2018

Food, Fracking, and Folly

Melissa D. Mortazavi

FOOD, FRACKING, AND FOLLY

Melissa Mortazavi*

ABSTRACT

Few industries in the United States carry the clout and capital of the oil and gas and agricultural sectors. Economic behemoths, their booms and busts shape the destinies of states, define national policy, and secure the life or death of small towns across the United States. Like it or not, the agriculture and oil and gas industries have strong lobbies and vehement and mobilized constituencies.

Recent years have seen both sectors facing public push-back on modern trends in extraction, growth, and methods of production. In response to these developments, these industries have used their considerable political capital to seek new laws that curtail the ability of opposing parties to use state and local legislation or ordinances to interfere with certain industry interests. These industry-specific legal developments are often happening concurrently, at times in states that have both a vibrant agricultural and oil and gas sector.

This article makes several unique contributions. First, it builds on existing administrative legal discourse regarding "regulatory islands," the concept of state to state regulatory isolation, by highlighting an unacknowledged hole in the regulatory fabric: where federal law is silent, intra-state regulatory isolation is equally as harmful as extra-state regulatory islands. Thus, legal and administrative coordination is not only necessary across state lines, but within a state to achieve optimal policy goals. Second, this article describes and analyzes how oil and gas and agriculture function as regulatory battleships (rather than passive islands) within state legal systems—autonomous from federal regulation, isolated, and potentially battering up against each other in a pond of finite resources. Finally, this article is the first to provide three normative administrative frameworks to address the problems of piecemeal regulation in the oil and gas and agriculture context. Ultimately, this article concludes that treating these industries as insular,

---

* Associate Professor of Law, University of Oklahoma College of Law. Thanks to Michael Waters, Taiawagi Helton, Josh Sellers, and Roger Michalski. My gratitude also goes to participants in the 2017 Arizona State University Sustainability Conference of American Legal Educators and the University of Oklahoma College of Law's Junior Scholar's Workshop for their invaluable feedback.

rather than interrelated, is likely to be unsustainable—administratively, environmentally, and economically.

INTRODUCTION

Many Texans have long held the oil and gas industry as dear to their hearts as a prairie range full of feeding cattle.[1]
– Clifford Krauss

Few industries in the United States carry the clout and capital of the oil and gas and agricultural sectors. Economic behemoths, their booms and busts shape the destinies of states, define national policy, and secure the life or death of small towns across the United States.[2] Like it or not, the agriculture and oil and gas industries have strong lobbies and vehement and mobilized constituencies. Recent years have seen both sectors facing public push-back on modern trends in extraction, growth, and methods of production. For agriculture, various concerns over the inputs and outputs in crop and livestock production have led to state-level legal action regarding everything from the terms of animal confinement to the labeling of genetically modified foods. In the oil and gas arena, exceptions and administrative carve-outs in federal environmental legislation facilitating the development of hydraulic fracturing have not eliminated the tide of local attempts to limit its proliferation.

In response to such action, these industries have used their considerable political capital to seek new laws that curtail the ability of opposing parties to use state and local legislation or ordinances to interfere with certain industry interests. For agriculture, these have taken several forms: ag-gag laws that limit the ability of witnesses to report on controversial agricultural practices and, most recently, right to farm constitutional amendments. Oil and gas lobbies have sought legal protection through statutes prohibiting municipalities from outlawing fracking within city limits. These industry-specific legal developments are often happening concurrently, at times in states that have both a vibrant agricultural and oil and gas sector.

There is an emerging economic, legal, and policy showdown potentially pitting agriculture and oil and gas in tension.[3] The problem is that while their

1. Clifford Krauss, *In Texas, a Fight over Fracking*, N.Y. TIMES (Oct. 8, 2014), https://www.nytimes.com/2014/10/09/business/in-texas-a-fight-over-fracking.html (reporting on the first city in Texas to pass a municipal ban on fracking).

2. DANIEL YERGIN, THE PRIZE: THE EPIC QUEST FOR OIL, MONEY & POWER 373–74 (2008).

3. Some municipalities in jurisdictions like North Dakota that have some of the most powerful industry specific legislation on agriculture and extraction are trying to plan for these

environmental impacts and demands are intertwined, both oil and gas and agriculture exist on their own islands of substantive law—relatively untethered to federal law, and regulated and legislated under state law in the industry specifically. As land and other resources are dually burdened by these demanding, and at times increasingly incompatible uses, the application of one set of legal protections may overlap with the application of the other. Because oil and gas and agriculture rely on the immutable characteristics of land, overlapping inputs, and often function in the same regions, concurrent use has its limits. Industry-specific protections for one industry may create conflicts with protection or development of the other. Treating these industries as insular, rather than interrelated, is likely to be unsustainable—environmentally, economically, and socially.

This article makes three unique contributions. First, it builds on existing administrative legal discourse regarding "regulatory islands,"[4] by highlighting an unacknowledged hole in the regulatory fabric: where federal law is silent, intra-state regulatory isolation is equally as harmful as extra-state regulatory islands. Thus, legal and administrative coordination necessary not only across state lines, but within a state to achieve optimal policy goals. Second, this article describes and analyzes how oil and gas and agriculture function as regulatory battleships (rather than passive islands) within state legal systems—autonomous from federal regulation, isolated, and potentially collide in a pond of finite resources.[5] Finally, this article is the first to provide three distinct normative administrative frameworks to address the problems of piecemeal regulation in the oil and gas and farming context.

This article proceeds in three parts: Part I catalogs some of the most unique federal and state law governing oil and gas and agriculture. Part II explores emerging tensions between these industries by outlining trends in modern farming and extraction technology and state-level legislative responses to

---

contingencies. *See* 2025 MCKENZIE COUNTY COMPREHENSIVE PLAN (2016), http://planmckenzie.com/wp-content/uploads/2016/06/McKenzieCountyComprehensivePlan_FINAL-1.pdf (opting to deliberately weigh how to safeguard drinking waters, zoning, and natural gas and oil extraction interests).

4. Administrative legal scholarship discusses the phenomenon of "regulatory islands" as when different jurisdictions fail to communicate legal developments across state lines, thereby limiting their utility and impact. *See* Hannah J. Wiseman, *Regulatory Islands*, 89 N.Y.U. L. REV. 1661, 1663 (2014). This paper explores when overlapping regulatory ambits within a state fail to communicate effectively.

5. Claudia Hitaj, Andrew Boslett & Jeremy G. Weber, *Shale Development and Agriculture*, 29 CHOICES, no. 4, 2014 at 1, http://ageconsearch.umn.edu/bitstream/190819/2/cmsarticle_399.pdf ("Shale formations rich in oil and gas cover parts of many agriculturally rich states. Since farmers own or operate more than half of the non-urban land in the 48 lower states, the potential for oil and gas drilling to affect the well-being of farmers and the profitability of their farms is high.") (citations omitted).

these innovations. Doing so reveals increased tension between oil and gas and agricultural land development arising from technological innovation. New extraction technologies, such as hydraulic fracturing (colloquially known as "fracking"), coupled with the proliferation of genetically modified foods and the inflexibility inherent in monoculture farming, fundamentally changes the ability to engage in coterminous use. Finally, in Part III the article discusses solutions, drawing upon existing federal and state programs to outline three potential administrative systems that could minimize unnecessary clashes: a natural resource model, a land-based model, and a private rights-based model. The allocation of concurrent resources and creation of a long-term strategy for sustainable development *ex ante*, rather than *ex post*, is necessary for states that produce both food and gas. This article ultimately concludes that only by creating legal systems that anticipate and moderate against the dangers of these regulatory battleships can states make reasoned decisions, sustainable policy, and good law serving their best interests—whatever a state might define those interests to be.

I. A TALE OF TWO EXCEPTIONS: AGRICULTURE AND OIL

The oil and gas and agriculture industries each enjoy a privileged place in American law. Seen as integral to the development of both the nation and the economies of individual states, these industries receive exceptional treatment under both Federal and state law that allows them to develop, insulated from certain negative externalities and market fluctuations. This Part outlines briefly vital attributes of oil and gas and agricultural exceptionalism as a legal phenomenon, highlighting significant departures from broadly applicable federal legislation and regulation. Throughout this Part, it should become clear that each sector has a strong claim to being treated differently and even preferentially. This sets up an inevitable conflict in Part II: what happens when the two favored industries vie against one another for finite resources?

A. Federal Legal Protections for Oil & Gas

With the notable exceptions of antitrust enforcement and the regulation of interstate pipelines, federal law regarding oil and gas has generally ceded primary regulatory authority over oil and gas to the states.[6] However,

6. NATHAN RICHARDSON ET AL., RESOURCES FOR THE FUTURE, THE STATE OF STATE SHALE GAS REGULATION 1–2 (2013), http://www.rff.org/files/sharepoint/WorkImages/Download/RFF-Rpt-StateofStateRegs_Report.pdf.

maintaining this freedom from federal oversight has required effort—federal law has developed to exclude the oil and gas industry from requirements to which other industrial actors are subject—most recently, modifying general environmental laws to exclude new extraction byproducts.[7]

The Clean Air Act (CAA) requires that any major source of hazardous pollutants must abide by the National Emission Standards for Hazardous Air Pollutants.[8] Section 112 of the CAA regulates over 150 toxic air pollutants including, at least facially, those emitted by oil and gas companies.[9] The general definition of a major source provides that, "[m]ajor source means any stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit considering controls" in the aggregate, at least 10 tons each year of a single hazardous air pollutant ("HAP") or 25 tons or more annually of any combination of HAPs.[10] However, the Environmental Protection Agency (EPA) departed from this general definition when it determined that it would not aggregate emissions from oil and gas exploration, production wells, or pipeline compressors, even in contiguous areas, to determine whether the site was a major source of pollution.[11] By defining oil and gas as outside conventional aggregation rules, oil and gas facilities typically fall below the prescribed level of toxicity. As such, much of these industries' activities are de facto deregulated as a product of administrative interpretation of the statute's "major source" requirements.[12]

---

7. Energy Policy Act of 2005, 42 U.S.C. § 15801 (2012). It is worthwhile to note that some environmental laws, such as the Endangered Species Act, do not contain exemptions for oil or agriculture. *See* Federal Endangered Species Act, 16 U.S.C. § 1538(a) (2012) (prohibiting harming listed endangered species).

8. 42 U.S.C. §§ 7401–7671q (2012), *amended by* Clean Air Act Amendments of 1990, Pub. L. No. 101-549, 104 Stat. 2399.

9. *Id.* § 7412(a)(6); § 7412(b).

10. 40 C.F.R. § 63.2 (2018).

