PUBLIC LAND LAW REVIEW COMMISSION, *supra* note 44, at 42. Disposals declined further as administrative decisions became increasingly leery of actions that would complicate federal land management. See generally CAWLEY, *supra* note 45, at 11 and throughout early chapters.
- <sup>454</sup> 43 U.S.C. §§ 161-284 (repealed 1976).
- <sup>455</sup> 43 U.S.C. § 224 (repealed 1976).
- <sup>456</sup> 43 U.S.C. §§ 291-302 (repealed 1976).
- <sup>457</sup> 43 U.S.C. § 1701(a)(1). Note, FLPMA allows for the sale of federal public lands where the tract to be sold is difficult and uneconomic to manage as part of the public lands and unsuitable for management by another federal agency; the tract was acquired for a specific purpose and no further federal use for the tract exists; or disposal will serve important public objectives. 43 U.S.C. § 1713(a).
- <sup>458</sup> 43 U.S.C. § 1701(a)(7).
- <sup>459</sup> 43 U.S.C. § 1702(c).
- <sup>460</sup> 72 AM. JUR. 2D *States, Etc.* § 19.
- <sup>461</sup> See 28 Stat. 107-12 § 4 (1894).
- <sup>462</sup> *Cummings v. Missouri*, 71 U.S. 277, 318-19 (1866).
- <sup>463</sup> U.S. CONST. art. IV, § 3, cl. 2. See also, *McKelvey v. United States*, 260 U.S. 353, 359 (1922) ("It is firmly settled that Congress may prescribe rules respecting the use of the public lands. It may sanction some uses and prohibit

others, and may forbid interference with such as are sanctioned.”).

<sup>464</sup> *Gibson v. Chouteau*, 80 U.S. 92, 99 (1872) (upholding claim to land by a federal patent holder against a competing claim reliant on state law).

<sup>465</sup> *Utah Power & Light Co. v. United States*, 243 U.S. 389, 405 (1917) (holding that the Enclave Clause does not require cession of state jurisdiction over federal lands and that the United States retains authority under the Property Clause).

<sup>466</sup> *Kleppe v. New Mexico*, 426 U.S. 529, 541 (1976).

<sup>467</sup> 107 F.3d 1314 (9th Cir. 1996).

<sup>468</sup> *Id.* at 1317.

<sup>469</sup> *Id.* at 1318.

<sup>470</sup> *Id.*

<sup>471</sup> *Id.* at 1319.

<sup>472</sup> *Id.* (citing *United States v. Texas*, 339 U.S. 707, 716 (1950)).

<sup>473</sup> *Id.* (quoting Nevada Statehood Act of March 21, 1864, 13 Stat. 30, 31 § 4).

<sup>474</sup> *Id.* at 1320.

<sup>475</sup> The Tenth Amendment provides that: “The powers not delegated to the United States by the Constitution, nor prohibited to the States, are reserved to the States respectively, or to the people.”

<sup>476</sup> *United States v. Gardner*, 103 F.3d 1314, 1320 (9th Cir. 1996).

<sup>477</sup> *Id.* (citing *Kleppe v. New Mexico*, 426 U.S. 529, 543 (1976)).

<sup>478</sup> *Id.*

<sup>479</sup> *See Leshy, supra* note 432, at 328.

<sup>480</sup> 31 U.S.C. § 6901.

<sup>481</sup> 31 U.S.C. § 6902.

<sup>482</sup> 31 U.S.C. § 6903.

<sup>483</sup> Annual PILT disbursement summaries are available at <http://www.nbc.gov/pilt/pilt/states.cfm>.

<sup>484</sup> *Id.*

<sup>485</sup> *Id.*

<sup>486</sup> For a discussion of economic issues raised by state assumption of management responsibility, see CAWLEY, *supra* note 45, at 102-11.

<sup>487</sup> PUBLIC LAND LAW REVIEW COMMISSION, *supra* note 44, at 245. One of the ironies of Utah’s rigid reading of federal obligations to create equality between states by disposing of federal lands is that requiring the federal government to acquire more public land in other states could also satisfy such an obligation. Nineteen states and the District of Columbia contain less than 1,000 acres of public domain lands and therefore lack the natural, aesthetic, and recreational opportunities that are available on public lands. Dep’t of the Interior, Public Land Statistics 2000, Table 1-3 (2001), [http://www.blm.gov/public\\_land\\_statistics/](http://www.blm.gov/public_land_statistics/). The potential obligation to guarantee equality of economic condition rather than equality of “political rights and sovereignty,” even if possible, simply is not practical.

