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Royalty Wars: The Dark Side to Raising the Minimum Royalty Rate for Oil and Gas Leasing on Federal Land

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ROYALTY WARS: THE DARK SIDE TO RAISING THE MINIMUM ROYALTY RATE FOR OIL AND GAS LEASING ON FEDERAL LAND

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Abstract

In 2022, the Inflation Reduction Act took marked steps toward changing the course of the oil and gas industry for the first time in over 100 years, requiring that all federal oil and gas leases issued for the following decade have a minimum royalty rate of 16.67%. This paved the way for a major adjustment in the oil and gas industry, which has seen a 12.5% minimum royalty for the past century. In 2023, the Department of the Interior proposed to permanently codify these changes, citing purposes of ensuring a fair return to taxpayers and protecting the environment.

This Article argues that the royalty provision in DOI's proposal, if passed through Congress, will lead to harmful effects on the economy and production while failing to fulfill its purpose of protecting the environment. Instead of raising the minimum royalty, which will inevitably stunt the growth of the domestic oil and gas industry, agencies should regulate strategically to both promote domestic production and reduce the industry's emissions footprint on the environment.

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I. INTRODUCTION

The criticism surrounding oil and gas production in the United States is an all-too-familiar reality. Whether it involves the impending threat of pollution through the release of greenhouse gas emissions, or the prospect of industry encroachment onto federally protected areas, environmental policymakers earnestly lobby on the steps of Congress for change.[1] Meanwhile, representatives of oil and gas companies are handling compounding legislation that makes production on federal lands more difficult—creating an industry aversion to federal leasing.[2] As a result, gas prices and inflation increase while taxpayer returns threaten to shrink. This begs the question: at what point can the industry and environmental advocates reach a middle ground while this demand for energy only rises by the year?

Some view reconciliation as an impossibility and believe that it is too difficult to protect the environment and encourage production. This, however, is far from true. This Article embarks on a journey through the history of oil and gas royalties for production on federal land and looks at the DOI's proposal to raise the statutory minimum from 12.5% to 16.67%. This proposal, if successfully passed, could

1. *See* Magali Delmas, *Research: Who's Lobbying Congress on Climate Change*, HARV. BUS. REV. (Oct. 19, 2016), https://hbr.org/2016/10/research-whos-lobbying-congress-on-climate-change [https://perma.cc/VM8M-EE2J].

2. *See id.* ("With massive economic interests at stake with each regulation aimed at curbing climate change, it comes as no surprise that vast sums are spent to petition government amount them."); *see also* Kathleen Sgamma (@KathleenSgamma), TWITTER (Mar. 3, 2022, 4:48 PM), https://twitter.com/Wallstmemesteam/status/1499516985541025793 [https://perma.cc/E6TS-5KQA] ("We can't develop our leases if permits aren't approved [and] with [a] myriad [of] other delays the administration puts in the way of American producers.").

lead to adverse effects on the United States economy by discouraging further oil and gas exploration and production while failing to account for demand. This Article argues that other incentives for responsibility in the industry would meet the goals of the DOI and provide a mutually beneficial solution that accounts for both environmental and economic factors.

Part II provides a background on industry regulation and the history of the federal minimum royalty rate for oil and gas leasing.[3] Part III identifies the current economic and environmental climate surrounding the oil and gas industry.[4] Part III further explains the concerns currently being addressed by regulation, as well as the potential economic impacts that will stem from the DOI's proposal.[5] Part IV concludes with a discussion of alternative methods for meeting the goals of the DOI that will mitigate the economic impact.[6]

II. THE HISTORY OF FEDERAL LEASING ROYALTIES

Statutory minimum royalty rates in the United States arose in the early twentieth century.[7] The minimum royalty for oil and gas production on federal land, set at 12.5% in the Mineral Leasing Act of 1920, has remained primarily unbothered for the past century.[8] While some legislators have sought to raise this statutory minimum in the past few decades, none have been met with success.[9] However, in 2022, provisions of the Inflation Reduction Act ("IRA") pertaining to mineral leases were temporarily placed into effect, raising the minimum royalty rate to 16.67% for the next 10 years in addition to other regulatory changes to "modernize" production standards.[10] In 2023, the DOI, following the path set by the IRA, proposed to update and codify these changes following the ten-year period.[11] Among

3. *See* discussion *infra* Part II.
4. *See* discussion *infra* Part III.
5. *See* discussion *infra* Part III.
6. *See* discussion *infra* Part IV.
7. MARC HUMPHRIES, CONG. RSCH. SERV., R43891, MINERAL ROYALTIES ON FEDERAL LANDS: ISSUES FOR CONGRESS 2-3 (2015).
8. *Id.*; *see* 30 U.S.C. § 223; *see also* 30 U.S.C. § 226(b)(1)(A).
9. HUMPHRIES, supra note 7, at 1 n.1, 3. While the lower federal onshore royalty rate has largely remained the same since 1920, DOI Secretary Dirk Kempthorne successfully raised the rate to 16.67% for deep-water leases only. *Id.* In 2009, the Obama Administration increased the rate for new offshore leases to 18.75%. *Id.*
10. *See* Inflation Reduction Act of 2022, Pub. L. No. 117-169, 136 Stat. 1818, 2056.
11. Fluid Mineral Leases and Leasing Process, 88 Fed. Reg. 47562, 47577 (proposed July 24, 2023) (to be codified at 43 C.F.R. pts. 3000 *et seq.*).

other things, the DOI's proposal aims to permanently raise this statutory minimum royalty for oil and gas production from 12.5% to 16.67%.[12] An examination of the legislative intent behind setting and changing these valuations warrants a glimpse into the history of the minimum royalty rate.[13]

A. Origins and the Mineral Leasing Act

The concept of "royalties" in the United States is rooted in early English common law, where all minerals had title vested in the Crown.[14] Due to this common law idea, revenue from the extraction of minerals on British land were owed to the sovereign government.[15] The concept of "royalty" reflected the "portion of minerals due to the crown in return for the privilege of extraction."[16] This idea has carried on through the past several centuries, and royalties are still used as a form of return to the holder of the mineral estate for production through federal leasing.[17]

The United States is the first country to recognize private ownership of the mineral estate.[18] In the nineteenth and early twentieth centuries, there were few laws to regulate the domestic oil and gas industry, nor was there a statutory royalty owed the government.[19] To circumvent the lack of regulatory authority over mining and mineral production, Congress enacted the Mineral Leasing Act of 1920.[20] This was the first time a minimum royalty rate was imposed for oil and gas production on federal land in the United States and signaled to the

12. *Id.* at 47578 ("the proposed rule would increase the royalty rates for leases issued on or after the effective date of the IRA and for the next 10 years to 16.67 percent").

13. *See generally* Tobias Lewin, *The History of Government Property in Minerals in the United States*, 16 WASH. U. L. REV. 245 (1931) (providing a historical examination into the laws and regulations that advanced the authority granted under the Mineral Leasing Act of 1920).

14. Jayni F. Hein & Caroline Cecot, *Mineral Royalties: Historical Uses and Justifications*, 28 DUKE ENV'T L. & POL'Y F. 1, 6 (2017).

15. *Id.*

16. *Id.* at 7.

17. *See Royalty*, WILLIAMS & MEYERS, MANUAL OF OIL AND GAS TERMS (Patrick H. Martin ed., 18th ed. 2021).

18. Gary D. Libecap, *Property Rights to Frontier Land and Minerals: US Exceptionalism* 12 (Nat'l Bureau of Econ. Rsch., Working Paper No. 24544, 2018), http://www.nber.org/papers/w24544 [https://perma.cc/SLX3-MZ87].

19. Curtis H. Lindley, *A Treatise on the American Law Relating to Mines and Mineral Lands Within the Public Land States and Territories*, 23 YALE L. J. 704, 705 (1914).

20. *See* Mineral Leasing Act of 1920, 30 U.S.C. §§ 181-193(a).

common law idea that extraction of minerals on government-owned land creates an obligation of royalty to the government.[21] This minimum royalty rate was established at 12.5%, or one-eighth of the "royalty pie."[22]

In 1976, Congress enacted the Federal Land Policy and Management Act ("FLPMA"), which had a policy of ensuring that "the public lands be managed in a manner which recognizes the Nation's need for domestic sources of minerals . . . from the public lands."[23] Since 1976, this Act has established the framework for the management of minerals on federal lands, and it has served as the enabling authority for the Bureau of Land Management's ("BLM") administration of industry regulation.[24] The FLPMA delegated the BLM to "develop the country's natural resources, ensure fair value for taxpayers, and preserve the natural environment."[25]

The purpose of the FLPMA was to balance the need for public resources, such as oil and gas, with the preservation of those resources for the future.[26] It considered the need for conformity with the "long term needs of future generations for renewable and nonrenewable resources," including minerals.[27] Amid passage of the act, the minimum royalty for federal leases has remained at 12.5%.[28] While the FLMPA was designed to balance the needs of the environment with that of the economy, it also emphasized the importance of avoiding permanent impairment to land productivity.[29]

The 12.5% royalty, otherwise referred to as the one-eighth royalty, carries historical notoriety in the province of both private and federal

21. *See generally* Robert E. Sullivan, *All About Royalties,* 16 ROCKY MTN. MIN. L. INST. 227 (1971).

22. *See* Nicole Gentile, *Federal Oil and Gas Royalty and Revenue Reform*, CAP 20 (June 19, 2015), https://www.americanprogress.org/article/federal-oil-and-gas-royalty-and-revenue-reform/ [https://perma.cc/8MZF-Z8SP].

23. Federal Land Policy and Management Act of 1976, 43 U.S.C. § 1701(a)(12).

24. *See id.*

25. Thomas Covert & Ryan Kellogg, *Ensuring Americans Receive Fair Value for U.S. Oil and Gas Resources*, EPIC: ENERGY POL'Y INST. AT THE UNIV. OF CHI., https://epic.uchicago.edu/area-of-focus/ensuring-americans-receive-fair-value-for-us-oil-and-gas-resources/ [https://perma.cc/VS6B-SMUA].

26. *See* ADAM VANN, CONG. RSCH. SERV., LSB10982, FEDERAL LAND MANAGEMENT: WHEN "MULTIPLE USE" AND "SUSTAINED YIELD" DIVERGE 1 (2023).

27. *Id.*

28. *See* BRANDON S. TRACY, CONG. RSCH. SERV., R46537, REVENUES AND DISBURSEMENTS FROM OIL AND NATURAL GAS PRODUCTION ON FEDERAL LANDS 9 (2020).

29. *See* VANN, *supra* note 26, at 2.

mineral leasing.[30] Being that it was the commonplace lease royalty for decades, courts would defer to its significance when resolving disputes over fractional mineral and royalty interests.[31] While the evolution of negotiation strategies has broadened the range of lease royalties in the past 50 years, the 12.5% royalty has been historically referenced as the "blueprint" royalty.[32] Some might say it is the fraction that first jumps into mind upon a reference to "lease royalty."[33]

Up until 2022, most of the federal leases issued by the BLM had a flat royalty of the 12.5% minimum, but the BLM will accept the highest qualified bid for bonus payment.[34] Some leases are subject to a "sliding-scale" royalty that follows a certain schedule, which hinges on daily leasehold production.[35] Where there is complete federal ownership of the mineral rights in a lease, the lessee must report all of the leasehold production for purposes of determining the total royalty due.[36] In regular lease production where federal ownership is less than 100%, the lessee must report royalties on a coordinate percentage.[37] For example, if 75% of the mineral interest in the lease is federally owned, and 25% of the interest is privately owned, the lessee would report and pay royalties on 75% of the production to the federal government, and royalties on the remaining percentage of production would be payable to the private lessor (subject to the royalty rate in

30. Lee Jones, Jr., *Non-Participating Royalty*, 26 TEX. L. REV. 569, 575 (1948) ("The usual royalty is 1/8, and this fact is so generally known that judicial knowledge may be taken of it.").

31. Even today, courts implicate the one-eighth royalty when resolving disputes over the drafting of historical instruments. *See* Hysaw v. Dawkins, 483 S.W.3d 1, 15-16 (Tex. 2016) (providing that a testatrix's bequest of one-third of the traditional one-eighth royalty was representative of her intent to convey a floating one-third non-participating royalty interest in whatever landowner's royalty was created under a lease); *see also* Concord Oil Co. v. Pennzoil Expl. and Prod. Co., 966 S.W.2d 451, 459-60 (Tex. 1998) ("This court has taken judicial notice of the fact that the prevailing royalty in private oil and gas leases was a 1/8 royalty . . . [w]e have seen that when mineral or royalty deeds contain differing fractions, the fractions almost invariably involve a multiple of eight.").

32. *See* Jones, *supra* note 30.

33. *Id.*

34. Monika U. Ehrman, *A Call for Energy Realism: When Immanuel Kant Met the Keep It in the Ground Movement*, 2019 UTAH L. REV. 435, 464 (2019).

35. Chris Jones, *What Are Sliding-Scale Royalties?*, OIL & GAS REP. (June 14, 2017), https://www.theoilandgasreport.com/2017/06/14/what-are-sliding-scale-royalties [https://perma.cc/4C6F-FDB4].

36. DATA INTAKE, SOLUTIONING, AND COORDINATION, OFF. OF NAT. RES. REVENUE, MINERALS REVENUE REPORTER HANDBOOK: OIL, GAS, AND GEOTHERMAL RESOURCES ch. 2.1 (2023).

