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The Incidental Environmental Agency

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THE INCIDENTAL ENVIRONMENTAL AGENCY

Tara K. Righetti*

Abstract

State oil and gas conservation agencies are the gatekeepers to oil and gas development: as the agencies charged with granting drilling permits, they decide if, when, where, and how oil and gas will be developed. As such, oil and gas conservation agencies sit on the front lines in the emerging, and increasingly irresolvable, struggle between fossil energy development and the environment. Current oil and gas conservation regulation is designed to promote development, maximize recovery of the resource, and protect the individual property rights of mineral owners. However, advocacy by environmental constituencies, including surface owners and local governments, has challenged the entrenched paradigm whereby production must be maximized at the expense of all other interests. These efforts are pushing courts to redefine oil and gas conservation according to twenty-first century environmental values. This Article examines the emergent environmental regulation function of oil and gas conservation agencies and identifies opportunities for these agencies to regulate according to their historic mandates in a manner that is inclusive of public values.

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I. INTRODUCTION

Conservation agencies, such as the Wyoming Oil and Gas Conservation Commission (WOGCC) and the Texas Railroad Commission (RRC), regulate oil and gas operations for the purposes of preventing waste and protecting correlative rights.¹ In all states with significant hydrocarbon production, a mineral rights holder must apply for and obtain authorization from the state conservation agency prior to locating and drilling an oil and gas well on state or private land.² This authority provides for the conservation of subsurface oil and gas resources for future production and use.³ Exercised judiciously, it is also a powerful force for the conservation of surface resources and protection of the environment. In the nearly 120 years since the first conservation acts and oil and gas waste prevention statutes were enacted,⁴ regulation by conservation agencies has curtailed the environmental impacts associated with oil and gas exploration and production by limiting unnecessary drilling, thereby lowering energy inputs associated with extraction and preserving surface resources.⁵

In response to heightened concerns over the environmental and climate impacts of oil and gas development, advocates, conservationists, voters, and legislators are reexamining the environmental regulation role of oil and gas conservation agencies.⁶ The goals of conservation regulation and the tools available to commissions have changed little since Howard Williams wrote his first article on conservation in 1952.⁷ Public attitudes towards conservation, however, are changing. Motivated by

¹ 1 PATRICK H. MARTIN & BRUCE H. KRAMER, *THE LAW OF POOLING AND UNITIZATION*, § 3.02[4] (3d ed. 2017).

² 1 NANCY SAINT-PAUL, *SUMMERS OIL & GAS* § 5:1 (3d ed. 2019).

³ *See id.* § 4:1.

⁴ *See, e.g.*, Walter L. Summers, *Modern Theory and Practical Application of Statutes for the Conservation of Oil and Gas*, 13 TUL. L. REV. 1, 1 n.1 (1938).

⁵ *See generally* David E. Pierce, *Minimizing the Environmental Impact of Oil and Gas Development by Maximizing Production Conservation*, 85 N.D. L. REV. 759, 759 (2009) (discussing transition “of rights in oil and gas reservoirs away from capture rights and toward correlative rights” with the result that “state oil and gas conservation commissions can [maximize] development of the oil and gas resource . . . while minimizing the impact on surface and other natural resources”).

⁶ *See infra* Part III.

⁷ *See* Howard Williams, *Conservation of Oil and Gas*, 65 HARV. L. REV. 1155 (1952).

increased awareness of and concern about environmental and climate impacts, landowners and environmental groups are demanding that conservation agencies exercise their authority to enhance environmental protections and consider issues related to the environment and climate change in making permitting and other decisions.⁸ Citizens, states, and counties are attempting to compensate for the lack of any comprehensive federal greenhouse gas legislation and to respond to and prevent highly publicized environmental and human health tragedies through lawsuits, agency petitions, and legislation.⁹ Meanwhile, state conservation agencies are issuing record numbers of permits.¹⁰

Conservation agencies have been resistant to external pressures to adopt more aggressive environmental rules.¹¹ More than ever before, commissions are asked to look beyond the drill site spacing unit and reservoir to incorporate the cumulative and landscape-scale impacts of conservation agency decisions on the environment. Oil and gas conservation agencies have been bombarded by protests, requests for rulemaking, and applications to intervene in administrative proceedings calling for the conservation agencies to consider environmental impacts as part of their permit approval.¹² On average, the agencies have been disinclined to take on these requests, finding that doing so would exceed the scope of their delegated authority.¹³

This Article considers pressures on state oil and gas conservation agencies to take an expanded role in regulating the environmental impacts associated with oil and gas production on private land¹⁴ and examines the emerging role of oil and gas

⁸ See *infra* Section III.A. These demands may be in response to Professor Pierce's call to action, *supra* note 5, at 773–78.

⁹ See *infra* Part III.

¹⁰ See Greg Avery, *Oil and Gas Companies Are Seeking New Well Permits Like Never Before*, DENVER BUS. J. (June 7, 2018, 8:44 AM), <https://www.bizjournals.com/denver/news/2018/06/05/oil-and-gas-companies-are-seeking-new-well-permits.html> [<https://perma.cc/E7MJ-N59S>]; Heather Richards, *Powder River Basin Inspires 10,000-Permit Drilling Battle from Oil and Gas Companies*, CASPER STAR TRIB. (May 13, 2018), https://trib.com/business/energy/powder-river-basin-inspires--permit-drilling-battle-from-oil/article_a2766b4f-8959-51df-baa1-4b4af1fcc2b3.html [<https://perma.cc/VB76-6P6S>].

¹¹ See *infra* Section IV.A.

¹² See *infra* Part III.

¹³ See *id.*

¹⁴ An analysis of the environmental protection function of the federal oil and gas permitting process is beyond the scope of this article. Where oil and gas development occur on federal lands, numerous laws and regulations—including the National Environmental Policy Act of 1969 (NEPA), Pub. L. No. 91-190, 83 Stat. 852 (1970) (codified as amended at 42 U.S.C. §§ 4321, 4331, 4332–4335, 4341–4347 (2018))—require consideration of environmental impacts, even where development is achieved by directional drilling into federal minerals from entirely non-federal surface locations. See *generally* BUREAU OF LAND MGMT., PIM No. 2018-014, DIRECTIONAL DRILLING INTO FEDERAL MINERAL ESTATE FROM WELL PADS ON NON-FEDERAL LOCATIONS (2018) (issuing guidance for agency personnel on complying with federal environmental laws when issuing permits and leases to extract federal-owned minerals from non-federal lands).

conservation commissions as an environmental agency. Part II begins with a description of conservation law and regulations and a brief history of oil and gas regulation and the conservation purpose of oil and gas conservation agencies.¹⁵ Part II also emphasizes the historical background and rationales that underpin state conservation law.¹⁶ It characterizes the naissence of conservation law as emerging from a period when environmental degradation was considered the implicit right of the industry.

Part III describes conservation agencies' scope of authority.¹⁷ Traditionally, the agencies' functions are delegated for the purposes of preventing waste and protecting correlative rights.¹⁸ However, in many cases, language embedded within the agencies' enabling statutes introduces the possibility of more expansive authority.¹⁹ The sources of expanded authority include definitions of waste that encompass actions contributing to environmental degradation, delegations of authority over state environmental programs, or language requiring the agency to protect health, safety, and the environment.²⁰ Part III highlights how these authorizations suggest an increased environmental regulatory function for state conservation agencies.

Parts IV and V examine recent efforts to require oil and gas conservation agencies to consider a more inclusive scope of environmental factors, including climate change. Part IV explores efforts by environmental constituencies to democratize or circumvent conservation agencies and achieve standing in administrative proceedings.²¹ These efforts include requests for rulemaking from environmental advocates, voter initiatives, and challenges to agency decisions on the basis of environmental harms.²² Agencies have been reluctant to interpret environmental protection language in their enabling acts as authorizing landscape-scale environmental regulation, instead focusing on their traditional roles of maximizing hydrocarbon recovery and protecting the personal property interests of the owners of mineral rights within the reservoir.²³ As a result, there has been a flurry of litigation considering the scope of commission authority and the agencies' obligations to engage in administrative rulemaking or to consider broader environmental impacts as a part of carrying out their statutory duties.²⁴ These

¹⁵ See *infra* Part I.

¹⁶ See *id.*

¹⁷ See *infra* Part II.

¹⁸ See *infra* Sections II.A.1, II.A.2.

¹⁹ See *infra* Sections II.A.3, II.A.4.

²⁰ See *id.*

²¹ See *infra* Parts III, IV.

²² *Id.*

²³ See Pierce, *supra* note 5, at 759–61.

²⁴ See, e.g., Colorado Oil & Gas Conservation Comm'n v. Martinez, 433 P.3d 22 (2019); Ass'n of Irrigated Residents v. Dep't of Conservation, 218 Cal. Rptr. 3d 517 (Cal. Ct. App. 2017); City of Longmont v. Colorado Oil and Gas Ass'n, 369 P.3d 573 (2016);

proceedings sometimes confer standing, or the potential for standing, on new parties where certain environmental views have not previously had an advocate; in other instances, courts expand the factors that agencies must take into consideration when exercising their delegated authority.²⁵ Part V examines attempts to reform agency authority, including legislative actions preempting or limiting commission authority and influence by governors.²⁶ The reform efforts have sought to restructure conservation agencies to structurally decrease the influence of industry voices, shift agency philosophies away from the promotion of development, increase the regulatory authority of local governments, and require conservation agencies to limit or mitigate environmental impacts.²⁷

Part VI considers the appropriate role of oil and gas conservation agencies in environmental regulation of oil and gas development.²⁸ This analysis includes an examination of efforts to reform conservation agencies as new environmental regulators and how these efforts may fail to achieve the comprehensive changes many advocates desire.²⁹ In many cases, agencies may not have statutory authorization or expertise to engage in the fact-finding necessary to meet the emergent demands for more stringent environmental regulation at the conservation level.³⁰ These efforts hazard muddling the regulatory environment and introducing uncertainties in an otherwise efficient permitting process. Concurrently, reforms may diminish the efficacy of conservation agencies in pursuing the public policy interests with which they are charged.³¹ State oil and gas commissions were not originally formed to investigate and answer existential questions about the appropriate balance between environmental conservation and fossil energy development, and they are not currently equipped to do so; thus, it would not be appropriate for them to make these determinations.³²

However, there are opportunities for agencies to reduce environmental impacts, prevent waste, and streamline agency proceedings. Structural and legal changes would further reduce concerns of undue influence by the industry and agency dependence. Part VI ends by exploring opportunities for conservation agencies to more effectively limit the environmental impacts of oil and gas development by encouraging collaborative, multi-agency, resource-scale planning. This Article argues that legal reforms should be tailored to complement existing agency authority and require consultation with more appropriately tasked environmental agencies.³³

Robinson Twp. v. Commonwealth (*Robinson IV*), 147 A.3d 536 (Pa. 2016); Robinson Twp. v. Commonwealth (*Robinson II*), 83 A.3d 901 (Pa. 2013).

²⁵ See *infra* Section III.C.

²⁶ See *infra* Part IV.

²⁷ *Id.*

²⁸ See *infra* Part V.

²⁹ *Id.*

³⁰ See *id.*

³¹ See *infra* Part IV.

³² See *infra* Part IV.

³³ See *infra* Part V, at notes 311–57.

Environmental activism before conservation agencies, like that seen within counties, local governments, and other administrative bodies involved in permitting fossil development, is likely to increase.³⁴ Environmental awareness and concern for the externalities associated with oil and gas development has grown while development in other sectors has diminished the economic impact of extractive industries, thus leading to opposition—even in traditionally fossil fuel-producing regions.³⁵ Meanwhile, the number of wells drilled and total production have grown significantly, and horizontal drilling technologies have facilitated development within residential communities.³⁶ Homeowner concerns regarding the diminution of property values associated with nearby energy development have resulted in local opposition to energy development.³⁷ Through efforts at the ballot box, in state legislatures, and in the courts, oil and gas conservation agencies are emerging as new, though perhaps unwitting, environmental agencies.

II. CONSERVATION LAW: PURPOSE AND HISTORY

During the conservation movement, when the majority of oil and gas conservation laws were enacted, conservation was understood as tempering present use of finite resources to preserve them for future generations.³⁸ Gifford Pinchot, often identified as the founder of the conservation movement,³⁹ defined conservation

³⁴ See, e.g., James W. Coleman, *Beyond the Pipeline Wars: Reforming Environmental Assessment of Energy Transport Infrastructure*, 2018 UTAH L. REV. 119, 122–23 (describing the Keystone Effect of requiring climate assessments of energy transport projects); Kristen van de Biezenbos, *Where Oil Is King*, 85 FORDHAM L. REV. 1631, 1634–35, 1671 (2017).

³⁵ Biezenbos, *supra* note 34, at 1633–34. For instance, the marijuana industry recently displaced oil and gas as the primary economic driver in some rural Colorado communities. See Leah Todd, *Rural Economies Get High on Legal Cannabis*, HIGH COUNTY NEWS, Nov. 15, 2016, <https://www.hcn.org/articles/rural-economies-get-high-on-legal-cannabis> [<https://perma.cc/CUJ5-7XBL>]; Alexandra B. Klass, *The Frontier of Eminent Domain*, 79 U. COLO. L. REV. 651, 679–80 (2008) (citing THOMAS MICHAEL POWER & RICHARD N. BARRETT, *POST-COWBOY ECONOMICS* 55 (2001)); see also WILLIAM R. TRAVIS, *NEW GEOGRAPHIES OF THE AMERICAN WEST* 3 (2007); John Cox, *Overwhelming Opposition to Oil Activity May Present Challenge to Local Industry*, THE RECORD, Jan. 24, 2019, https://www.bakersfield.com/delano-record/overwhelming-opposition-to-oil-activity-may-present-challenge-to-local/article_d1129c5c-1b6d-11e9-b06c-43574098b033.html [<https://perma.cc/B3WZ-ARB9>].

³⁶ See U.S. ENERGY INFO. ADMIN., U.S. OIL AND NATURAL GAS WELLS BY PRODUCTION RATE 1 (2018), https://www.eia.gov/petroleum/wells/annual/archive/2018/pdf/full_report_2018.pdf [<https://perma.cc/6QQ7-GMF9>]; Duruigbo, *Fracking and the NIMBY Syndrome*, 26 N.Y.U. ENVTL. L.J. 227, 234–35 (2018).

³⁷ David B. Spence, *Responsible Shale Gas Production: Moral Outrage vs. Cool Analysis*, 25 FORDHAM ENVTL. L. REV. 141, 183 (2013)

³⁸ Jedediah Purdy, *American Natures: The Shape of Conflict in Environmental Law*, 36 HARV. ENVTL. L. REV. 169, 173 (2012).

³⁹ ORRIS HERFINDAHL, *WHAT IS CONSERVATION* 2 (1961).

as the “use of natural resources for the greatest good of the greatest number [of people] for the longest time.”⁴⁰ Thus, the ideal reflected in conservation regulation requires both development and protection.⁴¹ Like the concept of sustainable development, this definition of conservation may seem like an oxymoron— involving conflicting mandates of preservation and consumption of a fixed good.⁴² Similarly, geologic conservation in the context of oil and gas is traditionally interpreted as encouraging development so as to maximize the total recoverable oil or gas from the reservoir.⁴³ In so doing, conservation simultaneously advances society’s public interest in the development, production, and use of natural resources while also protecting each individual property owner’s economic interest in the minerals under his or her property.

Oil and gas conservation law is essential to the protection of surface and subsurface resources. Conservation law originated in response to the reckless waste of oil and gas and environmental devastation resulting from the unconstrained application of the rule of capture.⁴⁴ The rule of capture provides that the title to oil and gas is obtained through production and severance of the hydrocarbons⁴⁵ at the surface, regardless of whether some of those hydrocarbons may have migrated into the well from adjoining land that is not beneath the confines of the property of the producer.⁴⁶ Actual, rather than conceptual, ownership of fluid or gaseous minerals requires a property interest in a producing well.⁴⁷ This common law rule incentivizes the mineral owner of a tract of land, however small, to drill anywhere on the tract and in whatever density it can manage in order to capture as much of the common resource as possible.⁴⁸ Other mineral owners and lessees whose subsurface rights extend within the same reservoir may then experience drainage, and are consequently left without a remedy except to drill their own wells—a concept known

⁴⁰ *Id.* (citing GIFFORD PINCHOT, *BREAKING NEW GROUND* 326 (1947)).

⁴¹ Jan G. Laitos & Catherine M. H. Kesket, *The Right of Nonuse*, 25 J. ENVTL. L. & LITIG. 303, 309–10 (2012).

⁴² See Michael Redclift, *Sustainable Development (1987–2005): An Oxymoron Comes of Age*, 13 SUSTAINABLE DEV. 212, 224–25 (2005).

⁴³ Williams, *supra* note 7, at 1156 (oil and gas conservation is more or less coterminous with “attaining maximum production from known fields by more efficient utilization of reservoir energy”).

⁴⁴ See Pierce, *supra* note 5, at 760–61; Williams, *supra* note 7, at 1158–59.

⁴⁵ A hydrocarbon is an organic chemical compound of hydrogen and carbon, which includes methane (CH₄) and petroleum, as well as other, heavier and more complex molecules. See PATRICK H. MARTIN & BRUCE M. KRAMER, WILLIAMS & MEYERS, *MANUAL OF OIL AND GAS TERMS* 494 (Ellen B. Siegel et al. eds., 10th ed. 1997) (definition of “hydrocarbon”) [hereinafter *MANUAL OF OIL AND GAS TERMS*].

⁴⁶ *Elliff v. Texon Drilling Co.*, 210 S.W.2d 558, 561–62 (Tex. 1948); Robert E. Hardwicke, *The Rule of Capture and Its Implications as Applied to Oil and Gas*, 13 TEX. L. REV. 391, 393 (1935).

⁴⁷ Pierce, *supra* note 5, at 762, 765.

⁴⁸ See *Hague v. Wheeler*, 27 A. 714, 719 (Pa. 1893).

as the offset drilling rule.⁴⁹ Failure of any oil and gas lessee to respond by offset drilling not only results in forfeiture of his property through drainage of the reservoir but may also result in liability to other mineral interest owners within the property for royalties that would have been owed had a well to prevent drainage been drilled.⁵⁰ As a result, the industry becomes dominated by a scarcity mindset and a development imperative:⁵¹ capture and profit from all within your dominion or risk losing everything.⁵²

The early days following an oil discovery were characterized by “profligate drilling and tremendous physical waste.”⁵³ Following the 1859 discovery of the Drake well in Titusville, Pennsylvania, oil and gas development experienced a frenzy where new wells “sprang up like new shoots after rain,” which sent “land prices soaring and would-be oil men scrambling for leases.”⁵⁴ Oil was carried in whiskey barrels and wooden vats and allowed to run out over the land into pits.⁵⁵ Forty years later, in January of 1901 in Beaumont, Texas, the Spindletop discovery precipitated another boom following publication of a photo of the Lucas gusher and a massive overstatement of production volumes.⁵⁶ Within a month there were thirteen rigs, and by October there were 440 wells—some on “postage stamp size sites.”⁵⁷ Similar to what occurred in Titusville, prices plummeted; within a few months, a barrel of oil sold for less than a cup of water.⁵⁸ Surface fires and explosions at primitive refineries decimated whole blocks of land, leakage and evaporation were

⁴⁹ See *Barnard v. Monongahela Natural Gas Co.*, 65 A. 801, 802–03 (Pa. 1907); *Kelly v. Ohio Oil Co.*, 49 N.E. 399, 401 (Ohio 1897).

⁵⁰ *Barnard*, 65 A. at 802–03; *Texaco Inc. v. Indus. Comm’n of State of N.D.*, 448 N.W.2d 621, 623 n.2 (N.D. 1989) (citing *MANUAL OF OIL AND GAS TERMS*, *supra* note 45, at 519 (definition of “rule of capture”)); Patrick H. Martin, *A Modern Look at Implied Covenants to Explore, Develop, and Market Under Mineral*, 27 *INST. OIL & GAS L. & TAX’N* 177 (1976), *reprinted in* 3 *OIL & GAS, NAT. RESOURCES & ENERGY J.* 401, 425 (2017); PATRICK H. MARTIN & BRUCE M. KRAMER, *WILLIAMS & MEYERS, OIL AND GAS LAW* § 868 (2019) [hereinafter *OIL AND GAS LAW*]; see generally MAURICE H. MERRILL, *THE LAW RELATING TO COVENANTS IMPLIED IN OIL AND GAS LEASES* ch. 5, §§ 93–117 (2d ed. 1940).

⁵¹ See SENDHIL MULLAINATHAN & ELДАР SHAFIR, *SCARCITY: WHY HAVING TOO LITTLE MEANS SO MUCH* 5–14 (2013); Anuj K. Shah et al., *Some Consequences of Having Too Little*, 338 *SCIENCE* 682, 682 (2012) (“Resource scarcity creates its own mindset, changing how people look at problems and make decisions.”).

⁵² DAVID F. PRINDLE, *PETROLEUM POLITICS AND THE TEXAS RAILROAD COMMISSION* 24–25 (1981).

⁵³ See Williams, *supra* note 7, at 1159.

⁵⁴ JUDITH LINSLEY ET AL., *GIANT UNDER THE HILL: A HISTORY OF THE SPINDLETOP OIL DISCOVERY AT BEAUMONT, TEXAS, IN 1901*, at 12 (2008).

⁵⁵ DANIEL YERGIN, *THE PRIZE: THE EPIC QUEST FOR OIL, MONEY AND POWER* 28–30 (2008).

⁵⁶ *Id.* at 82–86; see also Darren Dochuk, *Blessed by Oil, Cursed with Crude: God and Black Gold in the American Southwest*, 99 *J. AM. HIST.* 51, 51–52 (2012).

⁵⁷ LINSLEY ET AL., *supra* note 54, at 131, 150; YERGIN, *supra* note 55, at 86.

⁵⁸ YERGIN, *supra* note 55, at 30, 86.

prolific, and unmanaged poisonous gasses resulted in the fatalities of people and animals.⁵⁹ Yet, for all its destruction, Spindletop ushered in a new era of steamship companies and oil-fired locomotives, and with it a global appetite for oil that continues into the present day.⁶⁰

Unconstrained, the rule of capture presents a classic tragedy of the commons problem.⁶¹ Not surprisingly, the application of the rule of capture to early production led to ruination. It resulted in excessive development, resource misallocation, and gross economic and geologic waste.⁶² The rule of capture encouraged behavior that injured the rights of others to the common source of supply by stranding hydrocarbon resources underground. Excessive drilling wastes subsurface resources through the unnecessary and accelerated dissipation of reservoir energy created by natural subsurface forces such as pressure, gas, and water, which “propel the oil or gas to the wellbore.”⁶³ Loss of this energy may render portions of the oil or gas unrecoverable.⁶⁴ Production from the reservoir by these primary sources of energy can result in the recovery of up to 20% of the total original oil in place.⁶⁵ If subsurface reservoir pressures are unnecessarily depleted, more of that oil and gas will become immobilized underground and will be unrecoverable without artificial pressurization through expensive, energy-intensive enhanced recovery techniques.⁶⁶ Thus, preservation of optimal reservoir energy maximizes total economic recovery and prevents the physical waste of oil and gas. These scientific principles, however, are directly in conflict with the production incentive created by the rule of capture. As Professor Patrick Martin writes, “[r]easonable development for the lessor [and lessee] historically has meant overdevelopment for the country,” leading to “extravagant, wasteful consumption of petroleum and too rapid a depletion of this finite resource.”⁶⁷ Where each mineral owner is incentivized to “capture” as much oil and gas as possible through production from its individual tract, the resultant

⁵⁹ LINSLEY ET AL., *supra* note 54, at 167.

⁶⁰ YERGIN, *supra* note 55, at 86–87.

⁶¹ See Jacqueline Lang Weaver, *The Tragedy of the Commons from Spindletop to Enron*, 24 J. LAND RESOURCES & ENV'T L. 187, 187, 191 (2004); Pierce, *supra* note 5, at 763.

⁶² See Patrick H. Martin, *What the Frack? Judicial, Legislative, and Administrative Responses to a New Drilling Paradigm*, 68 ARK. L. REV. 321, 322–23 (2015).

⁶³ MANUAL OF OIL AND GAS TERMS, *supra* note 45 (definition of “reservoir energy”).

⁶⁴ See Northcutt Ely, *The Conservation of Oil*, 51 HARV. L. REV. 1209, 1219–20 (1938).

⁶⁵ AMERICAN PETROLEUM INST., BULL D-14, STATISTICAL ANALYSIS OF CRUDE OIL RECOVERY AND RECOVERY EFFICIENCY (2d ed., 1984), <https://pslcolombia.com/documentos/BULL%20D14%20Statistical%20Analysis%20of%20Crude%20Oil%20Recovery%20and%20Re1.pdf> [<https://perma.cc/5VL4-99N3>].

⁶⁶ *Enhanced Oil Recovery*, U.S. DEP'T OF ENERGY, <https://www.energy.gov/fe/science-innovation/oil-gas-research/enhanced-oil-recovery> [<https://perma.cc/4TK9-PTXE>] (last visited Jan. 1, 2019); Klaas van 't Veld & Owen R. Phillips, *The Economics of Enhanced Oil Recovery: Estimating Incremental Oil Supply and CO₂ Demand in the Powder River Basin*, 31 ENERGY J. 31, 32 (2010).

⁶⁷ Martin, *supra* note 50, at 423.

overdevelopment and rapid drawdown of resources can enfeeble field-wide pressure maintenance.

The rule of capture also contributes to waste by encouraging rapid drilling and development before adequate gathering and pipeline infrastructure is developed to handle the natural gas that is produced with, or as a constituent of, oil in oil wells.⁶⁸ This gas, which includes natural gas and casinghead gas, may result from a gas cap associated with an oil zone or separation of hydrocarbons in solution.⁶⁹ Thus, production of oil is not possible without some concomitant production of gas. The drilling imperatives, which may result from high commodity prices, lease expirations, and the threat of drainage, encourage operators to drill and complete oil wells without the infrastructure necessary for the capture and sale of associated gas.⁷⁰ Natural gas that cannot be economically or expeditiously captured, sold, or stored is vented or flared.⁷¹ As a result, not only is the natural gas commodity itself wasted, rather than put to productive end use, but also the pressure of the oil reservoir is depleted through the extraction of gas that provides some of the reservoir energy.⁷²

The common law has long imposed a duty upon owners of common resources not to commit waste.⁷³ Waste and its associated environmental impacts, however, are not an incidental byproduct of oil and development; they are by design. In the early days of oil exploration, courts upheld the right of an owner to flare or vent gas it had captured at the surface. In 1893, the Pennsylvania Supreme Court in *Hague v. Wheeler*⁷⁴ held that the rule of capture protected the operator of a gas well from liability when, having no market for its gas, it elected to flare all of the natural gas it captured.⁷⁵ The court held that, since the operator was not acting negligently or maliciously, and since the post-capture waste did not injure the property or health of

⁶⁸ See Alexandra B. Klass & Danielle Meinhardt, *Transporting Oil and Gas: U.S. Infrastructure Challenges*, 100 IOWA L. REV. 947, 1009–12 (2015); see also N.D. PIPELINE AUTH., NORTH DAKOTA NATURAL GAS: A DETAILED LOOK AT NATURAL GAS GATHERING 9–11 (2013), <https://ndpipelines.files.wordpress.com/2012/07/ndpa-detailed-look-at-gas-gathering-2013.pdf> [<https://perma.cc/3934-7E9T>].

⁶⁹ *Amarillo Oil Co. v. Energy-Agri Products Inc.*, 794 S.W.2d 20, 22–25 (Tex. 1990); *Martin v. Kostner*, 644 P.2d 430, 433–35 (Kan. 1982).

⁷⁰ Monika U. Ehrman, *Lights Out in the Bakken: A Review and Analysis of Flaring Regulation and Its Potential Effects on North Dakota Shale Oil Production*, 117 W. VA. L. REV. 549, 574 (2014).

