

THE INFLUENCE OF PROPERTY IN THE LAW OF ENERGY
DEVELOPMENT: HOW THE UNITED STATES AS A
LANDOWNER CAN LIMIT ENVIRONMENTAL DEGRADATION
ON FEDERAL LANDS

NOTE

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I. INTRODUCTION.....	387
II. OIL AND GAS CAPTURE AT COMMON LAW AND ON FEDERAL LANDS.....	389
<i>A. Rule of Capture</i>	389
<i>B. Energy Development on Federal Lands</i>	393
1. <i>Congressional Participation in Environmental Protection</i>	393
2. <i>Judicial Direction for Agency Compliance</i>	395
3. <i>Leasing of Federal Land and Split Estates in Practice</i>	395
<i>C. Benefits and Disadvantages of Federal Energy Development</i>	397
III. PRIVATE OIL AND GAS TODAY: UNITIZATION AND STATE REGULATION.....	398
IV. HOW THE FEDERAL GOVERNMENT CAN STRENGTHEN ENVIRONMENTAL PROTECTION IN THE CONTEXT OF ENERGY DEVELOPMENT ON FEDERAL LANDS.....	399
<i>A. Unitization as a Legislative Response to the Rule of Capture</i>	399
<i>B. Making NEPA Substantive</i>	400
1. <i>Procedural Requirements</i>	401
2. <i>Substantive Requirements</i>	402
V. CONCLUSION.....	403

Energy development—particularly fracking for natural gas and drilling for oil—takes place on and off of federal lands. “The law” on energy

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development is a composite of legislative and judicial oversights. This Note explores the tensions between various approaches to regulating energy development on federal lands and their success in protecting the environment. While legislative unitization and permission structures promote efficient use of resources, some states undercut environmental goals by enforcing a common law understanding of property ownership. Following introductory remarks in Part I, Part II will provide an overview of common law property rights concerning oil and gas capture and their predominance in private energy development. This section will then contrast practices in the private arena with energy development on federal lands. Part III will describe modern trends, both judicial and legislative, in the property doctrine and their effects on the natural environment, particularly as they relate to private ownership. Part IV then argues that perpetuating the common law rule of capture is both economically and environmentally damaging. Finally, Part V asserts that the best scheme for environmental protection is the United States government's regulation as a landowner through maintenance of a strong federal presence in the energy space and making the National Environmental Policy Act of 1969 ("NEPA")¹ substantive.

I. INTRODUCTION

This Note contrasts private oil and gas production with development and leasing on federal lands. However, it is important to understand that general property schemes and regulations affect federal lands because many subsurface rights on public land are privately held. The United States government, like private citizens, enjoys the legal system's protections of its real property ownership and usage. While some statutes strengthen the federal government's property rights compared to those of private citizens,² other statutes—such as NEPA, which is a procedural statute that requires consideration and reporting of the environmental effects of federal actions *ex ante*³—prevent the government from having the same nearly absolute degree of control over its land as private citizens. This tempered idea of property rights colors the United States government's planning, development, and preservation of land and

¹ National Environmental Policy Act of 1969, 42 U.S.C. § 4321 et seq. (2012).

² See Color of Title Act, 43 U.S.C. §§ 1068–1068b (2012) (allowing adverse possession claims against the United States but only where there is a showing of (a) good faith adverse possession for more than 20 years and placement of valuable improvements or reduced to cultivation or (b) continuous good faith possession since January 1, 1901. *Cf.* *Chaplin v. Sanders*, 676 P.2d 431 (Wash. 1984) (establishing that adverse possession must be (1) exclusive, (2) actual and uninterrupted, (3) open and notorious, and (4) hostile and under a claim of right made in good faith).

³ See 42 U.S.C. § 4321 et seq. (2012).

natural resources. Congressionally mandated limitations on land use and development on federal lands speak to the decisions that the United States *as a landowner* makes about how to use its property. In this vein, legislation like NEPA charges the United States with obtaining and considering relevant environmental impacts before pursuing major federal actions.⁴

Fugacious resources—oil and gas for purposes of this Note—are largely governed by state law despite the potential for regulation under the Commerce Clause of the United States Constitution.⁵ Indeed, most states also regulate the logistics of energy development, including extraction rates and well spacing.⁶ One technique for exercising this control is compulsory or voluntary unitization, which departs from the common law “rule of capture” and changes the dynamics of private property ownership. Under common law, developers compete to extract an underlying resource in order to assert their individual property rights; under compulsory or voluntary unitization, however, multiple owners act like a single owner trying to maximize value by collectively extracting and managing the resource in question.

Nonetheless, the federal government retains an important role in protecting the environment on private lands. Key federal actors like the Bureau of Land Management (“BLM”), the Forest Service, and the Environmental Protection Agency (“EPA”), work to protect air, water quality, and animal species.⁷ When mineral rights are located on federal lands—whether available for leasing or held in split estate—the federal government also has the ability to regulate energy development in its capacity as a landowner.

Finally, this Note looks to the future and suggests that federal and state property schemes can be developed in order to better preserve environmental integrity.

⁴ *See id.* § 4332(2)(C).