11. *Id.* § 63.761 ("Emissions from any oil or gas exploration or production well (with its associated equipment, as defined in this section), and emissions from any pipeline compressor station or pump station shall not be aggregated with emissions from other similar units to determine whether such emission points or stations are major sources, even when emission points are in a contiguous area or under common control; (2) Emissions from processes, operations, or equipment that are not part of the same facility, as defined in this section, shall not be aggregated . . . .")). It is worth noting that the regulation does allow some small amount of aggregation in part 3: "For facilities that are production field facilities, only HAP emissions from glycol dehydration units and storage vessels shall be aggregated for a major source determination. For facilities that are not production field facilities, HAP emissions from all HAP emission units shall be aggregated for a major source determination." *Id.*

12. *Id.*

Oil and gas also enjoys an exceptional position in relation to federal water quality law. Two principal laws govern here: the Safe Drinking Water Act (SDWA), which generally pertains to underground water,[13] and the Clean Water Act (CWA), which governs discharges into surface waters.[14] The SDWA regulates public water systems[15] and subterranean injection of fluids through permitting.[16] Once a state establishes an underground inspection program which inspects and monitors fluid injection to ensure safe underground sources of drinking water, states are left to issue permits and enforce minimum requirements.[17] The Eleventh Circuit invalidated the EPA's attempts to exclude fracking from the clear statutory language regarding injection wells in the late 1990s.[18] However, a 2004 EPA study concluded that hydraulic fracturing fluid in coal beds posed little threat to underground water, allowing for easing of federal restrictions and the proliferation of the modern fracking industry.[19] The Energy Policy Act of 2005[20] amended the Safe Drinking Water Act's Underground Injection Controls to exclude hydraulic fracturing from regulation as injection wells, except when diesel is used.[21] Since injection wells traditionally have been subject to oversight, this exception is significant.

Leaving aside injection risks, the threat of flow back and wastewater containment issues from hydraulic fracturing has been a source of increasing public concern as a surface water issue.[22] Since these are surface issues the applicable statutory lens is the CWA. However, its utility is limited in relation

13. Safe Drinking Water Act, Pub. L. No. 93-523, § 2(A), 88 Stat. 1660, 1660–93 (1974) (codified as amended at 42 U.S.C. §§ 300f–300j (2012)).

14. Clean Water Act of 1977, Pub. L. No. 95-217, 91 Stat. 1566 (codified as amended in scattered sections of 33 U.S.C.).

15. *See* 42 U.S.C. §§ 300g to -9 (2012).

16. *Id.* § 300h(b)(1)(A).

17. *Id.* § 300h(b)(1)(B)–(C). The EPA's regulations regarding state UIC programs can be found at 40 C.F.R. §§ 145.1–145.58 (2018).

18. Legal Envtl. Assistance Found. v. EPA, 118 F.3d 1467, 1475 (11th Cir. 1997).

19. U.S. ENVTL. PROT. AGENCY, EPA 816-R-04-003, EVALUATION OF IMPACTS TO UNDERGROUND SOURCES OF DRINKING WATER BY HYDRAULIC FRACTURING OF COALBED METHANE RESERVOIRS, at ES-1 (2004).

20. 42 U.S.C. § 15801 (2012).

21. *Id.* § 300h(d)(1)(B)(ii) (2012).

22. Ian Urbina, *Regulation Lax as Gas Wells' Tainted Water Hits Rivers*, N.Y. TIMES (Feb. 26, 2011), http://www.nytimes.com/2011/02/27/us/27gas.html?pagewanted=all; Ian Urbina, *Wastewater Recycling No Cure-All in Gas Process*, N.Y. TIMES (Mar. 1, 2011), http://www.nytimes.com/2011/03/02/us/02gas.html; Ian Urbina, *Pressure Limits Efforts to Police Drilling for Gas*, N.Y. TIMES (Mar. 3, 2011), http://www.nytimes.com/2011/03/04/us/04gas.html.

to oil and gas.[23] In 1972, Congress enacted the CWA "to restore and maintain the chemical, physical, and biological integrity of the nation's waters."[24] The CWA prohibits the "discharge of any pollutant by any person" into the waters of the United States and puts in place the National Pollutant Discharge Elimination System ("NPDES") to oversee, under prescribed conditions, the safe discharge of pollutants where possible.[25] The Act requires the EPA to regulate point sources of pollution and to develop a permitting program for storm water runoff.[26] Other legislation working in tandem with the Act largely exempted oil and gas exploration, production, processing or treatment operations, and transmission facilities from statutory storm water discharge requirements.[27] However, oil and gas construction facilities remained under the EPA's charge,[28] and there are certain areas that still fall under limited regulation.

Oil and gas exploration's waste byproducts are also largely exempt from major toxic substances acts. The most comprehensive legislation in this area is the Resource Conservation and Recovery Act (RCRA), which sets standards for disclosure and safety in handling hazardous waste. However, since the late 1980s, the EPA and Congress have agreed that the RCRA's requirements do not apply to hazardous oil and gas wastes.[29] This includes wastes associated with primary exploration and production such as produced waters, drilling fluids, and other byproducts.[30] The EPA subsequently chose not to promulgate any regulations of oil and gas waste, citing a lack of

---

23. 40 C.F.R. §§ 435.30, 435.50, 435.52 (2018) (placing limits on oil and gas waste disposal); Oil and Natural Gas Sector: New Source Performance Standards and National Emission Standards for Hazardous Air Pollutants Reviews, 77 Fed. Reg. 49,490, 49,492 (Aug. 16, 2012) (codified at 40 C.F.R. pts. 60, 63) (placing limits on air pollutant emissions from fractured and re-fractured wells).

24. 33 U.S.C. § 1251(a) (2012).

25. *Id.* §§ 1231–1387.

26. *Id.* U.S.C. §§ 1342–44.

27. 42 U.S.C. § 300h (2012) (showing SDWA requirements that other injectors must meet); *id.* § 300h(d)(1) (clarifying that hydraulic fracturing does not count as "underground injection" under the Safe Drinking Water Act and thus is not regulated by the Act); Energy Policy Act of 2005, Pub. L. No. 109-58, § 1(a), 119 Stat. 594, 594; Regulatory Determination for Oil and Gas and Geothermal Exploration, Development and Production Wastes, 53 Fed. Reg. 25,446, 25,446 (July 6, 1988), http://epa.gov/osw/nonhaz/industrial/special/oil/og88wp.pdf (exempting oil and gas "exploration and production wastes," even some that have toxic qualities, from federal hazardous waste regulation).

28. It is worth noting that in 2006, the EPA unsuccessfully attempted to promulgate regulations also exempting oil and gas in the construction context, but was overturned on judicial review. *See* Nat. Res. Def. Council v. EPA, 526 F.3d 591, 600 (9th Cir. 2008).

29. 42 U.S.C. § 6921(b)(2)(A) (2012).

30. *Id.*

flexibility to counter economic impacts on the industry as well as the adequacy of other state and federal regulations.[31] This is not to say all wastes are exempted, as painting wastes, waste solvents, unused fracturing fluids or acids, and used equipment lubrication oils remain regulated,[32] as does waste that meets certain technical requirements.[33]

Another landmark piece of legislation that treats oil and gas differently than other industrial actors is the National Environmental Policy Act (NEPA).[34] Enacted in 1969, NEPA generally requires that federal agencies and parties receiving federal funds conduct environmental assessment and impact statements before engaging in proposed action.[35] However, the statute exempts certain oil and gas drilling activities from the general requirement to conduct environmental impact statements (EIS) for private mineral exploration.[36] The primary exemption to NEPA, enacted by Congress more than thirty-five years later in the 2005 Energy Act, effectively shifts the burden of proof to the public to prove that oil and gas drilling activities would be unsafe.[37]

Despite general requirements excusing the industry from conducting a NEPA assessment before engaging in hydraulic fracturing, NEPA's environmental impact statement (EIS) requirements do apply to federal agencies, specifically, U.S. Forest Service, the Bureau of Land Management (BLM), and the Bureau of Ocean Energy (BOE).[38] As a result, mineral exploration on public lands is subject to a case by case consideration of proposed projects. In this context, in 2006 and 2007, the BLM also granted case by case EIS requirement exemptions to about twenty-five percent of all wells approved on public land in the West.[39]

---

31. Regulatory Determination for Oil and Gas and Geothermal Exploration, Development and Production Wastes, 53 Fed. Reg. at 25,447.

32. 40 C.F.R. §§ 261.30–261.35 (2018).

33. *Id.* §§ 261.20–261.24.

34. 42 U.S.C. §§ 4321–4347 (2012).

35. *Id.*

36. *Id.* § 4370m.

37. Energy Policy Act of 2005, Pub. L. No. 109-58, § 390, 119 Stat. 594, 747–48 (codified as amended at 42 U.S.C. § 15942 (2012)) (creating a "rebuttable presumption" that several oil and gas related activities are to be analyzed and processed by the Interior and Agricultural Departments under a less stringent process known as a "categorical exclusion" (CatEx)). For further discussion of the CatEx distinction, see 40 C.F.R. § 1508.4 (2018).

38. National Environmental Policy Act of 1969, 42 U.S.C. § 4332 (2012).

39. U.S. DEP'T OF THE INTERIOR, BUREAU OF LAND MGMT., BUDGET JUSTIFICATIONS AND PERFORMANCE INFORMATION FISCAL YEAR 2009, at III-195 (2008), https://www.doi.gov/sites/doi.opengov.ibmcloud.com/files/uploads/FY2009_BLM_Greenbook_Part2.pdf.

B. Agricultural Exceptionalism and Federal Law

Since the time of the founders when Thomas Jefferson extolled the yeoman farmer as "the most valuable citizen[],"[40] agriculture has held a special position in the American political psyche.[41] These ideals of the farmer's virtue and role in democratic society coupled with the argument that food is exceptional because of its essential nature to human existence has facilitated the development of law in this area in a unique direction.[42] Because of its life sustaining character, agricultural independence is not only a key component of national security, but of global stability.[43] The agricultural sector, over time, has not only developed a unique set of negative rights vis a vis government action (exemptions preventing the applicability of generally pertinent law) but also an unusual set of affirmative protections from market fluctuations.[44]

These developments are a product of historical moments in American history. Modern American agricultural law is best understood as developing in roughly three phases, closely hemming to the trajectory of the country as a whole.[45] The first phase, land acquisition and redistribution, established a broad geographic basis for American farming predominately through Western expansion and the Homestead Act.[46] Second, an increased interest in industrialization led to the development of farm efficiency through public education programs.[47] The policy impetus here was to support industrial

---

40. Letter from Thomas Jefferson to John Jay (Aug. 23, 1785) (on file with the Yale Law School Library), http://avalon.law.yale.edu/18th_century/let32.asp (continuing to enumerate that farmers are "the most vigorous, the most independent, the most virtuous, and they are tied to their country and wedded to its liberty and interests by the most lasting bonds").

41. *See* Richard S. Kirkendall, *Up to Now: A History of American Agriculture from Jefferson to Revolution to Crisis*, 4 AGRIC. & HUM. VALUES 4, 4–5 (1987).