⁷¹ *Id.* at 557.

⁷² Phillip E. Norvell, *The History of Oil and Gas Conservation Legislation in Arkansas*, 68 ARK. L. REV. 349, 367 (2015).

⁷³ Jill M. Fraley, *A New History of Waste Law: How a Misunderstood Doctrine Shaped Ideas About the Transformation of Law*, 100 MARQ. L. REV. 861, 867 (2017) citing RICHARD R. POWELL, 8 POWELL ON REAL PROPERTY § 56.01 (Michael Allan Wolf ed., 2000).

⁷⁴ *Hague v. Wheeler*, 27 A. 714, 719–20 (Pa. 1893).

⁷⁵ Bruce M. Kramer & Owen L. Anderson, *The Rule of Capture – An Oil and Gas Perspective*, 35 ENV'T'L L. 899, 907–08 (2005).

others,⁷⁶ the producer could retain title to the gas produced from its land without fear of injunction or liability for conversion.⁷⁷

Concerns about the waste, overproduction, and price instability resulting from the unconstrained rule of capture eventually elicited government intervention through conservation regulations.⁷⁸ By 1920, there were already serious concerns about depletion of oil and gas resources and the need for international sources to secure a stable supply.⁷⁹ Early conservation measures took the form of statutes prohibiting certain actions that were deemed wasteful.⁸⁰ The early reforms included prohibitions on long-term flaring or allowing a well to become wild or ignite, mandates requiring the proper plugging of abandoned wells, and rules limiting production to some portion of a well's maximum capacity.⁸¹ In many states, these first conservation laws did not include well location and density regulations, such as spacing or pooling,⁸² to limit the number of wells drilled and prevent drainage between tracts.⁸³ Instead, the focus of early conservation laws was to avoid spillage or venting into the atmosphere, rather than seeking to ensure efficient reservoir development.⁸⁴

However, the new reforms quickly ran afoul of the prevailing views of common law property ownership principles created by the rule of capture. Regulation of oil

⁷⁶ *Id. see also* Breaux v. Pan Am. Petroleum Corp., 163 So. 2d 406, 412 (La. Ct. App. 1964); Elliff v. Texon Drilling Co., 210 S.W.2d 558, 562 (Tex. 1948).

⁷⁷ *Elliff*, 210 S.W.2d at 562.

⁷⁸ *Legislation: Oil and Gas Conservation*, 43 HARV. L. REV. 1137, 1138–40 (1930) [hereinafter *Oil and Gas Conservation*]; Weaver, *supra* note 61, at 187; Noel F. Delporte, *The California Oil-Gas Conservation Acts*, 16 ST. LOUIS L. REV. 234, 237 (1931); Thomas A. Mitchell, *The Future of Oil and Gas Conservation Jurisprudence: Past as Prologue*, 49 WASHBURN L.J. 379, 414 (2010); Norvell, *supra* note 72, at 349.

⁷⁹ David White, *The Petroleum Resources of the World*, 89 ANNALS AM. ACAD. POL. & SOC. SCI. 111, 111–15 (1920).

⁸⁰ Peter D. Junger, *The Wyoming Oil and Gas Conservation Act: Private Rights and Public Policy*, 13 WYO. L.J. 1, 5 (1958).

⁸¹ *Id.* at 5–6; Higgins Oil Co. v. Guaranty Oil Co., 82 So. 206, 211 (1919); OIL AND GAS LAW, *supra* note 50, § 3.01; Norvell, *supra* note 72, at 364–65; *Oil and Gas Conservation*, *supra* note 78, at 1138.

⁸² Spacing designates the number of wells over and oil and gas reservoir and the density which they can be drilled for conservation purposes, whereas pooling refers to the combination of small tracts among adjacent owners to conform to the spacing pattern in order to receive a permit. MANUAL OF OIL AND GAS TERMS, *supra* note 45, at 802–03, 1178–79 (definitions of “pooling” and “well spacing,” respectively).

⁸³ J. Howard Marshall & Norman L. Meyers, *Legal Planning of Petroleum Production*, 41 YALE L.J. 33, 39 (1931); J. Howard Marshall & Norma L. Meyers, *Legal Planning of Petroleum Production: Two Years of Proration*, 42 YALE L.J. 702, 739 (1933); Norvell, *supra* note 72, at 367–68; *Oil and Gas Conservation*, *supra* note 78.

⁸⁴ Townsend v. State, 47 N.E. 19, 21 (Ind. 1897); SAINT-PAUL, *supra* note 2, § 4:2; Robert E. Sullivan, *The History and Purpose of Conservation Law*, in ROCKY MTN. MIN. L. INST., 18A OIL & GAS CONSERVATION LAW & PRACTICE, 1-1, 1-17, 1-18 (1985).

and gas development and prohibitions on waste limited the rights of mineral owners to maximize their ownership through capture.⁸⁵ In response, mineral owners filed lawsuits asserting that state conservation regulations constituted a taking of their common law property interests without adequate compensation.⁸⁶ The U.S. Supreme Court considered these claims in *Ohio Oil Co. v. Indiana*.⁸⁷ While remaining true to principals of the rule of capture, the Court rejected arguments that regulations preventing waste constituted an unconstitutional taking of the mineral owners' property.⁸⁸ Instead, the Court upheld Indiana's conservation law as a valid exercise of the state's police power to regulate private property to protect the public health, safety, and welfare by preventing the damage that natural gas waste would have on the public and other mineral owners.⁸⁹ Finding that a legislative modification of the common law rule of capture did not effect a total taking of the mineral owners' property rights, the Supreme Court wrote that legislative power "can be manifested for the purpose of protecting all the collective owners, by securing a just distribution, to arise from the enjoyment, by them, of their privilege to reduce to possession, and to reach the like end by preventing waste."⁹⁰

As conservation regulations proliferated, producing states sought to advance conservation objectives through stability and uniformity of laws across common regions and preserve the rights of states to control and regulate oil and gas production.⁹¹ These states organized a committee, and with the approval of President Theodore Roosevelt, called a meeting in 1933 for the purpose of entering a compact.⁹² Consequently, in 1935, Congress approved the Interstate Compact to Conserve Oil and Gas (IOC), which requires member states to "conserve oil and gas by the prevention of physical waste"⁹³ The IOC created the Interstate Oil Compact Commission (IOC Commission), now the Interstate Oil and Gas Compact

⁸⁵ Kramer & Anderson, *supra* note 75, at 914.

⁸⁶ *Id.* at 914–16.

⁸⁷ 177 U.S. 190, 200–02 (1900).

⁸⁸ *Id.* at 212; *see also* Kramer & Anderson, *supra* note 75, at 912–13.

⁸⁹ *Ohio Oil Co.*, 177 U.S. at 212.

⁹⁰ *Id.* at 209–10. These rationales continue to be cited in modern oil and gas jurisprudence relative to a state's police powers to regulate oil and gas. *See, e.g.*, *Wildgrass Oil and Gas Comm. v. Colorado*, No. 1:19-cv-00190-RBJ-NYW, 2020 U.S. Dist. LEXIS 46744, at *36 (D. Colo. Mar. 18, 2020) (dismissing case after finding that plaintiff did "not provide[] any case law suggesting that these binding precedents [upholding oil and gas regulations under the police power] should be ignored or should not apply to this statute").

⁹¹ Earl Foster, *The Interstate Compact to Conserve Oil and Gas and Its Real Effect on True Conservation*, 1947 A.B.A. SEC. MINERAL & NAT. RES. L. PROC. 23, 23 (1947).

⁹² *Id.* at 24; Blakely M. Murphy, *The Oil States Advisory Committee, A Predecessor of the Compact*, in *CONSERVATION OF OIL & GAS: A LEGAL HISTORY* 545 (Blakely M. Murphy ed., 1948).

⁹³ Joint Resolution Consenting to an Interstate Oil Compact to Conserve Oil and Gas, art. II, H.R.J. Res. 407, 74th Cong. 49 Stat. 939, 940 (1935) [hereinafter *Interstate Oil Compact*]; *see also* Junger, *supra* note 80, at 5; Sullivan, *supra* note 84, at 1–17.

Commission, as its governing body.⁹⁴ Ratification of the IOC coincided with the passage of conservation laws in several ratifying states.⁹⁵ Six major producing states initially ratified the IOC, though almost all oil-producing states are now members.⁹⁶

The IOC significantly shaped conservation law.⁹⁷ By the end of the 1930s, Arkansas, California, Louisiana, Oklahoma, and Texas had passed legislation creating conservation agencies or delegating authority to existing agencies to regulate oil and gas production activities.⁹⁸ However, it was not until the mid-1940s and early 1950s that a majority of states adopted comprehensive conservation regulations, including modern conservation techniques such as spacing and pooling.⁹⁹ In 1949, the IOC Commission drafted a model conservation statute to effectuate the main goals of the IOC: preventing waste and preserving correlative rights.¹⁰⁰ The model statute went beyond previous conservation measures by providing authority to create drilling units and require cost-sharing between owners within a unit.¹⁰¹ Shortly thereafter, Colorado and Wyoming enacted conservation legislation in 1951,¹⁰² and Pennsylvania enacted its Oil and Gas Conservation Law in 1961.¹⁰³ Today, every oil-and-gas-producing state has some form of oil and gas conservation regulation.¹⁰⁴ Conservation regulations have developed consistently with the purposes advanced by the IOC and the model statute.¹⁰⁵ While specific

⁹⁴ Interstate Oil Compact, art. VI, 49 Stat. at 940; Blakely M. Murphy, *Administrative Mechanism of the Interstate Compact to Conserve Oil and Gas: The Interstate Oil Compact Commission, 1935–1948*, 22 TUL. L. REV. 384, 387 (1948).

⁹⁵ Foster, *supra* note 91, at 24–25.

⁹⁶ See *Member States*, INTERSTATE OIL & GAS COMPACT COMM'N, <http://iogcc.ok.gov/member-states> [<https://perma.cc/2TBX-ENFF>] (last visited Feb. 27, 2020) (map showing current membership in the IOC); *Interstate Compact to Conserve Oil and Gas*, NAT'L CTR. FOR INTERSTATE COMPACTS, <http://apps.csg.org/ncic/Compact.aspx?id=81> [<https://perma.cc/F3NC-RRMC>] (last visited Feb. 27, 2020).

⁹⁷ See generally Kemp Wilson, *Conservation Acts and Correlative Rights: Has the Pendulum Swung Too Far?*, 35 ROCKY MTN. MIN. L. INST. 18-1 (1989) (presenting an update and analysis of state conservation legislation since 1950).

⁹⁸ Hardwicke, *supra* note 46, at 420; see A.W. Walker, Jr., *Property Rights in Oil and Gas and Their Effect Upon Police Regulation of Production*, 16 TEX. L. REV. 370, 380–381 (1938); see also Wilson, *supra* note 97, at 18-2.

⁹⁹ See 6 EUGENE KUNTZ, A TREATISE ON THE LAW OF OIL AND GAS, parts 1 & 2 (2000).

¹⁰⁰ Barth P. Jiggs Walker, *Discussion: A Model Oil and Gas Conservation Law*, 26 TUL. L. REV. 267, 269–70 (1952).

¹⁰¹ Thomas A. Daily, *Rules Done Right: How Arkansas Brought Its Oil and Gas Law into a Horizontal World*, 68 ARK. L. REV. 259, 264 (2015).

¹⁰² See Oil and Gas Conservation Act, ch. 230, 1951 Colo. Sess. Laws 651 (codified as amended at COLO. REV. STAT. §§ 34-60-101–131 (2019)); Oil and Gas Conservation Act, ch. 94, 1951 Wyo. Sess. Laws 120 (codified as amended at WYO. STAT. ANN. §§ 30-5-101–28 (2019)).

¹⁰³ See Oil and Gas Conservation Law, 1961 Pa. Laws 825 (codified at 58 PA. CONS. STAT. §§ 401–19 (2019)); see also Mitchell, *supra* note 78, at 404–05.

¹⁰⁴ See SAINT-PAUL, *supra* note 2, § 4:2.

¹⁰⁵ See Sullivan, *supra* note 84, at 1-19.

language varies among producing states, “the basic pattern is essentially the same.”¹⁰⁶

Modern oil and gas conservation law addresses four principal types of waste: underground waste, surface waste, economic waste, and market waste.¹⁰⁷ Underground waste is waste that results from the dissipation of reservoir energy through over-drilling or over-production.¹⁰⁸ Commissions frequently have broad delegations of authority to enact reasonable rules or orders for waste prevention.¹⁰⁹ Spacing rules, for example, prohibit drilling on tracts that are smaller than the area which can reasonably be drained by one well, thus limiting over-drilling that might result from an unconstrained application of the traditional rule of capture.¹¹⁰ Pooling¹¹¹ and unitization¹¹² allow adjacent mineral interests within a spacing unit to be combined, creating a common source of supply or development as a uniform whole. These regulatory measures protect the correlative rights of adjacent owners from drainage and encourage enhanced production techniques that support field-

¹⁰⁶ *Id.* at 1-18.

¹⁰⁷ See Note, *Conservation of Natural Gas and the Federal-State Conflict*, 64 COLUM. L. REV. 888, 891-92 (1964); SAINT-PAUL, *supra* note 2, § 4:5; KANSAS. STAT. ANN. § 55-602 (1939).

¹⁰⁸ See *Conservation of Natural Gas and the Federal-State Conflict*, *supra* note 107, at 891-92.

¹⁰⁹ See *Walker v. J-W Operating Co.*, 2012-0662 (La. App. 1 Cir. 12/21/2012); 2012 WL 6677913, at *3 (commission sought to prevent waste by issuing permits for alternate wells upon a finding that one well could not effectively drain the unit, drawing upon broad delegation of authority to commission to enact “any reasonable rules, regulations, and orders” necessary to carry out purpose of conservation act (quoting LA. STAT. ANN. § 30:4 (1950)), *writ denied*, 2013-C-0185 (La. 4/1/13); 110 So. 3d 582; see also MARTIN & KRAMER, *supra* note 1, at ch. 5.

¹¹⁰ See COLO. REV. STAT. § 34-60-116(2) (2018); OKLA. STAT. tit. 52, § 87.1 (2019); N.D. CENT. CODE § 38-08-07 (2019); N.M. STAT. ANN. § 70-2-17 (2019); *Brown v. Humble Oil & Ref. Co.*, 83 S.W.2d 935, 944 (Tex. 1935); Robert E. Hardwicke, *Oil-Well Spacing Regulations and Protection of Property Rights in Texas*, 31 TEX. L. REV. 99, 107 (1952) (citing *Gulf Land Co. v. Atlantic Refining Co.*, 131 S.W.2d 73, 80 (Tex. 1939)).

¹¹¹ See *supra* note 81 and accompanying text; see also ARK. CODE ANN. § 15-72-302(e)(2) (2019); COLO. REV. STAT. § 34-60-116(7)(a) (2019); NEB. REV. STAT. § 57-909(2) (2019); N.M. STAT. ANN. § 70-2-17(c) (2019); OKLA. STAT. tit. 52, § 87.1(e) (2019); WASH. REV. CODE § 78.52.250(4) (2019); WYO. STAT. ANN. § 30-5-109(f) (2019); Bruce M. Kramer, *Compulsory Pooling and Unitization: State Options in Dealing with Uncooperative Owners*, 7 J. ENERGY L. & POL’Y 255, 276-78 (1986).

¹¹² Unitization, often used alongside pooling to accomplish similar results under spacing rules, is the “joint operation of all or some portion of a performing reservoir.” MANUAL OF OIL AND GAS TERMS, *supra* note 45, at 1143; see ARK. CODE ANN. §§ 15-72-308-315 (2019); CAL. PUB. RES. CODE § 3640 (West 2019); KAN. STAT. ANN. §§ 55-1301-17 (2019); LA. STAT. ANN. § 30:5.1 (1950); MISS. CODE ANN. § 53-3-7 (2019); N.M. STAT. ANN. §§ 70-7-1-21 (2019); OKLA. STAT. ANN. tit. 52, §§ 287.1-15 (2019); WYO. STAT. ANN. § 30-5-110 (2019). Notably, Texas does not have a compulsory pooling or unitization statute.

wide drainage.¹¹³ Conservation laws may also require production of oil and gas at optimal pressures to prevent unnecessary loss of reservoir energy through the application of oil and gas ratios or maximum efficient rate limitations.¹¹⁴

Conservation law also addresses unnecessary, inefficient, reckless, or uneconomic waste of resources at the surface. For instance, a number of conservation statutes prohibit excessive flaring or venting—the burning or release of natural gas at the surface.¹¹⁵ Economic waste was discouraged through prohibitions on undesirable uses of natural gas that consume limited resources without maximizing societies' economic returns.¹¹⁶ Prohibitions on economic waste include “complete or partial prohibition of production or consumption,” or prohibition of the use of petroleum products “in nonefficient processes or inferior uses.”¹¹⁷ For instance, most state conservation statutes prohibit use of oil in the manufacture of carbon black, a substance resulting from the incomplete combustion of hydrocarbons.¹¹⁸ Market waste has also been limited through state conservation laws. Although rarely used today, state conservation laws have attempted to limit price instability and premature well abandonment due to production that outpaced

¹¹³ See Kramer, *supra* note 111, at 258.

¹¹⁴ See CAL. PUB. RES. CODE § 3451 (West 2019); COLO. REV. STAT. § 34-60-102(1)(b) (2019); see also MARTIN & KRAMER, *supra* note 1, § 5.01[2].

¹¹⁵ 225 ILL. COMP. STAT. 732/1-75(d)(4) (2019); N.D. CENT. CODE § 38-08-06.4 (2019); see also CAL. PUB. RES. CODE § 3300 (“[T]he blowing, release, or escape of gas into the air shall be prima facie evidence of unreasonable waste.”).

¹¹⁶ Henderson Co. v. Thompson, 300 U.S. 258, 263–67 (1937); Walls v. Midland Carbon Co., 254 U.S. 300, 324–25 (1920).

¹¹⁷ Williams, *supra* note 7, at 1155–56. Occasionally, these methods have been implemented. For example, production and fracturing moratoria have been employed in limited circumstances to stop waste and protect health, safety and the environment, or while agencies pursue rulemaking efforts. See, e.g., U.S. DEP’T OF THE INTERIOR, NTL NO. 2010-N04, NOTICE TO LESSEES AND OPERATORS OF FEDERAL OIL AND GAS LEASES IN THE OUTER CONTINENTAL SHELF REGIONS OF THE GULF OF MEXICO AND THE PACIFIC TO IMPLEMENT THE DIRECTIVE TO IMPOSE A MORATORIUM ON ALL DRILLING OF DEEPWATER WELLS (2010), https://www.doi.gov/sites/doi.gov/files/migrated/news/pressreleases/upload/MORATORIUM_NTL.pdf [<https://perma.cc/KWX7-9X7S>]; N.Y. Exec. Order No. 41, Requiring Further Environmental Review of High-Volume Hydraulic Fracturing in the Marcellus Shale (Dec. 13, 2010), [https://govt.westlaw.com/nycrr/Document/Ib2187f0464611e09f330000845b8d3e?viewType=FullText&originationContext=documenttoc&transitionType=CategoryPageItem&contextData=\(sc.Default\)](https://govt.westlaw.com/nycrr/Document/Ib2187f0464611e09f330000845b8d3e?viewType=FullText&originationContext=documenttoc&transitionType=CategoryPageItem&contextData=(sc.Default)) [<https://perma.cc/8RFK-5K89>], *continued by* N.Y. Exec. Order No. 2, Review, Continuation and Expiration of Prior Executive Orders (Jan. 1, 2011), <http://www.governor.ny.gov/executiveorder/2> [<https://perma.cc/YFY8-8DE3>]. Local governments have also imposed moratoria on drilling and hydraulic fracturing, with limited success. See Lori Riverstone-Newell, *The Rise of State Preemption Laws in Response to Local Policy Innovation*, 47 PUBLIUS: J. FEDERALISM 403, 411 (2017).

¹¹⁸ Walls, 254 U.S. at 322. See generally Henderson Co., 300 U.S. 258 (1937) (discussing whether the prohibition by Texas of the use of sweet natural gas for the manufacture of carbon black in the Panhandle field is valid).

demand.¹¹⁹ States addressed these market rate challenges by limiting either the amount that an operator of a well could produce or the lowest price at which oil or gas could be sold through prorationing,¹²⁰ common purchase orders requiring ratable take,¹²¹ and minimum wellhead pricing.¹²²

Conservation statutes have survived numerous constitutional challenges, which argued that regulations to curb waste and protect correlative rights unlawfully restricted the profitable uses of private property, resulting in a taking of property without due process of law, denial of equal protection, or impairment of contractual obligations.¹²³ Contract and property rights are subject to each state's reasonable exercise of the police power to prevent waste of natural resources. In a series of cases, the U.S. Supreme Court upheld conservation statutes based on state police power interests in preserving natural resources, assuring delivery of oil and gas to the public, and protecting the correlative rights of owners within the pool.¹²⁴ As the Court wrote in *Cities Service Gas Co. v. Peerless Oil & Gas Co.*, “[i]t is now undeniable that a state may adopt reasonable regulations to prevent economic and physical waste of natural gas.”¹²⁵

¹¹⁹ *Oil and Gas Conservation*, *supra* note 78, at 1142–43.

¹²⁰ *See, e.g.*, LA. ADMIN. CODE tit. 43, §§ 3501–3511, 3701–3709 (2019); 16 TEX. ADMIN. CODE §§ 3.45, 3.49 (2019); *see also* *Champlin Ref. Co. v. Corp. Comm’n of Oklahoma*, 286 U.S. 210, 234–36 (1932); 2 ERNEST E. SMITH & JACQUELINE LANG WEAVER, TEXAS LAW OF OIL & GAS § 9.3(A) (2d ed. 2018). Prorationing empowers commissions to restrict production on the basis of market demand in their jurisdiction. MANUAL OF OIL AND GAS TERMS, *supra* note 45, at 861.

¹²¹ 1913 Okla. Sess. Laws 439, 440 §§ 2, 3; OKLA. STAT. ANN. tit. 52 §§ 29, 239. Ratable takes are imposed by conservation agencies to limit production so that each landowner overlying a common reservoir will receive a “fair share” of the oil or gas produced. MANUAL OF OIL AND GAS TERMS, *supra* note 45, at 886–87.

¹²² SMITH & WEAVER, *supra* note 120, § 9.3(A). Wellhead prices are charged at the mechanical “head” of a natural gas well. MANUAL OF OIL AND GAS TERMS, *supra* note 45, at 1175. Minimum wellhead prices are fixed by regulation to help royalty owners account for their financial interest in the well’s production. *Id.* at 629–30.

¹²³ *See* *Cities Serv. Gas Co. v. Peerless Oil & Gas Co.*, 340 U.S. 179, 185 (1950); Barton Thompson, Jr., *Resources Use and the Emerging Law of Takings: A Realistic Appraisal*, 42 ROCKY. MTN. MIN. LAW. INST. 2, 2-53 (1996); SAINT-PAUL, *supra* note 2, § 4:7.

¹²⁴ *R.R. Comm’n of Texas v. Rowan & Nichols Oil Co.*, 310 U.S. 573, 583–84 (1940); *Bandini Petroleum Co. v. Superior Court, Los Angeles Cty., California*, 284 U.S. 8, 22 (1931).

¹²⁵ *Cities Serv. Gas Co.*, 340 U.S. at 185.

III. THE ROLE OF STATE OIL AND GAS CONSERVATION AGENCIES

A. *Statutory Authority and Jurisdiction*

State statutes typically delegate regulation of oil and gas production to conservation agencies.¹²⁶ In order for a conservation agency to have jurisdiction to resolve a dispute, issue an order, or grant a permit, a statute must lawfully delegate that authority to it¹²⁷ with appropriate standards for delegation.¹²⁸ Additionally, conservation statutes must not be preempted by other law.¹²⁹ Thus, oil and gas regulatory agencies are both limited and empowered by their statutory delegations of authority.

Consistent with their delegated “quasi-legislative,” enforcement, and “quasi-judicial,” powers, conservation agencies engage in diverse functions, including rulemaking, entering orders, conducting investigations, finding facts, and applying sanctions or levying civil penalties.¹³⁰ This broad authority, combined with specific mandates and policy directives, has served as the basis for commission regulation of

¹²⁶ See, e.g., COLO. REV. STAT. § 34-60-105 (2019); N.M. STAT. ANN. § 70-2-6 (2019); OKLA. STAT. tit. 52, § 29 (2019); 58 PA. CONST. STAT. § 405 (2019); TEX. NAT. RES. CODE ANN. § 81.051 (2019); WYO. STAT. ANN. § 30-5-104 (2019); Patrick H. Martin, *The Jurisdiction of State Oil and Gas Commission*, in ROCKY MTN. MIN. L. INST., 18A OIL AND GAS CONSERVATION LAW AND PRACTICE 3-1, 3-4–3-5 (1985) [hereinafter Martin, *State Oil and Gas Commission*].

¹²⁷ See *Mistretta v. United States*, 488 U.S. 361, 371–74 (1989); Martin, *State Oil and Gas Commission*, *supra* note 126, at 3-5–3-8.

¹²⁸ See MORRIS D. FORKOSCH, A TREATISE ON ADMINISTRATIVE LAW § 68 (1956).

¹²⁹ See, e.g., *Millennium Pipeline Co. v. Seggos*, 288 F. Supp. 3d 530, 539 (N.D.N.Y. 2017) (“[S]tates are preempted from independently enforcing [Section 401 Clean Water Act certification] standards through the denial of state permits.”); *Islander E. Pipeline Co. v. McCarthy*, 525 F.3d 141, 143 (2d Cir. 2008) (“[T]he Clean Water and Coastal Zone Management Acts are notable in effecting a federal-state partnership to ensure water quality and coastal management around the country, so that state standards approved by the federal government become the federal standard for that state.” (citing *Islander E. Pipeline Co. v. Conn. Dep’t of Env’tl. Prot.*, 482 F.3d 79 (2d Cir. 2006))); *ANR Pipeline Co. v. Corp. Comm’n of Oklahoma (“OCC”)*, 860 F.2d 1571, 1582 (10th Cir. 1988) (OCC Order No. 281285 asserted that regulation of interstate pipelines was within its jurisdiction based on the state’s ratable take statute and was necessary to prevent waste and protect correlative rights); *Colo. Mining Ass’n v. Bd. of Cnty. Comm’rs of Summit Cnty.*, 199 P.3d 718, 723 (Colo. 2009) (citing *State Dep’t of Health v. The Mill*, 887 P.2d 993, 1004 (Colo. 1994)); *Gulf Oil Corp. v. Wyoming Oil & Gas Conservation Comm.*, 693 P.2d 227, 238 (Wyo. 1985) (finding “no intent by Congress to exclude states from regulating mining activities on federal land so as to safeguard environmental values.”); see also Alexandra B. Klass, *State Innovation and Preemption: Lessons from State Climate Change Efforts*, 41 LOY. L.A. L. REV. 1653, 1673 (2008).

¹³⁰ See, e.g., WYO. STAT. ANN. § 30-5-104 (2019); *McGowan v. Mississippi State Oil & Gas Bd.*, 604 So.2d 312, 317 (Miss. 1992); see also Martin, *State Oil and Gas Commission*, *supra* note 126, at 3-5.

the manner, location, and technical aspects of production, as well as the preemption of conflicting local land use regulations.¹³¹ For instance, state oil and gas conservation agencies derive their authority to regulate hydraulic fracturing from their respective enabling acts.¹³²

Oil and gas conservation agencies may also be charged with the implementation of programs unrelated to the conservation of oil. For example, the Wyoming Oil and Gas Conservation Commission (WOGCC) has jurisdiction over carbon dioxide sequestration,¹³³ whereas the Texas Railroad Commission (RRC) has regulatory and enforcement responsibilities under the Safe Drinking Water Act, the Resource Conservation and Recovery Act, and the Clean Water Act.¹³⁴ These additional delegated duties may require a conservation agency to engage in fact-finding relative to the extent of drinking water sources, the mechanical integrity of wells, or the containment capacity of proposed storage reservoirs.¹³⁵

Conservation agencies may not act outside the areas where they have been specifically empowered to act, whether that authority remains with the state or has been delegated to another agency.¹³⁶ For example, conservation agencies cannot adjudicate title disputes,¹³⁷ contract rights,¹³⁸ tort claims,¹³⁹ or consider violations of

¹³¹ These grants of authority have also cited preemption of local government rules that conflict with state regulations. *See City of Longmont v. Colo. Oil and Gas Ass'n*, 369 P.3d 573, 577 (2016).