⁵ This Note does not discuss the role of local regulations, such as the imposition of weight limits; contracting the repair of road damage; taxes on developers; or constraints of location, technique, and disposal. Nonetheless, these regulatory tactics are important and work in tandem with state and federal oversight.

⁶ NATHAN RICHARDSON ET AL., RESOURCES FOR THE FUTURE, THE STATE OF STATE SHALE GAS REGULATION 5 (June 2013).

⁷ *See, e.g.*, Federal Water Pollution Control Act, 33 U.S.C. § 1251 et. seq. (2012) (“CWA”); Clean Air Act, 42 U.S.C. § 7401 et seq. (2012) (“CAA”); Endangered Species Act of 1973, 16 U.S.C. §§ 1531–1544 (2012) (“ESA”); National Forest Management Act, 16 U.S.C. §§ 1600–1687 (2012).

II. OIL AND GAS CAPTURE AT COMMON LAW AND ON FEDERAL LANDS

Section II.A provides an overview of the private regulation of energy development in order to compare these regulations with energy development on federal lands. In addition, the property scheme for regulation of private individuals is relevant to federal energy development because private individuals may retain subsurface mineral rights on federal lands, creating what is called a “split estate.” This section primarily applies to acquired lands, which are regulated by the common law property concepts discussed below. Section II.B discusses energy development on federal lands through leasing programs regulated under the Mineral Leasing Act of 1920 (“MLA”).⁸

A. Rule of Capture

At common law, almost all jurisdictions initially adopted the rule of capture to determine ownership of fugacious resources like oil and gas.⁹ This common law assignment of ownership for oil and gas operates under two assumptions. First, oil and gas are not just property but are, more specifically, *real estate*. Second, the unbounded nature of a resource defines how its ownership is appraised under common law. The first assumption is a conclusion that remains true in all jurisdictions today,¹⁰ and the second assumption is a justification for applying the law of property to analyze issues surrounding oil and gas development.

In the late 1800s, courts were asked to adjudicate whether a resource was owned by the party that brought it to the surface or by the owner of property (or a fraction of property) where the resource lay in its natural state.¹¹ To decide this question, courts turned to the rule of capture espoused in *Pierson v. Post*,¹² which states that property *ferae naturae* (of a wild nature) is acquired only by physical possession.¹³ Because oil and gas are fugitive resources and difficult to completely and physically possess without capture and retention, courts began to apply *Pierson*’s reasoning, and its rule of capture, to resources like oil and gas. The court

⁸ 30 U.S.C. § 181 et seq. (2012).

⁹ 1-2 BRUCE M. KRAMER & PATRICK H. MARTIN, *THE LAW OF POOLING AND UNITIZATION* § 2.01 (3d ed. 2017).

¹⁰ See, e.g., 26 U.S.C. § 897(c)(1)(A) (2012) (defining interests in oil and gas and other natural resources as interests in real property).

¹¹ See Bruce M. Kramer & Owen L. Anderson, *The Rule of Capture — An Oil and Gas Perspective*, 35 ENVTL. L. 899 (2005) (reviewing cases).

¹² 3 Cai. R. 175 (N.Y. Sup. Ct. 1805) (holding that ownership is established by limitation on a wild animal’s freedom, either through possession or mortal wounding).

¹³ *Id.* at 177 (“It is admitted that a fox is an animal *ferae naturae*, and that property in such animals is acquired by occupancy only.”).

in *Westmoreland v. De Witt*,¹⁴ for example, described the properties of oil and gas in a way that made the substances amenable to the rule of capture doctrine:

Water and oil, and still more strongly gas, may be classed by themselves, if the analogy be not too fanciful, as minerals *ferae naturae*. In common with animals, and unlike other minerals, they have the power and the tendency to escape without the volition of the owner. Their “fugitive and wandering existence within the limits of a particular tract is uncertain.”¹⁵

Although *Pierson* demands “actual corporal possession,”¹⁶ in practice the conditions for possession are satisfied when the animal in question cannot be “fairly intercepted by another.”¹⁷ As applied to fugacious resources like oil and gas, actual occupancy occurs when the resource is taken from the ground and stored.¹⁸ This means that the owner of a subsurface right does not own the resource underlying his real property until he has drilled below the surface and extracted the resource, preventing the resource from being “intercepted by another.” Thus, the amount of an underlying mineral estate that the owner of the subsurface right may claim also depends on competing development.

This classification of oil and gas as *ferae naturae* is pervasive across jurisdictions. Indeed, the Supreme Court of the United States relied upon this analogy in *Ohio Oil Co. v. Indiana*.¹⁹ *Ohio Oil Co.* affirmed the application of the rule of capture as the appropriate ownership doctrine governing oil and gas: “It being true as to both animals *ferae naturae* and gas and oil, therefore, that whilst the right to appropriate and become the owner exists, proprietorship does not take being until the particular subjects of the right become property by being reduced to actual possession.”²⁰ Nevertheless, *Ohio Oil Co.* commits two logical missteps that previous courts had made in extending the rule of capture to oil and gas.²¹

First, application of the rule of capture to energy development is inconsistent with the classification of oil and gas as real property. The rule of capture describes how an individual can take something belonging

¹⁴ 18 A. 724 (Pa. 1889).