37. *Id.*

the private lease).[38] The regulations governing the composition of royalty owed the government are primarily governed by title 30, chapter 1206 of the Code of Federal Regulations.[39]

Federal leases that yield production must file an Office of Natural Resources Revenue ("ONRR") report.[40] Through this report, the ONRR collects the royalty payments and distributes them to the government and Native Americans (in Tribal leases).[41] The government will allocate about half of the revenue to the federal Treasury and then return the other half of the revenue to the individual states where the production occurred.[42] It is important to note that while 12.5% is established as the minimum royalty, certain factors may result in a higher royalty established within a federal lease.[43] Thus, while 12.5% is the minimum share the United States can consider in a leasing bid, the royalty rate for purposes of the actual lease entered may reach as high as 18.75%, or nearly one-fifth of the royalty pie.[44]

Royalties are a very important, if not the *most* important, source of government earnings from federal leases.[45] The government obtains a considerable amount of revenue from oil and gas production through federal leases.[46] Federal onshore leases make up the bulk of total government revenue from production, closely followed by federal offshore leases.[47] In 2023, royalties alone constituted 89% of the total government revenue accumulated through federal leases.[48] The 11% of the revenue consisted of bonuses, rents, civil penalties, inspection

38. *Id*.
39. 30 C.F.R. § 1206 (2023).
40. *About Natural Resources Revenue Data*, U.S. DEP'T OF THE INTERIOR: NAT. RES. REVENUE DATA, https://revenuedata.doi.gov [https://perma.cc/W79L-H4SL].
41. *Id.*
42. *About the BLM Oil and Gas Program*, U.S. DEP'T OF THE INTERIOR: BUREAU OF LAND MGMT., https://www.blm.gov/programs/energy-and-minerals/oil-and-gas/about#:~:text=All%20Federal%20oil%20and%20gas,the%20states%20where%20development%20occurred [https://perma.cc/CK7V-5N26].
43. TRACY, *supra* note 28, at 9 n.43.
44. *How Revenue Works,* U.S. DEP'T OF THE INTERIOR: NAT. RES. REVENUE DATA, https://revenuedata.doi.gov/how-revenue-works/revenues [https://perma.cc/4TRQ-GBJD].
45. *See* TRACY, *supra* note 28, at 13.
46. *Id.* ("As royalties represent the largest share of [federal onshore energy and mineral] revenues, changes in oil prices have been among the major factors in revenue fluctuations from year to year").
47. *Natural Resources Revenue Data Monthly Fact Sheet*, U.S. DEP'T OF THE INTERIOR: NAT. RES. REVENUE DATA, https://revenuedata.doi.gov/fact-sheet [https://perma.cc/2BCW-PQ5D].
48. *Id.*

fees, and other revenue types.[49] Once paid, the government conducts disbursements where they allocate portions of the revenue to the states, in proportion to the individual states' federal leasing production.[50] The states use this tax revenue to put towards their school districts, healthcare, and other state expenditures.[51] The federal government disburses the remaining revenue to the Treasury in addition to a number of conservation funds and to indigenous tribes and nations.[52] In FY2023, the federal government disbursed over $990 million to the Land and Water Conservation Fund, $150 million to the Historic Preservation Fund, and over $1.4 billion to indigenous tribes and nations.[53] Consequently, the more federal production and leases granted each year, the more revenue is contributed to these funds through royalties.[54] These statistics illustrate the importance of royalty payments in connection with government revenue through oil and gas production on federal land.[55]

B. The Fluid Mineral Leases and Leasing Process Proposal

The current regulations for federal oil and gas operations and leasing are located in Title 43, subpart 3160 of the Code of Federal Regulations, which states that its purpose "is to promote the orderly and efficient exploration, development and production of oil and gas deposits" from "[l]eases issued or approved by the United States."[56]

49. *Id.*

50. *See Nationwide Disbursements Summary*, U.S. DEP'T OF THE INTERIOR: NAT. RES. REVENUE DATA, https://revenuedata.doi.gov/explore?dataType=Disbursements&location=NF%2CNA&mapLevel=State&offshoreRegions=false&period=Fiscal%20Year&year=2023 [https://perma.cc/PEZ2-FZ9G].

51. Mark Haggerty, et al., *Federal Fossil Fuel Disbursements to States*, HEADWATERS ECON., 10-13 (June 2021), https://headwaterseconomics.org/wp-content/uploads/HE_Federal_Fossil_Fuel_Disbursements_Report.pdf. [https://perma.cc/VJS7-P7PL].

52. *Id.*

53. *Id.*

54. *See generally Potential Budgetary Effects of Immediately Opening Most Federal Lands to Oil and Gas Leasing*, CONG. BUDGET OFF. REP. (Aug. 9, 2012), https://www.cbo.gov/publication/43527 [https://perma.cc/3HHN-69DV] ("[The Congressional Budget Office] has analyzed a proposal to immediately open most federal lands to oil and gas leasing, which would affect the amounts the federal government collects in various fees and royalties both in the near term and over a longer period").

55. *See id.*

56. 43 C.F.R. 3160.0-4.

Until 2022, the minimum royalty for federal leasing (excepting offshore federal leases) statutorily remained at 12.5%.[57]

In 2022, the IRA, passed by Congress, set the federal minimum royalty rate to 16.67% for ten years following the enactment of the IRA (until August 2032).[58] In 2023, the Department of the Interior ("DOI") proposed legislative steps (the Proposal) to ensure that 16.67% will become the minimum royalty rate for federal leases indefinitely after 2032.[59] The Proposal in its whole reflects the policy of the IRA and primarily implements two of its sections: "Mineral Leasing Act Modernization" and "Ensuring Energy Security."[60] The Proposal seeks to update the existing federal mineral leasing regulations relating to royalty rates, rentals, minimum bids, and the bonding for leasing, development, and production.[61] Its stated purpose is to "enhance the administration of oil and gas-related activity" on public lands and "protect the fiscal interests of the American public" by promoting leasing practices that are "consistent with diligent development requirements."[62] In doing so, the DOI and the BLM declare a goal of protecting the environment and ensuring a fair return to taxpayers through the efficient use of revenue from public resources.[63] This phrase "fair return to taxpayers" is a commonly cited policy by the agencies.[64]

The Proposal suggests that chapter 43, section 3103.3-1 of the Code of Federal Regulations be updated to state that "for leases issued after the 10-year period following the passage of the IRA, the royalty rate will be not less than 16.67 percent."[65] In addition, the minimum royalty for leases issued after the IRA and for the following ten years would be raised to 16.67%, the equivalent of one-sixth of the royalty pie.[66] By codifying this proposed rule, Congress would successfully raise the baseline minimum royalty for federal oil and gas leasing for

57. *See* Mineral Leasing Act of 1920, 30 U.S.C. §§ 181-193(a).

58. *Interior Department Takes Steps to Modernize Oil and Gas Leasing on Public Lands, Ensure Fair Return to Taxpayers*, U.S. DEP'T OF THE INTERIOR (July 20, 2023), https://www.doi.gov/pressreleases/interior-department-takes-steps-modernize-oil-and-gas-leasing-public-lands-ensure-fair [https://perma.cc/HH3Z-XEZ8] [hereinafter *Modernize Oil and Gas Leasing*].

59. *Id.*; Fluid Mineral Leases and Leasing Process, 88 Fed. Reg. 47562, 47577-78 (proposed July 24, 2023) (to be codified at 43 C.F.R. pts. 3000 *et seq.*).

60. *Id.* (These sections are otherwise identified as IRA §§ 50262 and 50265).

61. *Id.*

62. *Id.* at 47562.

63. *Modernize Oil and Gas Leasing*, *supra* note 58.

64. *See id.*

65. Fluid and Mineral Leases and Leasing Process, 88 Fed. Reg. at 47578.

66. *Id.*

the first time in over 100 years.[67] While 16.67% marks a starting point for raising the minimum royalty for federal leases, members of Congress have already suggested raising it higher, to at least 18.75%.[68] Lobbyists who endorse the higher minimum rate commonly believe the use of oil and gas should be reduced or eliminated entirely: they view the higher minimum royalty as a stepping stone towards the accomplishment of that goal.[69]

III. JUXTAPOSING THE INDUSTRY, THE ENVIRONMENT, AND THE ECONOMY

While there are effective strategies for encouraging oil and gas production while ensuring a fair return to taxpayers and protecting the environment, raising the minimum federal royalty is not one of them.[70] To truly understand the potential effects of the Proposal's goal to permanently raise the minimum royalty from 12.5% to 16.67% (or 1/8 to 1/6), it is important to observe the setting of the current domestic petroleum industry and the importance of federal leasing in the United States.[71] This Section begins by looking at why the oil and gas industry (and consequently, the prevalence of federal leasing) benefits the American economy. It addresses the industry's unfavorable effects on the environment and what is currently being done to address and mitigate these problems.[72] This Section also addresses the disadvantages of decreased domestic production, increased exports, and foreign oil dependency.[73]

67. *See* Mineral Leasing Act of 1920, 30 U.S.C. §§ 181-193(a); *see* Matthew Brown, *Biden Increases Oil Royalty Rate, Scales Back Lease Sales*, ASSOCIATED PRESS (Apr. 15, 2022, 7:06 PM) https://apnews.com/article/biden-business-billings-environment-4f5213bcc57da138e4d9ae859841b74d [https://perma.cc/PLU4-H2FH].

68. *See, e.g.*, *Increase the Royalty Rate for Oil and Gas Production on Onshore Federal Lands*, CONG. BUDGET OFF. (Apr. 19, 2016), https://www.cbo.gov/budget-options/other/51505 [https://perma.cc/CA3X-7JMS].

69. *See* Matthew Brown, *Biden Increases Oil Royalty Rate, Scales Back Lease Sales*, ASSOCIATED PRESS (Apr. 15, 2022, 7:06 PM) https://apnews.com/article/biden-business-billings-environment-4f5213bcc57da138e4d9ae859841b74d [https://perma.cc/PLU4-H2FH].

70. *See, e.g.*, discussion *infra* Section III.B.

71. *See, e.g.*, Samantha Gross, *Why Are Fossil Fuels So Hard to Quit?*, BROOKINGS INST., (June 2020) https://www.brookings.edu/articles/why-are-fossil-fuels-so-hard-to-quit/ [https://perma.cc/44CK-NG94].

72. *See* discussion *infra* Section III.A.

73. *See* discussion *infra* Section III.C.

Further, this Section reaches into the state of oil and gas alternatives and provides that the domestic petroleum industry cannot be overregulated while there is no alternative that can replace the growing nationwide demand—a demand that is only increasing by the year.[74] Finally, it explains why raising the minimum royalty for federal oil and gas leasing will have an aggravating effect on these factors by discouraging investment, exploration, and new federal leasing.[75]

A. The Force of the Domestic Oil and Gas Industry and Its Setbacks

The oil and gas industry is a tremendous contributor to the United States economy and tax revenue.[76] Currently, the United States is the world's leading petroleum producer, surpassing previous global leaders like Iran and Russia.[77] Oil and natural gas accounts for 64% of the world's total energy supply.[78] Along with the global population, the industry has skyrocketed in recent years.[79] Between 2010 and 2018 alone, the global growth of primary energy consumption (which includes oil, coal, and natural gas) increased by 3%, a much faster rate than seen in prior decades.[80] The industry is responsible for over 12 million jobs in the United States, over 2.5 million jobs in Texas alone, and it bolsters the Texas and American economy.[81] The industry

74. *See* discussion *infra* Section III.B.2.

75. *See* discussion *infra* Section III.B.2.

76. *The Economic Benefits of Oil & Gas*, U.S. DEP'T OF ENERGY (2020) https://www.energy.gov/articles/economic-impact-oil-and-gas#:~:text=At%20the%20start%20of%20this,public%20infrastructure%20across%20the%20country [https://perma.cc/R9MH-R78Q].

77. *Oil and Petroleum Products Explained: Where Our Oil Comes From*, U.S. ENERGY INFO. ADMIN., https://www.eia.gov/energyexplained/oil-and-petroleum-products/where-our-oil-comes-from.php#:~:text=The%20United%20States%20became%20the,oil%20to%20the%20world%20market [https://perma.cc/F9A4-F8JA].

78. BRITISH PETROLEUM, BP STATISTICAL REVIEW OF WORLD ENERGY 9-10 (68th ed. 2019), https://www.bp.com/content/dam/bp/business-sites/en/global/corporate/pdfs/energy-economics/statistical-review/bp-stats-review-2019-full-report.pdf [https://perma.cc/Z972-WRZQ].

79. Gross, *supra* note 71.

80. *EIA Projects Nearly 50% Increase in World Energy Usage by 2050, Led by Growth in Asia*, U.S. ENERGY INFO. ADMIN. (Jan. 3, 2020), https://www.eia.gov/todayinenergy/detail.php?id=42342 [https://perma.cc/PG6X-GTXC].

81. AM. PETROLEUM INST., IMPACTS OF THE OIL AND NATURAL GAS INDUSTRY ON THE US ECONOMY IN 2021 ES-2, https://www.api.org/-/media/files/policy/american-energy/pwc/2023/api-pwc-economic-impact-report-2023 [https://perma.cc/F3PK-FAJZ].

makes up over 5.4% of total domestic employment and over 6.4% of total domestic labor income.[82] The Department of Energy has recognized that "lower energy costs, driven by our massive oil and gas supply, support private sector investment in the United States and further economic growth."[83]

Following the shale revolution, the United States realized an abundance of untapped energy supply and a significant increase in its capacity to drill for oil within its own boundaries.[84] While it is often said that domestic resources are nearing depletion, this is a common red herring.[85] Contrary to this pretense, there is no shortage of domestic minerals lying beneath the surface; oil, gas, and coal make up 80% of the energy produced and consumed each year.[86] Consequently, the United States has realized the potential to reach full energy independence, which brings great benefits to the economy.[87] Oil and gas from federal lands alone is "critical to meeting the nation's

82. *Id.* at 7.