¹³² *See, e.g.*, COLO. REV. STAT. § 34–60–102(1)(b) (2019); MONT. CODE ANN. § 82–11–201 (2019); N.M. STAT. ANN. § 70–2–11 (2019); TEX. NAT. RES. CODE ANN. § 86.082 (2019); WYO. STAT. ANN. § 30–5–104 (2019). Each agency enabling act provides several general requirements to address oil and gas production, applicable to both conventional and hydraulically fractured wells. Some relevant provisions common to most acts include bonding, permitting, well location, waste disposal, and strata sealing. William J. Brady & James P. Crannell, *Hydraulic Fracturing Regulation in the United States: The Laissez-Faire Approach of the Federal Government and Varying State Regulations*, 14 VT. J. ENVTL. L. 39, 63 (2012).

¹³³ WYO. STAT. ANN. § 35–11–313 (2019).

¹³⁴ TEX. WATER CODE ANN. § 26.131 (2019).

¹³⁵ *Id.*; 055–4 WYO. CODE R. § 1 (LexisNexis 2019).

¹³⁶ *See Gage v. R.R. Comm'n of Texas*, 582 S.W.2d 410, 413 (Tex. 1979); *Larsen v. Oil & Gas Conservation Comm'n*, 569 P.2d 87, 90 (Wyo. 1977); *Helmerich & Payne, Inc. v. Corp. Comm'n of Oklahoma*, 532 P.2d 419, 422–23 (Okla. 1975) (citing *H.F. Wilcox Oil & Gas Co. v. State*, 19 P.2d 347, 350 (Okla. 1932)); *Union Pac. R.R. Co. v. Oil & Gas Conservation Comm'n of Colorado*, 284 P.2d 242, 246–47 (Colo. 1955).

¹³⁷ *See Sun Oil Co. v. R.R. Comm'n of Texas*, 390 S.W. 2d 803, 806–07 (Tex. App. 1965).

¹³⁸ *Superior Oil Co. v. Humble Oil & Refining Co.*, 241 So.2d 911, 912 (La. 1970); *Amerada Petroleum Corp. v. R.R. Comm'n of Texas*, 395 S.W.2d 403, 406 (Tex. App. 1965).

¹³⁹ *Kingwood Oil Co. v. Hall-Jones Oil Corp.*, 396 P.2d 510, 512 (Okla. 1964); *Foree v. Crown Central Petroleum Corp.*, 431 S.W.2d 312, 316 (Tex. 1968).

antitrust laws.¹⁴⁰ For example, in *Kerr-McGee Corp. v. WOGCC*,¹⁴¹ the Supreme Court of Wyoming invalidated the WOGCC's decision that a new tertiary production project was not entitled to a 2% severance tax exemption on the basis that the statute creating the tax exemption included a five-year limitation.¹⁴² Although the state conservation agency had the authority to certify tertiary recovery projects, the court held that the commission had "no authority to base its decision on tax matters," finding that it had "invaded an area in which it had no statutory right" since the state legislature delegated "the construction of any statute affecting the assessment, levying, and collection of taxes" to the State Board of Equalization.¹⁴³

Conservation agencies are required to fulfill their delegated duties consistent with the public purposes as established by their respective enabling statute(s).¹⁴⁴ While the preambles and legislative declarations of purpose vary between states, there are common elements. Declared purposes principally include the prevention of waste and protection of correlative rights.¹⁴⁵ In addition, legislatures may include other purposes, such as fostering development and ensuring that development does not pose undue harm to health, safety, or the environment. The following subsections discuss each of these legislative purposes.

1. Preventing Waste

All state conservation statutes include some form of a prohibition on waste, though statutory definitions differ.¹⁴⁶ Almost all states prohibit physical waste—the spillage of oil and gas or dissipation of reservoir energy that results in the stranding of oil and gas underground.¹⁴⁷ However, statutory prohibitions on waste may also include environmental or economic waste.

¹⁴⁰ *Woods Exploration & Producing Co. v. Aluminum Co. of America*, 382 S.W.2d 343, 347 (Tex. App. 1964); *see also* Michael J. Wozniak et al., *Horizontal Drilling: Why It's Much Better to "Lay Down" Than to "Stand Up" and What Is an "18° Azimuth" Anyway?*, 57 ROCKY MT. MIN. L. INST. 11.01, 11.10–12 (2011).

¹⁴¹ 903 P.2d 537 (Wyo. 1995).

¹⁴² *Id.* at 538.

¹⁴³ *Id.* at 544–45.

¹⁴⁴ *See, e.g.*, LA. STAT. ANN. § 30:4(A) (1950); *see also* Martin, *State Oil and Gas Commission*, *supra* note 126, at 3–5.

¹⁴⁵ NEB. REV. STAT. § 57-901 (2019); N.Y. ENVTL. CONSERV. LAW § 23-0301 (McKinney 2019); N.D. CENT. CODE § 38-01-10 (2019); UTAH CODE ANN. § 40-6-1 (West 2019); W.VA. CODE § 22C-9-1 (2019); *see also* Union Pac. Resources Co. v. Texaco, Inc., 882 P.2d 212, 223 (Wyo. 1994); *Voss v. Lundvall Bros., Inc.*, 830 P.2d 1061, 1067 (Colo. 1992); *Larsen v. Oil & Gas Conservation Comm'n*, 569 P.2d 87, 89–90 (Wyo. 1977).

¹⁴⁶ SAINT-PAUL, *supra* note 2, § 4:5.

¹⁴⁷ *See, e.g.*, TEX. NAT. RES. CODE ANN. § 85.046(a)(6) (2019) (defining waste as "physical waste or loss incident to or resulting from drilling, equipping, locating, spacing or operating a well or wells in a manner that reduces or tends to reduce the total ultimate recovery of oil and gas from any pool").

Economic waste prohibitions are designed to prevent drilling which does not increase recoverable oil in the reservoir. For instance, Utah defines waste more expansively to include the drilling of unnecessary wells to recover the same resource, thus resulting in an inefficient allocation of capital, increased costs of production, higher costs to the consumer, and unnecessary consumption of surface resources.¹⁴⁸ Still, other states regulate oil and gas to prevent “market demand waste,”¹⁴⁹ the abuse of correlative rights,¹⁵⁰ or the burning of natural gas for uses deemed wasteful.¹⁵¹ Even in Texas, which has long acknowledged the “virtues” of drilling unnecessary wells¹⁵² and which does not specifically address economic waste in its statutes,¹⁵³ courts have permitted consideration of economic factors in spacing proceedings.¹⁵⁴ In contrast, the Wyoming Legislature expressly excluded economic waste from its consideration when it rejected language that would have permitted its commission to consider “the drilling of wells not reasonably necessary to effect an economic maximum ultimate recovery of oil and gas from a pool.”¹⁵⁵

Waste may also include otherwise lawful activities that would result in undue environmental degradation. For instance, Wyoming’s statute prohibiting the waste of gas through flaring provides:

it shall be unlawful to allow or permit such natural gas to pollute or contaminate the atmosphere to such an extent that injury or damage is sustained by growing crops, vegetation, livestock, wildlife, or domestic fowls, or to such an extent that the human health, welfare, or safety is in anyway impaired or damaged.¹⁵⁶

This approach expands on Wyoming’s general definition of waste in Section 30-5-101 of the Wyoming Statutes,¹⁵⁷ and is reminiscent of early state police power justifications limiting the right of a mineral owner to capture and dispose of its property.¹⁵⁸ Although the Wyoming statute neither defines flaring as waste nor

¹⁴⁸ UTAH CODE ANN. § 40-6-2(27) (West 2019).

¹⁴⁹ MICH. COMP. LAWS §§ 324.61501–02 (2019).

¹⁵⁰ ARK. CODE ANN. § 15-72-102(15)(C) (2019).

¹⁵¹ See SAINT-PAUL, *supra* note 2, § 4:38.

¹⁵² See JACQUELINE LANG WEAVER, *UNITIZATION OF OIL AND GAS FIELDS IN TEXAS: A STUDY OF LEGISLATIVE, ADMINISTRATIVE, AND JUDICIAL POLICIES* 334 (2013).

¹⁵³ *Id.* at 270.

¹⁵⁴ See, e.g., *Exxon Corp. v. Railroad Comm’n*, 571 S.W.2d 497, 501–02 (Tex. 1978).

¹⁵⁵ *Larsen*, 569 P. 2d at 92–93 (quoting proposed statutory language that was not ultimately enacted); see also Houston G. Williams & George M. Porter, *Practice Before the Wyoming Oil and Gas Conservation Commission*, 10 LAND & WATER L. REV. 353, 403–04 (1975).

¹⁵⁶ WYO. STAT. ANN. § 30-5-121 (2019).

¹⁵⁷ *Id.* § 30-5-101(i).

¹⁵⁸ See *supra* Part II, at notes 87–120.

outright prohibits flaring,¹⁵⁹ it affords the conservation agency the authority to prohibit or limit flaring as waste where it results in environmental degradation or otherwise imperils the public interest.¹⁶⁰ Despite this and similar statutes in other states, however, agencies have not embraced statutory prohibitions on waste as authorizing consideration of impacts beyond those immediately impacted by operations, nor impacts related to climate change.¹⁶¹

Courts, however, may read waste and conservation statutes more expansively. Waste has been defined by courts as having an “ordinary and generally accepted meaning and . . . whatever dictates of reason, fairness, and good judgment would lead a person to conclude is a wasteful practice in the production, storage, or transportation of oil and gas is included within the term.”¹⁶² Although the historical focus of waste prevention has been to avoid non-production of oil and gas,¹⁶³ judicial definitions of waste also provide latitude for commissions to limit or prohibit exploration activities with unreasonable environmental impacts. A Michigan court interpreted the Michigan Oil Conservation Act’s prohibition on waste to include “spoliation or destruction of the land, including flora and fauna.”¹⁶⁴ Similarly, courts have found waste prohibitions in federal statutes to include environmental injuries other than physical waste. For instance, waste of natural resources, as defined in the Outer Continental Shelf Lands Act, has been interpreted to include injury to animals and plants within the marine environment.¹⁶⁵ Consistent with American common law principles of waste and nuisance, which require reasonable use of a resource with due regard for the rights of others and without injury to the remainder, with reasonableness determined relative to the locality,¹⁶⁶ judicial interpretations of waste prohibitions in conservation law leave open the possible prohibition of oil and gas production activities that unreasonably damage the local environment.

2. *Protecting Correlative Rights*

Oil and gas conservation statutes also task conservation agencies with protecting the correlative rights of owners within common subsurface accumulation

¹⁵⁹ See WYO. STAT. ANN. § 30-5-101(a)(i)(G) (2019) (defining “waste” to include “[t]he flaring of gas from gas wells except that necessary for the drilling, completing or testing of the well”); see also MARTIN & KRAMER, *supra* note 1, § 5.01.

¹⁶⁰ WYO. STAT. ANN. § 30-5-121 (2019).

¹⁶¹ See, e.g., Colorado Oil & Gas Conservation Comm’n v. Martinez, 2019 CO 17 ¶¶ 31–44, 433 P.3d 22, 30–32 (Colo. 2019).

¹⁶² R.R. Comm’n v. Shell Oil Co., 206 S.W.2d 235, 240 (Tex. 1947).

¹⁶³ See *supra* Part II.

¹⁶⁴ Michigan Oil Co. v. Nat. Res. Comm’n, 276 N.W.2d 141, 147 (Mich. 1979).

¹⁶⁵ Gulf Oil Corp. v. Morton, 493 F.2d 141, 145 (9th Cir. 1973) (interpreting 43 U.S.C. § 1334(a)(1)(2018)).

¹⁶⁶ John G. Sprankling, *The Antiwilderness Bias in American Property Law*, 63 U. CHI. L. REV. 519, 533–36, 553–56 (1996); SAINT-PAUL, *supra* note 2, § 2.21.

of oil and gas or source of supply.¹⁶⁷ Concerns regarding waste are concomitant to the protection of each mineral owner's correlative rights in the reservoir. Operations by any owner within the common resources will have an effect on the property interest and economic opportunity available to others.¹⁶⁸ The doctrine of correlative rights emerged as one of the core justifications for modification of the rule of capture by legislative action.¹⁶⁹ Waste by any owner within a pool or common source of supply imperils the correlative rights of others within that reservoir community by limiting the quantity of oil or gas that can be reasonably produced.¹⁷⁰ Thus, each owner must exercise its rights of extraction under the rule of capture with due regard for the rights of others.¹⁷¹ Correlative rights refer to each mineral owner's coequal property interest in the common subsurface resource and the rights and duties that exist between owners of the common resource.¹⁷²

Thus, the protection of correlative rights and the prevention of waste are complementary functions of state conservation agencies. Without statutes prohibiting and limiting waste, excessive use by one owner would diminish the property interests of all others. Accordingly, in the absence of voluntary contracts, regulations that protect and reinforce the correlative rights of mineral owners are necessary to advance the state's interest in production.¹⁷³ Although some courts have seemingly created a hierarchy that prioritizes the prevention of waste over the protection of correlative property rights,¹⁷⁴ both functions are necessary to ensure fair and efficient development of oil and gas resources. A disproportionate focus on the prevention of waste without protections for correlative rights could unreasonably impair the property interests of some mineral owners, whereas an absolute adherence to strict principals of proportionality would undermine the production incentive created by the rule of capture.

¹⁶⁷ The U.S. Supreme Court has recognized correlative rights. See *Ohio Oil Co. v. Indiana*, 177 U.S. 190, 203 (1900).

¹⁶⁸ 6 EUGENE KUNTZ, A TREATISE ON THE LAW OF OIL AND GAS § 4.3 (2000).

¹⁶⁹ Kramer & Anderson, *supra* note 75, at 914–15.

¹⁷⁰ *Id.*

¹⁷¹ *Id.*

¹⁷² INTERSTATE OIL COMPACT COMM'N, A STUDY OF CONSERVATION OF OIL AND GAS IN THE UNITED STATES 187 (1964); Eugene Kuntz, *Correlative Rights in Oil and Gas*, 30 MISS. L.J. 1, 1–2 (1958); Lewis M. Andrews, *The Correlative Rights Doctrine in the Law of Oil and Gas*, 13 S. CAL. L. REV. 185, 186 (1940).

¹⁷³ See generally MARTIN & KRAMER, *supra* note 1, § 5.01.

¹⁷⁴ See *Sw. Kansas Royalty Owners Ass'n v. State Corp. Comm'n of Kansas*, 769 P.2d 1, 9 (Kan. 1989); *Gilmore v. Oil & Gas Conservation Comm'n of Wyoming*, 642 P.2d 773, 779 (Wyo. 1982); *Denver Producing & Ref. Co. v. Oklahoma*, 184 P.2d 961, 963 (Okla. 1947); Wilson, *supra* note 97, at 18–7.

3. *Encouraging Efficient Development*

The ultimate aim of waste prevention and the protection of correlative rights, and thus of conservation law more broadly, has been to promote development of oil and gas. Many state conservation laws provide that the statutory purpose of the agency is to “promote” or “encourage” efficient development.¹⁷⁵ Encouraging the efficient and orderly development of natural resources is a critical objective of conservation law, and one that is in direct contrast to many environmental movement stakeholders, who often advocate maxims such as “keep it in the ground.”¹⁷⁶ The rule of capture, though now constrained by doctrines of nuisance, and limited by regulations to protect correlative rights and prevent waste, is as relevant today as it was following the Spindletop discovery.¹⁷⁷ Legislatures have not found that oil and gas production, *ipso facto*, endangers the public welfare or is wasteful. In fact, in many states, production of oil and gas and other natural resources is declared to have a high public value, such that private property is subject to condemnation by governments, utility companies, and energy developers where it is necessary for drilling or production.¹⁷⁸ For instance, the constitutions of several western states provide that private property may be taken by oil, gas, and mining companies in furtherance of the public interest in natural resource development.¹⁷⁹ Accordingly, conservation agencies are required to balance protection of health, safety, and the environment, prevention of waste, and protection of correlative rights, with statutory purposes of encouraging and promoting development. Thus, conservation agencies have not been empowered to prohibit widespread development of mineral property in response to environmental concerns.¹⁸⁰ Accordingly, a conservation agency’s restrictions on the property and contract rights of mineral owners are limited to the extent that they can be accomplished without substantially impeding development or making development wholly impracticable.¹⁸¹

¹⁷⁵ See, e.g., COLO. REV. STAT. § 34-60-102, 120 (2019); N.C. GEN. STAT. § 113-391 (2017); TEX. NAT. RES. CODE ANN. § 92.001 (West 2019); VA. CODE ANN. § 45.1-361.27 (1990); W. VA. CODE § 5B-2H-2 (2011).

¹⁷⁶ Monika U. Ehrman, *A Call for Energy Realism: When Immanuel Kant Met the Keep It in the Ground Movement* 2019 UTAH L. REV. 435, 438–41.

¹⁷⁷ See *supra* Part II (discussing Spindletop).

¹⁷⁸ Alexandra Klass, *The Frontier of Eminent Domain*, 79 COLO. L. REV. 651, 691 (2008).

¹⁷⁹ *Id.* at 657.

¹⁸⁰ The landmark legislation enacted in Colorado in 2019, SB 19-181, changes this presumption. See discussion *infra* notes 388–402.

¹⁸¹ See, e.g., *Union Pacific Resources Co. v. Texaco, Inc.*, 882 P.2d 212, 223 (Wyo. 1994).

4. *Health, Safety, Public Welfare and the Environment*

A number of states, including Arizona, Alaska, Colorado, and Kentucky, authorize their respective commissions to consider public safety, health, welfare, and responsible development in exercising their delegated authority.¹⁸² Courts have long recognized that the rule of capture is not absolute, and capture must be exercised with due regard for the health and property of others. Therefore, courts have upheld states' reasonable exercise of their police power to protect such interests.¹⁸³ The earliest laws regulating the production of oil and gas did not limit production or protect correlative rights, but rather made it unlawful for an operator to transport nitroglycerine in or near cities or towns,¹⁸⁴ or to negligently allow a well to go wild or ignite.¹⁸⁵ Despite these early origins, however, in most cases, comprehensive conservation statutes were not amended to provide conservation agencies with authority to enact rules for health, safety, and the environment until decades after adoption of the original conservation laws. For example, Colorado's conservation act was amended in 1994 to provide the commission with the authority to regulate oil and gas operations "so as to prevent and mitigate significant adverse environmental impacts on any air, water, soil, or biological resource . . . to the extent necessary to protect public health, safety, and welfare, including protection of the environment and wildlife resources."¹⁸⁶ Illinois and Oklahoma similarly amended their conservation laws in 1991 and 2000 respectively to provide their state conservation agencies with more limited authority to intervene only when there is an imminent threat to public health or environmental safety.¹⁸⁷ As illustrated by a 2019 ruling of the Colorado Supreme Court, the addition of such public interest mandates may introduce theoretical inconsistencies and present challenging issues

¹⁸² ALASKA STAT. § 31.05.030(e) (2019); ARIZ. REV. STAT. ANN. § 27-515 (2019); COLO. REV. STAT. § 34-60-102, 106(2)(d) (2019); KY. REV. STAT. ANN. § 353.500 (West 2019).

¹⁸³ *Hague v. Wheeler*, 27 A. 714, 719–20 (Pa. 1893); *Townsend v. State*, 47 N.E. 19, 23–24 (Ind. 1897); *People's Gas. Co. v. Tyner*, 31 N.E. 59, 60–61 (Ind. 1892).

¹⁸⁴ 1919 Okla. Sess. Laws 347, § 1.

¹⁸⁵ Act 105, § 26, 1939 Ark. Acts 219, 244; 1906 La. Acts No. 71, § 3; 1909 Okla. Sess. Laws ch. 26, Art. 2, § 8.

¹⁸⁶ 1994 Colo. Sess. Laws. 1980, §6 (previously codified at COLO. REV. STAT. § 34-60-106(2)(d) (2018)), *repealed and replaced by* 2019 Colo. Sess. Laws. Ch. 120, S.B. 19-191, §12 (codified at COLO. REV. STAT. § 34-60-106(2.5)(a) (2019)) ("[T]he commission shall regulate oil and gas operations in a reasonable manner to protect and minimize adverse impacts to public health, safety, and welfare, the environment, and wildlife resources and shall protect against adverse environmental impacts on any air, water, soil, or biological resource resulting from oil and gas operations."). The scope of the text of COLO. REV. STAT. § 34-60-106(2)(d) was litigated in *Colo. Oil & Gas Conservation Comm'n v. Martinez*, 433 P.3d 22, 27 (Colo. 2019). *See infra* notes 201–09 and accompanying text.

¹⁸⁷ H.B. 1850, 87th Gen. Assemb., Reg. Sess. (Ill. 1991); S.B. 1223, 47th Leg., 2d Reg. Sess. (Okla. 2000).

of statutory interpretation that become core to evaluations of an agency's determination of its own statutory duties.¹⁸⁸

Although not within conservation statutes, conservation agencies may also be subject to state procedural statutes that require consideration of environmental impacts. A significant number of states have some version of procedural environmental acts, although they differ in their substantive effects, the threshold tests for when a full environmental review is needed, and provisions for judicial review.¹⁸⁹ For example, in New York, the State Environmental Quality Review Act (SEQRA),¹⁹⁰ has been applied to the decisions of the Bureau of Oil and Gas Permitting and Management, the state conservation agency which is part of the New York State Department of Environmental Conservation.¹⁹¹ In California, the California Environmental Quality Act (CEQA)¹⁹² applies to decisions of the Division of Oil, Gas, and Geothermal Resources (DOGGR) and the Montana Environmental Policy Act (MEPA)¹⁹³ has been applied to decisions of the Montana Board of Oil and Gas Conservation.¹⁹⁴ CEQA provides that “[i]t is the intent of the Legislature that all agencies of the state government which regulate activities of private individuals, corporations, and public agencies which are found to affect the quality of the environment, shall regulate such activities so that major consideration is given to preventing environmental damage while providing a decent home and satisfying living environment for every Californian.”¹⁹⁵ Like the National Environmental Policy Act (NEPA),¹⁹⁶ state environmental procedure acts require state agencies to analyze the environmental effects of proposed projects and to consider options to mitigate or avoid significant impacts.¹⁹⁷ Litigants have challenged the adequacy of these environmental analyses in the context of hydraulic fracturing and the issuance of well permits.¹⁹⁸ Thus, a state environmental procedure act may impact conservation proceedings by requiring costly and timely preparation

¹⁸⁸ *Martinez*, 433 P.3d at 31–32.

¹⁸⁹ Daniel P. Selmi, *Themes in the Evolution of the State Environmental Policy Acts*, 38 URB. LAW. 949, 951–52 (2006).

¹⁹⁰ N.Y. ENVTL. CONSERV. LAW §§ 8-0101–0117 (McKinney 1975).

¹⁹¹ *Wiser v. Enervest Operating, L.L.C.*, 803 F.Supp.2d 109, 134 (N.D.N.Y. 2011).

¹⁹² CAL. PUB. RES. CODE §§ 21000–21189.3 (West 2019).

¹⁹³ MONT. CODE ANN. § 75-1-201 (2019).

¹⁹⁴ *Mont. Wildlife Fed’n v. Mont. Bd. of Oil & Gas Conservation*, 280 P.3d 877, 886 (Mont. 2012).

¹⁹⁵ CAL. PUB. RES. CODE § 21000(g) (West 2019).

¹⁹⁶ *See supra* note 14 and accompanying text.

¹⁹⁷ *See, e.g.*, CAL. PUB. RES. CODE § 21003 (West 2019).

¹⁹⁸ *See, e.g.*, *Ass’n of Irrigated Residents v. Dep’t of Conservation*, 218 Cal. Rptr. 3d 517, 522, 528–29 (Cal. Ct. App. 2017).

of environmental impact reports,¹⁹⁹ or by providing additional opportunities for judicial review.²⁰⁰

At times, the administration of multiple regulatory programs for numerous public purposes may result in conflicts between fostering development, preventing environmental or public harms, and assuring each mineral owner's opportunity to capture its share of the common reservoir. In these instances, an agency must balance its expressly delegated environmental protection obligations with the obligation to promote development of oil and gas, prevent waste, and protect correlative rights.²⁰¹ As a result, none of these purposes will be perfectly achieved. For instance, despite clear statutory prohibitions on waste, conservation agencies are not expected to stop or prevent waste altogether. In fact, because some waste is largely accepted as a necessary and unavoidable component of development (even in the best of circumstances, 100% of the oil in place cannot be extracted), only unreasonable waste is prohibited.²⁰² For example, flaring—the process of combusting gas that is produced from oil wells that cannot be immediately or profitably captured and sold²⁰³—is undeniably wasteful. However, some flaring is necessary in order to test and equip wells,²⁰⁴ and the majority of state conservation statutes permit flaring for

¹⁹⁹ Kern County Planning and Community Development Department, Notice of Determination (Nov. 10, 2015), http://www.co.kern.ca.us/planning/pdfs/eirs/oil_gas/oil_gas_NOD_final.pdf [<https://perma.cc/HR7L-V7YB>]; *see also* Butte County Dev. Servs., Master Fee Schedule (Nov. 28, 2018), http://www.buttecounty.net/Portals/10/Fees/Planning/Planning_Fee_Schedule.pdf [<https://perma.cc/5H9T-RY53>]; *see* CALI. DEPT. OF FISH & WILDLIFE, *CEQA Env'tl. Document Filing Fees* <https://wildlife.ca.gov/Conservation/CEQA/Fees> [<https://perma.cc/HN7J-WTQB>] (last visited Jan. 2, 2019) (listing the fee for an Environmental Impact Report Management Fee paid to CEQA to be \$3,271); *Sunset Sky Ranch Pilots Ass'n v. County of Sacramento*, 220 P.3d 905, 910 (Cal. 2009) (describing the environmental review process for proposed private development projects as “costly” and “time consuming.”).

²⁰⁰ Judicial review of agency determinations under state environmental procedure acts “must be guided by standards applicable to administrative proceedings generally.” *Jackson v. New York State Urban Dev. Corp.*, 494 N.E.2d 429, 435 (N.Y. 1986) (citing *Env'tl. Defense Fund v. Flacke*, 96 A.D.2d 862, 862 (N.Y. 1983)); *see also* *Save Tara v. City of West Hollywood*, 194 P.3d 344, 355 (Cal. 2008) (observing that because “an agency may abuse its discretion under CEQA either by failing to proceed in the manner CEQA provides or by reaching factual conclusions unsupported by substantial evidence . . . [courts] determine de novo whether the agency has employed the correct procedures . . . [but] accord greater deference to the agency’s substantive factual conclusions” (internal citations omitted)).

²⁰¹ *Colo. Oil & Gas Conservation Comm’n v. Martinez*, 433 P.3d 22, 25 (Colo. 2019).

²⁰² While beyond the scope of this paper’s analysis, tort and contract remedies may be available against lessors who unreasonably permit waste of surface or subsurface resources. *See Elliff v. Texon Drilling Co.*, 210 S.W.2d 558, 563 (1948).

²⁰³ MANUAL OF OIL AND GAS TERMS, *supra* note 45, at 401.