¹⁵ *Id.* at 725 (quoting *Brown v. Vandergrift*, 80 Pa. 142, 148 (1875) (Agnew, C.J.)).

¹⁶ *Pierson*, 3 Cai. R. at 177.

¹⁷ *Id.*

¹⁸ There is a second question as to the status of ownership of a resource once captured but then returned to the ground where it came from for storage purposes. This note does not address that topic.

¹⁹ 177 U.S. 190 (1900).

²⁰ *Id.* at 209.

²¹ *Id.*

to the public commons and reduce it to private ownership, but oil and gas are not part of the publicly-owned commons. Oil and gas often cannot be assigned to one private owner unless the resource pool lies entirely within the physical boundaries of the surface or subsurface assignment. Because of uncertainty about the location and size of underlying deposits, owners of adjacent properties with subsurface rights to underlying resources cannot accurately measure their ownership interest without drilling. Thus, while an owner of real property typically knows how much land he holds by virtue of a deed, he does not know how much of the resource he can obtain before drilling. Essentially, applying the rule of capture to this category of property reduces ownership to the ability to drill on one's land.

Second, while the rule of capture rests on the equitable idea that *anyone, anywhere* could claim ownership of the resource, the nature of oil and gas ownership undermines this justification. To explain, oil and gas competition in the private space generally exists between two competing owners who claim—by virtue of their surface ownership—a property interest in the underlying resource. This means that the pool of potential owners is far smaller in the oil and gas space than it is for wild animals. As such, the inherently limited ownership of oil and gas implicates more fairness concerns in this context. Courts have attempted to remedy this shortcoming of the rule of capture. For example, in *Ohio Oil* the court recognized a shared right over a resource pool between adjacent landowners and noted that “each individual’s right to take is also burdened by a correlative duty not to injure each owner’s right to a share of the common source of supply.”²² This judicially-carved protection modifies the common law rule of capture.

In the federal context, it is unclear whether this irregularity in oil and gas’ classification as real property has similar ramifications.²³ But the competition that the rule of capture creates in the private space is not an issue on federal lands because the federal government is empowered to make decisions about how, how much, where, and to whom it grants rights to develop oil and gas resources. Federal lands, when continuous and free from split estates, are real property that can be leased to one—and only one—developer in a “unit[] of not more than 2,560 acres.”²⁴ Indeed, the federal government maintains the planning power to offset

²² 1 BRUCE M. KRAMER & PATRICK H. MARTIN, THE LAW OF POOLING AND UNITIZATION § 1.02 (3d ed. 2017).

²³ Consider the federal government’s restrictions on property acquisition and particularly the taking of real property. See, e.g., *Kelo v. City of New London*, 545 U.S. 469 (2005).

²⁴ 30 U.S.C. § 226 (2012).

entirely the environmentally degrading and economically wasteful consequences stemming from the rule of capture.

Thus, even while maintaining the rule of capture, a concern for losses borne by adjacent landowners in the private context gained traction in some courts—specifically with regard to hydraulic fracking for fugacious resources trapped in shale. Indeed, in 2018, the Pennsylvania Supreme Court held that the rule of capture did not preclude liability for trespass on a neighbor's land where the driller crosses the neighbor's boundary and extracts natural gas from beneath another's property.²⁵ Specifically, the idea that a remedy for trespass exists in private energy development opens opportunities for greater environmental protection in two ways. First, mineral rights owners must now exercise more caution in developing their subsurface. Second, with a remedy in their pocket, property owners can exercise greater discretion in their decision to develop (or not) and avoid a race to the bottom.²⁶

Some states, like Texas, retain the rule of capture without modification. In 2009, the Supreme Court of Texas held that the rule of capture precludes damages for oil or gas drainage from adjacent property during drilling operations.²⁷ It remains unclear if there is actionable trespass in the subsurface in such a regime. Since adjacent landowners may still bargain for the value of minerals lost from draining, the rule of capture may instead force communication between the two parties to contract over their shared resource. One argument reads the rule of capture to effectively shift conflict over the resource away from the legal system and into the relationship between the claimants. As a result, retaining the rule of capture can bar interested parties from taking action against resource depletion since there must be actual injury for trespass to be actionable.²⁸ Under the rule of capture, that injurious trespass will also not take place on the subsurface even if drilling rigs pull from across property lines. As a judicial matter, Texas is unlikely to change its reliance on the rule of capture given that “[t]he rule of capture is a cornerstone of the oil and gas industry and is fundamental both to property rights and to state regulation.”²⁹

This Note makes the unique claim that the common law rule of capture creates legal concerns not because of conflict with public ownership

²⁵ *Briggs v. Southwestern Energy Prod. Co.*, 184 A.3d 153, 163–64 (Pa. Super. Ct. 2018).

²⁶ Defined as “a situation characterized by a progressive lowering or deterioration of standards, especially (in business contexts) as a result of the pressure of competition.” OXFORD LIVING DICTIONARIES, <https://en.oxforddictionaries.com/definition/us/race> (last visited June 13, 2018).

²⁷ *Coastal Oil & Gas Corp. v. Garza Energy Tr.*, 268 S.W.3d 1 (Tex. 2008).