83. U.S. DEP'T OF ENERGY, *supra* note 76.

84. The shale revolution refers to the (c. 2005) beginning of the widespread use of hydraulic fracturing (or "fracking") to reach into sources of petroleum that lie beneath shale and other tight rock formations which previously would have been too difficult to obtain. John Kemp, *Is the U.S. Shale Oil Revolution Over?*, THOMSON REUTERS (Nov. 23, 2022), https://www.reuters.com/markets/commodities/is-us-shale-oil-revolution-over-kemp-2022-11-22/ [https://perma.cc/LE69-84XA]; *see The US Shale Revolution Has Reshaped the Energy Landscape at Home and Abroad, According to Latest IEA Policy Review*, INT'L ENERGY AGENCY (Sept. 13, 2019), https://www.iea.org/news/the-us-shale-revolution-has-reshaped-the-energy-landscape-at-home-and-abroad-according-to-latest-iea-policy-review [https://perma.cc/XVN2-NLCD].

85. *See, e.g.*, *Reducing Fossil Fuel Reliance*, NAT'L WILDLIFE FED'N, https://www.nwf.org/our-work/environmental-threats/climate-change/fossil-fuels#:~:text=The%20production%20and%20use%20of,and%20arsenic%20into%20our%20communities [https://perma.cc/L5QV-NLTF].

86. *U.S. Energy Facts Explained*, U.S. ENERGY INFO. ADMIN., https://www.eia.gov/energyexplained/us-energy-facts/ [https://perma.cc/KL4S-USBC] ("Fossil fuels—petroleum, natural gas, and coal—accounted for about 81% of total U.S. primary energy production in 2022").

87. *See* Robert Rapier, *U.S. Energy Independence Soars to Highest Level in Over 70 Years*, FORBES (May 2, 2023), https://www.forbes.com/sites/rrapier/2023/05/02/us-energy-independence-soars-to-highest-levels-in-over-70-years/?sh=41936a5b977f [https://perma.cc/F8LZ-UNZ3] ("2022 marked the highest level of US energy independence since before 1950…achieved through a combination of factors, including the shale boom . . . rather than being solely attributed to any specific presidential administration."); *but see* Michael Braverman, *King of the Hill: Ohio Valley Environmental Coalition v. Aracoma Coal Company,* 21 VILL. ENV'T L.J. 293, 293 (2010) ("Over the years, however, the United States has gone from importing about one-third of its oil from foreign countries to now importing nearly half.").

energy needs," and it provides about one-fourth of all oil production and one-fifth of all natural gas production in the United States.[88]

While the growth of the oil and gas industry in the United States is vital to the American economy and well-being of the public, there are downsides to the industry as well.[89] As is commonly known, researchers have found that greenhouse gases such as carbon dioxide ("CO_2"), petroleum hydrocarbons, and methane, which are released into the atmosphere from the burning of fossil fuels such as oil, gas, and coal, can have harmful effects on the environment.[90]

In response, Congress and regulatory agencies have endorsed measures to hinder and reduce the emissions of these greenhouse gases.[91] This has resulted in the all-too-familiar polarization between fossil fuel industry proponents and environmentalists.[92] The "Keep it in the Ground" movement has lobbied heavily throughout the years to implement more legislation to reduce greenhouse gas emissions from oil and gas production, and some lobbyists are fighting to eliminate the industry entirely.[93] Industry proponents, on the other hand, have sought to filibuster out of fear of economic consequences from the suppression of the fossil fuel industry—sometimes ignoring the importance of encouraging responsible production.[94] Many companies, along with some United States agencies, have strategized ways to overcome regulatory hurdles that stunt industry growth.[95]

Congress has brought a plethora of legislation to reduce the adverse effects of CO_2 and methane emissions on the environment, even while

88. While federal leasing used to account for 35% of all domestically produced oil, this number has since decreased. U.S. GOV'T ACCOUNTABILITY OFF., GAO-07-590R, ROYALTY RELIEF WILL COST THE GOVERNMENT BILLIONS OF DOLLARS BUT UNCERTAINTY OVER FUTURE ENERGY PRICES AND PRODUCTION LEVELS MAKE PRECISE ESTIMATES IMPOSSIBLE AT THIS TIME (2007).

89. *See generally* Arnold W. Reitze, Jr., *Federal Control of Greenhouse Gas Emissions*, 40 ENV'T L. 1261 (2010).

90. *See id.*

91. Ehrman, *supra* note 34, at 437.

92. *See* Reitze, *supra* note 89, at 1263.

93. Ehrman, *supra* note 34, at 438.

94. *See, e.g.*, Conrad Swanson, *House Republicans Target Oil and Gas Measure with Filibuster*, COLO. SPRINGS GAZETTE (May 27, 2019), https://gazette.com/news/house-republicans-target-oil-and-gas-measure-with-filibuster/article_da6be3c8-5009-11e9-bb37-3b7eade4a5eb.html [https://perma.cc/LP3F-SPH6].

95. *The US Shale Revolution Has Reshaped the Energy Landscape at Home and Abroad, According to Latest IEA Policy Review*, INT'L ENERGY AGENCY (Sept. 13, 2019), https://www.iea.org/news/the-us-shale-revolution-has-reshaped-the-energy-landscape-at-home-and-abroad-according-to-latest-iea-policy-review [https://perma.cc/GL35-G8FM].

polarization between sides has made solving the problems difficult.[96] The Clean Air Act of 1970, for example, sought to improve emissions by placing stricter regulations on a number of harmful pollutants, including leaded and high-sulfur gasoline, gasoline leaks, and other toxic air pollutants.[97] These industry regulations generally follow a "command-and-control" approach by threatening noncompliance with fines, penalties, or even coercion.[98]

A major concern of industry opponents deals with the seismic effects of hydraulic fracturing (fracking) on the environment.[99] Fracking is a method for reaching oil and gas deposits lying between subterranean rocks that would otherwise be difficult to recover.[100] During the fracking process, subterraneous fluid disposal, alongside other anthropogenic activities, can induce seismic activity.[101] This is partially due to the fissures created by the injected fluids, which lubricate the porous spaces and fractures in the subsurface rock.[102] This creates slippage by releasing energy stores.[103] Studies show a potential correlation between the injection of these fluids in rock formations for petroleum mining with earthquake frequency, which, if not properly controlled, can be harmful to nearby ecosystems and urban areas.[104]

Because of fracking and greenhouse gas emissions, industry opponents argue that the use of fossil fuels is an environmental hazard, and a departure from fossil fuels to sources of renewable energy (such as solar power) is needed.[105] Advocates for eliminating the industry

96. *See* Clean Air Act of 1970 (CAA), 42 U.S.C. 7401; *see also Gasoline Explained*, U.S. ENERGY INFO. ADMIN., https://www.eia.gov/energyexplained/gasoline/gasoline-and-the-environment.php [https://perma.cc/XC9X-8E6M].

97. 42 U.S.C. 7401.

98. Jonathan Remy Nash, *Too Much Market? Conflict Between Tradable Pollution Allowances and the "Polluter Pays" Principle*, 24 HARV. ENV'T L. REV. 465, 488, 504 (2000).

99. Monika U. Ehrman, *Earthquakes in the Oilpatch: The Regulatory and Legal Issues Arising out of Oil and Gas Operation Induced Seismicity*, 33 GA. ST. U. L. REV. 609, 617 (2017).

100. *See* Monika U. 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, 430-31 (2014).

101. Ehrman, *supra* note 99.

102. *Id.* at 623.

103. *See id.*

104. *Id.* at 617.

105. Gross, *supra* note 71.

have proposed very ambitious replacement goals.[106] While their concerns are justified, suppressing or eliminating the industry will not provide an effective solution.[107] The United States is not yet equipped to replace the fossil fuel industry with a comparable renewable alternative; less domestic production will lead to increased dependence on international resources; and eliminating the industry will remove a major impetus to the American economy.[108]

B. Protecting Policy Interests with Strategic Regulation

Suppressing the industry through needless, ineffective regulation is not the answer to solving the climate issue.[109] Setting a precedent for raising the minimum royalty for oil and gas production may appear to provide an improved return to taxpayers but will ultimately hurt them by throwing the economy off course and contributing to a further increase in inflation.[110] There are other ways to ensure a fair return to taxpayers and protect the environment without jeopardizing our fragile economy.[111] This is done with strategic regulation.[112] Due to the need for updated regulations such as the adjusted minimum bond (to ensure the completion or removal of operations in the case of default),[113] it is especially important to cut back on unnecessary and overbroad regulation to strengthen the potency of practical regulations without altogether discouraging federal production.[114]

1. Raising the Minimum Royalty Fails to Ensure a Fair Return

106. Samantha Gross, *The United States Can Take Climate Change Seriously While Leading the World in Oil and Gas Production,* BROOKINGS INST. (Jan. 27, 2020), https://www.brookings.edu/articles/the-united-states-can-take-climate-change-seriously-while-leading-the-world-in-oil-and-gas-production/ [https://perma.cc/DX6G-DSFV].

107. *See* discussion *infra* Section III.B.2.

108. *See* discussion *infra* Section III.B.1.

109. *See* discussion *infra* Section III.B.1.

110. *See, e.g.*, Pippa Stevens, *Rising Fuel Costs Are a Massive Problem for Business and Consumers—Here's Why They're So High*, CNBC (May 19, 2022, 11:52 AM), https://www.cnbc.com/2022/05/19/fuel-is-a-problem-for-business-and-consumers-why-prices-are-so-high.html [perma.cc/7QX8-LKDW].

111. *See* discussion *infra* Part IV.

112. *See* discussion *infra* Part IV.

113. *See* discussion *infra* Section IV.D.

114. *See, e.g.*, discussion *infra* Section IV.B (discussing the importance of selective regulation for oil and gas royalties).

to the State and Taxpayer

It is in the best interest of the taxpayer and the state to encourage oil and gas production—not discourage it.[115] While the DOI aims to ensure a fair return to taxpayers through the Proposal, raising the minimum royalty from 12.5% to 16.67% is irreconcilable with this goal.[116] This is primarily due to the fact that such a regulation is prone to lead to a deterrence and reduction in the frequency of federal leases, which produce the vast majority of their government-owed revenue through royalties.[117] The reduction in new federal bids and leases will likely lead to an overall shrink in government revenue from federal leasing that will not be equalized with the higher royalty rate.[118] This may have a damaging effect on states that use their federal leasing revenue to fund their school districts, health care, and conservation systems—to name a few.[119]

The state of Texas provides a case study illustrating the effectiveness of encouraging responsible oil and gas production to ensure a fair return to the taxpayer. In 2022, Texas's oil production tax revenue totaled $6.63 billion, a sharp 84.4% increase from 2021.[120] While Texas contains few federal leases and private leases generally display higher royalties, production is widely encouraged within the state.[121] As a result, there are fewer regulatory hurdles for producers

115. *See generally* TRACY, *supra* note 28, at 1 (showing a statistical correlation between the amounts of federal crude oil and natural gas production with annual tax revenues).

116. *See, e.g.*, Christine Reed, *UWs Considine Submits Report to WEA Outlining Potential Challenges in Energy Development*, UNIV. OF WYO. SCH. OF ENERGY RES. (Jan. 22, 2021), https://www.uwyo.edu/ser/news/2021/01/considine-report.html [https://perma.cc/3YMY-VGSG].

117. *See id.* ("For onshore federal lands examined in [a University of Wyoming] study, a leasing moratorium reduces oil and gas tax revenues by $1.1 billion per year in the first five years. States with onshore federal lands use this income to fund education, health care, local governments, and special districts, such as conservation boards.").

118. *See id*.

119. *Id*.

120. Effects of COVID-19 on the industry likely contributed to some of this change in tax revenue from 2021 to 2022. *See Texas Comptroller Glenn Hegar Announces Revenue for Fiscal 2022, August State Sales Tax Collections*, TEX. COMPTROLLER OF PUB. ACCTS., (Sept. 1, 2022), https://comptroller.texas.gov/about/media-center/news/20220901-texas-comptroller-glenn-hegar-announces-revenue-for-fiscal-2022-august-state-sales-tax-collections-1662060818986#:~:text=Oil%20production%20tax%20revenue%20was,185%20percent%20from%20fiscal%202021 [https://perma.cc/2QPY-BLVB].