²⁰⁴ U.S. GOV’T ACCOUNTABILITY OFFICE, GAO-11-34, FEDERAL OIL AND GAS LEASES 5 (2010).

limited periods of time to permit operators to case or tube wells.²⁰⁵ Further, capture of all gas may be inefficient. In situations where the capture of casinghead gas may be so costly as to make recovery of the oil uneconomic, agencies largely permit flaring of gas so as not to “waste” the oil by making its production impractical or economically infeasible.²⁰⁶ Though one could argue that an absolute prohibition on flaring might be consistent with some states’ enabling legislation, most states have refrained from imposing “no flare” rules on oil wells.²⁰⁷

Oil and gas conservation statutes do not create a hierarchy between legislative mandates of preventing waste, protecting correlative rights, or providing for development without undue risk to health, safety, or the environment. Rather, conservation agencies must balance these competing, and at times conflicting, legislative directives. For instance, the Colorado Supreme Court found that Colorado’s conservation agency must provide for “the responsible, balanced development, production, and utilization of [] oil and gas resources” in a manner that protects private and public rights in production.²⁰⁸ Each decision—ranging from location variances, well spacing, setbacks, and rulemaking—requires factfinding and consideration of the agency’s delegated duties and statutory purposes.²⁰⁹ Thus, the result will be unique—tailored to the specific technical, operational, and environmental aspects of each location and each agency’s determination of the appropriate balance required by its enabling legislation. The agency’s process, interpretations, and resulting decisions, as discussed in the next section, are subject to judicial review.

B. Judicial Review of Agency Decisions

Agency decisions, including those of oil and gas conservation agencies, are afforded considerable deference upon judicial review. Under state administrative procedure acts modeled after the federal Administrative Procedure Act (APA) and Model State Administrative Procedure Act (MSAPA), a reviewing court will not overturn an agency decision absent some clear error in the agency’s application of

²⁰⁵ See, e.g., KAN. STAT. ANN. § 55-102(a) (2019); 055-0001-3 WYO. CODE R. § 39(b)(i)–(ii) (LexisNexis 2019); OKLA. ADMIN. CODE § 165:10-3-15(e) (2016).

²⁰⁶ Ehrman, *supra* note 70; see, e.g., N.D. CENT. CODE § 38-08-06.6 (2019); KY. REV. STAT. ANN. § 353.160 (West 2019); 055-0001-3 WYO. CODE R. § 39 (LexisNexis 2019); OKLA. ADMIN. CODE § 165:10-3-15(b)–(c) (2016); MONT. ADMIN. R. 36.22.1220 (2019).

²⁰⁷ Bret Wells, *Please Give Us One More Oil Boom—I Promise Not to Screw It Up this Time: The Broken Promise of Casinghead Gas Flaring in the Eagle Ford Shale*, 9 TEX. J. OIL GAS & ENERGY L. 319, 325 (2014). There are some examples of successful field-wide no-flare rules in Texas. For example, a 1934 “no-flare” order imposed by the Texas Railroad Commission on the Agua Dulce field was upheld. See *Clymore Prod. Co. v. Thompson*, 13 F. Supp. 469 (W.D. Tex. 1936).

²⁰⁸ *Colo. Oil & Gas Conservation Comm’n v. Martinez*, 433 P.3d 22, 27 (Colo. 2019).

²⁰⁹ *Larsen v. Oil & Gas Conservation Comm’n*, 569 P.2d 87, 92 (Wyo. 1977).

law or interpretation of its governing statute.²¹⁰ Generally, most state administrative procedure acts provide that a reviewing court may only set aside an agency decision upon finding one or more of the following: the decision is arbitrary, capricious, or not in accordance with law; the agency has exceeded the scope of its statutory authority; the agency decision violates the state or federal constitution or denies a person constitutional rights; or the agency decision was made upon unlawful procedure.²¹¹ Courts justify this deference to agency decisions based on legislatures' delegation of authority and agencies' substantive expertise.²¹² Where legislative delegations are unambiguous, and agency decisions are firmly within an agency's expertise, such as the authority of conservation commissions over oil and gas permitting, a reviewing court begins its analysis with a presumption that the agency's action was valid.²¹³ For instance, in *Colorado Oil & Gas Conservation Commission v. Martinez*, the Colorado Supreme Court found that its review of an oil and gas commission's decision whether or not to engage in rulemaking regarding well permitting rules was "extremely limited" and "highly deferential" to the agency's decision.²¹⁴

If the legislature has not spoken directly to the question at hand, the deference afforded to state conservation agencies may vary depending on the state, the substance of its administrative procedure act, and the challenged agency action.²¹⁵

²¹⁰ See NAT'L CONFERENCE OF COMM'RS ON UNIF. STATE LAWS, REVISED MODEL STATE ADMIN. PROCEDURE ACT (2010), <https://my.uniformlaws.org/HigherLogic/System/DownloadDocumentFile.ashx?DocumentFileKey=3ab796d4-9636-d856-48e5-b638021eb54d&forceDialog=0> [<https://perma.cc/6Q8D-7VMH>] [hereinafter 2010 MSAPA]. Pursuant to its own terms, the federal Administrative Procedure Act does not apply to state administrative agencies. See 5 U.S.C. § 701(b)(1) (2018). Thus, a state agency's obligation to respond to a petition for rulemaking is governed by each state's respective administrative procedure act.

²¹¹ See, e.g., *Larsen*, 569 P.2d at 92–93; UTAH CODE ANN. § 63G-4-403 (West 2019).

²¹² *Murray Energy Corp. v. Div. of Mineral Res. Mgmt.*, 998 N.E.2d 872, 876 (Ohio Ct. App. 2013) (noting justification for this presumption, that, "[w]e recognize that the legislature has delegated certain authority to the Commission and that the Commission has accumulated substantial expertise.").

²¹³ See, e.g., *Larsen*, 569 P.2d at 90–91. The seminal U.S. Supreme Court case, *Chevron, U.S.A., Inc. v. Natural Res. Def. Council, Inc.*, articulated the modern standard for deference federal courts give to agency interpretations of their enabling statutes when statutory directives are ambiguous. See 467 U.S. 837, 844 (1984). In states that have followed the Supreme Court's analysis in *Chevron*, courts award strong deference to agency decisions given that the action is not contrary to the scope or purpose of the agency's delegated authority. Michael Pappas, *No Two-Stepping in the Laboratories: State Deference Standards and Their Implications for Improving the Chevron Doctrine*, 39 MCGEORGE L. REV. 977, 985 (2008).

²¹⁴ *Colo. Oil & Gas Conservation Comm'n v. Martinez*, 433 P.3d 22, 27 (Colo. 2019).

²¹⁵ A number of states have adopted the *Chevron* approach to agency deference, or identical versions of it. See Pappas, *supra* note 213, at 984 ("A survey of the fifty states' equivalents to the *Chevron* doctrine shows an array of different announced standards, ranging

For instance, in *Marbob Energy Corp. v. New Mexico Oil Conservation Commission*, the Supreme Court of New Mexico found that a conservation agency's interpretation of its enabling statute regarding authority to issue civil penalties was not entitled to deference where commissioners were not "trained in matters of statutory interpretation."²¹⁶ The Supreme Court of Wisconsin found that the level of deference afforded an agency's statutory interpretation could vary "depend[ing] on the comparative institutional capabilities and qualifications of the court and the administrative agency."²¹⁷ In Alaska, an agency interpretation of a statute may be entitled to more deference where it is "longstanding and continuous."²¹⁸ Where agencies are afforded deference in interpretations of oil and gas conservation statutes,²¹⁹ it may be challenging to overcome the inertia of entrenched views within conservation agencies, though perhaps not in courts, that an agency acts *ultra vires* when it considers environmental impacts.²²⁰ However, advocacy on this front has resulted in legislative reform of oil and gas conservation laws and presented new opportunities for environmental constituencies to have their voices heard.

IV. REDEFINING OIL AND GAS CONSERVATION

Conservation agencies, particularly in the Marcellus Shale region²²¹ and in Colorado, have encountered new and growing pressures to exercise their rulemaking, adjudicative, and enforcement authorities with greater consideration for environmental matters. This trend is neither nascent nor unexpected. Following the Michigan Supreme Court's interpretation of the state's waste prevention statute as including damage to natural resources, wildlife, and the environment, Professor Owen Anderson predicted in 1985 that conservation commissions would play an

from strong deference to an agency interpretation to completely de novo review explicitly discouraging deference.").

²¹⁶ 206 P.3d 135, 139 (N.M. 2009).

²¹⁷ *Operton v. Labor and Industry Review Comm'n*, 894 N.W.2d 426, 431 (Wis. 2017).

²¹⁸ *City of Valdez v. State*, 372 P.3d 240, 247 (Alaska 2016).

²¹⁹ *See, e.g., R.R. Comm'n of Texas v. Texas Citizens for a Safe Future and Clean Water*, 336 S.W.3d 619, 628, 632–33 (Tex. 2011).

²²⁰ *See Colo. Oil & Gas Conservation Comm'n*, Order No. 1-187 (May 29, 2014), <https://cogcc.state.co.us/orders/orders/1/187.html> [<https://perma.cc/V76S-X4DK>] [hereinafter *Martinez COGCC Order*] ("The Proposed Rule, if adopted, would require the Commission to prevent new drilling from occurring until it is proven that such operations, cumulatively, would have no adverse impacts. . . . [S]uch a rule is beyond the Commission's limited statutory authority under the Oil and Gas Conservation Act" (quoting a memo that "was the primary basis for the Commission's denial of the Petition")); *see generally* Martin, *State Oil and Gas Commission*, *supra* note 126.

²²¹ "Marcellus shale natural gas is that gas which is located in the Marcellus Shale Formation, which covers 104,067 square miles in Ohio, West Virginia, Pennsylvania, Maryland, and New York." *Butler v. Charles Powers Estate*, 65 A.3d 885, 886 n.1 (Pa. 2013).

increasing role in regulating oil and gas activities to protect the environment.²²² Since then, social and economic shifts have increased concerns about fossil development as the economies of many oil-producing states have diversified to include a greater emphasis on high-tech industries and recreational tourism.²²³ Meanwhile, land has become more fragmented and densely developed,²²⁴ and the environmental and human health impacts of resource development are more visible and better understood.²²⁵ As a result, public interest has shifted away from the vitality of the industry and the maximization of development. Instead, as this Part will show, citizens and environmental groups have pushed for more open and democratic agency proceedings and increased regulation of the environmental and social impacts of oil and gas operations.

Responses to heightened public concern have emerged from all areas of government and have had a profound impact on the regulation of oil and gas production. Legislatures have amended conservation laws to include statements in favor of environmental stewardship and proposed legislation to alter the scope of conservation agency authority.²²⁶ Citizens have brought proposals before conservation agencies and to the ballot box requesting increased setbacks from occupied dwellings and schools and stronger consideration of climate impacts from the agencies' permitting decisions.²²⁷ Local governments have emerged as leaders and are intervening in land use determinations associated with oil and gas for the protection of health, safety, and environmental interests.²²⁸ As a result, oil and gas

²²² Owen Anderson, *New Directions in Oil and Gas Conservation Law*, in ROCKY MTN. MIN. L. INST., 18A OIL AND GAS CONSERVATION LAW AND PRACTICE 14, 14-8 (1985) (citing *Michigan Oil Co. v. Natural Resources Commission*, 276 N.W.2d 141 (Mich. 1979)). Professor Anderson also anticipated increased conflicts over water pollution and local government regulation. *Id.*

²²³ Klass, *supra* note 129, at 691; *Colorado State Energy Profile*, U.S. ENERGY INFO. ADMIN., <https://www.eia.gov/state/analysis.php?sid=CO#1> [<https://perma.cc/N9SE-E7W4>] (last updated Jan. 17, 2019); Kevin J. Duffy, *Regulating Hydraulic Fracturing Through Land Use: State Preemption Prevails*, 85 U. COLO. L. REV. 817, 834-37 (2014).

²²⁴ Michael E. Kjelland et al., *Factors Related to Spatial Patterns of Rural Land Fragmentation in Texas*, 40 ENVTL. MGMT. 237-42 (2007).

²²⁵ Steven Cohen, *The Growing Level of Environmental Awareness*, HUFFINGTON POST (Feb. 28, 2015), https://www.huffpost.com/entry/the-growing-level-of-envi_b_6390054 [<https://perma.cc/SGZ8-7L93>].

²²⁶ *See infra* Part V.

²²⁷ *See infra* Sections IV.A. (discussion petitions for rulemaking) and IV.B (discussing ballot box initiatives).

²²⁸ Heidi Gorovitz Robertson, *When States' Legislation and Constitutions Collide with Angry Locals: Shale Oil and Gas Development and Its Many Masters*, 41 WM. & MARY ENVTL. L. & POL'Y REV. 55, 59 nn. 6-7 (2016) ("In 2012 alone, fourteen states enacted or refined comprehensive oil and gas legislation, which in each state restricted local control to at least some degree."); Nathaniel L. Foote, *Not in My Backyard: Unconventional Gas Development and Local Land Use in Pennsylvania and Alberta, Canada*, 3 PENN. ST. J. L. & INT'L AFF. 235, 245 (2015).

conservation agencies are pressured to exercise their rulemaking authority in new ways and to increasingly consider environmental impacts when exercising their permitting authority. Where conservation agencies have refused, a frontier of litigation has emerged, seeking to clarify commissions' authority and obligations with respect to environmental matters.²²⁹ The confluence of these cases has birthed new opportunities for conservation groups and municipalities to influence the oil and gas permit approval and regulatory process.

A. Before the Agency: Petitions for Rulemaking

Citizen petitions for rulemaking are a primary pathway for members of the public to gain access to administrative rulemaking proceedings before conservation agencies. Petitions may force a reluctant agency's hand on a particular issue. A "petition for rulemaking," as the name suggests, is a process by which an interested person can propose that a federal or state agency promulgate a particular rule.²³⁰ Citizen petitions regarding oil and gas are fairly common among federal agencies.²³¹ In contrast, state oil and gas conservation agencies were long viewed as being closed and dealing only with "seemingly mundane well spacing and related conservation proceedings."²³² Recently, however, environmental groups have begun petitioning state conservation agencies to initiate rulemaking on a variety of environmental subjects.

Citizen petitions for rulemaking are expanding the scope of parties who are involved in proceedings before the conservation agency. Participation in the majority of proceedings before an oil and gas conservation agency are limited to "operators or royalty owners of land," and parties who have the "right to drill or produce."²³³ Participants may include surface owners, mineral owners, and royalty owners of "land surface on which oil and gas operations occur," or parties who own a property interest in an "affected tract[] of land within the area affected by a drill permit or well spacing order."²³⁴ Whereas a party within the boundaries of a spacing

²²⁹ See *infra* Section IV.C.

²³⁰ See OFFICE OF THE FED. REGISTER, A GUIDE TO THE RULEMAKING PROCESS (2011), https://www.federalregister.gov/uploads/2011/01/the_rulemaking_process.pdf [<https://perma.cc/D6K5-ZYGL>].

²³¹ See, e.g., Citizen Pet. Requesting the Completion of a Programmatic Environmental Impact Statement, Chesapeake Bay Foundation et al. to U.S. Council on Env'tl. Quality Chair et al. (filed Apr. 4, 2011), <http://www.cbf.org/document-library/cbf-misc-documents/FINAL-Petition-to-CEQ-Apr-4-201176ff.pdf> [<https://perma.cc/LNH5-Z8GB>].

²³² Pierce, *supra* note 5, at 776.

²³³ See, e.g., ARK. CODE ANN. § 15-72-106 (2019); COLO. REV. STAT. ANN. § 34-60-108 (2019); MONT. CODE ANN. § 82-11-144 (2019); 25 PA. CODE § 79.23 (2018); WYO. STAT. ANN. § 30-5-109 (2019) (extending to interested persons the right to be heard on objections to proposed drilling units).

²³⁴ 055-0001-1 WYO. CODE R. § 2 (LexisNexis 2019); *Allen v. Alaska Oil & Gas Conservation Comm'n*, 1 P.3d 699 (Alaska 2000).

unit²³⁵ can protest an application or challenge a decision, a neighbor who lives near the proposed drilling location or a group of people who enjoy recreating in the area might not. For instance, in Wyoming, only parties within one half-mile of the boundaries of land subject to a permit are entitled to receive notice of complaints or file protest applications.²³⁶ As a result, many citizens with concerns about oil and gas development in their own region do not have standing to challenge agency permitting decisions. These individuals and groups are availing themselves of the petition process to urge oil and gas conservation agencies to protect their interests.

Citizen petitions to initiate rulemaking are rooted within both the federal APA and most state administrative procedure acts. States that have adopted the Model State Administrative Procedure Act, or a version of it, generally require “each agency to give an interested person the right to petition for the issuance, amendment, or repeal of a rule.”²³⁷ Although exact definitions in state administrative procedure acts differ, most permit an interested person to file a petition for rulemaking.²³⁸ An “interested person” may “include[] any person who may be aggrieved by agency action.”²³⁹ Thus, a broader class of stakeholders are eligible to file petitions for rulemaking than those who can protest agency decisions regarding the development of specific parcels. As a result, concerned citizens in some regions of the United States are using the petition process to ask conservation agencies to initiate new rulemakings for oil and gas rules.²⁴⁰ The interest of citizens in availing themselves in the petition process varies significantly from state to state based on state rules regarding the obligation of agencies to respond and the standard for review of agency decisions. Indeed, agencies at the state and federal levels receive hundreds of petitions for rulemaking each year, while others receive none whatsoever.²⁴¹

Although an agency must consider a petition for rulemaking,²⁴² it has broad discretion whether to affirmatively respond. The process for submitting a petition

²³⁵ A spacing unit is the surface “area allocated to a well under a well spacing order.” MANUAL OF OIL AND GAS TERMS, *supra* note 45, at 1016; *see also supra* note 81 and accompanying text.

²³⁶ 055-0001-5 WYO. CODE R. § 5 (LexisNexis 2019).

²³⁷ *See* 2010 MSAPA, *supra* note 210; MODEL STATE ADMIN. PROCEDURE ACT § 6 (NAT’L CONF. OF COMM’RS ON UNIF. STATE LAWS 1961) (“Any interested person may petition an agency requesting the promulgation, amendment, or repeal of a rule.”); *see also supra* note 210 and accompanying text.

²³⁸ OR. REV. STAT. § 183.390 (2019); COLO. REV. STAT. § 24-4-103(1) (2019); UTAH CODE ANN. § 63G-3-601(2) (West 2019); GA. CODE ANN. § 50-13-9 (2019); MONT. CODE ANN. § 2-4-315 (2019).

²³⁹ COLO. REV. STAT. § 24-4-102(6.2) (2019); HAW. REV. STAT. § 91-14 (Supp. 2004); ALA. CODE § 9-17-15 (2019).

²⁴⁰ *See* Martinez COGCC Order, *supra* note 220.

²⁴¹ JASON A. SCHWARTZ & RICHARD L. REVESZ, PETITIONS FOR RULEMAKING: FINAL REPORT TO THE ADMINISTRATIVE CONFERENCE OF THE UNITED STATES 41 (2014), <https://www.acus.gov/sites/default/files/documents/Final%20Petitions%20for%20Rulemaking%20Report%20%5b11-5-14%5d.pdf> [<https://perma.cc/2EMP-D5NM>].

²⁴² *Id.*

and the agency's official procedures, if any, for accepting and responding to petitions, arise from the state's administrative procedure act.²⁴³ Procedural requirements may lack transparency and differ significantly between states.²⁴⁴ Although the decision whether to deny or accept the petition is within the discretion of the agency, generally the agency may not simply ignore the petition and must issue a response either declining or adopting the proposed rule within a reasonable time.²⁴⁵ Under the revised 2010 Model State Administrative Procedure Act, the state agency must either deny the petition with an explanation or initiate rulemaking within 60 days of receiving the petition.²⁴⁶

Rejection of a petition may constitute a final agency action and thus create standing for environmental advocates to challenge an agency's decision and ask for judicial clarification of the agency's duties with respect to the environment.²⁴⁷ Whether the agency's denial is subject to judicial review may depend on the state administrative procedure act and the reason for the agency's denial. For instance, administrative procedure acts in Colorado and Washington grant aggrieved and interested parties standing to appeal petition denials, along with other final agency actions, to the courts for judicial review.²⁴⁸ In Wyoming, conversely, "[t]he action of the agency in denying a petition is final and *not* subject to review."²⁴⁹ An agency's refusal to initiate rulemaking in response to a petition is "at the high end of the range

²⁴³ See *supra* notes 237–241 and accompanying text.

²⁴⁴ Aram A. Gavoor & Daniel Miktus, *Public Participation in Nonlegislative Rulemaking*, 61 VILL. L. REV. 759, 761 (2016) ("Even when [judicial] review is available, the federal courts employ inconsistent standards to evaluate both agency inaction and unreasonable delay in adjudicating a petition."). See also ADMIN. CONF. OF THE UNITED STATES, ADMINISTRATIVE CONFERENCE RECOMMENDATION 2014-6, PETITIONS FOR RULEMAKING 2 (2014) <https://www.acus.gov/sites/default/files/documents/Final%2520Petitions%2520for%2520Rulemaking%2520Recommendation%2520%255B12-9-14%255D.pdf> [<https://perma.cc/NVD4-EG93>] (noting that few federal agencies have delineated clear procedures for responding to petitions for rulemaking).

²⁴⁵ See, e.g., *Larry Koch, Inc. v. Texas Nat. Conservation Comm'n*, 52 S.W.3d 833, 838 (Tex. App. 2001).

²⁴⁶ 2010 MSAPA, *supra* note 210, § 318.

²⁴⁷ See *id.* § 506 ("[A] person may file a petition for judicial review under this [Act] only after exhausting all administrative remedies available within the agency the action of which is being challenged and within any other agency authorized to exercise administrative review.").

²⁴⁸ COLO. REV. STAT. § 24-4-106 (2019); WASH. REV. CODE § 34.05.570(4) (2019); MONT. CODE ANN. § 2-4-702 (2019); The 2010 MSAPA also grants broad standing to petitioners on judicial review. See 2010 MSAPA, *supra* note 210, § 501.

²⁴⁹ WYO. STAT. ANN. § 16-3-106 (2019) (emphasis added). The Administrative Procedure Acts of Montana and Texas do not include provisions for judicial review of an agency decision not to initiate rulemaking. See *Texas Comm'n on Environmental Quality v. Bonser-lain*, 438 S.W.3d 887, 893–94 (Tex. App. 2014); *Common Cause of Montana v. Argenbright*, 917 P.2d 425, 431 (Mont. 1996).

of levels of deference.”²⁵⁰ That deference, however, does not extend to statutory construction by the agency.²⁵¹ An agency’s determinations of law are reviewed de novo.²⁵² Thus, where an agency refuses to undertake rulemaking on the basis that doing so would exceed its jurisdiction, even where an agency’s denial of a rulemaking petition is not reviewable, the agency’s statutory construction is properly the subject of judicial review.²⁵³ The resulting challenges may provide opportunities for reinterpretation of the agency’s enabling statute, including an evaluation of the agency’s obligations with respect to environmental protection.

Petitions for rulemaking concerning health and environment in the oil and gas and other resource development contexts accompanies an emerging trend among environmental advocates to embolden structural and procedural barriers to developing natural resources.²⁵⁴ Over the last several years, conservation groups and concerned citizens have used petition procedures to push conservation agencies to exercise their rulemaking authority by proposing new rules.²⁵⁵ The rulemaking proposals urge conservation agencies to increase the consideration of environmental impacts in oil and gas regulation and to protect surface landowners from the health, safety, and environmental impacts of drilling and production.²⁵⁶ Petitions brought before agencies generally fall into one of two categories: petitions for increased setbacks of drilling locations and petitions for consideration of landscape-scale environmental impacts. As the subsections below demonstrate, agency

²⁵⁰ *Def. of Wildlife v. Gutierrez*, 532 F.3d 913, 919 (2008); *Rags Over the Arkansas River, Inc. v. BLM*, 77 F. Supp. 3d 1038, 1045 (D. Colo. 2015); *Squaxin Is. Tribe v. Washington Dep’t. of Ecology*, 312 P.3d 766, 771 (Wash. Ct. App. 2013).

²⁵¹ *Martinez v. Colorado Oil & Gas Conservation Comm’n*, 2017 COA 37, ¶ 14, 434 P.3d 689, 692 (Colo. App. 2017), *rev’d*, 2019 CO 3.

²⁵² *Colo. Dept. of Labor and Employment v. Esser*, 30 P.3d 189, 193 (Colo. 2001).

²⁵³ *Simpson v. Cotton Creek Circles, LLC*, 181 P.3d 252, 261 (Colo. 2008); *N. Laramie Range Found. v. Converse Cty. Bd. of Cty. Comm’rs*, 2012 WY 158, ¶ 22–24, 290 P.3d 1063, 1073 (Wyo. 2012).

²⁵⁴ Experiments concerning the potential of administrative agencies to embolden environmental barriers to development have emerged also in realms like water appropriation, where citizens and tribes have petitioned state agencies to block new appropriations for the conservation of instream flows. See Lindsey Schromen-Wawrin, *Adopting Instream Flow Rules in Washington State: Can Citizens Jumpstart the Process Through the Administrative Procedure Act?*, 48 GONZ. L. REV. 561, 574–78 (2013).

²⁵⁵ See, e.g., *Other Proceedings in All 50 States*, OUR CHILDREN’S TRUST, <https://www.ourchildrenstrust.org/other-proceedings-in-all-50-states> [https://perma.cc/QN5Z-FKF6] (last visited Oct. 5, 2019) (since 2011, Our Children’s Trust (among other groups) has submitted petitions for agency rulemaking regarding oil and gas development in all fifty states).

²⁵⁶ See, e.g., *Pet. Kids vs. Global Warming to the Wyo. Dep’t Env’t Qual. & Wyo. Env’t Qual. Control 2–3* (May 4, 2011), <https://static1.squarespace.com/static/571d109b04426270152febe0/t/57858cd1ff7c502ee8544f19/1468370131824/Wyoming+Petition+.pdf> [https://perma.cc/RM5S-N35X] (seeking promulgation of rule to mandate protection of atmosphere as public trust resource).

responsiveness to these petitions differ, though both have opened pathways to additional environmental regulation of oil and gas activities.

1. Increased Setbacks

Citizens have been petitioning oil and gas conservation agencies in a number of states to initiate rulemaking that would increase setbacks from schools, homes, and other occupied structures, as well as from environmentally sensitive areas such as streams and wetlands. Setbacks from drilling locations are a significant area of concern to surface landowners and conservation groups alike.²⁵⁷ In the absence of regulation or contract, a mineral developer has no obligation to offset a well location from a home or residence,²⁵⁸ though there is a strong custom of doing so. While some states have codified or implied an obligation to accommodate the existing uses of the surface owner,²⁵⁹ mineral owners' use of the surface was traditionally constrained only by the bounds of reasonableness, as determined by custom and practice in the industry.²⁶⁰ Landowner tolerance for the externalities of drilling and production has diminished as a result of changing social norms and increased development in urbanized areas and on split estates.²⁶¹ In those areas, the surface owner may have no interest in, or control of, the underlying minerals.²⁶² Thus, surface landowners in suburban areas, who neither participate in the leasing and permitting process nor receive the economic benefits of production, are experiencing the brunt of the negative externalities from development.²⁶³ To buffer the most localized development impacts, citizens and conservation groups have petitioned oil and gas commissions to adopt new rules increasing well setbacks from occupied structures, schools, streams, and other public resources.²⁶⁴

²⁵⁷ See, e.g., N.D. CENT. CODE § 38-08-05 (2019); MD. CODE REGS. 26.19.01.09(G) (2018); see also Hannah J. Wiseman, *Risk and Response in Fracturing Policy*, 84 U. COLO. L. REV. 729, 797–98 (2013).

²⁵⁸ See Clarence A. Brimmer, *The Rancher's Subserving Surface Estate*, 5 LAND & WATER L. REV. 49, 54 (1970); Tara Righetti, *Contracting for Sustainable Surface Management*, 71 U. OF ARK. L. REV. 367, 375–77 (2018).

²⁵⁹ See, e.g., WYO. STAT. ANN. §§ 30-5-401 to -410 (2019); Ernest E. Smith, *The Growing Demand for Oil and Gas and the Potential Impact upon Rural Land*, 4 TEX. J. OIL, GAS, & ENERGY L. 1, 6 (2008).