<sup>488</sup> See audio transcripts of H.B. 143 House Floor Debate, day 31, 2010 regular session, *available at* <http://le.utah.gov/jsp/jdisplay/billaudio.jsp?sess=2010GS&bill=hb0143&Headers=true>.

<sup>489</sup> See audio transcripts of H.B. 143 Senate Floor Debate, day 43, 2010 regular session, *available at* <http://le.utah.gov/~2010/htmdoc/hbillhtm/HB0143.htmhttp://le.utah.gov/jsp/jdisplay/billaudio.jsp?sess=2010GS&bill=hb0143&Headers=true>.

<sup>490</sup> Upon codification, this provision will be contained in Utah Code Ann. § 67-5-29(1).

<sup>491</sup> *Camfield v. United States*, 167 U.S. 518, 524 (1897) (upholding statute prohibiting the construction of a fence enclosing federal lands).

<sup>492</sup> *Ashwander v. Tennessee Valley Authority*, 297 U.S. 288, 336 (1936) (holding that where the United States holds title to a hydroelectric dam, rights to the water passing through the dam, and all features incident to power generation, the electricity produced “constitutes property belonging to the United States,” and the Property Clause does not constrain Congress’s power to determine the terms of property dispossession).

<sup>493</sup> 297 U.S. at 330-31.

<sup>494</sup> *United States v. Gratiot*, 39 U.S. 526, 538 (1840) (holding dispossession of federal mineral interests did not require fee simple disposition and the federal government could charge royalties or lease fees for minerals removed).

<sup>495</sup> Upon codification, this provision will be contained in UTAH CODE ANN. § 78B-6-503.5.

<sup>496</sup> BLACK’S LAW DICTIONARY (8th ed. 2004).

<sup>497</sup> *Com., Natural Res. and Envtl. Prot. Cabinet v. Stearns Coal and Lumber Co.*, 678 S.W.2d 378, 382 (Ky.1984) (holding that the state Wild Rivers Act did not constitute a compensable taking).

<sup>498</sup> 243 U.S. 389 (1917).

<sup>499</sup> 243 U.S. at 390.

<sup>500</sup> See, e.g., *Transwestern Pipeline Co. v. Kerr-McGee Corp.*, 492 F.2d 878, 883-84 (10th Cir. 1974) (holders of certificates of public convenience and necessity under Section 7(h) of the Natural Gas Act possess the power of eminent domain, but such power “does not extend to lands owned by the United States.”).

<sup>501</sup> 486 F.Supp. 995 (D. Utah 1979).

<sup>502</sup> 440 U.S. 668 (1979).

<sup>503</sup> 486 F.Supp. at 1002 n.11.

<sup>504</sup> “As a dictum is by definition no part of the doctrine of the decision, and as the citing of it as a part of the doctrine is almost certain to bring upon a brief maker adverse comment, lawyers are accustomed to speak of a dictum rather slightly, and sometimes they go so far as to intimate a belief that the pronouncing of a dictum is the doing of a wrong. Yet it must not be forgotten that dicta are frequently, and indeed usually, correct, and that to give an occasional illustration, or to say that the doctrine of the case would not apply to some case of an hypothetical nature, or to trace the history of a doctrine, even though it be conceded, as it must, that such passages are not essential to the deciding of the very case, is often extremely useful to the profession.” WILLIAM M. LILE ET AL., *BRIEF MAKING AND THE USE OF LAW BOOKS* 307 (3d ed. 1914).

<sup>505</sup> Testimony of Mike Lee, before the House Natural Resources, Agriculture, and Environment Committee, (Feb. 23, 2010), audio transcripts *available at* <http://le.utah.gov/~2010/htmdoc/hbillhtm/HB0143.htm>.

<sup>506</sup> BLACK’S LAW DICTIONARY (8th ed. 2004).

<sup>507</sup> *Id.*

<sup>508</sup> *United States v. Brady*, 385 F.Supp. 1347, 1351 (1974).