121. *See, e.g.*, S.B. 2627, 88th Leg., Reg. Sess. (Tex. 2023). This Texas senate

to maneuver, which helps to offset higher royalties.[122] Even without the extra regulations, most of the major petroleum companies in Texas practice responsible production and consider the effects of their operations on the environment.[123]

For producing 42% of the nation's crude oil and 27% of the nation's marketed natural gas, Texas's generation only composes 13.5% of the country's total carbon dioxide emissions.[124] As a result of the incentives for statewide encouragement of oil and gas production in light of its benefits to the economy, producers have begun flocking to the state.[125] In the past decade, over sixty-three companies moved their headquarters to Texas, including some national industry leaders.[126] Occidental Petroleum relocated to Houston after headquartering in Los Angeles for nearly a century,[127] and Chevron is

bill, passed in 2023, introduced funding mechanisms to support and encourage further production and modernization of the oil and gas within the state. *Id.*

122. *See id.*

123. ConocoPhillips, a major producer of oil and gas in Texas, has an ambition for achieving near-zero operational methane emissions by 2030, and accomplished their 2025 target emissions level in 2021. *See Sustainability Milestones*, CONOCOPHILLIPS, https://www.conocophillips.com/sustainability/integrating-sustainability/sustainability-milestones/ [https://perma.cc/V692-GWE6]. Diamondback Energy, a major up-and-coming Texas producer, has an environmental strategy for taking measures beyond those required by law to invest in infrastructure to reduce emissions, and has a target of eliminating routine flaring by 2025. *Environmental Strategy*, DIAMONDBACK ENERGY, https://ir.diamondbackenergy.com/sustainability/environmental-strategy [https://perma.cc/J65G-C4PE]. Vital Energy (formerly Laredo Petroleum) has accomplished a 63 percent reduction in methane intensity, a 62 percent reduction in flaring intensity, and a 34 percent reduction in greenhouse gas emission intensity since 2019. *ESG and Climate Risk Report*, LAREDO PETROLEUM (Oct. 27, 2022), https://vitalenergy.com/wp-content/uploads/2022/12/Laredo-Petroleum-2022-ESG-and-Climate-Risk-Report.pdf [https://perma.cc/7T9R-47B7].

124. *Texas State Profile and Energy Estimates*, U.S. ENERGY INFO. ADMIN., https://www.eia.gov/state/?sid=TX [https://perma.cc/MG3R-YEU7].

125. *See* Fiscal Notes Staff, *Texas' Energy Profile: A Review of the State's Current Traditional and Renewable Energy Capabilities*, TEX. COMPTROLLER OF PUB. ACCTS. (Sept. 2022), https://comptroller.texas.gov/economy/fiscal-notes/2022/sep/energy.php [https://perma.cc/Y96V-X5ED].

126. *Id.*

127. Shan Li, *Occidental Petroleum to Move HQ to Houston, Spin Off California Assets*, L.A. TIMES (Feb. 14, 2014, 12:00 AM), https://www.latimes.com/business/la-xpm-2014-feb-14-la-fi-mo-occidental-petroleum-california-houston-20140214-story.html#:~:text=Occidental%20Petroleum%20is%20moving%20its,a%20century%20in%20Los%20Angeles.&text=Occidental%20Petroleum%2C%20the%20longtime%20Los,assets%20into%20a%20separate%20company [https://perma.cc/8NDP-2GYY].

in the process of relocating their employees from California to Texas.[128]

The boom of the oil and gas industry in Texas has led to outstanding taxpayer benefits.[129] In 2022, Texas oil and gas companies paid a record amount of taxes to the state, surpassing $590 million in tax revenue from oil alone.[130] The gas revenue followed closely behind, bringing in $413 million.[131] This number continues to grow annually as more producers stream to the state.[132] Texas's reasonable regulatory climate, as seen with private leasing, provides an incentive for companies to enter into more leases and, in turn, produce more resources, benefiting the taxpayer and the state economy.[133]

Nationwide federal leasing since the enactment of the IRA is a very different story.[134] While there has already been a decline in interest in federal leasing over the past few years, new policies are becoming an aggravating factor.[135] Over the past 20 years, new leases on federal lands have declined by a substantial 73%: in 2001, the number of new leases was 3,289, and in 2020, the number of new leases was just 889.[136] In 2023, some states saw no new federal lease sales at all, and the government offered the smallest number of federal leases for

128. Collin Eaton, *Chevron Sells Global Headquarters, Pares Back in California amid Texas Expansion*, FOX BUS. (Sept. 29, 2022, 12:01 PM), https://www.foxbusiness.com/energy/chevron-sells-global-headquarters-california-amid-texas-expansion [https://perma.cc/G7DL-9H95].

129. *See, e.g.*, *Sales Tax Revenue Totaled $3.7 Billion in May*, TEX. COMPTROLLER OF PUB. ACCTS. (June 1, 2022), https://comptroller.texas.gov/about/media-center/news/20220601-state-sales-tax-revenue-totaled-37-billion-in-may-1654109340274 [https://perma.cc/5KDV-3AV9].

130. *Id.*

131. *Id.*

132. *See* Kyra Buckley, *Texas Collects More Than $10 Billion in Taxes from Oil and Gas Production*, *Comptroller Said*, HOUS. CHRON. (Sept. 6, 2022, 3:27 PM), https://www.houstonchronicle.com/business/energy/article/Texas-collects-more-than-10-billion-in-taxes-17416179.php#:~:text=Oil%20and%20gas%20companies%20operating,according%20to%20the%20state%20comptroller [https://perma.cc/4FFG-YTRS].

133. *Why Texas Is the Best State for Business*, TEX. ECON. DEV. CORP., https://businessintexas.com/why-texas/ [https://perma.cc/V4Y4-4HSZ].

134. *See* Romany M. Webb, *Surprise: Inflation Reduction Act Makes Oil and Gas Development on Federal Land Less Attractive*, COLUM. L. SCH: CLIMATE L. (Aug. 17, 2022), https://blogs.law.columbia.edu/climatechange/2022/08/17/surprise-inflation-reduction-act-makes-oil-and-gas-development-on-federal-land-less-attractive/ [https://perma.cc/S3YW-9PW8].

135. *See id.*

136. *Id.*

offshore drilling since the inception of the federal offshore drilling program.[137]

But that was not enough. To further impede federal leasing, the DOI recently proposed yet another program in order to purposefully reduce offshore federal leases in the Gulf of Mexico.[138] Under this program, there would be a "*maximum* of three potential lease sales" scheduled in 2025, 2027, and 2029, which would be the "fewest oil and gas lease sales in history" in that location.[139] This approach has been criticized as "a coordinated strategy to reduce energy production."[140] Compared to Texas, this discouragement and reduction in federal leasing works against accumulation of government revenue—while the United States still receives revenue from existing federal leases, creating deterrence from federal leasing will prevent growth in industry revenue.[141]

Not only is raising the federal minimum royalty rate ineffective for reaching the goals of the DOI, but it is entirely antithetical to the purposes of the IRA.[142] One of the clearly stated purposes of the IRA is to lower energy costs by increasing access to lower-cost clean energy, bringing more opportunity, creating well-paying jobs, and improving energy efficiency across the board.[143] However, raising the

137. Lisa Friedman, *Biden Administration Offers Fewest Offshore Oil and Gas Leases in History*, N.Y. TIMES (Sept. 29, 2023), https://www.nytimes.com/2023/09/29/climate/biden-offshore-drilling-plan.html [https://perma.cc/PH9A-PT4F].

138. *Reflecting America's Rapid and Accelerating Shift to Clean Energy, Interior Department Announces Fewest Offshore Oil and Gas Lease Sales in History in Proposed Final Program for 2024-2029*, U.S. DEP'T OF INTERIOR (Sept. 29, 2023), https://www.doi.gov/pressreleases/reflecting-americas-rapid-and-accelerating-shift-clean-energy-interior-department#:~:text=The%20reduction%20of%20the%20next,future%20offshore%20renewable%20energy%20leasing [https://perma.cc/G2ZZ-LF84].

139. *Id.* (emphasis added).

140. Jennifer Presley, *US Scales Down Offshore Leasing Plan*, J. PETROLEUM TECH. (Sept. 29, 2023), https://jpt.spe.org/us-scales-down-offshore-leasing-plan [https://perma.cc/YQR4-7ST8].

141. *See* TRACY, *supra* note 28, at 8-11 (explaining the extensive use of government revenue from federal oil and gas leasing in 2019, when the minimum royalty rate was 12.5%).

142. *See* THE WHITE HOUSE, BUILDING A CLEAN ENERGY ECONOMY: A GUIDEBOOK TO THE INFLATION REDUCTION ACT'S INVESTMENTS IN CLEAN ENERGY AND CLIMATE ACTION 7 (2d. ed. 2023).

143. *See id.* ("The Inflation Reduction Act is a key pillar of President Biden's economic and industrial strategy, which is centered on investing in America's workers and communities to ensure long term, sustainable growth and prosperity."); *Fact Sheet: Marking One Year of the Inflation Reduction Act*, U.S. DEP'T OF AGRIC. (Aug. 16, 2023), https://www.usda.gov/media/press-releases/2023/08/16/fact-sheet-

minimum royalty will likely do little in the way of creating well-paying jobs, bringing more opportunity for investment, and improving energy efficiency.[144] Instead, by discouraging production altogether, it will likely reduce the opportunity to attain those goals.[145]

Industry proponents and American taxpayers have heavily condemned the expanding reductionist policies as harmful and counterintuitive.[146] Erik Milito, president of the National Ocean Industries Association, released a statement that detailed the harsh effects that the new offshore leasing program will have on the industry that will work against the goals of the IRA: "[it] jeopardizes our energy security and economic prosperity and undermines our efforts to reduce emissions and combat climate change—goals purportedly championed by the current administration."[147] In order to support the IRA's promise of providing economic prosperity and the further development of technologies that reduce greenhouse gas emissions, production on federal land should not be needlessly regulated and confined.[148]

2. The Domestic Effects of Federal Leasing Overregulation

According to the United States Department of Commerce, unnecessary and burdensome regulations are "harmful to the economy. They increase the time and cost of doing business, and therefore increase prices and kill jobs."[149] In regard to the oil and gas

marking-one-year-inflation-reductionact#:~:text=The%20law%20increases%20access%20to,of%20wildfires%20and%20extreme%20heat [https://perma.cc/KSS3-F7S9].

144. *See generally* Dean Baker & Aiden Lee, *The Employment Impact of Curtailing Fossil Fuel Use*, CTR. FOR ECON. & POL. RSCH. (May 26, 2021), https://cepr.net/report/the-employment-impact-of-curtailing-fossil-fuel-use/ [https://perma.cc/L9BR-TGB5] (providing a study on the economic impact of policies that support a reduction in fossil fuel production).

145. *See id.*

146. *See* Presley, *supra* note 140.

147. *Id.*

148. *See id.*

149. While increased regulations create some employment opportunities for enforcement of the regulations, loss of potential for oil and gas production leads to the displacement of many already-existing working-class jobs. *Regulatory Reform*, U.S. DEP'T OF COM., https://www.commerce.gov/issues/regulatory-reform [https://perma.cc/L33V-TXDV]; *see, e.g.*, Devashree Saha et al., *Just Transitions in the Oil and Gas Sector: Considerations for Addressing Impacts on Workers and Communities in Middle-Income Countries* 13 (World Rsch. Inst., Working Paper, 2023), https://files.wri.org/d8/s3fs-public/2023-01/just-transitions-oil-gas-sector.pdf?VersionId=jZEr3RLHhUaUJmLXAy3Jho71hZ2scfqQ

industry, stricter climate regulations reduce investment.[150] Authorities show that stricter climate policies and regulations increase oil and gas prices.[151] A research study conducted by the International Monetary Fund found that the increase in strict climate policies led to a "6.5 percent global decline of [oil and gas firm] capital expenditures between 2015 to 2019, after controlling for oil market tightness, global factors, and other typical firm-level control variables."[152] Specifically, the study found that one mere standard deviation increase in industry exposure to stricter climate policies resulted in a 3% reduction in standard company investment.[153] This invariably leads to higher prices for oil and gas, which hurt American consumers.[154]

Other factors may also exacerbate the lack of production, including the "regulatory burden associated with production on federal lands [which] could influence the extent to which production might decline."[155] As seen with the Proposal, there are a large number of concurrent changes and restrictions for the industry that are being brought before Congress—many of which are important for responsible production.[156] Nonetheless, the aggregate effect of these changes will already discourage petroleum production companies from further development and growth.[157] As mentioned previously, federal royalties account for approximately 89% of the total government revenue accumulated through federal leases.[158] By mere proportion, the significance of royalty stability and the need for encouraging production to maintain royalty revenues are apparent.[159]

[https://perma.cc/KXW8-GKN5] (providing a study showing how the shift away from fossil fuels has led to public sector job loss in middle-income countries).

150. *See* Christian Bogmans et al*., The Impact of Climate Policy on Oil and Gas Investment* 20-25 (Int'l Monetary Fund, Working Paper No. WP/23/140, 2023).

151. *See id.* at 28-29.

152. *Id.* at 28.

153. *Id.* at 23.

154. *See id.* at 28-29.

155. U.S. GOV'T ACCOUNTABILITY OFF., GAO-17-540, OIL, GAS, AND COAL ROYALTIES: RAISING FEDERAL RATES COULD DECREASE PRODUCTION ON FEDERAL LANDS BUT INCREASE FEDERAL REVENUE (2017) (while this study predicted that raising royalty rates could minimally decrease oil and gas production and increase federal revenue, the GAO conceded that "the extent of these effects is uncertain and depends . . . on several factors, such as market conditions and prices.").

156. Fluid Mineral Leases and Leasing Process, 88 Fed. Reg. 47562 (proposed July 24, 2023) (to be codified at 43 C.F.R. pts. 3000 *et seq.*).

157. *See* U.S. DEP'T OF THE INTERIOR: NAT. RES. REVENUE DATA, *supra* note 47.