²⁶⁰ See *Harris v. Currie*, 176 S.W.2d 302, 305 (Tex. 1943); 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, 91 (2002).

²⁶¹ See ERNEST E. SMITH, *Urbanization and the Surface Development of Mineral Land: The Conflict Between the Dominant and Servient Estates*, in *SELECTED WORKS* 96, 96 (2013).

²⁶² See Wiseman, *supra* note 257, at 778–79.

²⁶³ See Alex Ritchie, *On Local Fracking Bans: Policy and Preemption in New Mexico*, 54 NAT. RESOURCES J. 255, 297–98 (2014).

²⁶⁴ See, e.g., Rebuttal Statement of Colo. Env'tl. Coal. Coalition et al., COGCC Setback Rulemaking 2012, No. 1211-RM-04 (Colo. Oil and Gas Conserv. Comm'n Dec. 31, 2012).

In Montana, Colorado, and Wyoming, conservation agencies initiated rulemakings for new surface setback and notification requirements after citizen groups petitioned for more stringent rules.²⁶⁵ Conservation agencies are typically responsive to the petition process, even if the proposed rule is denied.²⁶⁶ For example, in 2012, the Colorado Oil and Gas Conservation Commission (COGCC) commenced rulemaking regarding surface setbacks following a proposal from the Colorado Environmental Coalition.²⁶⁷ The contentious process resulted in the adoption of Rule 604, which creates a buffer zone setback prohibiting location of a well within 1,000 feet of certain buildings.²⁶⁸ In order to obtain an exception from the 1,000-foot setback requirement, oil and gas operators must consult with landowners and local governments and agree to “site specific mitigation measures as necessary to eliminate, minimize or mitigate potential adverse impacts to public health, safety, welfare, the environment, and wildlife.”²⁶⁹ This provision empowers both surface landowners and local governments, provides opportunities for private governance approaches to development conditions, and mitigates development impacts. Similarly, in July 2018, the COGCC voted in favor of a petition brought by the League of Oil and Gas Impacted Coloradans to alter oil and gas well setbacks from the property boundaries of schools and daycares and provide new notice and consultation requirements.²⁷⁰ Subsequent rulemaking proceedings led to the adoption of a new rule in December 2018.²⁷¹

Montana and Wyoming similarly adopted new surface protections following petitions for rulemaking. In 2013, following a petition from the Powder River Basin Resource Council, the WOGCC commenced rulemaking to modify its occupied

²⁶⁵ See Larry Mayer, *Gazette Opinion: Put Some Distance Between Oil Wells and Montana Homes*, BILLINGS GAZETTE (Aug. 6, 2015), https://billingsgazette.com/news/opinion/editorial/gazette-opinion/gazette-opinion-put-some-distance-between-oil-wells-and-montana/article_d2358543-81e7-554f-80c9-40c5d3871d3c.html [<https://perma.cc/S4XQ-8Z7X>]; Stephanie Joyce, *Draft Rule Proposes Increased Buffer Between Drilling and Homes*, WYO. PUB. MEDIA (Sept. 5, 2014), <https://www.wyomingpublicmedia.org/post/draft-rule-proposes-increased-buffer-between-drilling-and-homes#stream/0> [<https://perma.cc/K5DU-8TL3>].

²⁶⁶ See, e.g., WYO. OIL & GAS CONSERVATION COMM’N, STATEMENT OF PRINCIPAL REASONS FOR AMENDMENT OF RULES (2015), <http://wyoleg.gov/arules/2012/rules/ARR14-077.pdf> [<https://perma.cc/LM28-J5KE>].

²⁶⁷ Rebuttal Statement of Colo. Evtl. Coal. et al., *supra* note 264.

²⁶⁸ COLO. CODE REGS. § 404-1:604.a(2) (2019).

²⁶⁹ *Id.*

²⁷⁰ Jean Lim, *School Setback COGCC Rulemaking Going Forward After Logic Petition*, BROOMFIELD CONCERNED (Jul. 30, 2018), <https://broomfieldconcerned.org/blog/author-jean-lim/school-setback-cogcc-rulemaking-going-forward-after-logic-petition/> [<https://perma.cc/YF4K-Z8RN>].

²⁷¹ COLO. CODE REGS. §§ 404-1:305.a(4), 306.h, 604.a(6).

structure setbacks to require a 500-foot setback from an occupied structure.²⁷² Although the new rules doubled the previous setbacks, they were far lower than the 1,000 feet or more that landowner advocates had requested.²⁷³ In Montana, the Montana Board of Oil and Gas commenced rulemaking on setbacks and occupied structure notice requirements following action by the Northern Plains Resource Council.²⁷⁴ The Board ultimately declined to adopt setback rules but implemented new notice requirements for all occupied structures within 1,320 feet of a proposed well.²⁷⁵

Setback and notice requirements mitigate the most immediate impacts of drilling and provide procedural protections to landowners. Landowner advocacy groups have successfully used the petition process to push conservation agencies to adopt or expand setback rules. As the examples from Montana, Colorado, and Wyoming demonstrate, even where petitions are denied, conservation agencies may respond to citizen petitions by initiating their own rulemaking proceedings, leading to similar results.

2. *Climate and Landscape-Scale Environmental Impacts*

Conservation groups and concerned citizens have also pressed commissions to limit drilling activities by considering cumulative, landscape-scale impacts.²⁷⁶ One

²⁷² 055-0001-3 WYO. CODE R. § 47(a) (LexisNexis 2019); see Dustin Bleizeffer, *Homeowners Upset at State's New Oil and Gas Rule*, WYOFILE (Apr. 15, 2015), <https://www.wyofile.com/homeowners-upset-states-new-oil-gas-rule/> [<https://perma.cc/6ZJ5-QNKL>]; Lynne J. Boomgaarden, *Oil and Gas Agreements: Surface Use in the 21st Century*, 11 ROCKY MT. MIN. L. FDN. 11B-1, 11B-5 (2017).

²⁷³ See John Robitaille, *Robitaille: Increasing Setbacks to 500 Feet Is Reasonable*, CASPER STAR TRIB. (Mar. 29, 2015), https://trib.com/opinion/columns/robitaille-increasing-setbacks-to-feet-is-reasonable/article_f1b5ed29-a063-5e51-b2ad-9c6f76c9a3dc.html [<https://perma.cc/B3XK-472H>].

²⁷⁴ See Renée Jean, *New Setback Rule Could Face Setbacks of Its Own: MPA President Says Board Didn't Have Rulemaking Authority*, WILLISTON HERALD (Dec. 26, 2016), https://www.willistonherald.com/news/new-setback-rule-could-face-setback-of-its-own/article_986042d0-c7e4-11e6-9d51-03b516a8e3c6.html. [<https://perma.cc/Q2JR-XP HL>].

²⁷⁵ MONT. ADMIN R. 36.22.620(2) (2017). Legislation which would have reduced the notice requirements adopted by the Montana Board of Oil and Gas were vetoed by the Governor in 2017. In a statement that confirmed the Board's authority to enact the rule, Governor Steve Bullock lauded the "heavily vetted" rulemaking process that resulted in a "compromise between landowners' and the industry's interests." S.B. 93, 65th Leg., Reg. Sess. (Mont. 2017); Letter from Steve Bullock, Governor, to Corey Stapleton, Sec'y of State (May 8, 2017), <https://leg.mt.gov/bills/2017/AmdHtmS/SB0093GovVeto.pdf> [<https://perma.cc/MU8S-XMLJ>].

²⁷⁶ Press Release, Env'tl. Def. Fund, *Railroad Commission Petitioned to Replace Local Oil and Gas Rules Threatened by House Bill 40* (Apr. 7, 2015), <https://www.edf.org/media/railroad-commission-petitioned-replace-local-oil-and-gas-rules-threatened-house-bill-40> [<https://perma.cc/57GG-9JP3>]; Press Release, Env'tl. Def. Fund,

such petition in Colorado has resulted in litigation regarding the obligation of the COGCC to consider the impact of drilling on public health, safety, and welfare, and the environment.²⁷⁷ In November 2013, a group of Colorado teens petitioned the COGCC to initiate rulemaking.²⁷⁸ The proposed rule required the COGCC to refrain from issuing new oil and gas drilling permits for operations, including hydraulic fracturing, until the “best available science” confirmed that the drilling would not “cumulatively, with other actions, impair Colorado’s atmosphere, water, wildlife, and land resources, . . . adversely impact human health [or] contribute to climate change.”²⁷⁹ The teens argued that under Colorado’s Oil and Gas Conservation Act,²⁸⁰ the COGCC is tasked with ensuring that development of oil and gas is “responsible [and] balanced” and that production is “consistent with protection of public health, safety, and welfare, including protection of the environment and wildlife resources.”²⁸¹ In May 2014, the COGCC unanimously rejected the teens’ rulemaking petition.²⁸² The COGCC determined that the proposed rule was beyond its authority and would require it to “readjust the balance crafted by the General Assembly,” and that delegating review of COGCC’s rulemaking to a third-party organization would be an unlawful violation of the non-delegation doctrine.²⁸³ The COGCC also found that many of the issues raised in the petition were already being addressed by the Colorado Department of Public Health and Environment and the Legislature and related more closely to air quality than oil and gas.²⁸⁴

In January of 2019, in *Colorado Oil & Gas Conservation Commission v. Martinez*, the Colorado Supreme Court affirmed the COGCC’s rejection of the teens’ petition and overturned an appellate court decision that had found for the petitioners.²⁸⁵ The outcome of the decision is not surprising; courts frequently defer to an agency’s interpretation of its statutory enabling program and afford an agency broad discretion in “how best to marshal its limited resources and personnel to carry

EDF Calls for New Safety Measures to Prevent Oil and Gas Explosions in Texas’ Coastal Area (Jun. 18, 2015), <https://www.edf.org/media/edf-calls-new-safety-measures-prevent-oil-and-gas-explosions-texas-coastal-areas> [<https://perma.cc/9R2P-PTBD>].

²⁷⁷ Colo. Oil & Gas Conservation Comm’n v. Martinez, 433 P.3d 22, 27 (Colo. 2019).

²⁷⁸ See Martinez COGCC Order, *supra* note 217; see also Blair Miller, *Colorado Supreme Court to Hear Appeal of Case Involving Oil and Gas Regulators, Environmentalists*, DENVER CHANNEL (Jan. 29, 2018), <https://www.thedenverchannel.com/news/politics/colorado-supreme-court-to-hear-appeal-of-case-involving-oil-and-gas-regulators-environmentalists> [<https://perma.cc/F74Y-LMUQ>].

²⁷⁹ Martinez COGCC Order, *supra* note 217.

²⁸⁰ COLO. REV. STAT. § (2019).

²⁸¹ Colo. Oil & Gas Conservation Comm’n v. Martinez, 433 P.3d 22, 28–29 (Colo. 2019) (emphasis omitted) (quoting COLO. REV. STAT. § 34-60-102(1)(a)(I) (2019)).

²⁸² Martinez COGCC Order, *supra* note 217.

²⁸³ *Id.*

²⁸⁴ *Id.*

²⁸⁵ *Martinez*, 433 P.3d at 33.

out its delegated responsibilities.”²⁸⁶ Although the court declined to read the Commission’s order as a conclusion that it lacked subject matter jurisdiction, it found that the agency’s decision was reasonable in light of the court’s construction of Colorado’s Oil and Gas Act.²⁸⁷

The effort of citizens to reform Colorado’s Oil and Gas Act through the petition process is significant for two reasons. First, it provided citizens with an opportunity to argue for a statutory reinterpretation of the Act.²⁸⁸ This allowed for judicial review of the agency’s interpretation of its enabling act and for the petitioners to argue for a more expansive reading of its environmental protection provisions in the Colorado Oil and Gas Act. Second, the case drew significant attention from citizens and grassroots organizers and established the Colorado Oil and Gas Conservation Commission as a target for environmental advocacy. Within five years of the initial petition filed with the Commission in *Martinez*, Colorado would see a flurry of anti-industry ballot initiatives and a comprehensive legislative reform of the Colorado Oil and Gas Act.²⁸⁹

B. At the Ballot Box

Advocates have advanced ballot initiatives to revise the authority of conservation agencies, impose new duties on states to protect the environment, or directly regulate oil and gas activities. In November 2018, voters across the western United States had the opportunity to vote on ballot initiatives relative to energy and the environment²⁹⁰: Washington voters considered a carbon tax,²⁹¹ Arizona²⁹² and

²⁸⁶ *Massachusetts v. EPA*, 549 U.S. 497, 527 (2007); *see also* *Chevron, U.S.A., Inc. v. Natural Res. Def. Council, Inc.*, 467 U.S. 837, 844 (1984); *Rags Over the Arkansas River, Inc. v. Bureau of Land Mgmt.*, 77 F. Supp. 3d 1038, 1045 (D. Colo. 2015). *But see* *Mobil Oil Corp. v. State Corp. Comm’n*, 608 P.2d 1325, 1328 (Kan. 1980); *Martin, State Oil and Gas Commission*, *supra* note 126, at 3–10.

²⁸⁷ *Martinez*, 433 P.3d at 32.

²⁸⁸ *See id.* at 24–25.

²⁸⁹ *See infra* Sections IV.B, IV.C.

²⁹⁰ David Roberts, *Fossil Fuel Money Crushed Clean Energy Ballot Initiatives Across the Country*, VOX (Nov. 11, 2018), <https://www.vox.com/energy-and-environment/2018/11/17/18069940/election-results-2018-energy-carbon-fracking-ballot-initiatives> [<https://perma.cc/E5WQ-GDVK>].

²⁹¹ Washington Carbon Emissions Fee and Revenue Allocation, Wash. Initiative No. 1631 (Wash. 2018); *see* *Washington Initiative 1631, Carbon Emissions Fee Measure (2018)*, BALLOTPEdia, [https://ballotpedia.org/Washington_Initiative_1631,_Carbon_Emissions_Fee_Measure_\(2018\)](https://ballotpedia.org/Washington_Initiative_1631,_Carbon_Emissions_Fee_Measure_(2018)) [<https://perma.cc/6T8U-HMQP>] (last visited March 6, 2020).

²⁹² Clean Energy for a Healthy Arizona Act, Proposition 127 (Ariz. 2018); *see* *Arizona Proposition 127, Renewable Energy Standards Initiative (2018)*, BALLOTPEdia, [https://ballotpedia.org/Arizona_Proposition_127,_Renewable_Energy_Standards_Initiative_\(2018\)](https://ballotpedia.org/Arizona_Proposition_127,_Renewable_Energy_Standards_Initiative_(2018)) [<https://perma.cc/H5PZ-DM9W>] (last visited March 6, 2020).

Nevada²⁹³ voters evaluated renewable energy mandates; and voters in Montana considered restrictions on hard rock mining.²⁹⁴ In states with the power of initiative or referendum, voters have sought to bypass legislatures and agencies by advancing new laws that dictate what kind of energy will be used and produced, how to address climate change and carbon taxes, and where energy production can occur. The “democratization of energy law” through voter initiatives and referenda is underway,²⁹⁵ and oil and gas has been no exception.

Environmental advocates have used the ballot initiative and proposition processes to ask voters to restrict oil and gas development in environmentally sensitive areas or areas where public safety or health are of greater concern. In Alaska, voters rejected a proposition which would have had serious impacts on oil and gas construction activities—the proposition would have charged the Alaska Department of Fish and Game commissioner with enacting standards and permitting requirements for activities that affect salmon and other anadromous fish habitats.²⁹⁶ In contrast, Florida voters passed an amendment banning offshore drilling in state waters.²⁹⁷ In Colorado, voters put forth a ballot initiative that would have increased setbacks beyond those established by the COGCC to 2,500-foot setback from occupied structures.²⁹⁸ Like a similar measure proposed in November of 2016, had the setback initiative passed, over 90% of the land in some counties would have been unavailable to future oil and gas development.²⁹⁹ Although the setback initiative was

²⁹³ The Energy Choice Initiative, State Question No. 3 (Nev. 2018); The Renewable Energy Promotion Initiative, State Question No. 6 (Nev. 2018); see NEV. SEC. OF STATE, STATEWIDE BALLOT QUESTIONS TO APPEAR ON THE NOVEMBER 6, 2018 GENERAL ELECTION BALLOT 23–31, 64–72 (2018), <https://www.nvsos.gov/sos/home/showdocument?id=5824> [<https://perma.cc/LUD8-5CT5>].

²⁹⁴ An Act Requiring the Department of Environmental Quality to Deny a Permit for Any New Hardrock Mines in Montana Unless the Reclamation Plan Provides Clear and Convincing Evidence that the Mine Will Not Require Perpetual Treatment of Water Polluted by Acid Mine Drainage or Other Contaminants, Ballot Initiative No. I-186, (2018), https://sosmt.gov/elections/ballot_issues/2018-2/ [<https://perma.cc/3LJJ-E6HJ>].

²⁹⁵ Shelley Welton, *Grasping for Energy Democracy*, 116 MICH. L. REV. 581, 598–600 (2018).

²⁹⁶ An Act Providing for the Protection of Wild Salmon and Fish and Wildlife Habitat, Initiative Pet. No. 17FSH2 (Alaska 2018), <http://www.elections.alaska.gov/Core/initiative/petitionlist.php#17FSH2> [<https://perma.cc/HF62-S6MZ>]; see *Alaska Ballot Measure 1, Salmon Habitat Protections and Permits Initiative (2018)*, BALLOTPEDIA, [https://ballotpedia.org/Alaska_Ballot_Measure_1,_Salmon_Habitat_Protections_and_Permits_Initiative_\(2018\)](https://ballotpedia.org/Alaska_Ballot_Measure_1,_Salmon_Habitat_Protections_and_Permits_Initiative_(2018)) [<https://perma.cc/SWT2-2ZQS>] (last visited March 6, 2020).

²⁹⁷ FLA. CONST. art. II, § 7 (2018).

²⁹⁸ *Results for Proposed Initiative #97: Ballot Title Setting Board 2017–2018*, COLO. SECRETARY OF ST. JENA GRISWOLD, <https://www.sos.state.co.us/pubs/elections/Initiatives/titleBoard/results/2017-2018/97Results.html> [<https://perma.cc/YS7B-VEBQ>].

²⁹⁹ COLO. OIL & GAS CONSERVATION COMMISSION, 2500’ MANDATORY SETBACK FROM OIL AND GAS DEVELOPMENT 2 (2016), <https://cogcc.state.co.us/documents/library/>

defeated after a contentious election season, the Colorado Legislature shortly thereafter revised its oil and gas conservation laws to provide counties with greater authority to establish setbacks and take other actions relative to the regulation of oil and gas.³⁰⁰

Of the several oil and gas-related initiatives on the ballot nationwide in November 2018, only Florida's ban on offshore drilling in state waters passed. This trend may indicate that, at least in the realm of energy, the initiative process is driven more by "wealthy individuals and special interests" than distrust of the legislature or regulatory agencies.³⁰¹ Despite this observation, voters looking to direct democracy to regulate oil and gas production activities should not be ignored.³⁰² Perhaps most significantly, legislatures, agencies, and judges are responsive to initiatives.³⁰³ As a result, in states where they are authorized, voter initiatives are eclipsing legislatures as powerful forces in driving public policy. Even failed initiatives can have powerful indirect impacts on state policy. In states with initiative processes, "the threat of an initiative can cause the legislature to revise its policy decisions."³⁰⁴

C. In the Courts

Conservation agencies are also facing pressure from courts to place greater importance on environmental impacts when making decisions. Courts play an important role in independently shaping the development of conservation law and

Technical/Miscellaneous/Init_78_Proposed_2500ft_Setback_Assessment_Report_20160527.pdf [https://perma.cc/FM8L-EKCD]. Another Initiative, Amendment 74, proposed by industry would have required compensation to mineral and property owners for diminution in value as a result of land use regulation. It was also defeated. *See Colorado Amendment 74, Compensation to Owners for Decreased Property Value Due to State Regulation Initiative*, BALLOTPEdia, [https://ballotpedia.org/Colorado_Amendment_74,_Compensation_to_Owners_for_Decreased_Property_Value_Due_to_State_Regulation_Initiative_\(2018\)](https://ballotpedia.org/Colorado_Amendment_74,_Compensation_to_Owners_for_Decreased_Property_Value_Due_to_State_Regulation_Initiative_(2018)) [https://perma.cc/TQT9-PR97] (last visited Jan. 5, 2019).

³⁰⁰ Greg Avery, *Voters Reject Oil Well Setbacks as Colorado's Proposition 112 Defeated*, DENV. BUS. J. (Nov. 6, 2018, 8:30 PM MST), <https://www.bizjournals.com/denver/news/2018/11/06/colorado-prop-112-defeated.html> [https://perma.cc/TAD2-HU8L]; *see infra* notes 396–409 and accompanying text.

³⁰¹ DAVID S. BRODER, *DEMOCRACY DERAILED: INITIATIVE CAMPAIGNS AND THE POWER OF MONEY* 243 (1st ed. 2000).

³⁰² Vann R. Newkirk II, *American Voters Are Turning to Direct Democracy*, THE ATLANTIC (Apr. 18, 2018), <https://www.theatlantic.com/politics/archive/2018/04/citizen-ballot-initiatives-2018-elections/558098/> [https://perma.cc/TY9W-2PMP].

³⁰³ *See* John G. Matsusaka, *Popular Control of Public Policy: A Quantitative Approach*, 5 Q. J. POL. SCI. 133, 136 (2010) ("provid[ing] direct evidence on how direct democracy affects congruence, finding that policies are approximately 18 to 19 percent more congruent in initiative than noninitiative states.").

³⁰⁴ John G. Matsusaka, *The Eclipse of Legislatures: Direct Democracy in the 21st Century*, 124 PUB. CHOICE 157, 161, 174 (2005).

determining to what extent agencies can and must consider environmental impacts in agency decisions.³⁰⁵ Courts frequently review conservation agency decisions and resolve conflicts between mineral owners, surface interests, local governments, and conservation advocates.³⁰⁶ These decisions may concern issues of statutory interpretation, preemption, standing, and agency procedures.³⁰⁷ Recent decisions in Pennsylvania and Ohio indicate a trend towards affording greater deference to environmental concerns.³⁰⁸ These decisions have affirmed the standing of individuals, municipalities, and advocacy groups to challenge agency decisions that do not adequately consider or protect environmental values.³⁰⁹

Landowners are increasingly objecting to proposed agency actions due to concerns regarding health, safety, and the environment. Courts have upheld regulatory and common law limitations on oil and gas development to protect public safety since the earliest days of development. For example, in *People's Gas Co. v. Tyner*, the Indiana Supreme Court granted a preliminary injunction to an adjacent landowner to prevent an operator from shooting a well with nitroglycerine because the use of explosives in a residential area might constitute a nuisance.³¹⁰ Despite these long-held concerns, conservation agencies have been disinclined to deny drilling permits based on landowner or community groups' objections to the disruption and loss of enjoyment of property that industrial development can render, instead encouraging landowners to pursue common law tort remedies.³¹¹ Dissenting landowners are beginning to raise these concerns in administrative processes and appeal to courts for judicial review where those concerns are ignored. The resulting case law has affirmed an agency's authority—and, at times, obligation—to consider these and other non-economic factors as a progressively important component of permitting decisions.³¹²

In one Ohio case, *Simmers v. City of North Royalton*, health and safety concerns featured prominently in a commission decision relative to statutory pooling.³¹³ Statutory pooling provides the commission with authority to order a combination of

³⁰⁵ Mitchell, *supra* note 78, at 402.

³⁰⁶ *Id.*

³⁰⁷ *Id.*; Phillip Wm. Lear, *Utah Oil and Gas Conservation Law and Practice*, 1998 UTAH L. REV. 89, 98, 123, 136–37; SAINT-PAUL, *supra* note 2, § 4:16.

³⁰⁸ See, e.g., *Simmers v. City of North Royalton*, 65 N.E.3d 257, 263–64 (Ohio Ct. App. 2016); Pa. Env'tl. Def. Found. v. Commonwealth, 161 A.3d 911, 916 (Pa. 2017).

³⁰⁹ *Robinson Twp. v. Commonwealth (Robinson II)*, 83 A.3d 901, 920, 931–33, 939 (Pa. 2013).

³¹⁰ *People's Gas Co. v. Tyner*, 31 N.E. 59 (Ind. 1892).

³¹¹ See Heidi Gorovitz Robertson, *Get Out from Under My Land! Hydraulic Fracturing, Forced Pooling or Unitization, and the Role of the Dissenting Landowner*, 30 GEO. ENVTL. L. REV. 633, 675–88 (2018) [hereinafter Robertson, *Get Out from Under My Land!*]; Christopher S. Kulander, *Common Law Aspects of Shale Oil and Gas Development*, 49 IDAHO L. REV. 367, 373–77 (2013).

³¹² See Robertson, *supra* note 228, at 105–09 (discussing *Simmers*, 65 N.E.3d 257, and its progeny supporting the consideration of non-economic issues in permitting decisions).

³¹³ *Simmers*, 65 N.E.3d at 263–64.

mineral interests where necessary to conform to spacing regulations.³¹⁴ In *Simmers*, the operator sought to involuntarily pool two tracts owned by the City of North Royalton after the city unanimously voted to deny a proposed lease to an operator.³¹⁵ The City objected to the application of forced pooling on the basis of the operator's poor safety record.³¹⁶ In December 2013, the Ohio Department of Natural Resources' Division of Oil and Gas Resources Management issued the drilling permit and mandatory pooling order.³¹⁷ The Division found that pooling was necessary to meet the state's spacing requirements and that an offer had been made to voluntarily pool on a just and equitable basis.³¹⁸ On appeal, however, the Ohio Oil and Gas Commission revoked the mandatory pooling order because the Division had not adequately considered the owner's legitimate safety concerns.³¹⁹ The Ohio Court of Appeals affirmed the Commission's decision.³²⁰ The court held that the Division should have considered other factors, including the city's health, safety, and infrastructure concerns, as part of its evaluation of whether an offer for voluntary pooling was just and equitable in light of the impact of oil and gas operations on the nonconsenting landowner.³²¹ Among other concerns, the court considered "the negative impact of drilling activity on streets and other infrastructure, or the safety of a municipal water supply."³²² The Court agreed that the oil and gas operator had not used all reasonable efforts to reach an agreement for voluntary pooling because it had not provided the dissenting landowner, the city, with a sufficient opportunity to consider the offer and propose a reasonable alternative.³²³

Simmers is notable for the significance it places on the dissenting landowner's surface-based concerns.³²⁴ While much of the case focuses on whether Cutter used "all reasonable efforts" to obtain a voluntary agreement, it also looks at whether the agreement Cutter proposed was reasonable.³²⁵ Rather than focusing its analysis solely on whether the city's allocation of production was fair and equitable based on the amount of oil and gas estimated to be under its property, the Ohio Court of

³¹⁴ OIL AND GAS LAW, *supra* note 50, § 905.2.

³¹⁵ *Simmers*, 65 N.E.3d at 259.

³¹⁶ *Id.* The Ohio DNR has separate authority to condition and deny permits based on safety concerns during the permitting process. *See* OHIO REV. CODE ANN. § 1509.06(F); 1509.06(H)(1) (West 2019).

³¹⁷ *Simmers*, 65 N.E.3d at 259. Interestingly, there is no discussion of OHIO REV. CODE ANN. § 1509.06 (West 2019) which grants the chief authority to deny "a permit if the chief finds that there is a substantial risk that the operation will result in violations of this chapter or rules adopted under it that will present an imminent danger to public health or safety or damage to the environment."

³¹⁸ *Simmers*, 65 N.E.3d at 258–59.

³¹⁹ *Id.* at 259–60.

³²⁰ *Id.* at 260.

³²¹ *Id.* at 263.

³²² *Id.*

³²³ *Id.* at 262, 263–64.

³²⁴ Robertson, *Get Out From Under My Land!*, *supra* note 311, at 669.