42. *See* Susan A. Schneider, *A Reconsideration of Agricultural Law: A Call for the Law of Food, Farming, and Sustainability*, 34 WM. & MARY ENVTL. L. & POL'Y REV. 935, 935 (2010).

43. *National Security*, HOUSE COMM. ON AGRIC., https://agriculture.house.gov/issues/issue/?IssueID=14890 (last visited Mar. 5, 2018) ("Both domestic nutrition assistance and global emergency food aid—all are an integral part of ensuring global stability and security, including our own national security. A nation that can feed itself while helping others around the world is inherently more secure.").

44. MICHAEL ROBERTS, FOOD LAW IN THE UNITED STATES 57 (2016).

45. ANNE B.W. EFFLAND, U.S. DEP'T OF AGRIC. SERV.: U.S. FARM POLICY: THE FIRST 200 YEARS 21 (2000), http://www.farmlandinfo.org/sites/default/files/US_Farm_Policy_March_2000_1.pdf.

46. *See* The Homestead Act, ch. 75, 12 Stat. 392 (1862).

47. EFFLAND, *supra* note 45, at 23 ("Improving the productivity of [agriculture] would support the development of other industries, by releasing labor for emerging factories, and by providing food and fiber for the increasing urban population . . . ."). For specific legislation supporting increased efficiency in agriculture, see Smith-Lever Act of 1914, 7 U.S.C § 341 (2012)

growth by increasing farm efficiency, thereby freeing farm laborers to take up industrial jobs. However, efficiency led to problems of overproduction, ushering in the final major catalyst for modern agricultural law: the market crash of the Great Depression.[48] American law grew accordingly, sheltering the agricultural sector from crushing market forces by using public support systems to buoy faltering farm economies.[49] Much of current agricultural law can trace its origins back to these New Deal programs, dually aimed at addressing poverty and hunger, as well as increasing the economic vitality of the farm sector.[50] Today's agricultural law, particularly at the federal level, is a combination of distinctive exclusions from regulations seeking to internalize negative externalities and affirmative supports providing insulation from other market impacts.[51]

a. Federal Affirmative Support Programs

Perhaps the most unusual aspect of agricultural law is the level of administrative support allocated to stabilize farm markets and minimize economic risk to farmers. Although direct payments to farmers were eliminated in the 2014 farm bill, many economic support mechanisms persist, particularly for favored commodity crops such as soy, corn, and sorghum.[52]

("[I]n order to aid in diffusing among the people of the United States useful and practical information on subjects relating to agriculture . . . there may be . . . inaugurated . . . agricultural extension work . . . .").

48. *See, e.g.*, Allen H. Olson, *Federal Farm Programs: Past, Present, and Future*, 6 GREAT PLAINS NAT. RESOURCES J. 1, 2–3 (2001).

49. *See* Agricultural Adjustment Act of 1933, Pub. L. No. 73-10, § 2, 48 Stat. 31, 32 (current version at 7 U.S.C. § 603 (2012)) ("[T]o establish and maintain such orderly marketing conditions for agricultural commodities . . . as will establish, as the prices to farmers that will give agricultural commodities a purchasing power . . . equivalent to the purchasing power of agricultural commodities in the [prewar] period . . . .").

50. See, for example, the school meal program, created in the 1930s to "safeguard the health and well-being of all the nation's schoolchildren . . . and to encourage the domestic consumption of the nation's agricultural commodities." Donald T. Kramer, Annotation, *Construction and Application of National School Lunch Act and Child Nutrition Act of 1966*, 14 A.L.R. Fed. 634, 636–37 (1973).

51. *See, e.g.*, Susan A. Schneider, *A Reconsideration of Agricultural Law*, 34 WM. & MARY ENVTL. L. & POL'Y REV. 935, 935–36 (2010).

52. *See* DENNIS A. SHIELDS, CONG. RESEARCH SERV., R43448 1–3, FARM COMMODITY PROVISIONS IN THE 2014 FARM BILL (P.L. 113-79) 1–3 (2014), http://nationalaglawcenter.org/wp-content/uploads/assets/crs/R43448.pdf (outlining 2014 revisions away from direct payments in favor of augmenting price support programs and insurance coverage); *Agricultural Act of 2014: Highlights and Implications: Crop Commodity Programs*, U.S. DEP'T OF AGRIC., https://www.ers.usda.gov/agricultural-act-of-2014-highlights-and-implications/crop-commodity-programs/ (last visited May 19, 2018) (listing the fourteen covered commodity crops

These take many forms, including price and income support programs, surplus purchase programs, various crop insurance offerings, as well as farm financing.[53]

Currently the two dominant price and income support programs, Price Loss Coverage (PLC) and Agriculture Risk Coverage (ARC), allow covered commodity growers to recover in the event that their crop fails to reach a certain reference price or when their revenue is below the county average or their own over the previous five years.[54] Agricultural surplus programs couple with price supports to maintain favorable pricing to farmers by giving the Secretary of Agriculture the ability to buy up excess crops to stabilize market prices.[55] Various federal programs also insulate farmers from risk due to unforeseeable losses in the form of insurance.[56] Federally underwritten insurance programs limit economic losses to farmers from crop damage due to meteorological or biological catastrophe or global price fluctuations.[57]

Farming as a sector is highly leveraged, therefore, the availability of farm financing programs plays a key role in the American agricultural economy. The federal government underwrites farm loans for everything from equipment to land itself. Some farm financing specifically provides for interim financing for recurring cash flow issues that tend to arise in conjunction with the time delay between planting, harvest, and sale.[58]

In addition to these immediate-impact economic programs, the USDA runs numerous smaller programs that target rural development, research, conservation, and education.[59] These programs seek to increase income predictability and the quality of rural life as well as to create buffers from harsh domestic and international market realities.

---

with reference prices, and outlining 2014 revisions away from direct payments in favor of augmenting price support programs and insurance coverage).

53. *Id.*

54. *See Preface* to SHIELDS, *supra* note 52 (noting that this is a departure from the past when payment would be triggered by losses on the state level rather than the individual or county level).

55. Agricultural Adjustment Act of 1935, 7 U.S.C. § 612c (2012) (authorizing the equivalent of thirty percent of annual customs receipts to support the farm sector through a variety of activities, including bonus purchases); Agricultural Act of 1949, 7 U.S.C. § 1431 (2012) (permitting the donation of food commodities by the USDA to school lunch programs).

56. *See* 7 U.S.C. §§ 1501–1524 (2012).

57. *Id.*

58. For example, Marketing Assistance Loans (MALs), which can be paid as loan deficiency payments, are available as interim financing during times of cash flow deficiency (like harvest) in the event a loan commodity's prices fall before statutorily prescribed loan rates. *See Commodity Loans*, U.S. DEP'T OF AGRIC., https://www.fsa.usda.gov/programs-and-services/price-support/commodity-loans/index (last visited May 19, 2018).

59. *See All Programs*, U.S. DEP'T OF AGRIC., https://www.rd.usda.gov/programs-services/all-programs (last visited May 19, 2018).

b. Negative Rights Through Exemptions in Regulation

In the category of exemptions, agriculture's special treatment under environmental law has led some scholars to term it an arena of environmental "anti-law."[60] However, the patchy applicability of administrative law to the agricultural sector also extends to labor, bankruptcy, and even tax. Such treatments are summarized in brief in the section below.

1. Environmental Law

Agricultural exceptionalism extends to virtually every area of environmental regulation: water, air, and toxic substances. This is true, even though it is predictable that excess fertilizer and pesticide applied to crops and soil would be dispersed in the air or find its way into water runoff. When the Clean Water Act was enacted, the EPA realized that it would have to permit typical agricultural water uses as an exception to the unlawful discharge of dredged or fill material into the waters of the United States.[61] As such, the EPA attempted to promulgate a rule excepting agricultural waste, despite unambiguous statutory language to the contrary.[62] In *NRDC v. Costle*, the D.C. Circuit Court struck down this administrative rule, [63] but Congress countered by writing the exemption into the statute itself, revising the definition of "point source" to exclude "return flows from irrigated agriculture"[64] and "agricultural storm water discharges."[65] Moreover, the structure of the CWA limits regulation to point sources and neglects a discrete plan for oversight of non-point sources of pollution impacts, a large safe harbor within the law itself. Non-point source pollution generally falls outside of the ambit of regulation.[66] In addition, dredge and fill exemptions

60. *See* J.B. Ruhl, *Farms, Their Environmental Harms, and Environmental Law*, 27 ECOLOGY L.Q. 263, 293 (2000).

61. *Clean Water Act Section 404 and Agriculture*, U.S. ENVTL. PROTECTION AGENCY, https://www.epa.gov/cwa-404/clean-water-act-section-404-and-agriculture (last visited Feb. 22, 2018).

62. 40 C.F.R. § 124.11 (2018) (stating that the following do not require an NPES permit: "Discharges of pollutants from agricultural activities, including irrigation flow and runoff from orchards, cultivated crops, pastures, rangelands, and forest lands"). This provision retained the ability to regulate concentrated feed operations. *Id.*

63. 68 F.2d 1369 (1977).

64. 33 U.S.C. § 1362(14) (2012).

65. *Id.*

66. George A. Gould, *Agriculture, Nonpoint Source Pollution, and Federal Law*, 23 U.C. DAVIS L. REV. 461, 462 (1990).

for "planting, seeding, cultivating, minor drainage, [and] harvesting for production"[67] protect the agricultural industry from these requirements.[68]

In addition to the limited applicability of water regulations to agriculture, the scope of the Clean Air Act (CAA) often fails to encompass agricultural emissions. The CAA regulates "major sources" to air pollution emitting more than threshold quantities of regulated criteria pollutants through setting National Ambient Air Quality Standards (NAAQS) as well as toxic substances as Hazardous Air Pollutants (HAPs). A "major source" of hazardous pollution is defined as "any stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit considering controls, in the aggregate, 10 tons per year or more of any hazardous air pollutant or 25 tons per year or more of any combination of hazardous air pollutants."[69] The statute defines a stationary source as, "any building, structure, facility, or installation which emits or may emit any air pollutant."[70] Because farms are not viewed as facilities, this definition gives farms safe harbors for air pollution as farm emissions originate from livestock and the heavy use of fertilizers.[71] Excluding farms as major sources under the Act is particularly problematic given the scale in which agriculture impacts air quality. Methane emissions, predominantly from livestock emissions or manure management, account for thirty-one percent of Methane produced in the United States—exceeding Methane emissions from oil and gas combined.[72]

Thus, with agrochemical and toxic waste largely excluded from both the CWA and CAA, remaining environmental general regulations, such as the

---

67. 33 U.S.C. § 1344(f)(1)(A) (2012).

68. This ultimately leaves the chief vehicle for regulating agricultural waste as the Total Daily Maximum Load (TDML) program pursuant to Section 303(d) of the CWA. 33 U.S.C. § 1313(d) (2012). This system seeks to incentivize states to regulate non-point sources by having states identify the TDML of pollutants a body of water can handle and regulate all sources (including non-point sources) to meet the pollutant standard. Moreover, this places additional burdens on point-source permitees where water quality standards are violated.