158. *See id.*

159. *See id.*

Congress has had a convoluted history of imposing regulations on the oil and gas industry that act as "band-aids" but do not address the root cause of the problems they are designed to fix.[160] In 2022, the House of Representatives passed a bill entitled the "Consumer Price Gouging Prevention Act."[161] Congress designed the bill to "protect consumers from price-gouging of consumer fuels, and for other purposes," but did so by creating stricter regulations for oil and gas companies.[162]

While the bill had widespread support from taxpayers who were suffering from the skyrocketing gas prices, it received backlash from oil and gas companies and manufacturers; mainly, it failed to address the root cause of the rising gas prices, which was not created by industry price gouging but other climate policies along with rising inflation.[163] Rachel Jones, Vice President of Energy and Resources Policy for the National Association of Manufacturers, complained to Congress on behalf of the oil and gas industry.[164] In her letter, she explained why the rising gas prices are not caused by wholesale price gouging, as well as why increasing domestic production will be a more practical solution for alleviating inflation.[165] Ultimately, the bill narrowly passed through the House, but it did not pass the Senate.[166]

The effects of this over-regulation can be particularly harmful to small oil and gas companies and manufacturers, which currently make up 80% of the domestic oil and gas operations in the United States.[167] The economic viability of these smaller companies would take a severe hit.[168] This is especially true in states like New Mexico, where the industry operates predominantly through federal intrastate leases.[169] While the 12.5% royalty rate is concededly lower than most

160. *See e.g.*, H.R. 7688, 117th Cong. (2d Sess. 2022) (protecting "consumers from price-gouging of consumer fuels").
161. *Id.*
162. *Id.*
163. *See, e.g.*, Letter from Rachel Jones, Vice President, Energy & Res. Pol'y for the Nat'l Ass'n of Mfrs., to Nancy Pelosi, Speaker of the House, & Kevin McCarthy, Republican Leader (May 19, 2022) (on file with author).
164. *Id.*
165. *Id.*
166. H.R. 7688, 117th Cong. (2d Sess. 2022).
167. Thomas Brock, *How Do Government Regulations Impact the Oil and Gas Drilling Sector?*, INVESTOPEDIA (July 18, 2022), https://www.investopedia.com/ask/answers/012715/how-does-government-regulation-impact-oil-gas-drilling-sector.asp [https://perma.cc/53GA-8X4].
168. *Id.*
169. *BLM New Mexico Oil and Gas*, U.S. DEP'T OF THE INTERIOR: BUREAU OF LAND MGMT., https://www.blm.gov/programs/energy-and-minerals/oil-and-

other types of private leases, these companies and operators have to leap through many more hoops and regulatory standards, which can be very costly for commencing production.[170] Smaller companies, in particular, will have to deal with higher start-up costs that will force them out of the sector and discourage them from sustaining interest in federal leases.[171] Some states have already felt the upshot of the increased royalty rates—in Montana, for example, there were no new federal lease sales between January and October 2023.[172] Overall, while there was a short-lived spike in federal leases following the year the Biden Administration took office, the number of federal leases saw over a 50% decrease in 2022, largely due to the moratorium the administration had placed on federal leasing.[173] From FY2021 to FY2022, total receipts from competitive federal oil and gas lease sales decreased by nearly one-third.[174]

While proponents of policies to reduce the issuance of federal permits argue that oil and gas companies sit on their hind legs while stockpiling federal leases, this has been criticized as a red herring.[175] It is true that operators oftentimes wait to exercise their permits and begin drilling, but there is an array of important factors involved in

gas/about/new-mexico [https://perma.cc/U782-4T24].

170. *See, e.g.*, Nichola Groom, *US Bans New Oil and Gas Leasing Around New Mexico Cultural Site*, REUTERS (June 2, 2023, 5:40 AM), https://www.reuters.com/business/energy/us-bans-new-oil-gas-leasing-around-new-mexico-cultural-site-2023-06-02/ [https://perma.cc/L266-W23T].

171. Andy Smith, *How Strong Are the Barriers to Entry in the Oil and Gas Sector?*, INVESTOPEDIA (Sept. 6, 2022), https://www.investopedia.com/ask/answers/061115/how-strong-are-barriers-entry-oil-and-gas-sector.asp [https://perma.cc/77SB-JVCE].

172. Tom Lutey, *No Federal Oil and Gas Leases in Montana in 2023*, BILLINGS GAZETTE (Sept. 19, 2023), https://billingsgazette.com/news/state-regional/oil-gas-lease-federal-regulations-montana-production/article_511f3efe-5684-11ee-ade9-7fa6919f31da.html [https://perma.cc/5SHV-GRDL].

173. *See* Heather Richards, *Drilling Permits Spiked Then Plunged Under Biden*, E&E NEWS (Mar. 14, 2022, 7:21 AM), https://www.eenews.net/articles/drilling-permits-spiked-then-plunged-under-biden/ [https://perma.cc/STC9-FV9E]; *see* Exec. Order 14008, 86 Fed. Reg. 19 (Feb. 1, 2021).

174. BLM offices had eight competitive oil and gas lease sales and received $31,127,101 in FY2021 receipts; in FY2022, the BLM held only five competitive oil and gas lease sales and received $22,265,138 in receipts. *Fiscal Year 2021 Statistics: Table 15 Oil and Gas Lease Sales FY21*, U.S. BUREAU OF LAND MGMT., https://www.blm.gov/programs-energy-and-minerals-oil-and-gas-oil-and-gas-statistics; *Fiscal Year 2022 Statistics: Table 15 Oil and Gas Lease Sales FY22*, U.S. BUREAU OF LAND MGMT., https://www.blm.gov/programs-energy-and-minerals-oil-and-gas-oil-and-gas-statistics.

175. *See* Richards, *supra* note 173.

their decision to do so. For example, it frequently takes years between discovery and first production on a lease, partly based on the planning and decision-making involved in determining where and when to begin drilling a well.[176] Due to the additional economic and global factors that influence production and energy prices, companies must consider the economic forecast at least a year before drilling even starts.[177]

It is also important to address the argument that certain private lease operators may see a benefit from the higher energy costs that might occur from the raised minimum royalty.[178] If those companies do not enter federal leases, they can avoid the extra regulations altogether and reap industry benefits from the higher energy prices.[179] While this is true, it generally only helps companies that avoid federal leasing altogether and do not have these stricter regulations offsetting the benefit of higher industry gas prices.[180] While this may help private-leasing operators, when applied to companies in federal leases the overall effect will create a strain on the economy and to taxpayers who are already struggling with rising costs and inflation—sifting out these benefits.[181] In other words, while privately-leased petroleum companies are enjoying corresponding benefits to higher energy prices, the consumers and companies in federal leases will ulimately be left to deal with the damage of heightened prices and compounding inflation.[182]

Furthermore, the United States economy will see harmful consequences from the suppression of the domestic fossil fuel industry through the imposition of a higher minimum royalty and nonessential regulation.[183] While methods of alternative energy—such as wind,

176. *See* Jennifer A. Dlouhy et al., *Biden Wants U.S. Oil to Drill More. Here's Why They're Holding Back*, BLOOMBERG (Mar. 11, 2022, 6:00 AM), https://www.bloomberg.com/news/articles/2022-03-11/ukraine-war-puts-biden-and-u-s-oil-at-odds-on-domestic-drilling [https://perma.cc/8PF9-97RH].

177. *Id.*

178. *See generally* Rachel Frazin & Zack Budryk, *Here's Who Stands to Win from High Gas Prices*, THE HILL (Mar. 11, 2022, 5:08 PM), https://thehill.com/policy/energy-environment/597909-heres-who-stands-to-win-from-high-gas-prices/ [https://perma.cc/5ZCE-38LU].

179. *See* William Brangham, *Oil Companies Post Massive Profits as Consumers Feel Squeeze from High Gas Prices*, PBS NEWS (Nov. 1, 2022, 6:40 PM), https://www.pbs.org/newshour/show/oil-companies-post-massive-profits-as-consumers-feel-squeeze-from-high-gas-prices [https://perma.cc/9QUN-Q8HF].

180. *See id.*

181. *See id.*

182. *See, e.g.*, *id.*

183. *See, e.g.*, Gross, *supra* note 106.

solar, and electricity—have seen growth in recent years, none have even come close to replacing the demand for oil and gas.[184] In our fast-moving society that relies heavily on daily transportation to operate, removing or restricting this energy source prematurely would have injurious effects on the economy and the lives of the public.[185]

For instance, while opponents of the industry argue that electric batteries can replace gasoline, there is no electric battery that could come close to providing the energy of gasoline or diesel fuel—which pound-for-pound contains forty times the energy as the most technologically advanced car battery.[186] The energy density of oil and gas, and their ability to produce high heat, has not yet been paralleled by wind, solar, or electric batteries.[187] If gasoline (fuel derived from crude oil) is abandoned, reliance on electric batteries to run vehicles nationwide would likely lead to inefficiencies in transportation and commerce that would result in rising costs for services and shipping and will ultimately expedite inflation.[188]

Interestingly, the key components of electric vehicle ("EV") technology come from using oil- and gas-based products, also known as "petrochemicals."[189] While this may seem counterintuitive to the purpose of EVs, it is a well-known fact that battery-powered vehicles owe their functionality to petrochemicals, which also comprise an

184. While natural gas and petroleum made up sixty-nine percent of U.S. primary energy consumption in 2022, renewable energy only constituted thirteen percent of total primary energy consumption—with wind energy making up only twenty-nine percent of the consumed renewable energy, and solar power making up only fourteen percent of the consumed renewable energy. U.S. ENERGY INFO. ADMIN., MONTHLY ENERGY REVIEW APRIL 2023 6 tbl.1.3, 182 tbl.10.1 (2023), https://www.eia.gov/totalenergy/data/monthly/archive/00352304.pdf [https://perma.cc/8EUY-G9AC].

185. *See* Gross, supra note 71.

186. *Id.*

187. Nuclear energy is the only comparable energy source to fossil fuels. *Id.* However, nuclear reactors can be impractical and dangerous to maintain, and the processes for creating the reactor fuel expends copious amounts of energy and emissions—an issue beyond the scope of this article. *Id.; but see Nuclear Power and the Environment*, U.S. ENERGY INFO. ADMIN., https://www.eia.gov/energyexplained/nuclear/nuclear-power-and-the-environment.php#:~:text=Nuclear%20power%20reactors%20do%20not,require%20large%20amounts%20of%20energy [https://perma.cc/9868-V6PA].

188. *See generally* Ehrman, *supra* note 34 (discussing the ways in which reduced oil and gas production would affect commerce).

189. *See Making of Electric Vehicles: Petrochemical Plastics*, ENERGYFACTOR ASIA PACIFIC BY EXXON MOBIL (Apr. 9, 2019), https://energyfactor.exxonmobil.asia/reducing-emissions/energy-efficiency/electric-vehicles-cant-without-oil-and-gas/ [https://perma.cc/2Q2F-42PW].

abundance of everyday products.[190] Without them, EVs would be too heavy and have a much more limited range, rendering them impractical for common use.[191]

Oil and gas are not only useful for the manufacture of EVs—they are absolutely crucial for ensuring that EV technology will continue to make progress.[192] If the traditional use of oil and gas for fuel were to decline, oil and gas would still remain essential in the automotive industry for the making of EVs.[193] For example, it is estimated that the average EV uses up to 772 pounds of petrochemical products, and this number is only expected to increase as technology advances.[194] If the EV industry continues to grow in efficiency, it is imperative to establish a favorable environment for the further exploration and production of oil and gas—this is supported by maintaining the current royalty rate.[195]

Furthermore, natural gas has its usefulness in the environmental sector. For example, natural gas is a cleaner and cheaper source of energy than coal, which is still widely used in the United States.[196] If the United States were to replace its coal-fired power plants with natural-gas-fired power plants, it would actually *reduce* its net carbon emissions.[197] Natural gas is a "lower-emitting producer" and produces "less carbon per unit of electricity generated than coal plants," while providing more energy output than coal.[198] In converting coal-fired plants to natural gas plants, the United States has already seen a continual decrease in its net carbon output to the benefit of the environment.[199]

190. *See, e.g.*, *id.*

191. *See* Nicholas LePan, *How Much Oil Is in an Electric Vehicle?*, VISUAL CAPITALIST (May 20, 2019), https://www.visualcapitalist.com/how-much-oil-electric-vehicle [https://perma.cc/V67K-UNZ3].

192. *Id.*

193. ENERGYFACTOR ASIA PACIFIC BY EXXON MOBIL, *supra* note 189.

194. *Id.*

195. *See id.*

196. *More Than 100 Coal-Fired Plants Have Been Replaced or Converted to Natural Gas Since 2011*, U.S. ENERGY INFO. ADMIN. (Aug. 5, 2020), https://www.eia.gov/todayinenergy/detail.php?id=44636 [https://perma.cc/W5AC-BMXX].

197. *See* West Virginia v. EPA, 142 S. Ct. 2587, 2593 (2022) (describing measures under the EPA's Clean Power Plan to shift from coal-fired power plants to natural-gas-fired power plants).