³²⁵ *Simmers*, 65 N.E.3d at 262, 263.

Appeals took a more expansive and nuanced view by considering the mineral owner's safety-based concerns as part and parcel of the value of its correlative rights.³²⁶ Dissenting landowners' objections to involuntary combination of their interests are complex and involve both subsurface and surface concerns.³²⁷ Conservation agencies may face increasing pressure to consider these concerns in both the pooling and permitting processes. *Simmers* is consistent with observations that courts may be less likely to defer to agency decisions when agencies disregard surface and environmental concerns, and more likely to broadly interpret a commission's statutory authority to consider health, safety, and the environment.³²⁸

Simmers is also significant for its acknowledgment of the unique interest of the city as a landowner in preventing safety or other environmental harms from coming to bear.³²⁹ Conflicts between state and local governments, conservation agencies, and legislatures regarding the regulation of oil and gas date back to at least the 1930s, when the Oklahoma Supreme Court found that a municipality was not preempted by the State's establishment of the Oklahoma Corporation Commission from establishing bonding for wells drilled within the city.³³⁰ Cases regarding the authority of cities to establish drilling blocks or impose conditions on development have reached disparate results. Courts sometimes invalidate city actions,³³¹ at other times uphold them,³³² and occasionally attempt to harmonize the two.³³³ Courts have consistently emphasized the important role of local governments' use of traditional zoning authority to regulate land use to protect the health, safety, and welfare of citizens and the interests of communities in which oil and gas development occurs.³³⁴ Yet, local governments are sometimes preempted by either state or federal law from comprehensively regulating oil and gas, banning drilling, or prohibiting hydraulic

³²⁶ *Id.* at 263.

³²⁷ A group of homeowners recently asked the U.S. District Court for the District of Colorado to overturn the state's forced pooling law and enjoin the application of the statute to their interests on the basis of threats to health, safety, and the environment. *See* Complaint for Temporary Restraining Order and Injunction at 19, ¶ 121, *Wildgrass Oil & Gas Comm. v. Colorado et al.*, No. 1:19-cv-00190-RBJ, 2020 U.S. Dist. LEXIS 46744 (D. Colo. Mar. 18, 2020). The case, however, was dismissed. *Wildgrass Oil & Gas Comm.*, 2020 U.S. Dist. LEXIS 46744, at *38–39.

³²⁸ Martin, *State Oil and Gas Commission*, *supra* note 126.

³²⁹ Robertson, *Get Out from Under My Land!*, *supra* note 311, at 669.

³³⁰ Martin, *State Oil and Gas Commission*, *supra* note 126, at 3-27 (citing *Gant v. Oklahoma City*, 6 P. 2d 1065 (Okla. 1931), *aff'd*, 289 U.S. 98 (1933)).

³³¹ *Id.* at 3-28 (citing *Indian Territory Illuminating Oil Co. v. Larkins*, 31 P.2d 608 (Okla. 1934)).

³³² *Id.* at 3-29, 3-31 (citing *Unger v. State*, 629 S.W.2d 811, 812 (Tex. App. 1982); *Klepak v. Humble Oil & Refining Co.*, 177 S.W.2d 215 (Tex. App. 1944)).

³³³ *Id.* at 3-30 to 3-31 (citing *Oberne v. Bd. of Cnty. Comm'rs of Douglas Cnty.*, No. 84CV109 (Colo. Dist. Ct. July 25, 1985)).

³³⁴ Robertson, *supra* note 228, at 61–62.

fracturing within county or municipal limits.³³⁵ Delegations of authority to local government are overlapping and might interfere or conflict with state delegations of authority to conservation agencies.³³⁶ As a result, cities and counties have found themselves limited from regulating much of the oil and gas development within their domains.³³⁷ That limitation may be somewhat counterbalanced, however, if courts follow the holding in *Simmers* that cities and counties have a right to raise environmental concerns as landowners in proceedings before state conservation agencies. The impact of such a holding is important because cities and counties often own significant amounts of land, including the minerals below schools, parks, roads, and within greenbelts.³³⁸

Courts may also evaluate the impact of conservation agency decisions on environmental rights that are protected in state constitutions and statutes. Pennsylvania courts, for example, recognize environmental advocates' standing to challenge statutes and agency decisions relative to oil and gas on the basis of Pennsylvania's constitutional Environmental Rights Amendment.³³⁹ Municipalities and environmental groups have argued that state actions with respect to oil and gas on state lands violate citizens' constitutionally protected rights to a clean environment and abrogate states' duties with respect to public trust resources.³⁴⁰ Although public trust arguments have failed in other jurisdictions,³⁴¹ Pennsylvania's Environmental Rights Amendment provides Pennsylvanians with an avenue to enforce citizen rights to a clean environment.

In the early 1970s, during the birth of the environmental law movement, Pennsylvania voters amended the state constitution to provide additional protections

³³⁵ See, e.g., *City of Fort Collins v. Colorado Oil*, 369 P.3d 586 (Colo. 2016); *City of Longmont v. Colo. Oil & Gas Ass'n*, 369 P.3d 573, 577 (Colo. 2016); Robertson, *supra* note 228, at 111–12; Ritchie, *supra* note 263, at 257–58; Benjamin L. McCready, Note, *Like It or Not, You're Fracked: Why State Preemption of Municipal Bans Are Unjustified in the Fracking Context*, 9 DREXEL L. REV. ONLINE 61, 75–78 (2016); Bruce M. Kramer, *Local Regulation of Oil and Gas Operations: Don't All Homeowners Want a Pumpjack in Their Backyard*, 41 ROCKY MTN. MIN. L. FOUND. 213, 215–18 (2004). Local governments have more authority over some types of oil and gas regulation in Colorado pursuant to SB 19-181. See *infra* notes 393–411.

³³⁶ See Jacob E. Gersen, *Overlapping and Underlapping Jurisdiction in Administrative Law*, 2006 SUP. CT. REV. 201, 203, 207–09 (2006); Ritchie, *supra* note 263, at 271–72.

³³⁷ Ritchie, *supra* note 263, at 271–72.

³³⁸ For instance, the city of Boulder owns and manages more than 45,000 acres of open space. *Land Acquisition Program*, CITY OF BOULDER, COLORADO, <https://bouldercolorado.gov/osmp/land-acquisition-program> [<https://perma.cc/94L2-QSS5>] (last visited Nov. 25, 2019).

³³⁹ *Robinson Twp. v. Commonwealth (Robinson II)*, 83 A.3d 901, 920 (Pa. 2013).

³⁴⁰ *Pennsylvania Env'tl. Def. Found. v. Commonwealth*, 161 A.3d 911, 925, 933–35 (Pa. 2017).

³⁴¹ See, e.g., *City of Longmont v. Colo. Oil & Gas Ass'n*, 369 P.3d 573, 586 (Colo. 2016).

for the environment and natural resources. Article 1, Section 27 of Pennsylvania's Constitution provides:

The people have a right to clean air, pure water, and the preservation of the natural, scenic, historic and esthetic values of the environment. Pennsylvania's public natural resources are the common property of all the people, including generations yet to come. As trustee of these resources, the Commonwealth shall conserve and maintain them for the benefit of all the people.³⁴²

This provision incorporates a modern version of the public trust doctrine into the Pennsylvania Constitution, granting citizens an "inalienable" right to a clean environment.³⁴³ As such, it operates as a powerful limitation on state actions that "would infringe upon such rights"³⁴⁴ and permits legal challenges on the basis that "the government has failed in its trustee obligations."³⁴⁵ While not intended to be read in absolutist terms so as to prohibit development, the Environmental Rights Amendment requires policymakers to consider conflicting environmental and social concerns.³⁴⁶ While this provision had been viewed as a merely "aspirational" statement,³⁴⁷ litigants in Pennsylvania have recently rejuvenated the Environmental Rights Amendment.³⁴⁸

The Environmental Rights Amendment experienced a renaissance following the successful challenge of a 2012 state law that attempted to expressly preempt all local regulation of oil and gas. Pennsylvania, like many states,³⁴⁹ sought to clarify the division of authority between conservation agencies and municipalities and preempt local regulation of oil and gas operations with the passage of Act 13 of 2012 (Act 13).³⁵⁰ Act 13 was designed to promote uniformity of regulation across the state, including the imposition of uniform setback and zoning requirements, by

³⁴² PA. CONST. art. I, § 27.

³⁴³ Alexandra B. Klass, *The Public Trust Doctrine in the Shadow of State Environmental Rights Laws: A Case Study*, 45 ENVTL. L. 431, 439–41 (2015) [hereinafter Klass, *Public Trust Doctrine*]; see also *Community College of Delaware Cty. v. Fox*, 342 A.2d 468, 473 (Pa. Commw. Ct. 1975).

³⁴⁴ *Commonwealth v. Nat'l Gettysburg Battlefield Tower, Inc.*, 311 A.2d 588, 592 (1973).

³⁴⁵ *Robinson Twp. v. Commonwealth (Robinson II)*, 83 A.3d 901, 950–51 (Pa. 2013).

³⁴⁶ *Payne v. Kassab*, 361 A.2d 263, 273 (Pa. 1976); *Payne v. Kassab*, 312 A.2d 86, 94 (Pa. Commw. Ct. 1973).

³⁴⁷ *Pa. Env'tl. Def. Found. v. Commonwealth*, 161 A.3d 911, 940 (Pa. 2017) (Baer, J., concurring in part, dissenting in part).

³⁴⁸ See *Funk v. Wolf*, 144 A.3d 228 (Pa. Commw. Ct. 2016), *aff'd*, 158 A.3d 642 (Pa. 2017).

³⁴⁹ OKLA. STAT. tit. 52, § 137.1 (2016); TEX. NAT. RES. CODE ANN. § 81.0523 (West 2019); see also *Riverstone-Newell*, *supra* note 117, at 405–08.

³⁵⁰ 58 PA. CONS. STAT. ANN. §§ 2301–3504 (2012).

replacing the state's 1984 Oil and Gas Act with a new statutory framework.³⁵¹ In so doing, the Pennsylvania Legislature "attempted to entirely foreclose the ability of municipalities to afford their residents environmental protections, via the enactment of any zoning ordinances tailored to address unique local environmental needs and conditions, whenever those ordinances 'might be perceived as affecting oil and gas operations.'"³⁵² In March 2012, municipalities and individuals challenged the constitutionality of Act 13, claiming that it violated the Environmental Rights Amendment of the Pennsylvania Constitution.³⁵³ The Pennsylvania Supreme Court in *Robinson Township v. Commonwealth (Robinson II)* affirmed the standing of a municipality in a legal action to enforce environmental standards and overturned several provisions of Act 13 on the basis that they violated Section 27 of Pennsylvania's Constitution.³⁵⁴

Subsequent litigation regarding the Environmental Rights Amendment has affirmed Pennsylvania's public trust duties regarding protection of the environment and the disposition of public natural resources. In *Pennsylvania Environmental Defense Foundation v. Commonwealth (PEDF)*, the Commonwealth Court found that the Pennsylvania Department of Conservation and Natural Resources' (DCNR) decision to lease state property within the public trust implicated "constitutional rights and duties" and was an "appropriate subject of judicial scrutiny."³⁵⁵ On appeal, the Pennsylvania Supreme Court found that the minerals under state parks and forests were "part of the corpus of Pennsylvania's environmental public trust."³⁵⁶ The Court enforced the duty of the State to protect the environment and serve as a trustee, rather than as a proprietor, of its "public natural resources."³⁵⁷ Although *PEDF* did not bar leasing development of oil on state land, it required that royalties generated from production be committed to "furthering the purposes, rights, and protections" of the Environmental Rights Amendment.³⁵⁸

Following *PEDF*, the Environmental Hearing Board (EHB) has considered the extent of the Pennsylvania Department of Environmental Protection's trustee

³⁵¹ *Id.* § 3303, *abrogated by* *Robinson Twp. v. Commonwealth (Robinson II)*, 83 A.3d 901 (Pa. 2013).

³⁵² *Robinson Twp. v. Commonwealth (Robinson IV)*, 147 A.3d 536, 561 (Pa. 2016) (quoting *Robinson II*, 83 A.3d at 978). The Supreme Court of Pennsylvania recently affirmed in part and reversed in part a preliminary injunction granted by the commonwealth court that barred enforcement of some of the Act 13 regulations relative to unconventional gas operations. *See Marcellus Shale Coal. v. PADEP*, 185 A.3d 985 (Pa. 2018).

³⁵³ PA. CONST. art. I, § 27; *see Robinson II*, 83 A.3d at 915–16.

³⁵⁴ *See Robinson II*, 83 A.3d at 999–1000.

³⁵⁵ *Pa. Env'tl. Def. Found. v. Commonwealth*, 108 A.3d 140, 171 (Pa. 2015).

³⁵⁶ *Pa. Env'tl. Def. Found. v. Commonwealth*, 161 A.3d 911, 916 (Pa. 2017).

³⁵⁷ *Id.* at 934–35.

³⁵⁸ *Pa. Env'tl. Def. Found. v. Commonwealth*, 214 A.3d 748, 754 (Pa. Commw. Ct. 2019). The court found that the obligation to "conserve and maintain" royalties produced from the corpus of the public trust did not apply to bonus and rental payments. *Id.* at 268–69, 274.

obligations with respect to public natural resources. Thus far, it has not operated as a prohibition on development. In a recent case involving permit renewals, the EHB stated, “[o]ur understanding of the trustee responsibility does not require the Department to deny permits to any and all activity that will negatively impact the public natural resources and/or the people who use those resources,” and “[t]o hold otherwise would essentially prevent any permitting activity since it is nigh impossible to have development without some environmental impact.”³⁵⁹ Consistent with the early balancing test articulated in *Payne v. Kassab*,³⁶⁰ the Board found that it must assess whether the agency considered the environmental effects of its permitting actions and correctly concluded that those actions would not unreasonably degrade the environment.³⁶¹

The extent of the Commonwealth of Pennsylvania’s constitutional obligation to protect environmental values in decisions related to private land has been more limited.³⁶² In *PEDF*, the DCNR acted relative to state-owned land, part of the public trust created by Section 27 of Pennsylvania’s Constitution; thus, the Environmental Rights Amendment was found to be self-executing as to the Commonwealth’s trustee obligations.³⁶³ The amendment’s first clause, creating an individual right to a clean environment, creates no similar obligation on a government authority to “conserve and maintain.”³⁶⁴ Based on several early cases, the individual rights clause

³⁵⁹ See *Del. Riverkeeper Network*, Re. EHB Docket No. 2014-142-B (Pa. Env’tl. Hearing Bd. May 11, 2018).

³⁶⁰ *Payne v. Kassab*, 312 A.2d 86, 94 (Pa. Commw. 1973) (“The court’s role must be to test the decision under review by a threefold standard: (1) Was there compliance with all applicable statutes and regulations relevant to the protection of the Commonwealth’s public natural resources? (2) Does the record demonstrate a reasonable effort to reduce the environmental incursion to a minimum? (3) Does the environmental harm which will result from the challenged decision or action so clearly outweigh the benefits to be derived therefrom that to proceed further would be an abuse of discretion”), *aff’d* 361 A.2d 263, 273 (Pa. 1976). *But see* *Robinson Twp. v. Commonwealth (Robinson II)*, 83 A.3d 901, 966–67 (Pa. 2013) (clarifying that the *Payne* test is only appropriate when applied to agency failures to comply with Section 27-based statutory standards); *Pa. Env’tl. Def. Found. v. Commonwealth*, 161 A.3d 911, 940 (Pa. 2017) (Baer, J., concurring in part, dissenting in part).

³⁶¹ See *Del. Riverkeeper*, EHB Docket No. 2014-142-B, at 59.

³⁶² See *Commonwealth v. Nat’l Gettysburg Battlefield Tower, Inc.*, 311 A.2d 588, 594 (Pa. 1973). The Pennsylvania Environmental Hearing Board (EHB) has begun to consider how the ERA applies to Pennsylvania Department of Environmental Protection (PADEP) decisions on private lands. See *Center for Coalfield Justice v. DEP*, 2017 EHB 799 (Pa. Env’tl. Hearing Bd. Aug. 15, 2017), *pet. for appeal denied*, EHB No. 2018-028-R (Pa. Env’tl. Hearing Bd. Apr. 24, 2018); *Friends of Lackawanna v. PADEP*, EHB Docket No. 2015-063-L (Pa. Env’tl. Hearing Bd. Nov. 8, 2017).

³⁶³ See *Robinson II*, 83 A.3d at 955.

³⁶⁴ John C. Dernbach, *Taking the Pennsylvania Constitution Seriously When It Protects the Environment: Part I, An Interpretive Framework for Article I, Section 27*, 103 DICK. L. REV. 693, 700–701 (1999).

of the amendment has long been viewed as requiring implementing legislation to authorize the state to enforce the people's rights against owners of private property.³⁶⁵ Thus, agencies have not substantially changed their permitting or factfinding processes in response to *Robinson II* or *PEDF*. However, the decisions in *Robinson* and *PEDF* have emboldened individuals and municipalities to challenge oil and gas and other industrial permitting activities and created a pathway by which these groups can challenge agency actions in which they were previously not considered interested parties.³⁶⁶ While constitutional arguments thus far have not resulted in widespread reversals, cases brought to date concerning Section 27 of Pennsylvania's Constitution indicate the effects that constitutional environmental rights provisions³⁶⁷ may have on state conservation agencies.

Many states recognize their citizens' rights to a clean environment and acknowledge public trust principles either through state statute, the constitution, or common law.³⁶⁸ For example, Article 9, Section 1 of the 1974 Montana Constitution provides that "[t]he state and each person shall maintain and improve a clean and healthful environment" and "[t]he legislature shall provide adequate remedies for the protection of the environmental life support system from degradation and provide adequate remedies to prevent unreasonable depletion and degradation of natural resources."³⁶⁹ This provision is not merely an aspirational statement; rather, it creates an inalienable right to a clean environment.³⁷⁰ The Texas Constitution similarly declares the "conservation and development of natural resources," and the forests and coastal and inland waters of the states to be public right.³⁷¹ The Texas Legislature cited this provision as the purpose behind its enactment of a mineral subdivision act and delegation of its administration to the railroad commission.³⁷²

³⁶⁵ John C. Dernbach, *The Potential Meanings of a Constitutional Public Trust*, 45 ENVTL. L. 463, 474–75 (2015).

³⁶⁶ *Gorsline v. Bd. of Supervisors of Fairfield Twp.*, 186 A.3d 375 (Pa. 2018); *Delaware Riverkeeper Network v. Sunoco Pipeline L.P.*, 179 A.3d 670 (Pa. Commw. Ct. 2018); *Frederick v. Allegheny Twp. Zoning Hearing Bd.*, 196 A.3d 677, 680 (Pa. Commw. Ct. 2018); *Clean Air Council v. Sunoco Pipeline L.P.*, 185 A.3d 478 (Pa. Commw. Ct. 2018).

³⁶⁷ In the absence of constitutional provisions creating a public trust, attempts to expand a common law public trust to oil and gas permitting decisions have been unsuccessful. *See, e.g., Colo. Oil & Gas Conservation Comm'n v. Martinez*, 433 P.3d 22 (2019).

³⁶⁸ LA. CONST. art. IX, § 1; Alexandra B. Klass, *Fracking and the Public Trust Doctrine: A Response to Spence*, 93 TEX. L. REV. 47, 59 (2015).

³⁶⁹ MONT. CONST. art. 9, § 1.

³⁷⁰ *Montana Dep't of Health & Envtl. Sciences v. Green*, 739 P.2d 469, 473 (Mont. 1987); *State v. Bernhard*, 568 P.2d 136, 138 (Mont. 1977); Illinois, Florida, and Virginia have similar provisions. *See* Tammy Wyatt Shaw, Comment, *The Doctrine of Self-Execution and the Environmental Provisions of the Montana State Constitution: "They Mean Something,"* 15 PUB. LAND L. REV. 219, 231–32 (1994).

³⁷¹ TEX. CONST. art. XVI, § 59(a).

³⁷² TEX. NAT. RES. CODE ANN. § 92.001 (West 2019) ("It is the further finding of this legislature that it is necessary to exercise the authority of the legislature pursuant to Article XVI, Section 59, of the Constitution of the State of Texas to assure proper and orderly

And courts have used it to support the state's police power to conserve and develop its natural resources.³⁷³

Environmental rights statutes in Michigan and Minnesota expressly grant any "private party, state, or local government the right to sue for declaratory or injunctive relief to protect air, water, land or other natural resources from pollution, impairment, or destruction."³⁷⁴ The Minnesota environmental rights statute has been used to protect natural resources beyond what is already mandated by state law and to enjoin development activities that would adversely impact protected natural resources.³⁷⁵ As such, environmental rights statutes and constitutional protections may form the basis for additional fact-finding and environmental protection obligations on state oil and gas conservation agencies, and may prove significant in determining the outcome of state-local conflicts regarding oil and gas development.³⁷⁶

The impacts of advocacy efforts through judicial, regulatory, and democratic means should not be dismissed or diminished. True, these efforts have not resulted in a sea change at oil and gas conservation agencies. Only one ballot initiative passed (Florida's Constitutional Amendment 9), and it related only to areas that had already been statutorily off limits to drilling as a result of a temporary moratorium.³⁷⁷ Courts continue to extend a high standard of deference to conservation agency decisions regarding permits and rulemaking. The Colorado Supreme Court affirmed the COGCC's decision not to initiate rulemaking and, thus far, the Pennsylvania Environmental Rights Amendment and state environmental procedure acts have not resulted in blanket reversals of permitting decisions on private land. Collectively, however, the concerns of landowners, environmental advocates, and municipalities regarding environmental externalities of drilling have risen to the forefront of oil and gas development conversations. At times, environmental concerns are eclipsing historically prioritized prevention of subsurface waste. In response, governors and state legislatures are identifying and pursuing opportunities to increase the environmental regulatory function of oil and gas conservation agencies.

development of both the mineral and land resources of this state and that the enactment of this chapter will protect the rights and welfare of the citizens of this state.").

³⁷³ *SWEPI LP v. R.R. Comm'n of Texas*, 314 S.W.3d 253, 261–62 (Tex. App. 2010); *Endeavor Energy Res., L.P., v. Discovery Operating, Inc.*, 554 S.W.3d 586, 595 (Tex. 2018).

³⁷⁴ *Klass, Public Trust Doctrine*, *supra* note 343, at 433–34 (citing MINN. STAT. § 116B.01 (2014)).

³⁷⁵ *Id.*; Alexandra B. Klass, *Modern Public Trust Principles: Recognizing Rights and Integrating Standards*, 82 NOTRE DAME L. REV. 699, 721–22 (2006).

³⁷⁶ *See Klass, Public Trust Doctrine*, *supra* note 343, at 433–34.

³⁷⁷ FLA. CONST. art. II, § 7 (2018); Gulf of Mexico Energy Security Act of 2006, 43 U.S.C. § 1331 (2018).

V. CONSERVATION REIMAGINED: AMENDING AGENCY AUTHORITY

Elected politicians have considerable power to influence the political responsiveness of oil and gas conservation agencies through actual or proposed changes to the agency's enabling legislation or through executive requests for rulemaking and the choice of political appointees. Oil and gas conservation agencies are not structurally independent.³⁷⁸ Governors frequently serve on their states' oil and gas conservation commissions and may appoint some or all of the members.³⁷⁹ For instance, in Colorado, the governor appoints and can remove nearly all of the members of oil and gas regulatory agencies, subject to confirmation by the state senate, and members can be removed by the governor at any time.³⁸⁰ As a result, commissioners may be chosen not only for their technical competence and ability to make "dispassionate professional judgments" about reservoir characteristics but also for their political judgment.³⁸¹ This dependence may account for the responsiveness that conservation agencies show to political directives.

Although many agencies are permitted to act independently despite executive instruction,³⁸² oil and gas conservation agencies have recently undertaken rulemaking on matters relating to health and the environment after receiving instruction from state governors. For instance, in 2013, Wyoming Governor Matt Mead directed the WOGCC to initiate rulemaking proceedings for the adoption of a baseline water quality testing rule in areas of oil and gas drilling to establish a dataset of groundwater conditions in areas of active drilling.³⁸³ In Colorado, the COGCC has, at times, received heavy-handed instruction from its gubernatorial offices as well. In 2014, Governor Hickenlooper convened an oil and gas development task force to improve local government involvement in permitting and other Commission

³⁷⁸ Paul Verkuil, *The Purposes and Limits of Independent Agencies*, 1988 DUKE L.J. 257, 265–66 (describing the characteristics of independent agencies).

³⁷⁹ See, e.g., COLO. REV. STAT. § 34-60-104 (2019); WYO. STAT. ANN. § 30-5-103 (2019); N.D. CENT. CODE § 54-17-02 (2019). In Texas, Commissioners on the Texas Railroad Commission are elected. See TEX. NAT. RES. CODE ANN. §§ 81.001, 81.01003–81.01004 (West 2019).

³⁸⁰ COLO. REV. STAT. § 34-60-104 (2019).

³⁸¹ Lisa Schultz Bressman & Robert B. Thompson, *The Future of Agency Independence*, 63 VAND. L. REV. 599, 612 (2010).

³⁸² See Cynthia H. Coffman, Atty. Gen., State of Colo., to John W. Hickenlooper, Governor, State of Colo. (May 18, 2017), https://mediaassets.thedenverchannel.com/document/2017/05/18/051817%20Letter%20to%20Governor_59832999_ver1.0.pdf [<https://perma.cc/S3SQ-PRMZ>] (in response to request by Governor Hickenlooper for abandonment of appeal of *Martinez v. COGCC*, Attorney General Cynthia Coffman wrote, "[Governor Hickenlooper's] request conflicts with an official decision of the Commission, which [he does] not have authority to countermand").

³⁸³ OFFICE OF GOVERNOR MATT MEAD, *Strategic Initiatives, in WYOMING'S ACTION PLAN FOR ENERGY, ENVIRONMENT AND ECONOMY* 46 (2013), https://www.naseo.org/Data/Sites/1/documents/stateenergyplans/WY-Energy_Plan.pdf [<https://perma.cc/8AEG-MKMC>] (last visited Jan. 5, 2020).

decisions.³⁸⁴ Following the 2017 explosion of underground flowlines in a Firestone, Colorado neighborhood,³⁸⁵ Governor Hickenlooper further directed the COGCC to conduct a comprehensive review of oil and gas regulations statewide.³⁸⁶ While these policy changes are largely lauded as increasing environmental protection by states, there is also a risk that the executive branch may wield its position to dissuade conservation agencies from taking certain actions. As a result, legislative amendments to agency authority provide for more regulatory certainty and consistency.

Legislatures are accustomed and well-positioned to respond to environmental concerns related to oil and gas development. Legislatures are required to make difficult decisions regarding the balance between strong—and often divisive—interests when considering the efficient development of oil and gas resources, protection of the environment, and impacts to surface owners. These decisions require consideration of both positive and negative impacts of oil and gas development on the economy, including jobs, education, and public services, and on the quality of life of their constituents. Redefining waste to include environmental harms or impacts to climate, for example, could have significant impacts on established property interests and contracts. These considerations are most appropriately addressed by legislatures, rather than courts, agencies, or special interest groups. Together with reasonable local regulation of traditional land use concerns and enforcement of existing environmental laws, legislatures can provide for the efficient and responsible development of oil and gas in light of the changing technologies, development methodologies, and impacts to the environment.

Pressures to increase consideration of environmental and climate impacts have not gone unnoticed by legislatures. Advocates for more radical changes to conservation regulation have petitioned lawmakers or introduced legislation to require conservation regulators to prioritize consideration of environmental impacts

³⁸⁴ Governor John Hickenlooper, Exec. Order B 2014 005, Creating the Task Force on State and Local Regulation of Oil and Gas Operations (Sept. 8, 2014), <https://drive.google.com/file/d/1cAwiamfolLM5dZrU7xHnGVrBOJtH80Gh/view> [<https://perma.cc/8C54-KRC7>].