69. 42 U.S.C. § 7412 (2012). Major sources of criteria pollutants governed by NAAQS are defined similarly with the exception of a 100 tons per year threshold. 42 U.S.C. § 7602(j)[302j].

70. *Id.* § 7411(a)(3).

71. *See A Major Source of Air Pollution: Farms*, EARTH INST. COLUM. UNIV. (May 16, 2016), http://www.earthinstitute.columbia.edu/articles/view/3281 (discussing emerging studies indicating that farms "outweigh all other human sources of fine-particulate air pollution in the United States. . . ."); Kathryn Hansen, *Research Clarifies Health Costs of Air Pollution*, NASA (Mar. 28, 2014), https://www.nasa.gov/content/goddard/research-clarifies-health-costs-of-air-pollution-from-agriculture/ (discussing the detrimental impacts of how ammonia "interacts in the atmosphere to form harmful particulate matter").

72. *Overview of Greenhouse Gases: Methane Emissions*, U.S. ENVTL. PROT. AGENCY (last visited Feb. 23, 2018), https://www.epa.gov/ghgemissions/overview-greenhouse-gases#methane.

Resource Conservation and Recovery Act (RCRA) and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, also known as "Superfund") might be expected to provide needed coverage. To the contrary, the structure of the Federal Insecticide Fungicide and Rodenticide Act (FIFRA)—the regulatory structure that is most active in the agricultural space—provides an additional shield from RCRA or CERCLA regulation. Under FIFRA, pesticides need only be registered with the EPA, recorded, and applied according to their directions in order to meet statutory expectations.[73] Thus, RCRA ends up predominately applying only to excess motor oil used on farms, as waste pesticide is exempt from regular RCRA regulations, so long as empty containers are rinsed and pesticides are disposed of according to the FIFRA-regulated label.[74] FIFRA requirements also insulate pesticides from Superfund regulation, as there are no reporting requirements for the application of any FIFRA registered fertilizer.[75] CERCLA's definition of what constitutes a relevant "release" of chemicals also explicitly excludes the "normal application of fertilizer."[76]

2. Commercial and Labor Law

Agriculture also receives special treatment under business regulations including bankruptcy, antitrust, and labor laws. The bankruptcy code carves out a unique niche for farm interests, allowing increased flexibility in the discharge of certain farm debt.[77] In 1914, concerned with the lack of leverage individual farmers had in relation to agricultural buyers, Congress amended key antitrust legislation to create a special provision for food producers.[78] A powerful, but limited, exemption from antitrust laws in the Capper-Volstead Act affords antitrust immunity to "farmers, planters, ranchmen, dairymen, nut or fruit growers" who act in a concerted manner through a corporation (or otherwise) to process, prepare, and market goods.[79] Courts have found that

73. 7 U.S.C. § 136(e)(1) (2012). However, there are no soil testing or runoff targets required, essentially leaving the actual impact of pesticides on soil ecology unregulated given long-term build-up and runoff issues.

74. 40 C.F.R. §§ 261.4, 262.70 (2018).

75. 42 U.S.C. § 9603(e) (2012).

76. *Id.* § 9601(22)(d).

77. 11 U.S.C. §§ 1201–1231 (2012).

78. Clayton Antitrust Act of 1914, Pub. L. No. 63-212, § 6, 38 Stat. 731 (codified as amended at 15 U.S.C. § 17 (2012)); Md. & Va. Milk Producers Ass'n v. United States, 362 U.S. 458, 464–65 (1960).

79. 7 U.S.C. §§ 291–292 (2012) (setting forth terms of the formation of agricultural associations and procedures for review by the Secretary of Agriculture). If one member of the cooperative is not an eligible party enumerated under the Act, that will forfeit the coop's claim to

such organizations can engage not only in collective marketing but also price fixing without falling outside of the ambit of this key exemption.[80] Given the scale and consolidation of agribusiness, some argue that such exceptions have swallowed the whole, noting that some such cooperatives, like Land O'Lakes, gross over $12 billion annually.[81] Given recent mergers between biotechnology and pharmaceutical behemoths Monsanto and Bayer, antitrust applicability in the farm space is an increasingly pressing issue for the agricultural economy.[82]

Finally, perhaps the greatest sphere of deregulation is in employment structures, where farm labor is explicitly omitted from minimum wage requirements, the right to collective bargain, and overtime pay under federal law.[83] The Fair Labor Standards Act (FLSA),[84] which outlines minimum wage and overtime pay and restrictions on child labor, discharges five different types of agricultural labor from its legal protections (in addition to the fact that the Act does not cover independent contractors generally).[85] This includes provisions specifically allowing children to work in agricultural settings at earlier ages than in other sectors not limited to their own family farm.[86] The National Labor Relations Act (NLRA) applies to employees, but

---

an exemption. *See* Nat'l Broiler Mktg. Ass'n v. United States, 436 U.S. 816, 822–23 (1978); *In re* Mushroom Direct Purchaser Antitrust Litig., 621 F. Supp. 2d 274, 286 (E.D. Pa. 2009).

80. SECTION OF ANTITRUST LAW, AM. BAR ASS'N, ANTITRUST LAW DEVELOPMENTS 1249 n.28 (5th ed. 2002) ("[T]he Federal Trade Commission and the Ninth Circuit have ruled that the activity of a cooperative that was formed and operated solely for the purpose of setting prices for its members' products was protected from attack under Section 1 of the Sherman Act." (citing N. Cal. Supermarkets v. Cent. Cal. Lettuce Producers Coop., 580 F.2d 369 (9th Cir. 1978))).

81. Kenneth R. O'Rourke & Andrew Frackman, *The Capper-Volstead Act Exemption and Supply Restraints in Agricultural Antitrust Actions*, 19 COMPETITION 69, 71 (2010).

82. *See* Liz Crampton, *Farmers, Environmentalists Push U.S. to Stop Bayer-Monsanto*, BLOOMBERG (July 7, 2017), https://www.bna.com/farmers-environmentalists-push-n73014461386/ (reporting on concerns over impacts on innovation if Bayer/Monsanto merger received Department of Justice antitrust approval); Drew Hartwell, *Bayer and Monsanto to Merge in Mega-Deal that Could Reshape World's Food Supply*, WASH. POST (Sept. 16, 2016), https://www.washingtonpost.com/news/business/wp/2016/09/14/bayer-and-monsanto-merge-in-mega-deal-aimed-at-domi-worlds-food-supply/?utm_term=.1d1f31551424 (discussing how $66 billion deal would consolidate global seed and pesticide markets).

83. SUSAN A. SCHNEIDER, FOOD, FARMING, AND SUSTAINABILITY 373, 386–89 (2d ed. 2016).

84. 7 U.S.C. §§ 201–219.

85. SCHNEIDER, *supra* note 83, at 387–91.

86. 29 U.S.C. § 213(c)(1)(A)–(C) (2012); WAGE & HOUR DIV., U.S. DEP'T OF LABOR, FACT SHEET #40: OVERVIEW OF YOUTH EMPLOYMENT (CHILD LABOR) PROVISIONS OF THE FAIR LABOR STANDARDS ACT (FLSA) FOR AGRICULTURAL OCCUPATIONS 1 (2016), https://www.dol.gov/whd/regs/compliance/whdfs40.pdf ("Youths of any age may work at any time in any job on a farm owned or operated by their parents."); *see also* Jack Healy, *5-Year-Olds Work Farm Machinery, and Injuries Follow*, N.Y. TIMES (Jan. 29, 2018),

defines employees to exclude "any individual employed as an agricultural laborer."[87] Therefore, agricultural workers lack the legal right to unionize under federal law and engage in collective bargaining with employers. Simply put, rights granted to other workers as protections from unfair labor practices do not apply to farm laborers.

II. CLASH OF THE TITANS? EMERGING TENSIONS

Part I set forth some of the major limitations of federal law where oil and gas and agriculture enjoy special privileges and exclusions. Part II now explores how the changing nature of extraction and farm production couples with new state-level legal responses to increase conflict between these two titans of industry in the years to come.

A. The New World of Farming: Food, Feed & Fuel

Gone are the days of diverse bucolic farms that retain seed from year to year and raise crops and feed for animals who, in turn, fertilize the ground. Rather, today's dominant "conventional" farming is a monoculture model that feed, fertilizer, and seed are all produced and purchased externally.[88] Since the 1980s, the use of genetically modified seed has grown to the point where it now dominates the domestic market.[89] The economically successful farmer today is a specialist, growing a few crops or raising one type of animal in a highly vertically integrated livestock practice. [90]

This specialization leads to the purchase of crop-specific farm equipment or infrastructure tailored to certain tasks: such purchases might take the form of an expensive chicken house for raising 25,000 to 40,000 chickens, or massive combines suited to row crops. Thus, as a general matter, monoculture

---

https://www.nytimes.com/2018/01/29/us/family-farms-child-workers.html (discussing child welfare and omissions in farm labor standards).

87. 29 U.S.C. § 152(3) (2012).

88. *See* Paul Hollis, *Purchased Inputs Increase Farming Risk*, SE. FARMPRESS (Mar. 24, 2004), http://www.southeastfarmpress.com/purchased-inputs-increase-farming-risk.

89. G.C. Rótolo et al., *Time to Re-think the GMO Revolution in Agriculture*, 26 ECOLOGICAL INFORMATICS 35, 36 (2015) ("High investments in transgenic variety development techniques, producing seed generally identified as GMOs, presently dominate commercial plant breeding . . . .").

90. *See* Econ. Research Serv., *Farming and Farm Income*, U.S. DEP'T OF AGRIC., https://www.ers.usda.gov/data-products/ag-and-food-statistics-charting-the-essentials/farming-and-farm-income/ (last updated Feb. 7, 2018) ("Agricultural production in the 21st century . . . is concentrated on a small number of large, specialized farms . . . .").

production marries producers to their product and others in the supply chain in a way that lacks the flexibility of a more diversified farm structure. The ability to change from one type of crop to another from one growing season to the next, or between crops and livestock is increasingly rare. Various federal farm programs decrease the risk associated with the singular approach by minimizing potential financial repercussions of poor crops.[91]

It is worthwhile to note that scientific advances have led also to agriculture's potential to directly compete with extraction as an energy producer in the form of biofuels like ethanol.[92] While currently ethanol is not an economically efficient alternative to conventional oil and gas, increased research, genetic engineering, and technological advances may make it possible in the near future for biomass to provide direct competition to fossil fuel industry.[93] Even in the current fuel market, biofuels make up a growing percentage of U.S. fuel consumption and are the second-largest sector of renewable resources.[94] In 2012, the USDA estimated that biofuels accounted for approximately 4.1% of the total fuel used in transportation.[95]

B. The Fracking: New World of U.S. Oil and Gas Extraction

Oil and gas has also seen technological innovations that change the way minerals extraction impacts the surface of land as well subterranean resources. Hydraulic fracturing, known colloquially as "fracking," is a method of extracting oil and gas by injecting large volumes of fluid at high pressure into shale, allowing previously inaccessible natural oil and gas to be recovered.[96] While this technology has existed for some time, the widespread development of the fracking industry has occurred predominately over the

---

91. *See supra* notes 52–58; *see also* Gabriela Steier, Comment, *Externalities in Industrial Food Production: The Costs of Profit*, 9 DARTMOUTH L.J. 163, 164–66 (2011) (documenting how current regulatory systems do not efficiently cost-internalize negative externalities of industrialized agriculture).