198. *Id.*

199. *Electric Power Sector CO_2 Emissions Drop as Generation Mix Shifts from Coal to Natural Gas*, U.S. ENERGY INFO. ADMIN. (June 9, 2021), https://www.eia.gov/todayinenergy/detail.php?id=48296 [https://perma.cc/87TP-

A common argument in support of raising the minimum royalty is that keeping the federal royalty comparative to the royalty rate in surrounding private leases supports a fairer return to the government and taxpayers.[200] Holders of this view argue that federal resources are underpriced, and the costs associated with federal leasing are not fair when compared to the rest of the leasing market.[201] While this concept appears sensible on its face, it fails to consider the auxiliary burdens imposed on companies that enter federal leases—burdens that are not commonplace in other types of leases.[202] It can be much more difficult for companies to enter leases on federal lands because of the high regulatory hurdles they must handle beforehand.[203] If it is true that federal leasing for government resources is underpriced, then why are so many petroleum companies avoiding them?[204]

The current process for entering federal leases is anything but straightforward. To enter a federal lease, generally a potential lessee (operator) must file an application for permit to drill ("APD") on a qualified federal parcel through the BLM.[205] The BLM is then charged with ensuring that the party complies with and meets a laundry list of requirements and regulations under the National Environmental Policy Act ("NEPA"), the Endangered Species Act, the National Historic Preservation Act, and other laws and regulations.[206] Following this preliminary qualification process, the BLM conducts a lengthy onsite inspection with a number of parties, including the lessee, surface and mineral estate owners, state and federal agencies, and more.[207]

The BLM will then conduct a NEPA analysis, whereafter it rendera a primary decision.[208] Decisions may entail an approval, an approval

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200. *See, e.g.*, Bruce R. Huber, *The Fair Market Value of Public Resources*, 103 CALIF. L. REV. 1515, 1552 (2015).

201. *Id.*

202. *See, e.g.*, Ehrman, *supra* note 34, at 454-57.

203. *Operations and Production*, U.S. DEP'T OF THE INTERIOR: BUREAU OF LAND MGMT., https://www.blm.gov/programs/energy-and-minerals/oil-and-gas/operations-and-production [https://perma.cc/2XZC-W46X].

204. *See* Kevin O'Scannlain, *The Red Herring of Unused Leases*, AM. PETROLEUM INST. (Mar. 4, 2022), https://www.api.org/news-policy-and-issues/blog/2022/03/04/the-red-herring-of-unused-leases [https://perma.cc/Q2JL-BRAS] (explaining the hurdles that cause most oil and gas companies to seek to avoid the risk of entering into federal oil and gas leases).

205. *Operations and Production*, *supra* note 203.

206. *Id.*; *see, e.g.*, 42 U.S.C. § 4321 *et seq*.

207. *Operations and Production*, *supra* note 203.

208. *Id.*

with modification, denial, or deferred action.[209] More conditions may be placed on operators depending on the location of the potential drilling.[210] Even after these regulations have been met and the approval process has reached completion, the APD is only valid for two years unless further action is taken to allow the operator a drilling extension.[211] Oftentimes, after the bonus payments have been tendered to the government, lease sale protestors (usually fossil fuel opponents) will tie up the leases by encouraging the BLM to respond to demands that the highest bidder withdraw from the parcel.[212] When the protesters are successful, the BLM removes the federal parcels and refunds the bonus paid by the operator, reverting back to square one.[213]

Even once a permit is successfully obtained, a lessee that enters an oil and gas lease must generally produce within ten years of the issuance of the lease or else the lease terminates.[214] While many industry opponents argue that oil and gas companies intentionally "hold up" federal leases, this is untrue.[215] The Mineral Leasing Act has imposed regulations that restrict this.[216] The laws are structured so that lessees do not "lock up" excess federal acreage, and it causes them to make major financial investments if they even want to consider development of the lease (by way of nonrefundable bids and rentals imposed until production occurs).[217]

These existing difficulties in acquiring federal leases, paired with the new regulations, will likely ensure that most large oil and gas companies operating predominantly through private leases avoid entering federal leases except as a last resort option.[218] While this may seem like an accomplishment to those who want to move away from

209. *Id.*
210. *Id.*
211. *Id.*
212. Ehrman, *supra* note 34, at 454-57.
213. *Id.*
214. O'Scannlain, *supra* note 204.
215. *See id.*; *see also Press Briefing by Press Secretary Jen Psaki*, WHITE HOUSE (Feb. 7, 2022), https://www.whitehouse.gov/briefing-room/press-briefings/2022/02/07/press-briefing-by-press-secretary-jen-psaki-february-7-2022 [https://perma.cc/3PE4-V8XF].
216. *See* Mineral Leasing Act of 1920, 30 U.S.C. §§ 181-193(a).
217. O'Scannlain, *supra* note 214.
218. *See Responding to the White House Blame Game*, W. ENERGY ALL. (Mar. 8, 2022), https://www.westernenergyalliance.org/uploads/1/3/1/2/131273598/western_energy_alliance_position_paper_-_whos_to_blame_for_high_energy_prices.pdf [https://perma.cc/4M8F-EWGX].

the industry, it will facilitate a drag on the economy by preventing companies from exploring areas where production would be beneficial, such as offshore Alaskan waters and the Gulf of Mexico.[219] Further, this decrease in interest, along with the negative connotations associated with federal leasing, will curtail substantial oil and gas revenue to the government—decreasing prospective taxpayer returns.[220]

The bottom line is that taxpayers cannot receive a fair return from the oil and gas industry if raising the minimum royalty disincentivizes production by way of federal leasing. In other words, there is little sense in raising the minimum royalty rate to ensure a fair return to taxpayers if the result will decrease oil and gas tax revenue by discouraging it.[221]

C. Global Effects of Domestic Oil and Gas Diminution Through Nonessential Federal Regulations

Looking back to the Proposal, a further adverse effect of using higher minimum royalties without meeting demand will be a very likely increase in imports—instead of a mere reduction in the population's consumption.[222] The increased dependence on imported oil and gas resources, which would inevitably result from the suppression of the domestic industry, would conceivably result in even harsher consequences to the global climate.[223]

For example, many of the countries that produce oil and gas have much different environmental safety and reporting standards from industries in the United States that produce domestically.[224] Furthermore, imports from foreign countries will require significant

219. *See, e.g.*, ALASKA OIL & GAS ASS'N, THE ROLE OF THE OIL AND GAS INDUSTRY IN ALASKA'S ECONOMY 19-59 (2020).

220. Creating stricter regulations to enter federal leases will likely contribute to a reduction in overall federal leasing, which will reduce annual tax revenues through federal leasing. *See generally* TRACY, *supra* note 28 (providing data on crude oil and natural gas production revenues and disbursements on federal lands).

221. *See id.*

222. Gross, *supra* note 106.

223. *See* Stephen P. A. Brown & Ryan T. Kennelly, *Consequences of U.S. Dependence on Foreign Oil* 6-14 (Nat'l Energy Pol'y Inst., Working Paper, 2013); *see, e.g.*, Chris Buckley, *China Burns Much More Coal Than Reported, Complicating Climate Talks*, N.Y. TIMES (Nov. 3, 2015), https://www.nytimes.com/2015/11/04/world/asia/china-burns-much-more-coal-than-reported-complicating-climate-talks.html?_r=0 [https://perma.cc/KXD8-R8MB].

infrastructure to account for the volume of importation.[225] The requirements for this infrastructure will almost certainly expend more energy resources, which will release more carbon emissions into the environment.[226] Merely reducing domestic production, while hiking up foreign production, does not pose an effective solution for reducing total global carbon emissions.[227] Furthermore, reliance on international efforts to address the greenhouse gas problem has been historically unhelpful.[228]

Consider worldwide industry greenhouse gas emissions through flaring.[229] Methane, a chemical compound within the category of greenhouse gases, is a constituent of natural gas, which can be released into the atmosphere when the gas is vented into the atmosphere.[230] Flaring, on the other hand, is a common practice after extraction that involves burning natural gas into the atmosphere as opposed to venting it.[231] While residual methane is released into the atmosphere during the flaring of natural gas, the primary constituent released becomes CO_2.[232] This release of natural gas into the atmosphere may occur for a number of reasons, such as for handling market constraints, for safety reasons, or to comply with regulations.[233] While flaring is a common practice, the effects of the release of methane and CO_2 into

225. *See* Hidegunn Kyvik Nordås et al., *Infrastructure and Trade* 9-11 (World Trade Org., Working Paper No. ERSD-2004-04, 2004).

226. *See generally id.* at 18 (providing a research study on the importance of high-quality infrastructure and the automotive sector in bilateral trading).

227. *See* Brown & Kennelly, *supra* note 223.

228. The Kyoto Protocol was a United Nations treaty for reducing greenhouse gas emissions to which many developed countries, such as the United States, were bound. Senator Jim Inhofe, Chairman, U.S. Senate Comm. on Env't & Pub. Works (EPW), Failures of Kyoto will Repeat with the Paris Climate Agreement (Apr. 21, 2016) (transcript available on the official EPW website). However, a crucial reason behind its failure to effectively reduce greenhouse gas emissions was its exclusion of developing countries that were major global contributors of greenhouse gas emissions. *Id.*; *see* Reitze, *supra* note 89, at 1272.

229. *See generally* Caleb A. Fielder, *Those Who Favor Fire: An Odyssey of Flaring in Texas*, 54 TEX. TECH L. REV. 231, 232-33 (2022) (explaining the process of industry flaring and the waste of natural resources that occurs as a result).

230. Global Gas Flaring Reduction Partnership, *Gas Flaring Explained*, THE WORLD BANK, https://www.worldbank.org/en/programs/gasflaringreduction/gas-flaring-explained [https://perma.cc/57VB-78R2].

231. *Flaring*, WILLIAMS & MEYERS, MANUAL OF OIL AND GAS TERMS (Patrick H. Martin ed., 18th ed. 2021).

232. Monika U. Ehrman, *Lights Out in the Bakken: A Review and Analysis of Flaring Regulation and Its Potential Effect on North Dakota Shale Oil Production*, 117 W. VA. L. REV. 549, 551 (2014).

233. *See* Global Gas Flaring Reduction Partnership, *supra* note 230.

the environment can be harmful or wasteful in excess.[234] The United States has taken measures to reduce methane emissions by cutting back on unnecessary flaring and incorporating environmentally friendly infrastructure.[235]

In 2021, Venezuela—a major producing country known for its industry mismanagement and "shoddy equipment"—had a flaring intensity that was 1,714% higher than the United States.[236] Iran and Russia had flaring intensity rates that were 633% and 229% that of the United States, respectively.[237] While the flaring intensity and volume within recent years in the United States have been much lower than most major producing countries, it still remains the top producer and net exporter of oil and gas while still cutting back on its methane emissions.[238] This benefit to the environment is due in part to the heightened production standards employed in the United States compared to most other countries.[239] The regulations in place are already helping to reduce domestic greenhouse emissions, which diminishes the need for other overbearing legislation that changes the minimum royalty.[240]

Even worse, many other countries are known for purposely falsifying the reports on their own industry greenhouse gas emissions

234. *Id.*

235. *See, e.g.*, THE WHITE HOUSE OFF. OF DOMESTIC CLIMATE POL'Y, U.S. METHANE EMISSIONS REDUCTION ACTION PLAN 7 (2021), https://www.whitehouse.gov/wp-content/uploads/2022/11/US-Methane-Emissions-Reduction-Action-Plan-Update.pdf [https://perma.cc/8PM4-P5DA].

236. Isayen Herrera & Sheyla Urdaneta, *Venezuela's Oil Industry Is Broken. Now It's Breaking the Environment*, N.Y. TIMES, (July 25, 2023), https://www.nytimes.com/2023/07/22/world/americas/venezuela-oil-energy-environment.html [https://perma.cc/WU53-KFDQ]; Global Gas Flaring Reduction Partnership, *supra* note 230.

237. Russia is a top crude oil producer, accounting for approximately 12.7% of global crude oil production in 2022. *International Energy Statistics: Petroleum and Other Liquids*, U.S. ENERGY INFO. ADMIN., https://www.eia.gov/international/data/world/petroleum-and-other-liquids/annual-petroleum-and-other-liquids-production [https://perma.cc/D4AM-PQZD]. Compare this with the United States' total crude oil production for the same year, which totaled at 14.7% of global production. *Id.*; Global Gas Flaring Reduction Partnership, *supra* note 230.

238. *See* THE WHITE HOUSE OFF. OF DOMESTIC CLIMATE POL'Y, *supra* note 235.

239. *See generally id.* (providing examples of the measures taken by the United States to reduce domestic greenhouse gas emissions).

240. *See Climate Change Indicators: Greenhouse Gas Emissions*, U.S. ENV'T PROT. AGENCY, https://www.epa.gov/climate-indicators/climate-change-indicators-us-greenhouse-gas-emissions#:~:text=Emissions%20of%20carbon%20dioxide%2C%20the,activities%20such%20as%20livestock%20production [https://perma.cc/3J7W-4PKQ].

in order to provide a "home field" advantage.[241] For example, after promising to mitigate its carbon emissions, China was found to have largely underreported its total coal production over a number of years.[242] Widespread and unregulated coal use is a major contributor to carbon dioxide pollution, and the amount that China failed to report in 2012 was 70% of the total annual use of coal in the United States during that year.[243] Russia also has a history of strategically using outdated and disproportionate reporting mechanisms to shelter its own rising levels of greenhouse gas emissions.[244] This demonstrates the need for the United States to strategically encourage domestic production as an alternative to imposing stricter regulations that will likely lead to heavier reliance on foreign resources.[245]

IV. QUALITY OVER QUANTITY: THE APPROACH IN LIEU OF HIGHER ROYALTY

A prosperous environment and economy are not incompatible objectives that cannot be reconciled within the oil and gas industry.[246] Instead of holding the view that the environment and industry are at odds, it is much more beneficial to harmonize the two.[247] Doing so will help to address the issue of how to accommodate the two seemingly conflicting interests. How will the government actually ensure a fair return for taxpayers? What regulations will effectively protect the environment without leading to industry impairment? If raising the minimum royalty will not mend the dilemma we face, then what will?