²⁸ *See id.* at 12–13.

²⁹ *Id.*

rights, but rather because of the competing principle that resource rights are outside of the commons altogether. Indeed, those with an interest in a resource right are competing with adjacent landowners for some or all of an underlying resource because “[t]he minerals owner is entitled, not to the molecules actually residing below the surface, but to ‘a fair chance to recover the oil and gas in or under his land, or their equivalents in kind.’”³⁰ On federal lands, the competition is open to any developer who can submit a fair market bid on the land.³¹ Whether federal property ownership effectively places oil and gas resources back inside the commons—and if this assignment raises the concern of resource depletion in a shared-resource system—remains uncertain.

B. Energy Development on Federal Lands

Energy development on federal lands takes place through leasing.³² For the purposes of this Note, the federal government itself does not engage in extracting, refining, and selling resources. Instead, federal agencies lease the government’s mineral holdings to energy developers. The largest actor, BLM,³³ administers the leasing of federal holdings in the subsurface mineral estate while retaining regulatory rights.³⁴ BLM’s federal land use policy and regulatory decisions shape the federal government’s decision-making processes with respect to energy development on these lands.

1. Congressional Participation in Environmental Protection

Regulation of energy leasing began with the Mining Law of 1872.³⁵ The Mining Law initially applied to all minerals, including petroleum. A number of statutory provisions were enacted from 1920 to 1970, but the MLA remains a bulwark in leasing law. The current version of the MLA provides:

All leases of lands containing oil or gas, made or issued under the provisions of this chapter shall be subject to the condition that the lessee will, in conducting his explorations and mining operations, use all reasonable precautions to prevent waste of oil or gas

³⁰ *Id.* at 15 (quoting *Gulf Land Co. v. Atl. Ref. Co.*, 131 S.W.2d 73, 80 (Tex. 1939)).

³¹ *Nat’l Wildlife Fed’n v. Burford*, 871 F.2d 849, 856 (9th Cir. 1989).

³² 30 U.S.C. § 225 (2012).

³³ *See* 43 C.F.R. pt. 3100 (2017).

³⁴ Bruce M. Pendery, *BLM’s Retained Rights: How Requiring Environmental Protection Fulfills Oil and Gas Lease Obligations*, 40 ENVTL. L. 599, 600 (2010) (suggesting the culmination of rights retained through the MLA, NEPA, ESA, CAA, CWA, and BLM’s own leasing regulations and management plans is a fertile ground to “reduce environmental disturbance due to oil and gas development on the public lands[]”).

³⁵ General Mining Law of 1872, ch. 152, 17 Stat. 91-96 (1872).

developed in the land, or the entrance of water through wells drilled by him to the oil sands or oil-bearing strata, to the destruction or injury of the oil deposits. Violations of the provisions of this section shall constitute grounds for the forfeiture of the lease, to be enforced as provided in this Act.³⁶

Largely because of this regulation, the competition that the rule of capture creates in the private space is not an issue on public lands because the federal government is empowered to make decisions about how, how much, where, and to whom it grants rights to develop oil and gas resources. Federal lands, when continuous and free from split estates, are real property that can be leased to one—and only one—developer in a “unit . . . of not more than 2,560 acres.”³⁷ Indeed, the federal government maintains the planning power to offset entirely the environmentally degrading and economically wasteful consequences stemming from the rule of capture.

Moreover, in 1976, Congress enacted the Federal Land Policy and Management Act (“FLPMA”),³⁸ which addressed the authority for use and management of federally-owned lands held by BLM. Ideologically, FLPMA fostered a shift from the prior understanding that BLM lands were destined for private ownership to a recognition that these lands were to be held in “Federal ownership, unless as a result of the land use planning procedure provided for in this Act, it is determined that disposal of a particular parcel will serve the national interest.”³⁹

FLPMA further espoused a federal philosophy toward land management that is normally described as “multiple use”⁴⁰—an approach that had already dominated the management of lands held by the Forest Service at the time.⁴¹ According to the FLPMA, the Secretary of the Interior must “use and observe the principles of multiple use and sustained yield set forth in this and other applicable law.”⁴² The federal multiple use framework recognizes potential energy resources, recreational possibilities, and preservation necessity—among other uses—for federal lands.⁴³ To put it simply, the policy goals of any agency

³⁶ 30 U.S.C. § 225 (2012).

³⁷ *Id.* § 226.

³⁸ Federal Land Policy and Management Act, Pub. L. No. 94-579, 90 Stat. 2743 (1976).

³⁹ *Id.* § 1701(a)(1).

⁴⁰ For purposes of this Note, “multiple use lands” are those in the care of the BLM and the United States Forest Service.

⁴¹ *See* Multiple-Use Sustained-Yield Act of 1960, Pub. L. No. 86-517, 74 Stat. 215 (1960) (The purpose of the Act was to “authorize and direct that the national forests be managed under principles of multiple use and to produce a sustained yield of products and services, and for other purposes.”).

⁴² 43 U.S.C. § 1712(c)(1) (2012).