92. George Huber & Bruce Dale, *The Fuel of the Future is Grassoline*, SCI. AM. (Apr. 9, 2009), https://www.scientificamerican.com/article/the-fuel-of-the-future-is-grassoline/.

93. *Id.*

94. U.S. ENERGY INFO. ADMIN., U.S. DEP'T OF ENERGY, MONTHLY ENERGY REVIEW SEPTEMBER 2017, at 150 (2017), https://www.eia.gov/totalenergy/data/monthly/archive/00351709.pdf.

95. Econ. Research Serv., *U.S. Bioenergy Statistics*, U.S. DEP'T OF AGRIC., https://www.ers.usda.gov/data-products/us-bioenergy-statistics/ (last updated Feb. 5, 2018) (noting that ethanol accounted for ninety-four percent of biofuels, and that total biofuel consumption was at 13.8 billion gallons in 2012).

96. Robin Kundis Craig, *Hydraulic Fracturing (Fracking), Federalism, and the Water-Energy Nexus*, 49 IDAHO L. REV. 241, 242, 246 (2013).

last ten years, as a result of engineering strides incorporating horizontal drilling, multistage fracturing, slick water, and corresponding accommodations in federal law.[97]

C. Overlaps and Conflicts

Fracking is a physically larger operation than conventional drilling: it requires not only the drilling of a well, but a more complex well, millions of gallons of water, digging of fluid storage facilities and significant on-site worker presence.[98] Perhaps the most overt contrast between conventional drilling and modern hydraulic fracturing extractive techniques is the sheer volume of fresh water required, with the average single well using between two to four million gallons of waste water to release oil or gas from shale deposits.[99] Ninety-eight percent of fracture fluids are made of water and sand.[100] Duke University recently estimated that "nearly 250 billion gallons of water [were needed] to extract unconventional shale gas and oil from hydraulically fractured wells in the United States between 2005 and 2014."[101] While this is a large number as an absolute, in relation to other industrial uses of water, hydraulic fracturing's water footprint, in aggregate, is dwarfed by the water usage of agriculture, which by some estimates makes up ninety percent of the U.S. freshwater consumption.[102]

---

97. Ctr. for Biological Diversity v. Bureau of Land Mgmt., 937 F. Supp. 2d 1140, 1145 (N.D. Cal. 2013) (citing the administrative record provided by the Bureau of Land Management). The court explained that slick water is "a mixture of water, sand, and a cocktail of chemical ingredients with a number of purposes, including increasing viscosity of the fluid and impeding bacterial growth or mineral deposition." *Id.*

98. *See* Kundis Craig, *supra* note 96, at 248; J.G. Weber, *The Effects of a Natural Gas Boom on Employment and Income in Colorado, Texas, and Wyoming*, 34 ENERGY ECON. 1580, 1581 (2012); 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, 183–84 (2009).

99. GEORGE THOMPSON & EMILY COLLINS, REPORT ON THE POTENTIAL IMPACT TO PENNSYLVANIA FARMS OF SHALE GAS DEVELOPMENT AND PROPOSED SOLUTIONS 4 (2012), https://blackberrymeadows.files.wordpress.com/2012/06/risk-to-farmers-who-frack.pdf; *see also* Rhett B. Larson, *Reconciling Energy and Food Security*, 48 U. RICH. L. REV. 929, 930–31 (2014).

100. OFFICE OF FOSSIL ENERGY, U.S. DEP'T OF ENERGY, MODERN SHALE GAS DEVELOPMENT IN THE UNITED STATES, at ES 3–4 (2009), https://energy.gov/sites/prod/files/2013/03/f0/ShaleGasPrimer_Online_4-2009.pdf (discussing both water quality protections and water use).

101. *How Much Water Does U.S. Fracking Really Use?*, DUKE TODAY (Sept. 15, 2015), https://today.duke.edu/2015/09/frackfoot.

102. Econ. Research Serv., *Irrigation and Water Use*, U.S. DEP'T OF AGRIC., https://www.ers.usda.gov/topics/farm-practices-management/irrigation-water-use (last updated Apr. 28, 2017) ("Agriculture is a major user of ground and surface water in the United States,

However, aggregated numbers do not capture the true difficulties imbedded in the use of large amounts of freshwater in fracking. Hydraulic fracturing is inherently local and tied to the land, its water usage is problematic in terms of local water economies.[103] On a county-by-county water usage basis, rather than a national or state one, hydraulic fracturing can mark a more than 100% uptick water usage, sometimes in drought-laden communities.[104] Thus, absolute numbers belie the reality that on a county to county basis, freshwater usage by oil and gas in some regions now may make up a sizable percentage of total freshwater usage and exceed domestic water usage.[105]

Local communities also have concerns that go beyond scarcity and the allocation of freshwater, but to how fracking wastewater and backflow can be effectively contained, and impact water quality—particularly drinking water.[106] While in theory fracking wastewater can be isolated from drinking water, the reality is that many allege that groundwater and drinking water

---

accounting for approximately 80 percent of the Nation's consumptive water use . . . and over 90 percent in many Western States.").

103. *How Much Water Does U.S. Fracking Really Use?*, *supra* note 101 (quoting one researcher's observation that "[w]hile hydraulic fracturing consumes only a small fraction of the water used in other extraction methods, our analysis highlights the fact that it can still pose serious risks to local water supplies, especially in drought-prone regions such as the Barnett formation in Texas").

104. Nichola Groom, *Fracking Water's Dirty Secret—Recycling*, SCI. AM. (July 15, 2013), https://www.scientificamerican.com/article/analysis-fracking-waters-dirty-secret) (citing a University of Texas report that found that "[t]hough fracking makes up less than 1 percent of overall water use in the state [of Texas], it makes up more than 50 percent of water use in certain counties"); Neena Satija & Becca Aaronson, *Visualization: Top 10 Texas Counties for Fracking Water Use*, TEX. TRIB. (Feb. 18, 2014, 11:00 AM), https://www.texastribune.org/2014/02/18/water-fracking-counties (discussing a Texas county where fracking's use of water exceeded the entirety of the previous year's water consumption).

105. Kate Galbraith, *In Texas, Water Use for Fracking Stirs Concerns*, TEX. TRIB. (Mar. 8, 2013), https://www.texastribune.org/2013/03/08/texas-water-use-fracking-stirs-concerns/ (quoting a bison rancher in a Texas fracking region: "We just can't sustain it"); Meg Wilcox, *How Fracking Impacts Water-Stressed Regions*, ECOWATCH (Nov. 1, 2016, 1:59 PM), https://www.ecowatch.com/impact-fracking-water-2074553674.html (finding that, in the "top 10 counties for fracking activity, annual water use for hydraulic fracturing reached more than 100 percent of each county's domestic water use").

106. *See* Beaverkettle Farms, Ltd. v. Chesapeake Appalachia, LLC, No. 4:11CV02631, 2013 WL 4679950, at *7 (N.D. Ohio Aug. 30, 2013) ("Beaverkettle expressed 'considerable anxiety about potential fracking accidents given the sensitive location of the' Tharp Unit and requested that Chesapeake provide 'written assurances of safety measures that would provide better assurances against fracking failure and contamination of the Little Beaver Creek Watershed.'"); Ctr. for Biological Diversity v. Bureau of Land Mgmt., 937 F. Supp. 2d 1140, 1148 (N.D. Cal. 2013) ("[A]lthough so far there was no direct evidence of contamination of drinking water due to fracking, there is potential risk for contamination because fracking brings certain fluid chemicals and naturally occurring materials in the geologic formation to the surface where it could mix with water sources.").

contamination has already occurred; parties are already seeking damages for harm to water sources on fracked land.[107] Flowback also creates risks from contaminated runoff.[108]

Coterminous use of land between agriculture and oil is always a tenuous dance predicated on the viability of concurrent water and surface use. Fracking's heavy dependence on water, effects on land (availability, cost and surface impact), creation of transportation-related negative externalities, such as air pollution and wear-and-tear on infrastructure, and costs in relation to labor markets contrast conventional drilling upsetting the already delicate balance that allows coterminous use with agriculture.

Water usage and control is key to any agricultural endeavor. Crop farmers are affected not only by the scarcity of freshwater but by water contamination risk.[109] Fracking creates more demand on the market for freshwater, driving up the costs for agricultural uses.[110] Moreover, one of the few federal laws that applies to farm water is the Food Safety Modernization Act's requirement water testing before application to crops.[111] Livestock can also be sensitive to water quality changes arising from fracking, as this can impact animal health adversely.[112]

In addition to water issues, fracking impacts the availability of land and the surface of land more intensely than conventional drilling. In a 2012 study by the Department of Agriculture of the Marcellus Shale in Pennsylvania, the USDA determined that unconventional drilling placed a "considerable number of wells . . . on agricultural land" with over half of all such drilling in the region occurring on farmland.[113] The impact on the arability of land is

---

107. *See* Monika Ehrman, *The Next Great Compromise: A Comprehensive Response to Opposition Against Shale Gas Development Using Hydraulic Fracturing in the United States*, 46 TEX. TECH. L. REV. 423, 435–36 (2013) (discussing and citing lawsuits claiming groundwater contamination in numerous states including Texas, Colorado, New York, Arkansas, Ohio and Pennsylvania).

108. *See* Sheila M. Olmstead et al., *Shale Gas Development Impacts on Surface Water Quality in Pennsylvania*, 110 PROC. NAT'L ACAD. SCI. 4962, 4967 (2013).

109. Wilcox, *supra* note 105.

110. *Id.* (reporting that corn farmers in Colorado "couldn't afford to irrigate the land for the full growing season, in part because energy companies were driving up the price of water").

111. FDA Food Safety Modernization Act, Pub. L. No. 111-353, 124 Stat. 3885 (2011); *see also* 21 C.F.R. § 112.41 (2018) ("All agricultural water must be safe and of adequate sanitary quality.").

112. Michelle Bamberger & Robert E. Oswald, *Impacts of Gas Drilling on Human and Animal Health*, 22 NEW SOLUTIONS 51, 52 (2012).