Maintaining the current minimum royalty for federal leases will help preserve the industry for the benefit of the economy and the public.[248] There are a number of ways in which the DOI's incentives

241. Chris Mooney et. al, *Countries' Climate Pledges Built on Flawed Data, Post Investigation Finds*, WASHINGTON POST (Nov. 7, 2021), https://www.washingtonpost.com/climate-environment/interactive/2021/greenhouse-gas-emissions-pledges-data/ [https://perma.cc/88MB-Y5JB].

242. Buckley, *supra* note 224.

243. *Id.*

244. Inhofe, *supra* note 228.

245. *See id.*

246. *See, e.g.*, Wendy B. Jacobs & Michael Craig, *Legal Pathways to Widespread Carbon Capture and Sequestration*, 47 ENV'T L. REP. 11022, 11026 (2017) (discussing the use of carbon capture as an incentive for responsible oil and gas production).

247. *See id.*

248. *See generally* discussion *supra* Part III.

can be met without over-regulating the oil and gas industry, driving up energy costs, and reducing exploration and investment.[249] Instead of raising the minimum royalty and steering away from royalty relief, the DOI should provide a better stimulus for industry responsibility.[250] Such stimuli include: providing royalty relief for conforming companies; implementing programs encouraging the use of equipment that reduces methane emissions; adopting a "cap-and-trade" approach to carbon emission regulation; and promoting selective regulation that prioritizes the needs of the environment, economy, and industry.[251]

A. Introducing Royalty Relief for Compliant Companies

The United States should adopt legislation that provides for a royalty reduction, or "royalty relief," to petroleum companies in federal leases that readily comply with existing industry regulations while there is a need for production.[252] This will help provide an incentive for responsible production and will also encourage research and investment into better technology.[253]

Royalty relief is not something novel to Congress.[254] In 1995, Congress passed the Deep Water Royalty Relief Act of 1995 ("DWRRA") to "promote increased exploration, development, and production on leases found in deep areas of the Gulf of Mexico, providing economic incentives to operators."[255] It was introduced during a time that the United States was in need of production and exploration, and it served its purpose well.[256] Royalty relief was designed to be distributed during times in which it is important to encourage production to serve the needs of the economy.[257] At the time, the Gulf of Mexico was found to have a rich potential for oil and

249. *See, e.g.*, discussion *supra* Section IV.C.
250. *See id.*
251. *See* discussion *supra* Section IV.A (royalty relief), Section IV.B (carbon capture), Section IV.C (methane mitigation technology), and Section IV.D (raising the minimum bonding requirements).
252. 42 U.S.C. § 15905.
253. *See, e.g.*, Jane Van Ryan, *The Benefits of Royalty Relief*, AM. PETROLEUM INST. (Apr. 21, 2010), https://www.api.org/news-policy-and-issues/blog/2010/04/21/the-benefits-of-royalty-relief [https://perma.cc/LF9T-VLAE].
254. *See, e.g.*, *Royalty Relief*, U.S. DEPT. OF THE INTERIOR: BUREAU OF OCEAN ENERGY MGMT., https://www.boem.gov/oil-gas-energy/energy-economics/royalty-relief [https://perma.cc/GSC7-KCG3].
255. *Id.*
256. Van Ryan, *supra* note 253.
257. *See id.*

gas discovery, but there was insufficient technology for tapping into those resources.[258]

The DWRRA provided incentives for companies to enter leases for drilling into the Gulf—just as it intended to.[259] It helped stabilize gas prices when they were at floor levels.[260] It also contributed to a surge in investment, the invention of new technology, an economic stimulus, and, consequently, a beneficial return to taxpayers.[261] A research report that examined the Gulf leases between 1996 and 2000—when the DWRRA was in effect—found a surge in federal leases and tax revenue to the government.[262] During that period, 3,391 leases were entered, leading to $5 billion in federal leasing revenue to the United States.[263]

Again in the spring of 2020, the BLM temporarily brought royalty relief for leases on federal land in the wake of plummeting domestic oil and gas prices during the pandemic.[264] However, the BLM encountered issues in the efficiency and equitability of the royalty relief, in part because the *Fees, Rentals and Royalties Handbook*, which the BLM references in facilitating its decisions, does not provide sufficient detail to ensure uniformity in its application.[265]

Since the establishment of the DWRRA and the COVID-19 royalty relief, royalty relief has been vilified by some legislators and climate change activists.[266] This was especially frequent during the pandemic, when the government offered oil and gas companies royalty relief while not providing any kind of incentive to spur the development of

258. *See Natural Gas Royalties: The Facts, The Remedies: Hearing Before the S. Comm. on Energy and Resources*, 109th Cong. 2 (2006) (statement of Walter Cruickshank, Dep. Dir., Mins. Mgmt Serv., Dept. of Int.); *see generally* Santa Fe Snyder Corp. v. Norton, 385 F.3d 884, 885-86 (5th Cir. 2004) (providing an application of the DWRRA and the controversy over the discrepancies in its implementation).

259. Van Ryan, *supra* note 253.

260. Edmund L. Andrews, *Royalty Relief for Oil: Criticism Rises, but Will It Matter?*, N.Y. TIMES (Feb. 15, 2006), https://www.nytimes.com/2006/02/15/business/worldbusiness/15iht-oil.html [https://perma.cc/H9DA-92YT].

261. Van Ryan, *supra* note 253.

262. *Id.*

263. *Id.*

264. U.S. GOV'T ACCOUNTABILITY OFF., GAO-21-169T, FEDERAL OIL AND GAS REVENUE: ACTIONS NEEDED TO IMPROVE BLM'S ROYALTY RELIEF POLICY (2020).

265. *Id.*

266. *See* LAURA B. COMAY, CONG. RSCH. SERV., IN11380, OFFSHORE ROYALTY RELIEF: STATUS DURING THE COVID-19 PANDEMIC 1-3 (2020).

renewable energy.[267] While it is important to encourage the development of renewable energy in other ways, it is also important to reiterate that the growth of those industries does not furnish as heavy an impact on the United States economy as the production of oil and gas.[268] Royalty relief can still be offered as a way to stabilize industry prices and offset external factors that trigger extreme fluctuation in prices.[269] Restrictive government policies, such as the previously discussed industry effect from raising the minimum royalty for federal leases, lead to this fluctuation in prices.[270]

The ideal solution is not to dole out royalty relief to the extent that it has been given in the past, but when the need for production arises, it should be brought to allow companies that comply with the government and produce responsibly to pay a lower minimum royalty. This is in line with the objectives in the Mineral Leasing Act, which enables the DOI, when it determines that it is "necessary to promote development," to "waive, suspend, or reduce the . . . minimum royalty or reduce the royalty on an entire leasehold, or any portion thereof" in order to "encourage the greatest ultimate recovery of oil and gas and in the interest of conservation."[271] Extending (or limiting) its applicability to companies that internalize their externalities could be an effective way to encourage responsibility when further production is needed.[272] Once again, it is important that the government facilitates domestic oil and gas production within reason for the sake of the environment and the economy.[273]

B. The Cap-and-Trade Approach for Carbon Emissions

In lieu of a strict "command-and-control" method to regulating carbon emissions on federal leases, the government should adopt a "cap-and-trade" approach to increase cost-effectiveness and help eliminate the "need" for a higher royalty.[274] Adopting this method will

267. *Id.*
268. *See* Frazin & Budryk, *supra* note 178.
269. BUREAU OF OCEAN ENERGY MGMT., *supra* note 254.
270. *See* discussion *supra* Part III.
271. 43 C.F.R. § 3103.4-1(a) (2010).
272. *See* Brent Potts, *How the Oil and Gas Industry Is Building a Sustainable Future*, FORBES (Oct. 23, 2021), https://www.forbes.com/sites/sap/2021/10/23/how-the-oil-and-gas-industry-is-building-a-sustainable-future/?sh=7b53795072ce [https://perma.cc/HE9B-T7W5] (discussing ways in which the industry is diversifying their operations to meet sustainability goals).
273. *See* discussion *supra* Part III.
274. *See Cap and Trade Basics*, CTR. FOR CLIMATE & ENERGY SOLS., https://www.c2es.org/content/cap-and-trade

incentivize companies to capture their own carbon emissions for a potential profit, leading to the potential advancement of more environmentally efficient and economical technologies.[275]

As previously mentioned,[276] the United States generally uses command-and-control tiered legislation for the regulation of greenhouse gas emissions.[277] This method imposes strict regulations to be complied with; failure to do so results in fines, penalties, or production shutdowns.[278] The command-and-control regime is known for offering little flexibility, and it has been criticized for being widely inconsistent while failing to account for a variety of factors that play into its demand.[279] While this is the dominant method of emission regulation, economists argue that "market-based regimes are more economically efficient than command-and-control regimes."[280] This is because command-and-control regulations impose rigid rules for conformity while failing to account for ways in which compliance can be incentivized—not forced.[281]

Alternatively, the cap-and-trade approach places a market price on industry carbon emissions, turning it into a profit-yielding venture.[282] This incentivizes companies to "capture" their carbon emissions, not just to comply with government regulations but to make a beneficial gain.[283] It in turn drives up investment and industry innovation while

basics/#:~:text=In%20a%20cap%2Dand%2Dtrade,market%20establishes%20an%20emissions%20price [https://perma.cc/8WL6-37FK].

275. *See generally* Dolev Pinhas, *Making Products Out of Thin Air: Accelerating Direct Air Capture Technologies*, 38 J. ENV'T L. & LITIG. 207, 222-27 (2023).

276. Nash, *supra* note 98.

277. *Id.*

278. *See id.* at 531-32.

279. *Id.* at 488, 504.

280. *Id.* at 481.

281. *See* Rena I. Steinzor, *Reinventing Environmental Regulation: The Dangerous Journey from Command to Self-Control*, 22 HARV. ENV'T L. REV. 103, 112 (1998) ("[Those who] have decried the economic inefficiencies of command and control requirement . . . [maintain] that the central evil of the current system is the needless waste of resources on compliance with rigid rules that do not take advantage of economies available in the marketplace . . . "); *see also* David R. Baker, *Following California, Washington Starts Cap and Trade Market*, BLOOMBERG (Mar. 7, 2023, 2:40 PM), https://www.bloomberg.com/news/articles/2023-03-07/following-california-washington-launches-cap-and-trade-market [https://perma.cc/TLC2-JB96].

282. Robert N. Stavins, *A Meaningful U.S. Cap-And-Trade System to Address Climate Change*, 32 HARV. ENV'T L. REV. 293, 298 (2008).

283. *Id.*

protecting the environment by encouraging companies to internalize their externalities.[284]

Generally, under the cap-and-trade approach, oil and gas companies each are issued an annual "allowance" for carbon emissions once they hit a certain production level.[285] Once they reach their allowance, they are provided the opportunity to capture their emissions and either sell or store it before they get fined or penalized for exceeding their allowance.[286] Companies that invest and successfully partake in storage and carbon trading receive an exchange value from the government that can help them build a profit.[287]

How can carbon emissions be turned into a profit? Scientific research has uncovered that CO_2 is not just a pollutant—it can be used to enhance oil recovery and is useful for other industrial purposes.[288] It is estimated that the earth has around 300 billion tons of storage capacity for captured carbon in underground formations, including coal beds, deep aquifers, and—most importantly—depleted oil reservoirs.[289] CO_2 can be captured either from the source of the emissions or directly extracted from the air.[290] Once captured, it can be injected into depleted oil reservoirs, which helps enhance tertiary oil recovery through oil swelling (which increases the volume and mobility of oil through the reservoir), viscosity reduction (which allows the oil molecules to flow with lower resistance), and oil displacement efficiency (which also aids in the mobility of oil through the reservoir).[291] Furthermore, over 7,900 tons of carbon dioxide can

284. *See id.*

285. *Id.*

286. *See id.*; *see also* Laura Shields, *Greenhouse Gas Emissions Reduction Targets and Market-Based Policies*, NAT'L CONF. OF STATE LEGISLATURES (Sept. 5, 2023), https://www.ncsl.org/energy/greenhouse-gas-emissions-reduction-targets-and-market-based-policies [https://perma.cc/URK5-X8TT].

287. Laura Shields, *Greenhouse Gas Emissions Reduction Targets and Market-Based Policies*, NAT'L CONF. OF STATE LEGISLATURES (Sept. 5, 2023), https://www.ncsl.org/energy/greenhouse-gas-emissions-reduction-targets-and-market-based-policies [https://perma.cc/URK5-X8TT].

288. *Inflation Reduction Act 2022: Sec. 13104 Extension and Modification of Credit for Carbon Oxide Sequestration*, INTL. ENERGY AGENCY, https://www.iea.org/policies/16255-inflation-reduction-act-2022-sec-13104-extension-and-modification-of-credit-for-carbon-oxide-sequestration [https://perma.cc/XNV8-4UNK].

289. *Carbon Capture, Utilization & Storage: Pipe Dream or Potential Solution?*, WATCHWIRE (Apr. 18, 2017), https://watchwire.ai/carbon-capture-utilization-storage-pipe-dream-potential-solution/ [https://perma.cc/RA4A-R7L4].