³⁸⁵ See Bruce Finley, *Deadly Firestone Explosion Caused by Odorless Gas Leaking from Cut Gas Flow Pipeline*, DENVER POST (May 2, 2017), <https://www.denverpost.com/2017/05/02/firestone-explosion-cause-cut-gas-line/> [<https://perma.cc/J7PY-KWWT>].

³⁸⁶ See Gov. Hickenlooper Directs Review of Statewide Oil and Gas Operations Following Firestone Home Explosion Investigation, ADAMS COUNTY COLO., NEWS (May 2, 2017), <http://www.adcogov.org/news/gov-hickenlooper-directs-review-statewide-oil-and-gas-operations-following-firestone-home> [<https://perma.cc/UV7M-QQV2>]; Grace Hood, *A Year After the Deadly Firestone Explosion, Neighbors' Emotions Are Mixed*, COLO. PUB. RADIO (Apr. 6, 2018), <http://www.cpr.org/news/story/a-year-after-the-deadly-firestone-home-explosion-emotions-are-mixed> [<https://perma.cc/GU8G-NZB9>]; COGCC, Flowline Rulemaking, Docket No. 171200767 (adopted Feb. 13, 2018), https://cogcc.state.co.us/documents/reg/Rules/FlowlineRulemaking/Flowline_Adopted%20Rules%202_13_18.pdf [<https://perma.cc/UD6N-2TMH>].

while diminishing the influence of industry voices.³⁸⁷ In response to local government action, citizen initiatives, conservation agency decisions and rulemakings, and litigation, state legislatures in California, Colorado, and Pennsylvania considered and, in some cases enacted, new laws to clarify agency authority or address specific environmental issues.³⁸⁸ These actions include proposals to amend agency authority or the composition of commissions to include experts on air quality and climate, and modify state oil and gas conservation acts to harmonize with the changing economy and value systems of citizens. States found these changes necessary due to the changing scope and impact of oil and gas development in more densely populated areas. Such legislative amendments have been instrumental in providing commissions with authority and procedures regarding environmental issues and the protection of public resources.³⁸⁹ Statutory and constitutional changes recognizing environmental externalities were precisely what provided environmental constituencies with statutory bases to argue for greater consideration of environmental impacts in *Simmers*, *Martinez*, and *PDEF*.

Colorado provides an illustrative case study on the evolution of oil and gas conservation law. The Colorado Oil and Gas Conservation Act was first passed in 1951 to establish the COGCC, to “defin[e] and prohibit[] the waste of oil and gas in Colorado,”³⁹⁰ and “to provide for the responsible development of the state’s oil and gas resources,”³⁹¹ with an emphasis on increased production.³⁹² Shortly thereafter, the Act was amended to declare that the policy goal of the conservation law was to “foster, encourage and promote the development, production and utilization of the natural resources of oil and gas in the state of Colorado.”³⁹³ The purposes of the Act gradually shifted toward an increased focus on environmental, health, and safety concerns. The Act was amended three more times in 1985, 1994, and 2007, each

³⁸⁷ Jim Malewitz, “*Why Are You So Angry at the Railroad Commission?*” *Texas Lawmaker Asks Reviewers*, TEX. TRIB. (Aug. 22, 2016, 6:00 PM), <https://www.texastribune.org/2016/08/22/texas-lawmakers-push-back-railroad-commission/> [<https://perma.cc/W3G9-QTSH>].

³⁸⁸ See, e.g., H.R. 18-1071, 71st Gen. Assemb., Reg. Sess. (Colo. 2018); Property Assessed Clean Energy Program: wildfire improvements, S.B. 465, 2017–2018 Leg., Reg. Sess. (Cal., as amended by Assembly, July 13, 2017); Assemb. B. 1057, Gen. Assemb., Reg. Sess. (Cal. 2019).

³⁸⁹ See 58 PA. CONS. STAT. ANN. § 3215(c) (2012), *invalidated by Robinson II*, 83 A.3d 901 (Pa. 2013). These regulations have proved burdensome for developers of conventional wells. Accordingly, in 2018, the legislature sought to further revise its oil and gas act to roll back the impact of shale drilling standards on conventional wells. See H.B. 2154, Gen. Assemb., Reg. Sess. (Pa. 2018).

³⁹⁰ Colo. Oil & Gas Conservation Comm’n v. Martinez, 433 P.3d 22, 30 (Colo. 2019) (citing Ch. 230, 1951 Colo. Sess. Laws 651, 651).

³⁹¹ Chase v. Colorado Oil & Gas Conservation Comm’n, 284 P.3d 161, 165–66 (Colo. App. 2012) (footnote omitted).

³⁹² *Id.* at 166.

³⁹³ *Martinez*, 433 P.3d at 30 (citing sec. 10, §§ 100-6-22, 1955 Colo. Sess. Laws 648, 657).

relative to the protection of health, safety, public welfare, and the environment.³⁹⁴ As a result, today the Act gives the COGCC the authority to regulate oil and gas operations “so as to prevent and mitigate significant adverse environmental impacts on any air, water, soil, or biological resource . . . to the extent necessary to protect public health, safety, and welfare, including protection of the environment and wildlife resources.”³⁹⁵

Adoption of broad policy positions supporting public health, safety, and welfare have been critical to providing conservation agencies with authority to promulgate rules for the regulation of hydraulic fracturing, to require setbacks from occupied structures, and to respond quickly to new safety concerns including flowlines and idle and abandoned wells. However, they have not radically shifted the role of oil and gas conservation commissions away from promoting and encouraging the efficient regulation of oil and gas operations or a redefining of waste according to twenty-first century environmental norms. For example, in *Martinez v. COGCC*, the Supreme Court of Colorado found that Colorado’s amendments to its oil and gas conservation act evidenced an intent “to prevent and mitigate significant adverse environmental impacts . . . but only after taking into consideration cost-effectiveness and technical feasibility.”³⁹⁶ Contrary to the petitioner’s arguments, the court found that the amendments do not create “a check on oil and gas development,” “a balancing test,” or condition “further oil and gas development on a finding of no cumulative adverse impacts to public health or the environment.”³⁹⁷

In response to *Martinez* and the failure of Proposition 112, the Colorado Legislature enacted SB 19-181 in April 2019.³⁹⁸ The law comprehensively amended Colorado’s Oil and Gas Act to “[p]rioritize[] the protection of public safety, health, welfare, and the environment in the regulation the oil and gas industry” and “establish[] local governments’ regulatory authority over the surface impacts of oil

³⁹⁴ *Id.* (citing ch. 272, sec. 1, § 34-60-106(10)-(11), 1985 Colo. Sess. Laws 1129, 1129; ch. 317, sec. 2, § 34-60-102(1), 1994 Colo. Sess. Laws 1978, 1978; 2007 Colo. Sess. Laws 1357, 1357; ch. 317, sec. 2, § 34-60-102(1), 1994 Colo. Sess. Laws, 1978, 1978 (amending COLO. REV. STAT. § 34-60-102(1)); ch. 320, sec. 2, § 34-60-102(1), 2007 Colo. Sess. Laws 1357, 1357 (amending COLO. REV. STAT. § 34-60-102(1)).

³⁹⁵ COLO. REV. STAT. § 34-60-106(2)(d) (2013) *repealed by* Oil and Gas—Air Pollution, sec. 12, 2019 Colo. Sess. Laws 502, 513–517. Colorado is not entirely unique in this approach. Illinois and Oklahoma provide their conservation agencies with more limited authority to intervene only when there is an imminent threat to public health or environmental safety. Illinois and Oklahoma provide their conservation agencies with more limited authority to intervene only when there is an imminent threat to public health or environmental safety. *See* OKLA. STAT. tit. 52 § 139(D)(1) (2019); 225 ILL. COMP. STAT. 725/19.1 (2019).

³⁹⁶ *Martinez*, 433 P.3d at 31.

³⁹⁷ *Id.* at 30.

³⁹⁸ *See S.B. 19-181: Protect Public Welfare Oil And Gas Operations*, COLO. GEN. ASSEMB., <https://leg.colorado.gov/bills/sb19-181> [<https://perma.cc/C2QN-NBGR>] (last visited January 15, 2020) (providing a summary of S.B. 19-181).

and gas development.”³⁹⁹ SB 19-181 represents the most significant change to state conservation law since the IOGCC. It drastically alters the function and makeup of the Colorado Oil and Gas Conservation Commission, directs the agency to promulgate emissions control regulations, and rebalances authority between state and local interests.

SB 19-181 shifts the focus of Colorado’s Oil and Gas Act from preventing waste to regulating the industry for protection of the environment.⁴⁰⁰ It fundamentally changes the purpose of the Oil and Gas Conservation Commission from one that *fosters* oil and gas development to one that *regulates* it.⁴⁰¹ SB 19-181 also changes the definition of waste in Colorado. Whereas preventing waste has historically meant assuring that the minimum amount of oil and gas is left in the ground, SB 19-181 specifically amends the definition of waste so that waste “does not include the nonproduction of [oil or gas] from a formation if necessary to protect public health, safety, and welfare, the environment, or wildlife resources as determined by the commission.”⁴⁰² Rather than requiring environmental protection to the extent “reasonably practicable,” the commission must now protect the environment to the extent as is “necessary and reasonable.”⁴⁰³ Changes in legislative delegations of authority may direct the commission to prioritize environmental protection, even when waste of underground resources results.

SB 19-181 also rebalances regulatory authority between the state conservation agency and local governments. Local governments have mostly been preempted from comprehensively regulating the majority of oil and gas development activities or production techniques beyond the exercise of traditional zoning authority.⁴⁰⁴ SB 19-181 modifies Colorado’s preemption law and longstanding precedent holding that the Oil and Gas Conservation Agency had primary siting authority for oil and gas operations. Specifically, the bill grants local governments the explicit power to regulate the surface impacts of oil and gas operations in a manner that “protect[s] and minimizes adverse impacts to public health, safety, and welfare and the environment.”⁴⁰⁵ This power to regulate oil and gas at a local level extends to land use, siting of facilities, impacts to public facilities, water quality, noise, vibrations, light, dust and air quality, reclamation, and other nuisance-type effects.⁴⁰⁶ It also grants local governments authority to inspect locations, impose fines, and require insurance or other financial guarantees or indemnification. Granting local

³⁹⁹ *Id.*

⁴⁰⁰ See COLO. REV. STAT. § 29-20-104(1)(h)(VI)(i) (2019).

⁴⁰¹ See COLO. REV. STAT. § 34-60-102(1)(a)(I) (2019).

⁴⁰² S.B. 19-181, Oil and Gas—Air Pollution, ch. 120, sec. 7, §§ 34-60-103(11), (12) 2019 Colo. Sess. Laws 502, 506–08; COLO. REV. STAT. § 34-60-103(11)(b), (12)(b) (2019).

⁴⁰³ COLO. REV. STAT. § 34-60-103(5.5) (2019).

⁴⁰⁴ See Natalie Spiess, *A Cause Worth Fighting For: The Battle for Local Control over Colorado’s Oil and Gas Industry*, 95 DENV. L. REV. ONLINE 71, 74–76 (2018).

⁴⁰⁵ Oil and Gas – Air Pollution, 2019 Colo. Legis. Serv. Ch. 120, sec. 4, §§ 1, 1(g)-(h), 1(i), 2–3 (West); COLO. REV. STAT. § 29-20-104 (2019).

⁴⁰⁶ COLO. REV. STAT. § 29-20-104 (2019).

governments this much control over the oil and gas industry has sparked fears that entire counties may outlaw or effectively outlaw oil and gas production through stringent regulations.⁴⁰⁷ In fact, since SB 19-181 was signed into law, at least seven communities have imposed moratoriums on oil and gas development.⁴⁰⁸ Adams County, the first jurisdiction to adopt new surface regulations following SB 19-181's passage, has tightened its oil and gas rules.⁴⁰⁹ This authority could create tension between counties that seek to attract and counties that seek to prohibit oil and gas development as an unpopular industry.⁴¹⁰ The new role of local governments could also diminish the importance of the commission and undermine the state interest in uniform regulation of oil and gas.

SB 19-181 changes the composition of the commission to reduce the focus and impact of the oil and gas industry and to add commissioners with environmental expertise—most notably by reducing the number of commissioners with substantial experience in oil and gas from three to one.⁴¹¹ The bill mandates that no member of the commission can have an existing conflict of interest with the industry, including those “registered as lobbyists at the state or local level, serving in the general assembly within the prior three years, or serving in an official capacity with an entity that educates or advocates for or against oil and gas activity.”⁴¹² Finally, the bill

⁴⁰⁷ Sherrie Peif, *Weld County Commissioner: Oil and Gas Bill Could Bankrupt Colorado*, COMPLETE COLO., (Mar. 21, 2019), <https://pagetwo.completecolorado.com/2019/03/21/weld-county-commissioner-oil-and-gas-bill-could-bankrupt-colorado/> [<https://perma.cc/R5NK-XD28>].

⁴⁰⁸ Trevor Reid, *7th Colorado Community Approves Moratorium on New Oil and Gas Development*, GREELEY TRIBUNE, (May 29, 2019), <https://www.greeleytribune.com/news/7th-colorado-community-approves-moratorium-on-new-oil-and-gas-development/> [<https://perma.cc/9NCH-353Z>] (listing Erie, Superior, Lafayette, Berthoud, Timnath, Broomfield, and Adams County as the communities that implemented moratoriums as of May 2019). *See, e.g.*, CITY OF BROOMFIELD, COLO., ORDINANCE NO. 2091 (2019); *see also* David Spence, *The Political Economy of Local Vetoes*, 93 TEX. L. REV. 351, 374–75 (2014) (analyzing moratoria in other jurisdictions).

⁴⁰⁹ ADAMS COUNTY, COLO., DEV. STANDARDS AND REGULATIONS, ch. 2, § 2-02-14 (2019); John Aguilar, *Adams County Tightens Oil and Gas Rules, First to do so Since Colorado Senate Bill 181 Passed*, THE DENVER POST (Sep. 3, 2019), <https://www.denverpost.com/2019/09/03/oil-gas-adams-county-colorado/> [<https://perma.cc/XWD8-DJKR>].

⁴¹⁰ *See, e.g.*, Temporary Restraining Order at 7, *Extraction Oil and Gas v. City and County of Broomfield*, Case No. 2020-cv-30106 (Colo. Dist. Ct., Broomfield Cty. Filed Mar. 27, 2020) (enjoining the City and County of Broomfield from issuing any directive ordering oil company to halt or suspend operations during COVID-19 outbreak).

⁴¹¹ S.B. 19-181, Oil and Gas—Air Pollution, ch. 120, § 8, 2019 Colo. Sess. Laws 502, 508–09 (codified at COLO. REV. STAT. §§ 34-60-104(1), (2)(a)(I)–(II) (2019)).

⁴¹² S.B. 19-181, § 9, 2019 Colo. Sess. Laws at 509–10 (codified at COLO. REV. STAT. § 34-60-104.3 (2019)) (reducing the number of commissioners from nine to seven).

requires the appointment of commissioners with formal training or substantial experience related to wildlife protection, soil conservation, and public health.⁴¹³

Colorado's SB 19-181 provides a new model of oil and gas regulation wherein environmental protection is the principal aim of conservation regulation, rather than an incidental effect. Based on its expanded authority, in 2019 the COGCC initiated rulemaking to implement statutory provisions requiring operators to undergo an alternative location analysis for oil and gas locations and facilities, evaluate cumulative impacts of development, and assure that the COGCC is regulating in a manner that achieves the amended legislative purposes.⁴¹⁴ Meanwhile, the state and counties are still working out how to achieve a new balance between state and local governance of oil and gas development.⁴¹⁵

Colorado is not alone in its reconsideration of its oil and gas conservation framework. On October 12, 2019, California followed the example of SB 19-181 and enacted Assembly Bill 1057 (AB 1057).⁴¹⁶ AB 1057 makes substantive changes to California's conservation agency. Notably, the law added a provision providing that "the purposes of this division include protecting public health and safety and environmental quality, including reduction and mitigation of greenhouse gas emissions associated with the development of hydrocarbon and geothermal resources in a manner that meets the energy needs of the state."⁴¹⁷ AB 1057 also required consultation with other agencies, "in furtherance of the goals of the California Global Warming Solutions Act."⁴¹⁸ Although California's law does not address local preemption or reconstitute the agency, it shifts the focus of California's oil and gas conservation agency toward environmental protection and away from promoting development.

⁴¹³ S.B. 19-181, § 8 (codified at COLO. REV. STAT. § 34-60-104(2)(a)(I) (2019)).

⁴¹⁴ COLO. OIL & GAS CONSERVATION COMM'N, COGCC OPERATOR GUIDANCE SB 19-181: DIRECTOR'S OBJECTIVE CRITERIA (2019), https://cogcc.state.co.us/documents/reg/SB_19_181/SB_19_181_Guidance_20190419.pdf [<https://perma.cc/YJQ3-5ZZ8>].

⁴¹⁵ See, e.g., COLO. OIL AND GAS COMM'N, MEMORANDUM OF UNDERSTANDING FOR COORDINATION OF CERTAIN PROCEDURES BETWEEN WELD COUNTY'S 1041 WOGLA PERMITTING AND THE COLORADO OIL AND GAS CONSERVATION COMMISSION'S DSU APPROVAL AND FORMS 2 AND 2A PERMITTING PROCESS (2019), <https://longmontobserver.org/wp-content/uploads/2019/09/Weld-MOU-9.3.2019.pdf> [<https://perma.cc/L2WK-7DG8>].

⁴¹⁶ Cal. Assembly Bill No. 1057, 2019 Cal. Stat. 93 (amending CAL. CIV. CODE § 848, CAL. GOV'T CODE §§ 8589.7, 8670.55, CAL. HEALTH & SAFETY CODE §§ 42710, 11042, CAL. PUB. RES. CODE §§ 607, 690, 3002, 3114, 3201, 3202, 3236.5, 3705, 6212, 25550, 30262, 30404, 3011, 3205.3, 3263, CAL. PUB. UTIL. CODE §§ 309, 714, CAL. WATER CODE §§ 10783, 13267.5).

⁴¹⁷ *Id.* § 9 (codified at CAL. PUB. RES. CODE § 3011(a) (West 2019)).

⁴¹⁸ *Id.* § 9 (codified at CAL. PUB. RES. CODE § 3011(b) (West 2019)).

A. Conflicts, Capture, and Capability

Although conservation agencies are alluring targets given their role in permitting, efforts to task them with widespread protection of the environment and legislatively repurpose them as environmental regulatory agencies may be problematic. The purposes of conservation and environmental protection may conflict. Choosing between inapposite ends would require agencies to exercise discretion and engage in non-technical public policy more appropriately reserved by the legislature. Second, oil and gas conservation agencies are vulnerable to capture by the regulated industry and thus may be less effective than separate environmental agencies or statutes imposing universal environmental procedure requirements.⁴¹⁹ Third, conservation agencies, as traditionally constituted, lack the technical expertise to make fact-findings that environmental mandates could require. As a result, pushing oil and gas conservation agencies into an environmental regulatory role may not result in the landscape- and climate-scale changes that advocates desire. Each of these three issues is discussed in turn below.

Environmental protection may conflict with the stated purposes of oil and gas conservation statutes. Oil and gas conservation agencies are tasked with promoting the efficient development of hydrocarbon resources for the purpose of maximizing the total amount of production and protecting the rights of other mineral owners in the field.⁴²⁰ Although these purposes have expanded to include protection of groundwater and management of oil and gas wastes, typically a secondary state agency, such as the department of environmental quality, has primacy over state programs to regulate air or water.⁴²¹ This segregation is logical. The Clean Water Act, for example, was enacted “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.”⁴²² Those purposes may, at times, conflict with the purposes underpinning conservation law, thus requiring a reconciliation of opposites. Although asking agencies to advance conflicting policy choices and find a “win-win” solution is appealing, policy choices between development and the environment will frequently create winners and losers.⁴²³ Environmental law, by its very nature, imposes costs and benefits on various stakeholders.⁴²⁴ In contrast to the concept of co-equal and correlative rights, which seeks to protect each owner’s rights to produce his just and equitable share of the resource, environmental law “is purposely and necessarily redistributive in a manner antagonistic to some private

⁴¹⁹ Agency capture refers to the scenario where an agency becomes more responsive to the priorities of its regulated industry than to its public purposes. *See infra* at notes 428–438.

⁴²⁰ *See supra* Section III.A.

⁴²¹ Hannah Wiseman, *Fracturing Regulation Applied*, 22 DUKE ENVTL. L. & POL’Y F. 361, 369–70 (2012).

⁴²² 33 U.S.C. § 1251(a) (2018).

⁴²³ Alison Peck, *Sustainable Development and the Reconciliation of Opposites*, 57 ST. LOUIS U. L.J. 151, 158 (2012).

⁴²⁴ *Id.*

property interests.⁴²⁵ Thus, a conservation agency's role of protecting each owner's rights to produce its just and equitable share may be incompatible with the protection of environmental interests in air and water. As advocates increasingly argue that environmental interests should include aesthetics, the atmosphere, and a stable climate,⁴²⁶ these potential conflicts may increase.

Agencies have high value when it comes to making the complex technical determinations necessary to the administration of current oil and gas conservation law, but should not be involved in more subjective determinations, such as the comparative public values in oil and gas production and the environment. If conservation agencies were required to choose between these public purposes and making fact-findings related to whether the protection of those resources is either reasonable or necessary, the current permitting processes could become overwhelmed with a flood of challenges that would, in turn, increase litigation over agency decisions.⁴²⁷ The resulting litigation would eventually push political questions regarding the appropriate balance between production and protection before courts.

Conflicting legislative mandates also increase the danger of agency capture.⁴²⁸ Regulatory agencies may be disproportionately influenced by the industries they are supposed to be regulating, such that they become more responsive to the desires of industry than the public.⁴²⁹ Capture can result due to heavy involvement of the affected industries in the development of regulations,⁴³⁰ partisan appointments, and the likelihood that, given the expertise required to make technical determinations within the industry, agency officials may have previously worked in industry and likely plan on returning to those jobs.⁴³¹ Consolidating environmental regulatory functions within oil and gas conservation agencies may amplify the effects of

⁴²⁵ Richard J. Lazarus, *Fairness in Environmental Law*, 27 ENVTL. L. 705, 725 (1997).

⁴²⁶ See, e.g., *Juliana v. United States*, 217 F. Supp.3d 1224, 1244, 1248–50 (D. Or. 2016), *rev'd*, 947 F.3d 1159, 1171 (9th Cir. Jan. 17, 2020); *Dist. Of Columbia v. Air Florida Inc.*, 750 F.2d 1077, 1083 (D.D.C. 1984).

⁴²⁷ Already land and mineral owners in Colorado have challenged the authority of the Colorado Oil and Gas Conservation Commission to pool property interests on the basis SB 19-181 favors the property owners' rights not to be forced to associate and contribute their property towards oil and gas development. See Response Brief for Plaintiff at 12, *Wildgrass Oil & Gas Comm. v. Colorado*, No. 1:19-cv-00190-RBJ, 2020 U.S. Dist. LEXIS 46744 (D. Colo. Mar. 18, 2020).

⁴²⁸ Rachel E. Barkow, *Insulating Agencies: Avoiding Capture Through Institutional Design*, 89 TEX. L. REV. 15, 50 (2010).

⁴²⁹ Richard B. Stewart, *The Reformation of American Administrative Law*, 88 HARV. L. REV. 1669, 1685 (1975).

⁴³⁰ For example, the IOGCC and American Exploration and Production Council were influential in crafting the proposal to exempt hydraulic fracturing from the Safe Drinking Water Act. See, Amanda C. Leiter, *Fracking, Federalism, and Private Governance*, 39 HARV. ENVTL. L. REV. 107, 140 (2015).

⁴³¹ Barkow, *supra* note 428, at 47–48.

industry influence in ways that requiring coordination between separate regulatory and conservation agencies would not.⁴³²

Until recently, concerns of agency capture were rarely raised with respect to oil and gas conservation commissions. The statutory public purposes for which conservation commissions have historically regulated the industry are not in direct opposition to industry interests, and in fact facilitate contracting and information flow among property owners in common reservoirs. As a result, for the most part, the industry supports reasonable regulation to encourage efficient production, protect correlative rights, and limit drainage.⁴³³ However, as conservation agencies have taken on responsibility for safety and environmental inspections and regulation of hydraulic fracturing, concerns relative to undue industry influence have heightened.⁴³⁴ Environmental laws have significant impacts on oil and gas development and private property rights that may be in direct conflict with industry interests. Agency capture has been cited among the contributors to the EPA's determination that further study of hydraulic fracturing was unwarranted,⁴³⁵ and the *Deepwater Horizon* oil spill in the Gulf of Mexico.⁴³⁶ In fact, agency capture was among the principal reasons that, following the *Deepwater Horizon* spill, the Mineral Management Service was reorganized into three separate agencies—one responsible for managing revenue, one responsible for energy development and leasing, and one responsible for making inspections and assuring compliance.⁴³⁷ Charging conservation agencies with environmental regulation of the industry risks

⁴³² Eric Biber, *Too Many Things to Do: How to Deal with the Dysfunctions of Multiple-Goal Agencies*, 33 HARV. ENVTL. L. REV. 1, 7 (2009).

⁴³³ Pierce, *supra* note 5, at 775.

⁴³⁴ Matthew McFeeley, *Falling Through the Cracks: Public Information and the Patchwork of Hydraulic Fracturing Disclosure Laws*, 38 VT. L. REV. 849, 854 (2014).

⁴³⁵ Hannah Wiseman, *Untested Waters: The Rise of Hydraulic Fracturing in Oil and Gas Production and the Need to Revisit Regulation*, 20 FORDHAM ENVTL. L. REV. 115, 180 (2009). *But see* David B. Spence & Frank Cross, *A Public Choice Case for the Administrative State*, 89 GEO. L.J. 97, 123 (2000) (suggesting that concerns of agency capture may be overstated).

⁴³⁶ See Peter Jan Honigsberg, *Conflict of Interest that Led to the Gulf Oil Disaster*, 41 ENVTL. L. REP. NEWS & ANALYSIS 10414, 10414–15 (2011); Hari M. Osofsky, *Multidimensional Governance and the BP Deepwater Horizon Oil Spill*, 63 FLA. L. REV. 1077, 1100, (2011).

⁴³⁷ See Press Release, U.S. Dep't of the Interior, Salazar Divides MMS's Three Conflicting Missions: Establishes Independent Agency to Police Offshore Energy Operations (May 19, 2010), <https://www.doi.gov/news/pressreleases/Salazar-Divides-MMSs-Three-Conflicting-Missions> [<https://perma.cc/PZV9-QNZP>]; *The Reorganization of the Former MMS*, BUREAU OF OCEAN ENERGY MGMT., [https://www.boem.gov/Reorganizat ion/](https://www.boem.gov/Reorganizat%20ion/) [<https://perma.cc/C8T5-AQZ4>] (last visited Nov. 25, 2019).

creating the exact situation advocates have been working to undo in offshore energy regulation.⁴³⁸

The majority of oil and gas conservation agencies also lack the technical capability and expertise to make the necessary findings of fact that environmental mandates would require. One of the chief benefits of legislative delegation to agencies is that agencies can develop the highly specialized expertise necessary to complete the fact-finding to make decisions regarding drilling and permitting in the public interest. Oil and gas conservation commissions are usually staffed with experts in law, geology, engineering, and land.⁴³⁹ These disciplines are chosen based on the ability of specialists within them to make determinations relative to the prevention of waste and protection of correlative rights. However, the technical and economic specialties suited to conservation regulation may not provide the requisite expertise to make findings regarding wildlife or cumulative impacts, such as those related to climate change.⁴⁴⁰ In the absence of structural and legal changes, such as those required by SB 19-181, conservation agencies may not have the authority, procedures, or expertise necessary to gather information and monitor mitigation for landscape-scale impacts. A fundamental reordering of conservation agencies to increase technical expertise on environmental matters may conversely diminish the agency's technical capacity and expertise to make the findings necessary to prevent geologic waste and protect correlative rights.