113. U.S. DEP'T OF AGRIC., UNCONVENTIONAL SHALE GAS DEVELOPMENT AND AGRICULTURE IN THE APPALACHIAN BASIN MARCELLUS PLAY: EXPLORATORY ANALYSIS OF THE 2012 CENSUS OF AGRICULTURE 1 (2017), https://www.usda.gov/oce/energy/files/Shale_Gas_Marcellus_Region_FINAL_4-6-2017.pdf.

varied. Conventional drilling generally occurs at a single site. Fracking is more surface-intensive and requires acreage-clearing for well pads, pipelines, and roads in addition to the footprint of the well pad itself.[114] Fracking well pads can add up to nine acres per well, and twenty-one acres of indirect use.[115] Because the legal rights generally provide that the owner of the subsurface rights (the extractor) has the ability to control how and where surface infrastructure is placed, negative impacts to farmers are not as likely to be minimized.[116] Thus, farmers who lease land or do not own the mineral rights may not have the ability to ensure or enforce infrastructure designs suited to minimize impacts on agricultural production.

In addition to surface impact from extraction of oil or gas, farmland also faces loss of surface viability due to the extraction of needed fracking inputs. Fracking fluids not only require water, but fine grain particulate matter to keep fissures in the rock open. Sand is a key component of fracking processes and acts as a proppant to allow oil and gas to be extracted. Frack sand is also mined in farming regions.[117] States like Illinois, Wisconsin, and Minnesota sit on top of a sizable deposit of fine silica sand known as the St. Peters Sandstone that is particularly desirable as fracking proppants.[118] Mining for such sand displaces farmers from highly productive land.[119]

Farmers may also be displaced from land simply due to rising costs. Hydraulic fracturing has renewed economic conflict over the cost of land itself. For example, the USDA observes a statistically significant difference between the increased cost of farmland per acre in shale counties (up about 190%) versus non-shale counties (up approximately 150%) from 2002 to 2012.[120] This increase in value is a mixed blessing—on the one hand, it can

---

114. *Id.*

115. U.S. GEOLOGICAL SURVEY, LANDSCAPE CONSEQUENCES OF NATURAL GAS EXTRACTION IN BRADFORD AND WASHINGTON COUNTIES, PENNSYLVANIA, 2004–2010, at 10 (2012), https://pubs.usgs.gov/of/2012/1154/of2012-1154.pdf ("A recent analysis of Marcellus well permit locations in Pennsylvania found that well pads and associated infrastructure (roads, water impoundments, and pipelines) required nearly 3.6 hectares (9 acres) per well pad with an additional 8.5 hectares (21 acres) of indirect edge effects.").

116. Patrick Drohan et al., *Early Trends in Landcover Change and Forest Fragmentation Due to Shale-Gas Development in Pennsylvania*, 49 ENVTL. MGMT. 1061, 1070 (2012).

117. Nancy C. Loeb, Opinion, *The Sand Mines That Ruin Farmland*, N.Y. TIMES (May 23, 2016), https://www.nytimes.com/2016/05/23/opinion/the-sand-mines-that-ruin-farmland.html.

118. *Id.*

119. Julie Wernau, *Mining for Fracking Sand Drives Some Illinois Farmers from Land*, CHI. TRIB. (June 6, 2014), http://www.chicagotribune.com/business/ct-sand-mine-fight-0608-biz-20140608-story.html.

120. *Id.*

lead to a higher sale price, on the other, it disincentivizes ongoing farm use.[121] Extractive energy production is simply more profitable.[122]

Beyond fracking and proppant extraction itself being surface-intensive, the movement of these products, along with water and fracking waste, also creates negative air quality and transportation externalities.[123] Because fracking requires importing and exporting fluids and on-site workers, negative impacts to surface air quality and transportation infrastructure is more broadly allocated, not only to beneficiary property owners but also for the rural community at large.[124] In some farming and extractive states, competition for the use of rail transportation has reportedly impacted grain prices and raised concerns about backlog.[125] Recent studies indicate that the levels of volatile compounds including benzene, formaldehyde, and hydrogen sulfide exceeded federal guidelines near oil and gas productions sites.[126] Each of these substances has known problematic impacts on agriculture and human health.[127]

Finally, competition for labor also creates conflict. Rural areas of the United States are not densely populated, thus local labor is at a premium. The USDA has noted an increase of nearly twenty percent in the cost of farm labor in shale counties.[128] It may be harder to retain farm employees when such

---

121. *Id.* at 1–2.

122. Hitaj, Boslett & Weber, *supra* note 5, at 1 fig.2.

123. Loeb, *supra* note 117 ("[Frack sand] mines are destroying rural communities along with the farmland. Homesteads and small towns are being battered by mine blasting, hundreds of diesel trucks speed down rural roads dropping sand along the way, stadium lighting is so bright it blots out the night sky, and 24-hour operations go on within a few hundred feet of homes and farms.").

124. *See* Mose Buchele, *Texas Family's Nuisance Complaint Seen as a Win Against Fracking*, NPR (May 2, 2014), https://www.npr.org/2014/05/02/308796539/texas-familys-nuisance-complaint-seen-as-win-against-fracking (detailing recovery based on air quality and health issues for landowners near land where extraction was taking place); *see also* Galbraith, *supra* note 105 ("The water demands of hydraulic fracturing contribute to another problem in oil country: wear and tear on roads. Each fracking job may need hundreds of trips by trucks bringing water to the site. The trucks also carry water away from the site.").

125. Hitaj, Boslett & Weber, *supra* note 5, at 1–2.

126. Gregg P. Macey et al., *Air Concentrations of Volatile Compounds Near Oil and Gas Production: A Community-Based Exploratory Study*, 13 ENVTL. HEALTH 82, 87 (2014).

127. AGENCY FOR TOXIC SUBSTANCES & DISEASE REGISTRY, CAS NO. 71-43-2, PUBLIC STATEMENT FOR BENZENE 4 (2007), https://www.atsdr.cdc.gov/ToxProfiles/tp3-c1-b.pdf (classifying benzene as carcinogenic); *Formaldehyde and Cancer Risk*, NAT'L CANCER INST. (June 10, 2011), https://www.cancer.gov/about-cancer/causes-prevention/risk/substances/formaldehyde/formaldehyde-fact-sheet; *Hydrogen Sulfide*, OCCUPATIONAL SAFETY AND HEALTH ADMIN., https://www.osha.gov/SLTC/hydrogensulfide/hazards.html (last visited Feb. 23, 2018).

128. Hitaj, Boslett & Weber, *supra* note 5, at 1 fig.2.

labor might be better compensated for even unskilled fracking-related work, such as truck driving, and well and water retention facility construction.[129]

D. *New Technologies and the Unique Role of State Law*

In the void of federal regulation, states have traditionally taken the lead in regulating the oil and gas industry as well as agriculture.[130] Even where federal law applies, these laws usually grant "primacy" to states allowing state agencies implementation powers within limited federal oversight as part of cooperative federalism.[131] Thus, law governing these industries is not only substantively legally extraordinary, but the interplay between state and federal laws also defies convention. While scholarship has noted that states generally follow federal developments with parallel regulation and legislation, these subject matter areas invert that traditional order.[132] States trailblaze new oil and gas and agricultural policy innovations, while the federal government is slower to respond.[133] Currently, state regulation of

---

129. *See* Jeremy G. Weber, *The Effects of a Natural Gas Boom on Employment and Income in Colorado, Texas, and Wyoming*, 34 ENERGY ECON. 1580, 1581 (2012).

130. David B. Spence, *Federalism, Regulatory Lags, and the Political Economy of Energy Production*, 161 U. PA. L. REV. 431, 447 (2013) (noting that in the United States, regulation of the oil and gas industry "has always been primarily a state matter"). In relation to agriculture, implementation of most agricultural regulations fall predominately to the states. *See, e.g.*, MEGAN STUBBS, CONG. RESEARCH SERV., R41622, ENVIRONMENTAL REGULATION AND AGRICULTURE 1 (2014), https://fas.org/sgp/crs/misc/R41622.pdf ("Traditionally, farm and ranch operations have been exempt or excluded from many federal environmental statutes and regulations, and some point out that the relative number of environmental regulations affecting agriculture is small compared to other industries."). While the EPA may approve a state's total daily maximum load (TDML) compliance plans, it normally gives the state considerable leeway in how to achieve the identified standard. *See* Clean Water Act, 33 U.S.C. § 1313(d) (2012).

131. OFFICE OF FOSSIL ENERGY, U.S. DEP'T OF ENERGY, *supra* note 100, at ES-3 to ES-4 (discussing both water quality protections and water use); David B. Spence, *The Political Economy of Local Vetoes*, 93 TEX. L. REV. 351, 369 ("Regulation of onshore oil and gas production has traditionally been a state matter . . . .").

132. Hannah J. Wiseman, *Disaggregating Preemption in Energy Law*, 40 HARV. ENVTL. L. REV. 293, 296 (2016) (discussing state fracking bans and regulations).

133. Take, for example, recent policy changes regarding the labelling of genetically modified food. The impetus for this policy change was state law driven. In 2016, the State of Vermont passed a law that would require all products containing genetically modified food to be labelled as such before entering the stream of commerce. Stephanie Strom, *G.M.O.s in Food? Vermonters Will Know*, N.Y. TIMES (June 30, 2016), https://www.nytimes.com/2016/07/01/business/gmo-labels-vermont-law.html?_r=0. The Vermont law would have gone into effect on July 1, 2016. *Id.* Working at unprecedented speed, Congress worked to pass a federal-level GMO labelling bill to preempt the Vermont ban. *See* National Bioengineered Food Disclosure Standard, Pub. L. No. 114-216, 130 Stat. 834 (2016) (codified at 7 U.S.C. § 1639b (Supp. IV 2016)). However, the congressional law specifically allowed labelling in electronic modes, only discernable by a

these industries is the dominant form of legal oversight, but it is varied and uncoordinated across state lines.[134]

Scholarly literature also suggests that as a general matter poor states are less likely to legally innovate, and instead, copy the legislation of richer states.[135] Here too, common wisdom proves false as applied to oil and agriculture. Poor states often lie at the vanguard of new agriculture or oil industry specific determinations.[136] Recent years have seen both industries seeking state-level protectionist legislation to respond to perceived grassroots threats to industry modernization.[137]

In the oil and gas context, the key innovation of the last ten years has been the widespread implementation and expansion of the practice of hydraulic fracturing. State regulation of fracking is varied and checkered in both content and degree.[138] However, these changes in extraction techniques and geographic reach have met resistance.[139] Responding to modern citizens' concerns about the safety of hydraulic fracturing extraction techniques, particularly in a relative void of federal oversight, local municipal governments began banning fracking within city limits.[140] State legislatures overrode such municipal action by enacting legislation that barred cities from passing ordinances banning fracking. These "bans on bans" exist now in

---

smartphone—a marked contrast to the plain printed label anticipated by the Vermont law. *See id.* § 293(b)(2)(D). Regardless of the overall efficacy of the bill, for the purposes of this inquiry, what is notable is that it was innovation at the state level that was mimicked and modified on the federal level, rather than the inverse.