⁴³ CAROL VINCENT & ALEXANDRA WYATT, CONG. RES. SERV., R44267, STATE MANAGEMENT OF FEDERAL LANDS: FREQUENTLY ASKED QUESTIONS 1 (Dec. 16, 2016).

action should balance the interests in development of certain fugacious resources against the protection of other resources. Federal actors should consider the natural environment as a whole, as the agency in question manages the public land entrusted to it.

2. *Judicial Direction for Agency Compliance*

As a judicial matter, courts do not take issue with agency action without a legislative directive. For example, the Court in *Norton v. Southern Utah Wilderness Alliance*⁴⁴ granted considerable deference to the agency concerning its compliance with a statute: “[t]hus, a claim under [a statute] can proceed only where a plaintiff asserts that an agency failed to take a *discrete* agency action that it is *required to take*.”⁴⁵ Logically, this judicial deference would generally extend to agency decisions about oil and gas development in federal landholdings.

3. *Leasing of Federal Land and Split Estates in Practice*

Today, oil and gas remain leasable minerals, developed onshore on federal lands as well as on the federally-controlled-and-owned outer continental shelf.⁴⁶ Indeed, six million acres of federal land are producing oil and gas.⁴⁷ There is no doubt that the leasing system is profitable, as the federal treasury netted more than twelve billion dollars in 2012 from energy leasing on federal lands—whether this profit is a meaningful reason to continue development is an open question.⁴⁸ The federal government leases through both competitive and noncompetitive bid processes.⁴⁹ As noted in Section II.A, federal lands can be leased in parcels of 2,560 acres.⁵⁰ Once notice for offering federal lands available for leasing has been posted, the Secretary of the Interior must then allow a forty-five days for public comment.⁵¹ This comment period built into the MLA is yet another example of existing federal oversight in the arena of energy development, allowing for interested parties to support or oppose the leasing of the federal lands in question. Comment periods are a tool for scientists, environmental groups, and attorneys to make

⁴⁴ 542 U.S. 55 (2004).

⁴⁵ *Id.* at 64.

⁴⁶ 43 U.S.C. § 1331(q) (2012).

⁴⁷ GEORGE C. COGGINS ET AL., *FEDERAL PUBLIC LAND AND RESOURCES LAW* 552 (7th ed. 2014).

⁴⁸ *Id.*

⁴⁹ 30 U.S.C. § 226(b)(1)(A), (c)(1) (2012).

⁵⁰ *Id.* § 226(b)(1)(A).

⁵¹ *Id.* § 226(f).

arguments in order to protect a uniquely situated land or a particular natural resource on the proposed property.⁵²

Apart from leases, there are a number of private holdings on federal lands. Private ownership of surface rights or the rights to develop minerals on land held publicly and managed by the federal government creates a bifurcation of ownership known as a split estate.⁵³ The BLM's policy on split estates deems the mineral right to take precedence over the other rights associated with the property.⁵⁴ This policy is another limitation on the federal government's capacity to regulate as a landowner and a serious threat to the surface resources that the multiple use framework seeks to preserve.

Yet another limitation for the federal government's regulatory capacity concerns the relationship between NEPA and split estates (in this instance, federal surface and private mineral rights). On the whole, the federal government as a surface landowner has reduced power over its split estate holdings. For example, the court in *Minard Run Oil Co. v. U.S. Forest Service*⁵⁵ rejected the idea that the Forest Service had authority to require permitting over private mineral rights.⁵⁶ However, the court did not dismiss a federal presence entirely, noting that "it is possible that reserved rights are subject to the [Forest] Service regulations contained in the written instrument of conveyance *and* to other regulations not contained in the instrument."⁵⁷ Similarly, an earlier case, *Sierra Club v. Watt*,⁵⁸ rejected Secretary of Interior James Watt's attempt to exempt public lands held in split estate from being evaluated and potentially designated as wilderness study areas under the FLPMA,⁵⁹ noting that FLPMA defines public lands as "any land and interest in land owned by the United States."⁶⁰ Since split estates by their very definition include a federal land holding, imagine a situation where a federal leaseholder-developer is drilling on federal land adjacent to a private subsurface right holder. What kinds of issues does this create? Does the private owner only have the remedy of drilling himself to protect his claim to the minerals below?

⁵² See, e.g., Bird Hunting; Final Frameworks for Migratory Bird Hunting Regulations, 83 Fed. Reg. 25,738, 25,739 (June 4, 2018).

⁵³ *Leasing and Management of Split Estate*, BUREAU OF LAND MGMT., <https://www.blm.gov/programs/energy-and-minerals/oil-and-gas/leasing/split-estate> (last visited July 22, 2018).

⁵⁴ *Id.*

⁵⁵ 670 F.3d 236 (3d Cir. 2011).

⁵⁶ *Id.* at 254.

⁵⁷ *Id.* at 251–52.

⁵⁸ 608 F. Supp. 305 (E.D. Cal. 1985).

⁵⁹ *Id.* at 338.

⁶⁰ *Id.* at 332 (quoting 43 U.S.C. § 1702(e) (1976)).