Legislative reconsideration of the scope and purpose of oil and gas conservation agencies is necessary and appropriate given changing land use patterns, development technologies, and social preferences. However, comprehensive overhaul of oil and gas conservation law to require agencies to serve as both environmental and conservation regulators may be problematic. In addition to the potential for conflicts, capture, and capability issues, general environmental and climate regulation by conservation agencies may be ineffective in achieving the widespread goals that advocates desire. Conservation agency authority will be inherently limited to a subset of one very narrow scope of activities and only as to operations which require agency action. New agency rules regarding setbacks and permitting do not apply retrospectively to producing wells, which may produce for decades without requiring any new action in response to revised agency rules.⁴⁴¹

⁴³⁸ Jacob D. Unger, Note, *Regulating the Arctic Gold Rush: Recommended Regulatory Reforms to Protect Alaska's Arctic Environment from Offshore Oil Drilling Pollution*, 31 ALASKA L. REV. 263, 277, (2014).

⁴³⁹ See, e.g., WYO. STAT. ANN. § 30-5-103 (2019).

⁴⁴⁰ Proposed legislation in California has sought to amend the composition of the DOGGR to include equal representation by industry and by experts in air quality, water quality, and environmental justice, with additional membership by other research scientists. See S.B. 465, 2017 Leg., Reg. Sess. (Cal. 2017) (as amended by Assembly, July 13, 2017).

⁴⁴¹ As a general proposition, a regulation is presumed to apply prospectively unless the enacting body expressed an intent for it to apply retroactively. See *In re Estate of DeWitt*, 54 P.3d 849, 854 (Colo. 2002) (reviewing general prohibition on retroactive application of laws in Colorado). For instance, wells permitted under prior rules requiring a minimum 500-foot

Thus, a significant portion of the oil patch could largely be unaffected by new agency rules and regulations. Accordingly, legislative amendments to conservation authority may be less effective than generally applicable state environmental procedure laws or environmental rights laws.⁴⁴² Instead, legislatures should consider opportunities to enhance the traditional environmental protection functions of conservation regulation by encouraging landscape-scale resource planning and private governance.

VI. AN INTENTIONAL ENVIRONMENTAL AGENCY

Oil and gas conservation agencies have always played an inadvertent role in limiting the environmental impacts of oil and gas production.⁴⁴³ The drilling of unnecessary wells needlessly destroys surface resources.⁴⁴⁴ Each well pad requires clearing of brush and grading, development of roads and drilling pits, and may include wastewater impoundment, trenching for flow lines, and construction of production facilities.⁴⁴⁵ Well sites can range from two to twenty hectares of “non-habitat,” with impacts on ecosystems that extend beyond the drill site itself.⁴⁴⁶ Facilities can contribute to erosion, introduce noxious weeds, and adversely impact

setback from occupied structures would not have to be relocated to comply with subsequently enacted 1,000-foot setbacks. *See, e.g.*, COLO. CODE REGS. §§ 404-1:602.g (2019) (“Existing producing facilities are exempt from the provisions of these regulations with respect to minimum distance requirements and setbacks unless they are found by the Director to be unsafe.”). Regulations of ongoing operations, however, such as those enacted for flowline inspections and pressure tests or requirements for payments from production could apply to both new and legacy facilities. *See* Independent Producers Marketing Corp. v. Cobb, 721 P.2d. 1106, 1109–10 (Wyo. 1986) (distinguishing between a law being retroactively applied to past production versus prospectively applied to proceeds deriving from past production but generated after the effective date).

⁴⁴² It is too early to determine how California’s cap and trade program, which first applied to upstream producers of oil and gas in 2015, will impact production and drilling activities in the state. *See* CAL. CODE REGS. tit. 17, §§ 95801–96022 (2018).

⁴⁴³ *See* Pierce, *supra* note 5, at 777–78.

⁴⁴⁴ *Id.* at 762.

⁴⁴⁵ Gregg P. Macey, *The Incomplete Ecology of Hydraulic Fracturing Governance*, 50 ARIZ. ST. L.J. 583, 585–89 (2018); Qingmin Meng, *Modeling and Prediction of Natural Gas Fracking Pad Landscapes in the Marcellus Shale Region, USA*, 121 LANDSCAPE & URB. PLAN. 109, 113 (2014).

⁴⁴⁶ Newly developed drilling and completion techniques have reduced the environmental footprint of some operations by allowing for multi-lateral and stacked-lateral well pads. *See* Katie Mazerov, *Pad-Drilling, On-Site Water Treatment Help Reduce Surface Impact*, DRILLING CONTRACTOR, (Jan. 14, 2014), <https://www.drillingcontractor.org/pad-drilling-on-site-water-treatment-help-reduce-surface-impact-27400> [<https://perma.cc/H26G-W5XJ>]; Sarah J. Thompson et al., *Avoidance of Unconventional Oil Wells and Roads Exacerbates Habitat Loss for Grassland Birds in the North American Great Plains*, 192 BIOLOGICAL CONSERVATION 82, 86 (2015).

wildlife habitat and migration.⁴⁴⁷ Further, the site construction and drilling and completion processes themselves require large energy and water inputs. Finally, abandoned and unplugged wells can pose significant environmental risks by acting as conduits between fresh water sources and deeper hydrocarbon-bearing reservoirs.⁴⁴⁸

Environmental protection is incidental to the advancement of conservation law purposes. Conservation agencies have not historically been considered environmental agencies, and the focus of conservation law has been on encouraging efficient production and maximizing the utility of the resources—not on the preservation of ecosystems, beauty, or a stable climate. Nevertheless, surface impacts are practically limited by oil and gas conservation regulations that prohibit development in areas smaller than the area that one well can reasonably drain.⁴⁴⁹ Although the intent of spacing rules is to prevent waste, spacing and density regulations limit the number of well sites, wells drilled, and surface disturbances.⁴⁵⁰ Further, rules to limit venting and flaring in order to prevent waste have significantly limited the volumes of greenhouse gasses such as methane and carbon dioxide into the atmosphere. While it is not possible to fully eliminate the surface environmental impacts of oil and gas development, conservation regulation has been a driver in the movement to limit the environmental impacts of oil and gas development.⁴⁵¹ Without changing the fundamental nature of oil and gas conservation agencies, agencies and legislatures have unrealized opportunities to intentionally limit harm to the environment through more targeted commission regulation and liberal conservation strategies. A nuanced approach to regulation by commissions can advance the environmental protection goals within the scope of traditional conservation regulation.

Existing legislative delegations of authority to protect public health, safety, and the environment allow conservation agencies to respond to emergent resource conflicts and environmental concerns that are particular to oil and gas development in the region through the adoption of preventative and managerial rules. Conservation rules and orders provide mechanisms for operators and conservation agencies to address the immediate externalities of oil and gas development, verify compliance, and enforce environmental and health and safety rules during operations.⁴⁵² For example, North Dakota commission orders assure that companies

⁴⁴⁷ Macey, *supra* note 445, at 597; Joel Minor, *Local Government Fracking Regulations: A Colorado Case Study*, 33 STAN. ENVTL. L. J. 61, 72–73 (2014).

⁴⁴⁸ See Matthew K. Trawick, *Cooperative Mineral Interest Development in the Lone Star State: It's Time to Mess with Texas*, 4 MICH. J. ENVTL. & ADMIN. L. 385, 404 (2015).

⁴⁴⁹ *Id.*

⁴⁵⁰ Innovations such as multi-well pads and stacked horizontal development have increased drainage areas and thus have further reduced these impacts.

⁴⁵¹ See Bruce M. Pendery, *BLM's Retained Rights: How Requiring Environmental Protection Fulfills Oil and Gas Lease Obligations*, 40 ENVTL. L. 599, 630 (2010)

⁴⁵² COLO. CODE REGS. §§ 404-1:204 (2019); 055-0001-2 WYO. CODE R. § 3 (LexisNexis 2019).

have appropriate plans for gas capture and pipeline infrastructure prior to drilling, thus preventing unnecessary venting and flaring.⁴⁵³ In Colorado, where development in urban areas and impacts on wildlife are greater concerns, the Colorado Oil and Gas Conservation Commission has promulgated integrity management rules for flowlines, aesthetic and noise control rules, and regulations for reclamation and waste management.⁴⁵⁴ Commission rules take advantage of the agency's subject matter expertise in fossil fuel exploration and development to prevent anticipated harms and managing environmental risk by verifying that proposed operations will not violate uniform public governance mechanisms. For example, prior to granting a permit to drill, some states have tasked agencies with verifying compliance with setback regulations,⁴⁵⁵ split estate acts,⁴⁵⁶ and wildlife protection stipulations.⁴⁵⁷ Preventative rules promote environmental protection without directly conflicting with agency purposes related to preventing waste and protecting correlative rights.

Conservation agencies can also limit environmental externalities by encouraging resource-scale planning. Oil and gas reservoirs, like other landscape-scale resources, "exceed the scope of individual parcels of land"⁴⁵⁸ Thus, assembling resources across parcels and planning management on a resource scale offers numerous benefits.⁴⁵⁹ The potential environmental and production benefits of resource-scale development are significant. Thus, compulsory unitization regulation may reduce externalities of oil and gas development by helping parties overcome contracting failures and allowing for the combination of resources to maximize recovery from the minimum number of wells.⁴⁶⁰ This may increase total recovery—

⁴⁵³ N.D. INDUS. COMM'N, ORDER 24665, POLICY/GUIDANCE VERSION 041718 (2018), <https://www.dmr.nd.gov/oilgas/GuidancePolicyNorthDakotaIndustrialCommissionorder24665.pdf> [<https://perma.cc/Z79Y-MD4S>] (last visited Feb. 27, 2020).

⁴⁵⁴ COLO. OIL & GAS CONSERVATION COMM'N, COGCC RULES & REGULATIONS, Series 800-1200 *et seq.* (2019).

⁴⁵⁵ *See, e.g.*, COLO. CODE REGS. §§ 404-1:604.c(2) (requiring mitigation measures as condition for approval wells located in setback areas); 055-0001-3 WYO. CODE R. § 47 (defining and governing well surface setback requirements).

⁴⁵⁶ *See, e.g.*, 055-0001-3 WYO. CODE R. § 8.

⁴⁵⁷ *See, e.g.*, Governor Mark Gordon, Exec. Order No. 2019-3, Greater Sage-Grouse Core Area Protection app. D (Aug. 21, 2019), https://wgfd.wyo.gov/WGFD/media/content/PDF/Habitat/Sage%20Grouse/Governor-Gordon-Greater-Sage-Grouse-EO-2019-3_August-21-2019_Final-Signed_2.pdf [<https://perma.cc/RMP8-GRZZ>]; COLO. CODE REGS. §§ 404-1:1201–1205 (rules pertaining to wildlife protection).

⁴⁵⁸ Karen Bradshaw Schulz & Dean Lueck, *Contracting for Control of Landscape-Level Resources*, 100 IOWA L. REV. 2507, 2510 n.7 (2015).

⁴⁵⁹ *Id.* at 2518.

⁴⁶⁰ *See* Pierce, *supra* note 5, at 778; David Edward Pierce, *Coordinated Reservoir Development—An Alternative to the Rule of Capture for the Ownership and Development of Oil and Gas*, 4 J. ENERGY L. & POL'Y 1, 78–79 (1983); Bruce Kramer, *Unitization: A Partial Solution to the Issues Raised by Horizontal Well Development in Shale Plays*, 68 ARK. L. REV. 295, 318–19 (2015); *see generally* Gary Leibcap & Steven Wiggins, *The Influence of*

thus minimizing waste—and address the issues while reducing environmental impacts and conflicts with surface owners.⁴⁶¹

One long-recognized method to assemble subsurface resources is exploratory unitization. Exploratory unitization allows for the combination of property interests overlying a common pool or source of supply and adoption of a plan of development that allocates economic rights and responsibilities within the unit area.⁴⁶² Current well spacing rules are based on a fiction that all reservoirs are homogeneous and drain radially.⁴⁶³ In contrast, unitization seeks to consolidate mineral interests across the reservoir such that production can be carried out in the most efficient manner based on geology and the maintenance of reservoir pressure, without regard to competition, lease lines, or individual well regulations.⁴⁶⁴ Assemblage of subsurface interests also proffers potential environmental benefits and facilitates greater protection of surface resources. For example, unitization would protect the correlative rights of owners who were restricted from drilling on their individual parcels as a result of environmental concerns; under an area-wide unit agreement, they would still share in production.

More widespread use of exploratory unitization could require legislative authorization. Unitization can be accomplished voluntarily by agreement of mineral and royalty owners, or compulsorily by statute. While used with some frequency on federal lands,⁴⁶⁵ exploratory unitization of pools with a majority of private and state land is less common. Unitization may also be prohibited or discouraged by anti-dilution provisions in oil and gas development agreements between companies and

Private Contractual Failure on Regulation: The Case of Oil Field Unitization, 93 J. POLITICAL ECON. 690 (1985).

⁴⁶¹ Advocates of exploratory unitization posit that this will benefit all mineral owners through maximizing production. However, it may operate to the detriment of individuals since production is typically allocated on the basis of surface acreage rather than geologic structure. Further, mineral owners outside the participating area of the initial well may find their interests tied up before beginning to receive a share of production. See Gideon Wiginton, Comment, *Addressing Perceptions of Procedural Unfairness in Compulsory Unitization by Appointing Neutral Experts*, 55 AM. U. L. REV. 1801, 1816 (2006).

⁴⁶² Gary D. Libecap & Steven N. Wiggins, *Contractual Responses to the Common Pool: Prorationing of Crude Oil Production*, 74 AM. ECON. REV. 87, 89–91 (1984); Steven B. Richardson, *The Unit Operating Agreement for Federal Exploratory Units, Federal Onshore Oil and Gas Pooling and Unitization*, Paper No. 16, 16-8. (Rocky Mtn. Min. L. Fdn. 2006).

⁴⁶³ Philip E. Norvell, *Prelude to the Future of Shale Gas Development: Well Spacing and Integration for the Fayetteville Shale in Arkansas*, 49 WASHBURN L.J. 457, 468 (2010); David Pierce, *Sustaining the Unsustainable: Oil and Gas Development in the 21st Century*, 23-SPG KAN. J.L. & PUB. POL'Y 362, 372 (2014).

⁴⁶⁴ Owen L. Anderson & Ernest E. Smith, *Exploratory Unitization Under the 2004 Model Oil and Gas Conservation Act: Leveling the Playing Field*, 24 J. LAND RESOURCES & ENV'T'L L. 277, 279 (2004).

⁴⁶⁵ 30 C.F.R. §§ 212.20–212.34 (2019).

landowners.⁴⁶⁶ These may prohibit unitization or encourage incremental, rather than planned, development.⁴⁶⁷ Private developers and mineral owners may also have individualistic concerns about equity or differential development timelines that result in opposition. Unlike federal agencies, state oil and gas conservation laws may not authorize the conservation agency to override these concerns and compel unitization for exploratory development.⁴⁶⁸

The 2004 amendments to the Interstate Oil & Gas Commission model Oil and Gas Conservation Act included an express provision for exploratory unitization.⁴⁶⁹ State conservation agencies would oversee this process to assure that the plan is feasible and results in additional recovery and that the proposed allocation formula is fair to all unit owners.⁴⁷⁰ Many state conservation statutes include compulsory unitization provisions. However, not all states allow unitization for exploratory purposes or allow a state to initiate unitization without an application from a majority of the mineral and royalty interest owners in the affected unit.⁴⁷¹ Appropriate legislative authorizations can thus enable conservation agencies to enhance environmental protections within the scope of their statutorily delegated purposes, consistent with the agency's expertise and familiarity with the technical operation of the industry.

Oil and gas conservation commissions may also be able to encourage private environmental governance on a resource scale by promulgating new rules to allow mineral rights developers to voluntarily combine interests and modify well spacing locations for the purpose of limiting surface and environmental impacts. Already, surface owners and operators are addressing some of the most localized impacts of development through private agreements such as participation agreements, joint

⁴⁶⁶ Bruce M. Kramer, *Oil and Gas Leases and Pooling: A Look Back and a Peek Ahead*, 45 TEX. TECH. L. REV. 877, 893 (2013).

⁴⁶⁷ *Id.*

⁴⁶⁸ Pierce, *supra* note 5, at 764, 777; MARTIN & KRAMER, *supra* note 1, at §§ 18-1 to 18-27; Anderson & Smith, *supra* note 464, at 279. Exploratory unitization may be permitted by WYO. STAT. ANN. § 30-5-110(c) (2019), which provides “for the operation as a unit of one (1) or more pools or parts thereof and for the pooling of the interests in the oil and gas in the proposed unit area for the purpose of conducting such unit operation” (emphasis added).

⁴⁶⁹ MODEL OIL AND GAS CONSERVATION ACT, pt. VII, §§ 22-28 (INTERSTATE OIL & GAS COMPACT COMM’N 2004), <http://iogcc.ok.gov/Websites/iogcc/docs/ModelAct-Dec2004.pdf> [<https://perma.cc/852E-VLSK>]. However, although the model act offers a “laudable improvement” over prior versions, it has not been adopted by all states. See Pierce, *supra* note 5, at 766; Request for Agency Action of Petro-Hunt, LLC, for an Order Establishing the Wales Exploratory Unit, Finding of Facts, Conclusions of Law, and Order, Docket No. 2006-015, Cause No. 176-04 (Board of Oil, Gas & Mining, Utah Dep’t of Nat. Res., Jan. 12, 2007), https://fs.ogm.utah.gov/bbooks/OGMBOARD/OilGas/176-04/176-04_2006-015.o001.pdf [<https://perma.cc/8UZ4-9Q83>].

⁴⁷⁰ D. Theodore Rave, *Governing the Anticommons in Aggregate Litigation*, 66 VAND. L. REV. 1183, 1228 (2013).

⁴⁷¹ Anderson & Smith, *supra* note 464, at 285.

operating agreements, development agreements, and surface use agreements. Colorado's oil and gas conservation commission, again, provides a leading example of how conservation agencies can encourage this type of collaborative environmental problem solving through public regulation. The COGCC has provided operators with the option to develop minerals according to comprehensive drilling plans (CDPs).⁴⁷² CDPs "are intended to identify foreseeable oil and gas activities in a defined geographic area, facilitate discussions about potential impacts, and identify measures to minimize adverse impacts to public health, safety, welfare, and the environment, including wildlife resources, from such activities."⁴⁷³ As part of a CDP, an operator may combine multiple proposed locations into a customized plan to "address specific issues in a particular area."⁴⁷⁴ Operators are encouraged to work with local governments and surface owners throughout the development of the CDP, thus providing additional support for the negotiation of private governance instruments to protect environmental and surface interests.⁴⁷⁵

Changes to well spacing rules may also limit the environmental impacts of oil and gas development. Frequently, surface well locations are required to be near or along a property line or located in the center of a wellbore spacing unit. In the absence of a variance, these requirements may increase the likelihood of conflicts between mineral developers and environmental or surface resources, which are frequently constructed along section line roads. Colorado also addressed this issue through new wellbore spacing rules developed for the Wattenberg formation.⁴⁷⁶ In combination, these rules may permit an operator to engage in collaborative and comprehensive planning for regional development in a manner that reduces impacts to surface landowners and the environment. Administrative processes that provide flexibility in well and facility locations offer operators an opportunity to avoid surface resources without resulting in underground waste.

Commission rules that encourage exploratory unitization, comprehensive drilling plans, and spacing rules may significantly enhance opportunities for private governance protection of landscape-scale environmental resources.⁴⁷⁷ Whereas split estate acts enhance environmental protection on a parcel-by-parcel basis,⁴⁷⁸ unitization processes that require collaboration and consultation with local

⁴⁷² COLO. CODE REGS. § 404-1:216.a (2019).

⁴⁷³ *Id.*

⁴⁷⁴ *Id.* § 404-1:216.b.

⁴⁷⁵ *Id.* § 404-1:216.d(2).

⁴⁷⁶ *See* COLO. CODE REGS. § 404-1:318A (2019). This rule allows wells within the Wattenberg to be located in the middle of a section in order to "mitigate conflicts between mineral rights developer[s] and surface owners." Colo. Oil & Gas Conservation Comm'n, Order No. 1R-113, Ex. A (Sept. 30, 2011), <https://cogcc.state.co.us/orders/orders/1R/113.html> [<https://perma.cc/HZA7-XBNQ>].

⁴⁷⁷ Schulz & Lueck, *supra* note 458, at 2510; Timothy Fitzgerald, *Regulatory Obsolescence Through Technological Change in Oil and Gas Extraction*, 43 WM. & MARY ENVTL. L. & POL'Y REV. 137, 169–71 (2018).

⁴⁷⁸ Righetti, *supra* note 258, at 389.

governments and public and private landowners may increase environmental protections and provide for more widespread distribution of production benefits. For instance, public landowner agreements are becoming increasingly sophisticated.⁴⁷⁹ Many Colorado counties have established processes for entering into memoranda of understanding or development agreements, through which developers and the county formally agree how oil and gas will be developed.⁴⁸⁰ Agreements may include stakeholder assessments or require the operator to make substantial investments into public infrastructure.⁴⁸¹ In contrast to the failures of conflicting regulatory governance,⁴⁸² conservation laws and rules that facilitate bargaining among environmental groups, local governments, and landowners may better address environmental externalities.

Conservation agency oversight is necessary to assure that private governance approaches to resource-scale planning do not result in distributive inequities that exacerbate environmental justice concerns.⁴⁸³ Unlike public governance mechanisms with uniform rules that apply to all parcels, communities may choose to locate oil and gas facilities and other high impact activities in less affluent areas that already enjoy fewer environmental services.⁴⁸⁴ To mitigate this risk, conservation rules encouraging resource planning should require coordination and consultation with both social and environmental groups, including those “comprised of individuals from disproportionately burdened communities.”⁴⁸⁵ Further, agency approval of voluntary unitization or other comprehensive drilling plans is critical to

⁴⁷⁹ James W. Coleman, *The Third Age of Oil and Gas Law*, 95 IND. L.J. (forthcoming 2020) (manuscript at 5), <https://ssrn.com/abstract=3367921> [<https://perma.cc/QY7V-YRHS>].

⁴⁸⁰ *Memorandum of Understanding (MOU)*, INTERMOUNTAIN OIL & GAS BMP PROJECT (Oct. 15, 2016), <http://www.oilandgasbmps.org/resources/MOU.php> [<https://perma.cc/ZU2N-SGBZ>]; see generally Ghislaine Torres Bruner, *The Evolution and Development of Oil and Gas Operator Agreements*, in THE LAW OF FRACKING FEDERAL, STATE, AND LOCAL REGULATION OF MODERN OIL & GAS DEVELOPMENT, 2019 MINERAL L. SERIES 6b-1 (2019) (examining the background of oil and gas development agreements in Colorado and suggesting a framework for how future operator agreements can be negotiated).

⁴⁸¹ Jennifer Rios, *Extraction Buys Safety Equipment for North Metro Fire Rescue District*, BROOMFIELD ENTER. (Sep. 6, 2019, 3:42 PM), <https://www.broomfieldenterprise.com/2019/09/06/extraction-buys-safety-equipment-for-fire-district/> [<https://perma.cc/C66S-BXM6>].

⁴⁸² Hannah Wiseman, *Disaggregating Preemption in Energy Law*, 40 HARV. ENVTL. L. REV. 293, 295–96 (2016).

⁴⁸³ See Sarah E. Light & Eric W. Orts, *Parallels in Public and Private Environmental Governance*, 5 MICH. J. ENVTL. & ADMIN. L. 1, 55–56, 61–62 (2015); N.Y. DEP’T OF HEALTH, A PUBLIC HEALTH REVIEW OF HIGH-VOLUME HYDRAULIC FRACTURING FOR SHALE GAS DEV. 4 (2014), https://www.health.ny.gov/press/reports/docs/high_volume_hydraulic_fracturing.pdf [<https://perma.cc/ZPW9-KDSQ>].

⁴⁸⁴ Light & Orts, *supra* note 483, at 59.

⁴⁸⁵ Shalanda H. Baker, *Anti-Resilience: A Roadmap for Transformational Justice Within the Energy Sys.*, 54 HARV. C.R.-C.L. L. REV. 1, 15–20 (2019).

assure that private agreements for resource development advance public interests and also meet an objective standard of fairness and equity. Agency authorizations should also include factors related to environmental justice, such as whether a proposed resource development plan disproportionately impacts certain groups or shifts risks from one population to another.⁴⁸⁶ Procedural statutes that require agencies to consider environmental impacts, including environmental justice, may increase the transparency of agency decision-making and provide avenues for meaningful judicial review.

VII. CONCLUSION

Oil and gas conservation agencies have been instrumental in limiting waste and environmental externalities from oil and gas production activities through well spacing regulations, compulsory pooling, and prohibitions on wild wells.⁴⁸⁷ However, for most of its history, environmental protection has been an incidental benefit of conservation law rather than its underlying purpose. Instead, the oil and gas conservation statutes “in every state operate on a capture-based property model” that tacitly accepts environmental degradation and environmental drilling as normative.⁴⁸⁸ This model prioritizes the prevention of waste and the protection of each individual’s right to capture his share of the minerals over limiting environmental harms.

In recent years, environmental constituencies and landowners are questioning the primacy of capture-based paradigms, instead prioritizing protection of surface and environmental interests.⁴⁸⁹ As a result, environmental activism in administrative proceedings before oil and gas conservation agencies has increased. Concerned citizens, including surface owners and environmental groups, have pushed conservation commissions and legislatures to promulgate new environmental rules and revise oil and gas conservation statutes.⁴⁹⁰ Environmental groups have used citizen petitions and environmental review provisions of procedural statutes to open up conservation agencies and push for greater democratization of oil and gas regulation.⁴⁹¹ As a result, conservation agencies have been forced to reconcile structural conflicts between broad, aspirational directives of protecting health, safety, and public welfare, with specific and historically-entrenched mandates of preventing waste and protecting correlative rights.⁴⁹² These proceedings have rarely overcome agency inertia, instead leading to activism in the courts, at the ballot box,

⁴⁸⁶ See LeRoy C. Paddock, *Green Governance: Building the Competencies Necessary for Effective Environmental Management* 10611 (George Washington University Law School Public Law and Legal Theory Working Paper No. 441, 2008).

⁴⁸⁷ See *supra* notes 80–123 and accompanying text.

⁴⁸⁸ Pierce, *supra* note 5, at 764.

⁴⁸⁹ See *supra* Parts IV and V.

⁴⁹⁰ See *supra* Parts IV and V.

⁴⁹¹ See *supra* Section IV.A.

⁴⁹² *Id.*

and before the legislature.⁴⁹³ Some limited successes in those arenas have created standing for environmental advocates, pushed agencies to initiate rulemaking proceedings, and created new precedents and legislation by which agencies can afford greater consideration for environmental impacts.⁴⁹⁴ The result has transformed conservation agencies and oil and gas conservation law. Oil and gas regulators have emerged as inadvertent—and often reluctant—environmental agencies tasked with conflicting and co-equal policy goals. Without a clear hierarchy and guidance regarding the factors agencies are required to consider and the relative weights between them, these mandates may lead to disparate results, increase litigation regarding agency discretion, and make agencies vulnerable to capture.

There is an opportunity for more intentional environmental regulation by oil and gas agencies in a manner that complements, rather than conflicts, with agencies' traditional purposes of preventing waste and protecting correlative rights. Conservation agencies can accomplish a better balance between efficient development and environmental protection. Legislatures and environmental advocates should consider reforming state oil and gas conservation statutes to empower agencies to protect environmental resources through spacing and pooling, early-stage exploratory unitization, and resource scale planning. Legislatures should also enact laws that encourage participation by social and environmental groups in early siting decisions and the regulation of surface impacts. These changes may encourage private governance solutions to resource-scale problems in a manner that increases total reservoir recoveries and preserves the correlative rights of mineral owners.

⁴⁹³ See *supra* Part IV.

⁴⁹⁴ See *supra* Part V.