134. RICHARDSON ET AL., *supra* note 6, at 4 (2013) (noting the broad degree of variation across state lines for regulating fracking, including command and control, case-by-case permit, performance standards, or other rubrics).

135. Frances Stokes Berry & William D. Berry, *Innovation and Diffusion Models in Policy Research*, *in* THEORIES OF THE POLICY PROCESS 169, 176–77 (Paul Sabatier ed., 1999); Brian Galle & Joseph Leahy, *Laboratories of Democracy? Policy Innovation in Decentralized Governments*, EMORY L.J. 1333, 1349 (2009) (suggesting that the risk of innovating may be too high for poorer states).

136. Legal limitations on agricultural journalism, the labelling of GMOs, and the disclosure of fracking additives are all types of regulations that have originated at the state level. *See, e.g.*, H.R. 15-1119, 70th Gen. Assemb., 1st Reg. Sess. (Colo. 2015) (barring local municipalities' ability to stop fracking in city limits).

137. *See infra* notes 139–148 and accompanying text (discussing right to farm amendments, ag-gag laws, and bans on municipal action in the area of hydraulic fracturing).

138. RICHARDSON ET AL., *supra* note 6, at 29–30.

139. Wiseman, *supra* note 132, at 296 (discussing state fracking bans and regulations).

140. Clifford Kraus, *Split Decision by Voters on Local Fracking Bans*, N.Y. TIMES (Nov. 5, 2014), https://www.nytimes.com/2014/11/06/business/energy-environment/split-decision-by-voters-on-local-fracking-bans-.html (discussing Denton, Texas's vote to ban fracking within city limits).

several oil-rich states including Texas, Oklahoma, and North Carolina.[141] While similar legislation was also passed in Pennsylvania, home of the Marcellus Shale formation, it was subsequently invalidated as being unconstitutional under the Pennsylvania state constitution.[142]

Industrialized agriculture also has faced public scrutiny for modern farming practices, particularly vertically integrated livestock production techniques and the use of biotechnology. Changes in traditional livestock practices, including the use of extreme confinement and concentrated feed lots, have faced scrutiny as inhumane and unsanitary, increasing concern over animal husbandry.[143] In California, this has led to state-level laws, brought by ballot initiative, outlining improved confinement conditions of chickens.[144] Likewise, public skepticism of the lack of pre-market regulation of genetically modified organisms has escalated, manifesting in anti-GMO legislation in some states.[145]

However, in most jurisdictions, state-level responses have been protective of modern practices. For example, passing "ag-gag" laws render legally actionable the unauthorized collection of footage or information on farm

---

141. *See* S. 119, 2015 Gen. Assemb., Reg. Sess. (N.C. 2015); S. 809, 55th Leg., 1st Sess. (Okla. 2015); H.R. 40, 84th Leg., Reg. Sess. (Tex. 2015). Other state legislatures, such as those in Colorado, Florida, Indiana, Kansas, and New Mexico, have passed or are attempting to pass laws that ban municipalities from enacting fracking bans. *See, e.g.*, H.R. 15-1119, 70th Gen. Assemb., 1st Reg. Sess. (Colo. 2015); H.R. 1205, 2015 Leg., Reg. Sess. (Fla. 2015); H.R. 1299, 118th Gen. Assemb., 2d Reg. Sess. (Ind. 2014); S. 245, 2013 Leg., Reg. Sess. (Kan. 2013); S. 421, 52d Leg., 1st Sess. (N.M. 2015).

142. Act of Feb. 14, 2012, ch. 13, 2012 Pa. Laws 87; Robinson Township v. Commonwealth, 83 A.3d 901, 977–78 (Pa. 2013). Pennsylvania is unique in its environmental protection provisions of their state constitution, invoked for the first time successfully in protecting the municipal right to ban fracking. *Id.*

143. *See, e.g.*, David Gelles, *Eggs That Clear the Cages, but Maybe Not the Conscience*, N.Y. TIMES (Jul. 16, 2016), https://www.nytimes.com/2016/07/17/business/eggs-that-clear-the-cages-but-maybe-not-the-conscience.html (reporting on how even "cage free" chickens are raised in high density aviaries where they are subject to disease spread and aggressive pecking behaviors); *How Hens Are Confined*, N.Y. TIMES (Aug. 14, 2010), http://www.nytimes.com/interactive/2010/08/15/weekinreview/15marsh-grfk.html (discussing how chickens may have as little as seven-by-seven inches of space to live out their lives and that ninety-seven percent of U.S. eggs are produced in battery cages); Scott Weathers, Sophie Hermanns & Mark Bittman, *Health Leaders Must Focus on the Threats from Factory Farms*, N.Y. TIMES (May 21, 2017), https://www.nytimes.com/2017/05/21/opinion/who-factory-farming-meat-industry-.html (outlining how factory farming has deleterious impacts on human health and the environment).

144. Jesse McKinley, *A California Ballot Measure Offers Rights for Farm Animals*, N.Y. TIMES (Oct. 23, 2008), http://www.nytimes.com/2008/10/24/us/24egg.html (reporting on California Proposition 2 outlawing the use of battery cages for hens).

145. Strom, *supra* note 133.

properties and therefore insulate mass livestock from public scrutiny.[146] In response to the concern that certain states' actions hostile to GMOs or mass livestock practices might spread to other farm communities, some farm lobbies have sought a new powerful preemptive action: the "right to farm" state constitutional amendment. These amendments move beyond traditional right to farm statutes[147] and halt new statutes or administrative regulation by preempting their formation. Rather, "right-to-farm" amendments to state constitutions contain broad and sweeping language that bans future statutory limitations on agriculture.[148] Thus far, four states have considered such legislation: North Dakota and Missouri passed constitutional amendments,[149] Nebraska had such an amendment die in the state assembly,[150] and Oklahoma rejected a state right to farm amendment in a ballot initiative.[151] As proposed, the Oklahoma state question as proposed appeared to acknowledge in loose terms potential conflicts between existing mineral rights and the implications of the broad constitutional amendments protecting farming.[152] There, a provision was inserted to require that, "[n]othing in this section shall be construed to modify any provision of common law or statutes relating to . . . dominance of mineral interests."[153] However, the North Dakota and Missouri constitutional amendments contain no such statements.[154] It has yet to be seen how these jurisdictions will deal with increasing overlap between oil and gas and traditional farm interests in light of these constitutional amendments.

---

146. Luke Runyon, *Judge Strikes Down Idaho 'Ag-Gag' Law, Raising Questions for Other States*, NPR: THE SALT (Aug. 4, 2015, 5:26 PM), http://www.npr.org/sections/thesalt/2015/08/04/429345939/idaho-strikes-down-ag-gag-law-raising-questions-for-other-states. Some recent legal challenges to "ag gag" legislation have successfully argued that some ag-gag laws are unconstitutional as violating the first amendment and equal protection clause. *Id.*

147. Traditional right-to-farm statutes available in all fifty states codify the torts common law "coming to the nuisance" defense to a nuisance claim, protecting farms from urban sprawl. SCHNEIDER, *supra* note 83, at 213 (2016).

148. *See* MO. CONST. art. I, § 35 ("[T]he right of farmers and ranchers to engage in farming and ranching practices shall be forever guaranteed in this state . . . ."); N.D. CONST. art. XI, § 29 ("No law shall be enacted which abridges the rights of farmers and ranchers to employ agricultural technology, modern livestock production, and ranching practices.").

149. *See supra* note 148 and accompanying text.

150. Samantha Fox, *Right to Farm Bill Withdrawn from Nebraska Legislature*, FENCE POST (Apr. 5, 2016), https://www.thefencepost.com/news/right-to-farm-bill-withdrawn-from-nebraska-legislature.

151. Logan Layden, *Oklahoma Voters Soundly Reject State Question to Constitutionally Protect Farming and Ranching*, NPR: ST. IMPACT (Nov. 9, 2016), https://stateimpact.npr.org/oklahoma/2016/11/09/oklahoma-voters-soundly-reject-state-question-to-constitutionally-protect-farming-and-ranching (rejecting State Question 777).

152. *See* H.R.J. Res. 1012, 55th Leg., 1st Reg. Sess., (Okla. 2015).

153. *Id.*

154. *See* MO. CONST. art. I, § 35; N.D. CONST. art XI, § 29.

III. SOLUTIONS

The previous sections sought to establish that changes in the modes of extraction and agricultural production 1) have exacerbated concurrent use issues between these two industries with increased overlaps on inputs and land use and 2) has led to industry-specific state-level legal activity that creates regulatory islands within a state. These islands have the potential of unwittingly overtaxing determinate resources or privileging one industry over another. To better manage and anticipate such conflicts, this Part proposes three solutions that would avoid the pitfalls of parallel, industry-specific legislation. These administrative models are natural resource-based, land-based, and private right-based. The first, a natural-resource-allocation model, focuses state-wide on the most efficient or equitable division of finite resources. The second administrative model, land-based administration, looks at a parcel-by-parcel or county-by-county level at beneficial land use for that specific parcel or set of parcels. The final administrative model is private right based and relies on individuals to negotiate through difficult tradeoffs on an individual basis. Here, the state would purposely leave a regulatory void and not legislate in favor of either industry, but participate in shaping private contracts by requiring that those involving mineral rights on farmland have explicit surface-use provisions in order to be enforceable.

A. Natural Resources Allocation Models

A natural resource allocation looks comprehensively at the availability of a resource, collects information on its various potential uses, and weighs the policy considerations made by the community to determine the proper allocation of that resource amongst interested parties. While this may sound utopian, it is not entirely alien. The Ground Water Protection Council (GWPC) is:

> The national association of state ground water and underground injection agencies whose mission is to promote the protection and conservation of ground water resources for all beneficial uses. One goal of the GWPC is to provide a forum for stakeholder communication on important current issues to foster development of sound policy and regulation that is based on sound science.[155]

This group has acknowledged as early as 2009 that:

> Shale gas development both requires significant amounts of water and is conducted in proximity to valuable surface and ground water.

155. Scott Kell, *Foreword* to OFFICE OF FOSSIL ENERGY, *supra* note 100.

> Hence, it is important to reconcile the concurrent and related demands for local and regional water resources, whether for drinking water, wildlife habitat, recreation, agriculture, industrial or other uses.[156]

In addition, some states and counties have tried to take a resource-based approach to managing multiple use issues. Maryland has begun to create a more comprehensive system by using the resource based strategy. There, a proposed plan seeks to devise a comprehensive strategy for water use, based on looking systemically at how water resources are allocated statewide.[157] This report is a collaboration between many state administrative departments and members of the private sector including the departments of Agriculture, Health and Mental Services and Natural Resources. This approach would allow for a methodical, rather than haphazard, allocation of resources. Both Oklahoma[158] and Texas[159] have water development boards that collect data and make policy recommendations regarding strategic water management.