<sup>509</sup> The importance attached to the distinction between sovereign/governmental acts and proprietary acts is context dependent. For a time, state governments were deemed immune from federal taxation of governmental functions, but state functions in the nature of a private or proprietary business venture were not immune from federal taxation. *See, e.g.*, *Burnet v. Coronado Oil & Gas Co.*, 285 U.S. 393 (1932) (federal taxation of oil and gas withdrawn from state trust land); *Ohio v. Helvering*, 292 U.S. 360 (1934) (federal taxation of state liquor sales). Nonetheless, the “distinction provides little basis for principled adjudication and was discarded as a sole test for determining tax immunities under either federal or state law.” RONALD D. ROTUNDA & JOHN E. NOVAK, *TREATIES ON CONSTITUTIONAL LAW – SUBSTANCE AND PROCEDURE* § 4.10(d)(ii)(5) (4th ed. 2010) (citing *Helvering v. Gerhardt*, 304 U.S. 405 (1938) and *Graves v. New York*, 306 U.S. 466 (1939)). In *New York v. United States*, the justices unanimously found the governmental/proprietary distinction unworkable and concluded it must be abandoned. 326 U.S. 572, 583 (Frankfurter, J., joined by Ruthledge, J.); 326 U.S. at 586 (Stone, C.J., concurring, joined by Reed, Murphy, and Burton, JJ.); 326 U.S. at 590-96 (Douglas, J., dissenting, joined by Black, J.). The governmental versus proprietary distinction, however, remains valid for tort liability arising out of actions by state governments; immunity is generally available for sovereign or governmental functions but unavailable for functions deemed proprietary in nature. 57 AM. JUR. 2D *Municipal, etc., Tort Liability* § 47 (2009).

<sup>510</sup> *Camfield v. United States*, 167 U.S. 518, 537 (1897).

<sup>511</sup> *United States v. Essley*, 284 F.2d 518, 521 (10th Cir. 1960).

<sup>512</sup> *United States v. Ohio Oil Co.*, 163 F.2d 633, 639-40 (10th Cir. 1947) (citations omitted).

<sup>513</sup> *United States v. Essley*, 284 F.2d at 521.

<sup>514</sup> 43 U.S.C. § 1701(a)(2).

<sup>515</sup> 43 U.S.C. § 1712(c)(5).

<sup>516</sup> 43 U.S.C. § 1712(c)(3).

<sup>517</sup> 43 U.S.C. § 1712(c)(6).

<sup>518</sup> 43 U.S.C. § 1712(c)(7).

<sup>519</sup> 43 U.S.C. § 1701(a)(8). *See also* 43 U.S.C. § 315 of the Taylor Grazing Act, which empowered the Secretary of Interior to establish grazing districts to “promote the highest and best use of the public lands.”

<sup>520</sup> Testimony of Senator Mark Madsen, audio transcripts of H.B. 143 Senate Floor Debate, day 43, 2010 regular session, available at <http://le.utah.gov/jsp/jdisplay/billaudio.jsp?sess=2010GS&bill=hb0143&Headers=true>.

<sup>521</sup> U.S. CONST. art 1, § 8, cl. 17. The clause’s reference to “exclusive legislation” has always been interpreted as meaning “exclusive jurisdiction.” *See, e.g.*, *United States v. Bevans*, 16 U.S. 336, 387 (1818).

<sup>522</sup> Paul Conable, Comment, *Equal Footing, County Supremacy, and the Western Public Lands*, 26 ENVTL. L. 1263, 1267 (1996).

<sup>523</sup> *Collins v. Yosemite Park & Curry Co.*, 304 U.S. 518, 529-30 (1938) (upholding California’s authority to impose certain taxes and denying its authority to enforce certain regulatory controls within Yosemite National Park).

<sup>524</sup> U.S. CONST. amend. V.

<sup>525</sup> 43 U.S.C. § 1715(a).

<sup>526</sup> 43 U.S.C. § 1715(a).

<sup>527</sup> Pub. L. 104-127, § 390 (1996).

<sup>528</sup> Memorandum from Bonnie R. Cohen, U.S. Department of the Interior, Assistant Secretary - Policy, Management and Budget to Don Young, Chairman, House Committee on Resources (May 27, 1997) (on file with authors) [hereinafter Cohen memorandum].