C. Benefits and Disadvantages of Federal Energy Development

By allowing the leasing of federal lands for energy development while simultaneously requiring the federal government to balance development interests with environmental protection goals, the multiple use framework itself both helps and harms the goal of environmental protection. Three other factors that affect the leasing of federal lands also impact environmental protection. First, statutory demands of fair market value and competition among potential leaseholders can indirectly further environmental protection goals. Receiving fair market value theoretically quiets concerns about unnecessary development because the revenue the federal government receives from leasing justifies the development and any resulting environmental damage. However, this logic fails to recognize that a purely economic benefit may not rationalize an environmentally damaging action.⁶¹ Second, the inclusion of environmental protection provisions in leases is allowed pursuant to the aforementioned mineral leasing acts.⁶² Finally, the federal government continues to make rules to regulate the extraction process. In 2015, the federal government set a rule for drilling and hydraulic fracturing on federal land that serves to better protect the natural environment from the negative effects of energy development.⁶³

In sum, leasing on federal lands does not solve the problem of harm to the natural environment, instead it runs afoul of federal multiple use goals and contributes to environmental degradation. The combustion of federally-owned oil, gas, and coal accounts for nearly one-quarter of the country's greenhouse gas emissions,⁶⁴ and yet the federal government has a stated interest in more than just energy development in light of the multiple use framework. Federal land holdings are supposed to be used for preservation, multiple use, and citizenry ownership. In this vein, it is imperative that the federal government, in its capacity as a landowner, makes meaningful decisions about the development of oil and gas on federal lands.

⁶¹ See Michael A. Livermore, *Setting the Social Cost of Carbon*, in CLIMATE CHANGE LAW 2, 2 (Daniel A. Farber & Marjan Peeters, eds., 2016) (describing economic damage caused by climate change).

⁶² COGGINS ET AL., *supra* note 48, at 561. For the effectiveness of these provisions see *Kerr-McGee Corp. v. Hodel*, 630 F. Supp. 621 (D.D.C. 1986); *Copper Valley Machine Works, Inc. v. Andrus*, 653 F.2d 595 (D.C. Cir. 1981).

⁶³ See 43 C.F.R. §§ 3160.0-1 to 3165.4.

⁶⁴ CLAIRE MOSER ET AL., CTR. FOR AM. PROGRESS, CUTTING GREENHOUSE GAS FROM FOSSIL-FUEL EXTRACTION ON FEDERAL LANDS AND WATERS 1 (March 19, 2015), available at <https://cdn.americanprogress.org/wp-content/uploads/2015/03/PublicLandsEmissions-brief.pdf>.

III. PRIVATE OIL AND GAS TODAY: UNITIZATION AND STATE REGULATION

As described in Section II.A, courts initially compared oil and gas to other free-moving and common or unowned resources like wild animals in deciding to apply the rule of capture to fugitive resources. Yet, the rule of capture, at least for mineral holdings underneath adjacent property, is at odds with basic ideas of property ownership, insofar as it innately leaves one or more landowners with a potential claim to less or more than they should own based on the boundaries of their real property. Courts' discomfort with the harm that could befall other common owners spurred the movement away from the common law rule of capture in the oil and gas space.⁶⁵ Furthermore, as science and technology began to better understand the boundary-free nature of oil and gas and these resources became valuable commodities, the law began to adapt. The material state of oil and gas renders it subject to multiple ownership claims, and as such claims increased, the courts began to move away from evaluating oil and gas ownership according to the right of capture and toward accepting legislative alternatives such as compulsory or voluntary unitization. Even so, modifications to the rule of capture vis-à-vis oil and gas have been accomplished primarily through state conservation statutes limiting drilling rights and not through the common law.⁶⁶

Legislatures began to modify the scheme after courts continued to rely, with only slight modifications, on the rule of capture doctrine. And, while the rule of capture was in line with common law preferences for a single owner⁶⁷ and alienability of property, it accomplished these goals at the correlative owners' expense. Legislative alteration therefore took the form of regulatory schemes working towards conservation and the protection of correlative rights through unitization.⁶⁸

Unitization is one of the most environmentally and economically conservative actions that states can take in order to reduce the negative effects of energy development. By definition, unitization is "the consolidation of mineral or leasehold interests covering all or part of a common source of supply. . . to maximize production by efficiently draining the reservoir and utilizing the best engineering techniques that

⁶⁵ See *Wettengel v. Gormley*, 184 Pa. 354 (Pa. 1898).

⁶⁶ Bruce M. Kramer & Owen L. Anderson, *Symposium Article: The Rule of Capture—an Oil and Gas Perspective*, 35 ENVTL. L. 899, 899 (2005); Lewis M. Andrews, Note, *The Correlative Rights Doctrine in the Law of Oil and Gas*, 13 S. CAL. L. REV. 185, 198 n.51 (1940).

⁶⁷ Note that unitization structures serve these doctrinal ends of single ownership and alienability.

⁶⁸ Andrews, *supra* note 66, at 198.

are economically feasible.”⁶⁹ It is not only an extremely efficient, streamlined scheme to drill for oil and gas but also the most “effective in conserving oil and gas” by limiting resource loss during the drilling process.⁷⁰ Unitization further mitigates the correlative rights issues created by the application of the rule of capture to these resources. Unitization allows owners to share their otherwise competing property interests in underlying resources and make collective decisions about the development of their pooled interests. By shifting owner incentives, unitization is likely the most environmentally beneficial approach to energy development on private lands.