B. Land-Based Administration

A land-based administrative model examines the inherent qualities of a given parcel of land and determines what uses are beneficial, or even optimal, based on each parcel's individualized potential and various competing interests.[160] Several models for this type of determination can be drawn from existing legal federal and state systems. The Multiple-Use Sustained-Yield Act of 1960 (MUSY) is a federal statutory rubric for constructing a land-use-based parcel approach.[161] The BLM, through the Department of the Interior,

---

156. *Id.*

157. ADVISORY COMM. ON THE MGMT. AND PROT. OF THE STATE'S WATER RES., WATER FOR MARYLAND'S FUTURE: WHAT WE MUST DO TODAY 3 (2008), http://mde.maryland.gov/programs/Water/water_supply/Documents/WolmanReport_Vol1.pdf. ("The situation will only get worse as the demand on Maryland's water resources increases due to growth in population, agricultural irrigation and power production.").

158. *The Oklahoma Comprehensive Water Plan*, OKLA. WATER RES. BOARD, http://www.owrb.ok.gov/supply/ocwp/ocwp.php (last visited Apr. 9, 2018).

159. The State of Texas Water Development Board is charged with creating a proactive state water plan. This water plan takes into account both current and projected water usage from various sectors. *2017 Texas State Water Plan*, TEX. WATER DEV. BOARD, https://2017.texasstatewaterplan.org/statewide (last visited Feb. 24, 2018).

160. SCHNEIDER, *supra* note 83, at 196. In a way, a land-based administrative model is a more specialized form of resource-based administration, except it is organized around a particular resource: land.

161. Multiple-Use Sustained-Yield Act of 1960, 16 U.S.C. § 528 (2012); SCHNEIDER, *supra* note 83, at 196.

operationalizes the tensions at issue with aspirational concurrent use and a land-based approach as it manages federal lands with a multi-use charge.[162] These examples show the strength of a land-based approach (deliberative and comprehensive) but also its weaknesses (slow responsiveness and subject to political capture).

With MUSY, Congress charged the Secretary of Agriculture to manage timber, range, water, recreation and wildlife on national forest land to "best meet the needs of the American people."[163] The Act goes on to define sustainable yield to require maintaining "into perpetuity" the resources of the land and its underlying productivity.[164] Thus, the statutory charge is inherently comprehensive both in terms of time horizon and interested parties. If some type of parallel were adopted by states, this type of statutory charge would not allow a "regulatory battleship" pathology to develop in relation to state law—it would require consideration of competing uses and interests.

Another example of a federal program with a resource-management lens is the Bureau of Land Management. The BLM was formed in 1946 through a reorganization of offices supporting agricultural expansion—the general land office and the U.S. Grazing Service.[165] It reaches farther than the statutory charge of MUSY to public lands other than the national forests and seeks to balance more types of concurrent uses.[166] Since the 1970s, its modern dual mandate was defined under the Federal Law Policy and Management Act (FLPMA), which charges the BLM with managing public lands for multiple uses,[167] including energy development, livestock grazing, mining, timber and recreation, and while also conserving the historical, natural, and cultural character of land.[168] With this act, Congress acknowledged a need for a comprehensive land use planning strategy that takes into account how different land uses interact and balance against one another.[169] Although

---

162. Federal Land Policy and Management Act of 1976, 43 U.S.C. §§ 1702(c), 1712, 1714, 1732(a) (2012) (discussing the multiple uses that federal land must balance in weighing the effective use of land).

163. 16 U.S.C. § 531(a).

164. *Id.* § 531(b).

165. *National History*, U.S. DEP'T INTERIOR, BUREAU LAND MGMT., https://www.blm.gov/about/history/timeline (last visited Feb 8, 2018).

166. 43 U.S.C. §§ 1731–32 (2012).

167. *Id.* § 1731; U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-12-874, UNCONVENTIONAL OIL AND GAS PRODUCTION: OPPORTUNITIES AND CHALLENGES OF OIL SHALE DEVELOPMENT 69 (2012) ("BLM oversees oil and gas development on approximately 700 million subsurface acres.").

168. 43 U.S.C. § 1732.

169. *Id.* § 1701.

technically the BLM can lease land for multiple uses, the harsh reality is that the BLM has found that concurrent uses are difficult to navigate, and generally, are subject to shifts in political control of agency action.[170]

C. Private Right-Based

Another approach, which may be more politically viable in states that have a libertarian/anti-government ethos is one that looks to private law to moderate against tragedy of the commons issues likely to arise in the absence of a land-based or resource-based comprehensive planning approach. These solutions rely, however on the premise that state governments conspicuously avoid legislating on an industry-to-industry basis. Instead, the role of state government would be to set parameters for valid private contracting. Currently, state surface use acts and private surface use agreements could be used as guidance to construct a contractual standard for the transfer of mineral title on arable parcels that requires parties to contemplate certain concurrent land use issues and resource allocations prior to detrimental overlap.

1. Surface Damages Acts

Surface damages acts are the most relevant current examples of law used to force a discussion of concurrent use. Legislative action may substantially modify common law relationships between the landowner (the holder of the surface estate) and the holder of mineral rights, thereby proactively anticipating some of the tradeoffs of agricultural versus extractive use. Several states have done this through surface damages acts which allow land owners to recover in the event that the surface of their land is damaged in the course of subterranean mineral extraction.[171] For example, Oklahoma's surface damages act was enacted in 1982, in response to concerns raised by ranching and farming communities to oil exploration.[172] The Act modified the

---

170. *See* Bartholomew D Sullivan, *Republicans Seek 'Paradigm Shift' in Federal Land Management*, USA TODAY (Mar. 10, 2017), https://www.usatoday.com/story/news/2017/03/09/rob-bishop-republicans-seek-paradigm-shift-federal-land-management/98899608/ (discussing legislator's seeking conveyances of Federal public lands to state and local land, and violent political protests to previous BLM actions).

171. RONALD W. POLSTON, REDEFINING THE RELATIONSHIP BETWEEN THE SURFACE OWNER AND THE MINERAL DEVELOPER § 22.02 (1991) (listing Illinois, Indiana, Kentucky, Montana, North Dakota, Oklahoma, South Dakota, Tennessee, and West Virginia as states with Surface Damages Acts).

172. Oklahoma Surface Damage Act, 1982 Okla. Sess. Laws 1062 (codified as amended at OKLA. STAT. tit. 52, §§ 318.2–318.9 (2018)); Gary C. Pierson, Note, *Oil and Gas: Legislative*

existing law, which required oil lessees to compensate owners for surface damage only when engaged in unreasonable entry or use, to a standard requiring compensation for any surface damage from drilling.[173] Indiana's surface damages act specifically enumerates types of damage and contemplates agriculture, providing recovery for, "owners of the surface of such lands for the actual damage resulting therefrom to the surface of such lands or improvements or growing crops . . . ."[174] None of these acts, however currently require specific performance. Moreover, many oil-, gas-, and agriculture-producing states do not have surface damages acts. The most egregious example of a state with no such legislative footing is Texas, which currently is a top oil and gas producer as well as agricultural provider.[175]

2. Private Contract: Surface Use Agreements

If a surface damages act is not in place, or the parties wish to modify rights from the starting point provided by law, a surface use agreement (SUA) should be negotiated along with a mineral lease.[176] States could require that for a mineral right transfer to be legally binding, a surface use provision must be included. While most state laws favor the mineral estate over the surface estate,[177] a carefully drafted surface use agreement can facilitate exploration and drilling, while protecting the surface owners' rights.[178]

A well-drafted SUA can negate ambiguity, setting out proactive easements for pipelines and roads, terms of surface rehabilitation, and consequences for breach in the case of non-compliance. As a matter of efficient breach

---

Damage to Surface Rights, 36 OKLA. L. REV. 386, 390 n.31 (1983) (summarizing discussions with key legislators regarding rationale for the bill).

173. Collins v. Oxley, 897 F.2d 456, 457–58 (10th Cir. 1990).

174. IND. CODE § 32-23-7-6(3) (2018).

175. *FAQs*, U.S. DEP'T OF AGRIC.: ECON. RESEARCH SERV., https://www.ers.usda.gov/faqs/#Q1 (last updated Jan. 30, 2018) (reporting Texas as the third highest agricultural producer in the United States); Alexander Kent, *The 10 Most Oil-Rich States*, USA TODAY (July 18, 2015), https://www.usatoday.com/story/money/business/2015/07/17/24-7-wall-st-oil-rich-states/30307203/ (citing Texas as the top oil producing state at 10.5 billion barrels of oil).

176. *Surface Use Agreements*, AMARO L. FIRM, http://www.oilgaslawsuits.com/surface-use-agreements/ (last visited Feb. 10, 2018).

177. 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, 91–92 (2012) (describing implied easement of mineral estate owner to explore and develop extraction).

178. Some energy scholars have suggested that the use of contractual agreements may be effective in moderating community interests in settings where the state government limits municipal action. *See* Kristen van de Biezenbos, *Contracted Fracking*, 92 TULANE L. REV. (forthcoming 2018).

however, restoration of surface conditions post-extraction to agriculturally viable usage may not be economically efficient or even feasible. As such, contractual agreements regarding surface use are limited by the willingness of courts to enforce them on their face, rather than substitute market valuation. Anticipating this, savvy legislators could draft surface enforceability requirements that limit efficient breach arguments, require specific performance, or provide penalties that would render breach inefficient.

CONCLUSION

This article argues that regulatory islands exist not only between states but within them—and that the particular dangers of agriculture and extractive energy being regulated in isolation are highly problematic. Whether in calories or kilowatts, the production of all forms of energy relies on similar resources—land, often in the same geographic locales, water, labor, and transportation infrastructure. New technologies have boosted the conflict between extractive and agricultural uses, as technological innovation has broadened the geographical regions in play and amplified demands on water, labor, and transportation, encouraged inflexible monoculture farming, and created direct competition for labor in rural regions and the sale of energy. Indeed, the regulatory battleships of big-ag state and oil and gas are likely to collide with greater frequency and intensity as they grow and resources become more scarce.

Current legal frameworks fail to adequately account for these concomitant interests and allow legal rights to develop askew rather than in tandem. The legal inquiry that arises then is how to manage these realities? This article creates an administrative taxonomy by offering three types of legal solutions, based on resources, land, or private rights, respectively. However, whether resource-use based, land-use oriented, or grounded in private rights, each of these proposals rely on two conclusions: 1) that the federal government will hew with legal tradition and leave both agriculture and oil and gas industries predominately subject to state direct regulation and 2) because the overlap between the two industries is significant and the resources at issue will only become scarcer, that regulation of agriculture and oil and gas in legal silos is unsustainable in the long run.

All law reform is contingent on political will and in times of divisive politics, it may appear that political will for reform is lacking. However, this article also clarifies that both big ag and big oil have a dog in this fight—rendering real the possibility of essential reform. Indeed, it is not just social justice activists and tree-huggers who should be up at night with concerns

about the under-regulation of land, air, water, and labor in oil country—or is it farmland after all?