<sup>529</sup> *Id.*

<sup>530</sup> In 1930, President Hoover issued an Executive Order withdrawing “from lease or other disposal and reserved for the purpose or investigation, examination, and classification,” “the deposits of oil shale, and lands containing such deposits owned by the United States.” Executive Order 5327 (April 15, 1930). Subsequent efforts modified the Executive Order to the extent necessary to permit leasing for sodium, Executive Order 7038 (May 13, 1935), oil and gas, Executive Order 6016 (Feb. 6, 1933), “native asphalt, solid and semi-solid bitumen and bituminous rock,” Public Lands Order 2795 (Oct. 19, 1962), and limited oil shale leasing. 38 FED. REG. 320, 33186 (Nov. 30, 1973). Until recently, however, the vast majority of federal lands containing deposits of oil shale remained subject to President Hoover’s withdrawal.

It was not until March 15, 2002 that the Deputy Secretary of Interior (acting under authority delegated pursuant to Executive Order 10355 (May 26, 1952)) revoked the oil shale withdrawal with respect to approximately 900,000 acres in Moffat, Rio Blanco, Garfield, and Mesa counties, Colorado. 67 FED. REG. 11706-07 (March 15, 2002). Oil shale withdrawals in Utah and Wyoming were not revoked until February 9, 2009. 74 FED. REG. 830-31 (Jan. 8, 2009). Therefore, oil shale withdrawals were in place at the time of the referenced reports and oil shale bearing lands were likely excluded from any assessment of lands suitable for disposal.

<sup>531</sup> For a more detailed discussion, see MICHAEL BEAN AND MELINDA ROWLAND, *THE EVOLUTION OF NATIONAL WILDLIFE LAW* 277-81 (3d ed. 1997).

<sup>532</sup> *Treasured Landscapes Discussion Paper*, *supra* note 377, at 8.

<sup>533</sup> See [http://www.dmg.gov/documents/BR\\_Rapid\\_Ecoregional\\_Assessment\\_BLM\\_102809.pdf](http://www.dmg.gov/documents/BR_Rapid_Ecoregional_Assessment_BLM_102809.pdf).

<sup>534</sup> See <http://nccwsc.usgs.gov/>.

<sup>535</sup> See <http://www.doi.gov/whatwedo/climate/strategy/LCC-Map.cfm>.

<sup>536</sup> See [http://www.westgov.org/index.php?option=com\\_content&view=article&id=123&Itemid=68](http://www.westgov.org/index.php?option=com_content&view=article&id=123&Itemid=68).

<sup>537</sup> See

[http://www.fs.usda.gov/wps/portal/fsinternet!/ut/p/c4/04\\_SB8K8xLLM9MSSzPy8xBz9CP0os3gjAwhwtDDw9\\_AI8zPyhQoY6BdkOyoCAGixyPg!/?ss=119987&navtype=BROWSEBYSUBJECT&cid=STELPRDB5180288&navid=0910000000000000&position=Feature\\*&ttype=detail&pname=Planning%2520Rule-%2520Home](http://www.fs.usda.gov/wps/portal/fsinternet!/ut/p/c4/04_SB8K8xLLM9MSSzPy8xBz9CP0os3gjAwhwtDDw9_AI8zPyhQoY6BdkOyoCAGixyPg!/?ss=119987&navtype=BROWSEBYSUBJECT&cid=STELPRDB5180288&navid=0910000000000000&position=Feature*&ttype=detail&pname=Planning%2520Rule-%2520Home).

<sup>538</sup> Letter from John Harja, Director, Utah Public Lands Policy Coordination Office, to Robert Abbey, Director, BLM (Aug. 3, 2010) (on file with authors).

<sup>539</sup> The Act was amended by Joint Resolution on June 19, 1902 to include additional Indian land for grazing. 32 Stat. 744.

<sup>540</sup> Ultimately the date for opening was extended to September 1, 1905. Indian Appropriations Act of March 3, 1905, ch. 1479, 33 Stat. 1048, 1069-70.

<sup>541</sup> However, consent became no longer necessary after *Lone Wolf v. Hitchcock*, 187 U.S. 553 (1903) (holding that Congress can allot and open an Indian reservation without tribal consent).

<sup>542</sup> The 1905 Act opened, but did not disestablish the Uintah reservation.

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