IV. HOW THE FEDERAL GOVERNMENT CAN STRENGTHEN ENVIRONMENTAL PROTECTION IN THE CONTEXT OF ENERGY DEVELOPMENT ON FEDERAL LANDS

The federal government has many distinctive objectives regarding its oil and gas reserves,⁷¹ such that its management decisions and plans for its landholdings differ from those of private owners. Here, the leasing of public lands presents opportunities to reduce environmental degradation not available in the private context.

A. Unitization as a Legislative Response to the Rule of Capture

Although, as described in the previous section, pure rule of capture regimes are less common today than they once were, they still exist in some jurisdictions.⁷² Places where the unmodified rule of capture applies tolerate the “tragedy of the commons,”⁷³ in which individuals undertake the inefficient, wasteful, hazardous, and unfair exploitation of a resource in order to be the first, and thus legal, owner of that resource. The rule of capture also works against environmental goals by incentivizing owners of subsurface rights to drill on their property when they otherwise would not have tapped the resource. Drilling ensues in order to preserve their mineral rights and prevent a windfall to their neighbor.

But this resource-depleting race can be eliminated by the adoption of a unitization scheme. Under such a regime, owners of a resource unit can wait for the market to improve and garner a higher price for the resource or simply decide not to develop a holding at all. Furthermore, since the rule of capture limits what an owner can do with the resource in which he

⁶⁹ 1-1 BRUCE M. KRAMER & PATRICK H. MARTIN, *THE LAW OF POOLING AND UNITIZATION* § 1.02 (3d ed. 2017).

⁷⁰ *Id.*

⁷¹ *See supra* note 41.

⁷² *See, e.g.,* *Coastal Oil & Gas Corp. v. Garza Energy Tr.*, 268 S.W.3d 1 (Tex. 2008).

⁷³ *See generally* Garrett Hardin, *The Tragedy of the Commons*, 162 *SCI.* 1243 (1968).

has a non-possessory interest, the only true remedy in a rule of capture scheme is the parallel right for the second owner on a tract to begin his own production. Apart from the capital necessary for such an endeavor, this remedy is problematic for a number of other reasons involving mineral rights owners' decisions to develop resources. In contrast, under a unitization structure, society and the federal government can use the legal system to protect resources in the commons, particularly resources that move and percolate, which could have otherwise disastrous consequences. Because property owners with adjacent interests hold actionable rights outside a rule of capture scheme, they can overcome the hurdles of standing, real harm, and ripeness to serve as a vehicle for environmental suits.

B. Making NEPA Substantive

An additional way that federal land management might combat environmental degradation in the realm of oil and gas development is by reinterpreting or amending NEPA. NEPA was passed in 1969 in order “[t]o declare a national policy which will encourage productive and enjoyable harmony between man and his environment; to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; [and] to enrich the understanding of the ecological systems and natural resources important to the Nation[] . . .”⁷⁴ Section 101 of NEPA further demands that the federal government “use all practicable means and measures” in achieving the policy goals set forth in the Act.⁷⁵ NEPA therefore places responsibility on the federal government to make decisions that will maintain a healthy, productive, sustainable, and preserved natural environment, and it gives it broad authority to take actions to achieve those goals. This sweeping declaration of environmental health and sustainability has the potential to hold all federal agency action to higher environmental standards.

Furthermore, section 102 of the Act states that “the policies, regulations, and public laws of the United States shall be interpreted and administered in accordance with the policies set forth in this chapter.”⁷⁶ In the context of oil and gas, this means that state regulation of energy development as well as federal action concerning leasing on federal lands can be interpreted as encompassing environmental protection requirements into the aforementioned policies, regulations, and public

⁷⁴ 42 U.S.C. § 4321 (2012).

⁷⁵ *Id.* § 4331.

⁷⁶ *Id.* § 4332(1).

laws. However, as of now, NEPA has been reduced to an information-sharing mechanism with few teeth.

1. Procedural Requirements

NEPA's procedural mechanisms alone can be meaningful to litigants and environmentalists by delaying potentially harmful actions. Of course, NEPA's procedures generally do not activate until there is a commitment to development. The court in *Center for Biological Diversity v. Bureau of Land Management*⁷⁷ held that "the obligation to produce a review [of environmental impact] arises when there is any 'irreversible and irretrievable commitment of the resources.'"⁷⁸ On the other hand, in examining the BLM-issued lease and NEPA's demands, the court imposed extensive requirements on the agency in finding that when "it issued non-NSO leases . . . BLM was required to conduct a thorough NEPA analysis to determine whether the sale would have a substantial environmental impact."⁷⁹ In this way, courts can hold agencies like BLM responsible for considering the environmental effects of leasing actions and development scenarios by taking a "hard look" at the issue, as required by NEPA.⁸⁰ Similarly, in 1971, the D.C. Circuit in *Calvert Cliffs' Coordinating Committee v. U.S. Atomic Energy Commission*⁸¹ noted that the procedural mechanisms of NEPA "establish a strict standard of compliance"⁸² and "[c]ompliance to the 'fullest' possible extent would seem to demand that environmental issues be considered at every important stage in the decision making process concerning a particular action . . . and where alterations might be made in the proposed action to minimize environmental costs."⁸³

In addition, the previously mentioned information-forcing features and public comment period required by NEPA allow for private citizens and environmental groups to share concerns on a proposed action at little to no cost to them. This process makes otherwise unheard information accessible to the public and federal decision-makers. Through the Act, environmental protection is now a goal of every federal agency and department.⁸⁴

⁷⁷ 937 F. Supp. 2d 1140 (N.D. Cal. 2013).

⁷⁸ *Id.* at 1152.

⁷⁹ *Id.* at 1153.

⁸⁰ *Id.* at 1159.

⁸¹ 449 F.2d 1109 (D.C. Cir. 1971).

⁸² *Id.* at 1112.

⁸³ *Id.* at 1118.

⁸⁴ 42 U.S.C. § 4321 et seq. (2012).

Finally, additional procedural requirements under NEPA include the timing and scope of environmental assessments (“EA”) and subsequent environmental impact statements (“EIS”). Judicial review of these requirements emphasizes two factors in particular: whether the EA or EIS is submitted early enough to be a useful tool in the decision-making process, and whether the EA or EIS is sufficiently complete. For example, the court in *Metcalf v. Daley*⁸⁵ discussed the timing of a NEPA analysis, holding that the agency in question was wrong to make a commitment of federal action before preparing an EA or EIS.⁸⁶ Echoing the words of *Center for Biological Diversity* above, the court in *Metcalf* ruled that in “making such a firm commitment before preparing an EA, the federal defendants failed to take a ‘hard look’ at the environmental consequences of their actions”⁸⁷ and thereby ran afoul of NEPA’s requirements.

Courts also play a role in ensuring that the EIS prepared is adequate and serves the policy goals of the Act. The Court in *Robertson v. Methow Valley Citizens Council*⁸⁸ affirmed the idea that agencies do not have to follow, but must do their due diligence in preparing, an EIS.⁸⁹ This reading of NEPA is also procedural but has some substantive bite insofar as it demands that the statement prepared be comprehensive. However, when answering the question of whether NEPA required the agency to prepare *and adopt* a mitigation plan or simply prepare it, the Court in *Methow Valley* found that preparation alone was sufficient. This decision marked a breakdown of the powerful language in the statute.

2. Substantive Requirements

Thus, while the *procedural* aspects of NEPA are impressive, whether the Act has any substantive bite remains uncertain. Section 102 demands that an agency “study, develop, and describe appropriate alternatives to recommended courses of action in any proposal that involves unresolved conflicts concerning alternative uses of available resources[.]”⁹⁰ While this could have acted as a substantive check on problematic development proposals, the Court in *Strycker’s Bay Neighborhood Council v. Karlen*⁹¹ interpreted section 102(2)(E) as merely another procedural mechanism. The Court concluded that “once an agency has made a decision subject to NEPA’s procedural requirements, the only role for a court is to ensure

⁸⁵ 214 F.3d 1135 (9th Cir. 2000).

⁸⁶ *Id.* at 1143.

⁸⁷ *Id.* at 1145.

⁸⁸ 490 U.S. 332 (1989).

⁸⁹ *Id.* at 351.

⁹⁰ 42 U.S.C. § 4332(2)(E) (2012).

⁹¹ 444 U.S. 223 (1980).

that the agency has considered the environmental consequences.”⁹² The consideration of environmental impacts alone is therefore sufficient to satisfy NEPA—an agency need not change its decision based upon the environmental consequences.

In order to rectify these readings of the Act, courts would either have to overrule previous decisions like *Calvert Cliffs* and *Strycker’s Bay* or Congress would have to amend NEPA to reflect a desire for substantive enforcement. In the oil and gas space, this substantive reading would enable agencies more latitude in choosing not to develop lands and would also give environmental litigants a stronger leg to stand on in challenging agency decision-making.

V. CONCLUSION

In the private space, property law has developed away from the rule of capture in a manner that makes oil and gas development more environmentally and economically responsible. Common law and statutory development allow adjacent landowners a cause of action and thus a remedy when their rights of mineral ownership are infringed upon. These remedies also enable mineral owners to choose not to develop their resource. Even better, some states utilize compulsory and voluntary unitization, a system that leads to more effective use of a resource and better balances the competing rights of adjacent landholders than the traditional rule of capture regime.

But it is unclear what, if any, progress in environmental protection has been made as the application of property doctrine to federal lands has evolved. Federal lands face challenges in terms of both energy development and environmental protection whether held entirely in public ownership or in split estate. The essence of public ownership demands a balancing of interests between administrations, private citizens, and industry. When those interests then compete with that of a single mineral rights holder, as they often do, the law seeks to envelop common law doctrine, codified resources, agency decision-making, and public policy to best determine the proper course. Maintaining a federal presence during a transition period to sustainable energy and giving substance to NEPA are two ways that knowledgeable federal players can influence development projects and safeguard against environmental degradation. Although the legislature responded to concerns about the environment with NEPA, the judiciary has nearly gutted the substantive potential of the Act. Nonetheless, substance still can be breathed into

⁹² *Id.* at 227.

NEPA through the courts overturning previous decisions or by congressional action.