290. Pinhas, *supra* note 275, at 209.

291. Alam et al., *Dual Benefits of Enhanced Oil Recovery and CO2 Sequestration: The Impact of CO2 Injection Approach on Oil Recovery*, 10 Front.

be sequestered in the average reservoir or aquifer, and these methods have been evidenced to outperform the traditional method of water injection, or "waterflooding," for oil recovery—a method that has been criticized by environment groups as a waste of water resources.[292]

There are other ways in which carbon capture can be implemented for purposes of reducing industry emissions.[293] In 2022, the idea of mobile carbon capture took flight when a carbon capture system was successfully integrated into a Ford F-250 pickup truck by a group of researchers from Saudi Aramco, one of the largest oil and gas companies in the world.[294] This technology they created was able to capture CO_2 through its placement directly behind the vehicle exhaust stream, which prevented it from being released into the atmosphere.[295] This major success marked a huge victory in the advancement of carbon capture technology, especially for heavy-duty vehicles known for their heavy burning of fossil fuels and gases.[296] Consequently, the advancements in cap-and-trade technology keep building, and we are seeing more and more ways in which carbon can be captured and made useful in a number of industries.[297]

That is the key difference between cap-and-trade and command-and-control.[298] Cap-and-trade represents the ability of the government

Energy Res. 2 (Apr. 27, 2022).

292. *Id.*; *see* Jeff Kart, *Popular Oil Recovery Method Under Fire for Heavy Water Use*, INSIDE CLIMATE NEWS (May 31, 2011), https://insideclimatenews.org/news/31052011/popular-oil-recovery-method-comes-under-fire-heavy-water-use/ [https://perma.cc/5AH6-7XT6].

293. *See* Abdullah Al-Dossary, *Taking Carbon Capture on the Road,* ARAMCO: ELEMENTS MAGAZINE (Mar. 29, 2022), https://www.aramco.com/en/magazine/elements/2022/taking-carbon-capture-on-the-road?gclid=CjwKCAjw15eqBhBZEiwAbDomEmdtMSn_KeRJjkb91aguvlhBN9axYJdM78G8jxAVlPwC5SHted4qyRoCv0IQAvD_BwE [https://perma.cc/36AV-PEC7].

294. *Id.*

295. *Id.*

296. *Id.*

297. *See id.*

298. *See* Jeff Todd, *Climate Cap and Trade and Pollution Hot Spots: An Economic Perspective*, 39 GA. STATE UNIV. L. REV. 1003, 1010-11 (2023) ("In a survey of cap-and-trade programs, including several for climate change, [Massachusetts Institute of Technology and Harvard Kennedy School professors] Richard Schmalensee and Robert Stavins concluded that these are 'environmentally effective and economically cost effective relative to traditional command-and-control approaches' and that 'less flexible systems would not have led to the technological change that appears to have been induced by market-based

to successfully regulate greenhouse gas emissions while spurring responsible production, instead of merely using their administrative power to commandeer the industry with a hovering threat of expensive fines and penalties.[299] It encourages producers to invest in cleaner technologies and more efficient infrastructure as an alternative to purchasing annual permits that become increasingly more costly to obtain.[300] Finally, it fulfills the government's goal of ensuring a fair return to taxpayers by increasing revenue to the government through the distribution of "emission credits."[301]

The cap-and-trade approach has grown worldwide, but only eleven American states participate in a mandatory cap-and-trade program.[302] The Regional Greenhouse Gas Initiative ("RGGI"), established in 2009, is such a program implemented in Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, Vermont, and Virginia.[303] In those states, the program has been remarkably successful.[304] Between two periods (2006–2008 and 2016–2018) carbon emissions decreased by 48% for electric power generation.[305] Under the program, fossil-fuel powered plants that meet a certain capacity must be given an annual allowance for the carbon dioxide they emit.[306] California, Oregon, and Washington are also developing their own markets for cap-and-trading emissions.[307]

While methods for carbon capture can be costly and are far from being perfected, the point is that incentivizing companies to capture

instruments or the induced process innovations that have resulted.'").

299. *See id.*

300. *Id.*

301. *See Emissions from Oil and Gas Operations in Net Zero Transitions*, INT'L ENERGY AGENCY, https://iea.blob.core.windows.net/assets/2f65984e-73ee-40ba-a4d5-bb2e2c94cecb/EmissionsfromOilandGasOperationinNetZeroTransitions.pdf [https://perma.cc/J9V9-G35U].

302. *See* REG'L GREENHOUSE GAS INITIATIVE, CO_2 EMISSIONS FROM ELECTRICITY GENERATION IMPORTS IN THE REGIONAL GREENHOUSE GAS INITIATIVE: 2018 MONITORING REPORT 2 (2021), https://www.rggi.org/sites/default/files/Uploads/Electricity-Monitoring-Reports/2018_Elec_Monitoring_Report.pdf [https://perma.cc/3B7S-U4DX].

303. *Id.*

304. *Id.* at 9.

305. *Id.* at 8. Please note that data from Virginia and New Jersey were not included in the report.

306. *See id*. at 10.

307. *See* Baker, *supra* note 281. While still developing, California, Washington, and Oregon's market-based systems have been criticized for being too ambitious and restrictive, due in part to a failure to replace other state restrictions and instead tacking cap-and-trade mandates onto them. *Id.*

their carbon can help lead to faster development of more efficient and economical technology.[308] Development of carbon capture has been endorsed by the IRA, which sees the benefit in providing tax credits to companies that can clearly demonstrate their reduction of carbon emissions through the use of carbon storage.[309] Ultimately, to ensure that the government's goals are met, policies should encourage the development of carbon capture as an incentive for responsible production as an effective alternative to raising the minimum royalty.[310]

C. Adopting Methane Mitigation Technology

The federal government should allow a lower minimum royalty rate threshold to companies that adopt methane mitigation technology. This will create an additional incentive for industry responsibility that does not require raising the minimum royalty for federal leases.[311] As discussed previously, certain ingredients in the natural gas supply chain leak methane emissions into the atmosphere, which can harm the environment.[312] As technology advances, more infrastructure has been effectuated to limit the release of these emissions.[313] It is estimated that some 75% of these emissions can be reduced with already existing technology.[314] However, few programs are in place to encourage the use of these technologies in place of outdated and less eco-friendly equipment.[315]

While methane emissions are short-lived compared to other types of greenhouse gas emissions, methane is much more potent when

308. WATCHWIRE, supra note 289.

309. INT'L ENERGY AGENCY, supra note 288; *see* An Act to Provide for Reconciliation Pursuant to Title II of S. Con. Res. 14, Pub. L. No. 117-169, 136 Stat. 1818.

310. *See id.*

311. *See, e.g.*, DAVID KIENZLER, MAPPING THE OIL AND GAS INDUSTRY TO THE SUSTAINABLE DEVELOPMENT GOALS: AN ATLAS (2017) (providing the need for a collaborative approach to encourage the oil and gas industry to promote sustainable development goals).

312. *See* Global Gas Flaring Reduction Partnership, *supra* note 230.

313. *See id.*

314. *Methane Abatement*, INT'L ENERGY AGENCY, https://www.iea.org/fuels-and-technologies/methane-abatement#:~:text=Vapour%20recovery%20units%20can%20be,throughout%20oil%20and%20gas%20systems [https://perma.cc/VLH5-NSG5].

315. U.S. GOV'T ACCOUNTABILITY OFF., GAO-22-104759 FEDERAL ACTIONS NEEDED TO ADDRESS METHANE EMISSIONS FROM OIL AND GAS DEVELOPMENT (2022), https://www.gao.gov/products/gao-22-104759 [https://perma.cc/XWG8-L7VV].

released into the atmosphere.[316] In natural gas production, pneumatic controllers are one of the heaviest contributors of total industry methane emissions.[317] These are automation devices that are used in the operation of valves in the natural gas supply chain primarily to measure and control liquid level, pressure, and temperature.[318] They emit methane by "bleeding" or venting natural combusted gas into the atmosphere under certain valve conditions.[319] In 2021, pneumatic controllers alone contributed 27% of all methane emissions in natural gas production.[320]

In 2021 and 2022, the Biden Administration brought the "U.S. Methane Emissions Reduction Action Plan" to reduce methane emissions across the board, but the plan did not account for many specific industry components that largely emit methane, nor did it address continuous-bleed pneumatic controllers.[321] Alternatives to these continuous-bleed controllers exist, such as controllers with zero-bleed, mechanical controllers, and solar-power controllers.[322] Since 2016, significant progress has been made in developing these replacement controllers that have either reduced-bleed or zero-bleed mechanisms.[323] While the market is still developing, electric controller alternatives have been found to have low abatement costs.[324] Even still, engineers are finding ways to make installation and use of electric and other alternatives to continuous-bleed controllers as cost effective as possible for widespread industry

316. David T. Allen et al., *Methane Emissions from Process Equipment at Natural Gas Production Sites in the United States: Pneumatic Controllers*, 49 ENV'T SCI. & TECH. 633 (2015).

317. *Id.* at 634.

318. *Id.*

319. *Id.*

320. *Methane Mitigation Technologies Platform*, U.S. ENV'T PROT. AGENCY, https://www.epa.gov/natural-gas-star-program/methane-mitigation-technologies-platform [https://perma.cc/U3HG-GVGF].

321. THE WHITE HOUSE OFF. OF DOMESTIC CLIMATE POL'Y, *supra* note 235, at 6-9.

322. EXLAR ACTUATION SOLUTIONS, STOP VENTING YOUR PROFITS: A NEW ALTERNATE TO PNEUMATIC CONTROLLERS 5 (2015), https://www.epa.gov/sites/default/files/2016-04/documents/18boynton.pdf [https://perma.cc/D4AM-Z7WV].

323. *See* Stéphanie Saunier & Malavika Venugopal, Carbon Limits AS, *Zero Emission Technologies for Pneumatic Controllers in the USA* (November 2021), https://cdn.catf.us/wp-content/uploads/2022/01/31114844/Zero-Emissions-Technologoes-for-Pneumatic-Controllers-2022.pdf [https://perma.cc/AT42-XNHE].

324. *Id.*

implementation.[325] However, Colorado is one of the few states with standards in place to encourage and require the installation of zero-bleed (zero emission) controllers in place of older, continuous-bleed controllers.[326]

A strategic way to encourage widespread adoption of methane mitigation technologies, such as replacing continuous-bleed pneumatic controllers with reduced- or zero-bleed controllers, is by using a lower royalty as a bargaining chip to incentivize companies to invest in more eco-friendly technologies.[327] While allowing compliant companies a minimum 12.5% royalty would be a good place to start, simply providing a foundation for negotiating a lower royalty in contrast to imposing the higher minimum royalty would suffice.[328]

This method goes hand-in-hand with the regulatory strategy behind the cap-and-trade approach.[329] Instead of simply forcing companies to comply with more regulations over a shorter period of time, encouraging companies to invest in newer and cleaner technologies, which will help to minimize their expenses, is an excellent way to encourage the development of research on better infrastructure.[330]

D. Recognizing the Proposal's Essential Changes

To be sure, the DOI's proposal is not *entirely* needless.[331] While the Proposal contains inessential regulations that will prove burdensome to the economy, there is some sense in updating minimum rentals and the minimum bond.[332] The minimum bond essentially functions as a form of indemnity, ensuring that drilling operations will be completed and that equipment will be completely removed from the site upon cessation of production.[333] While inflation has increased consistently throughout the years, the minimum bond for federal leases has remained the same for decades.[334] In 1960, the minimum bond of

325. *Id.*
326. *Id.*
327. *See generally* discussion *supra* Section IV.A.
328. *See id.*
329. *See* discussion *infra* Section IV.B.
330. *See generally id.*
331. *See* Fluid Mineral Leases and Leasing Process, 88 Fed. Reg. 47562, 47579 (proposed July 24, 2023) (to be codified at 43 C.F.R.) (providing the revisions to the oil and gas bonding requirements).
332. *See id.*
333. *See, e.g.*, *Drilling Bond*, WILLIAMS & MEYERS, MANUAL OF OIL AND GAS TERMS (Patrick H. Martin ed., 18th ed. 2021).
334. Fluid Mineral Leases and Leasing Process, 88 Fed. Reg. at 47579 ("The

$10,000 was established, and over sixty years later, this number has not been adjusted.[335] The Proposal now opts to increase this minimum bond to $150,000, accounting for the more realistic cost of removing production equipment in 2023.[336]

In recent years, the prior bond of $10,000 did not fulfill its purpose of providing an incentive for production companies to properly remove all equipment after a permanent cessation of production—often leading to orphaned wells.[337] Orphaned (commonly known as abandoned) wells can leak methane gas into the air, harming the climate.[338] This was particularly frequent during the onset of the COVID-19 pandemic, which remarkably led to a plummet in energy demand and a surge of petroleum company bankruptcies.[339] The proposed adjustment to the minimum bond will provide a safeguard to ensure that these companies have sufficient funds to cover the costs of their liabilities.[340] It will also mark the way for periodic adjustments to the minimum bond based on economic changes.[341]

Similarly, changing times have necessarily justified the proposed rule for permanently raising the minimum rental to stay in line with original legislative intent.[342] A delay rental is payment that the lessee (operator) of a lease will pay the lessor (mineral owner) in order to prevent cancellation of the lease during the primary lease term, generally if production has not occurred or has been halted in some way.[343] The federal minimum rental has remained at $1.50 per acre

BLM proposes to increase minimum bond amounts for the first time since 1951 and 1960.").

335. Matthew Daly, *New Rules for Oil and Gas Leasing Raise Rates Energy Companies Must Pay to Drill on Public Lands*, PBS NEWS HOUR (July 20, 2023), https://www.pbs.org/newshour/politics/new-rules-for-oil-and-gas-leasing-raise-rates-energy-companies-pay-to-drill-on-public-lands#:~:text=The%20rule%20also%20would%20increase,cap%20wells%20that%20are%20abandoned [https://perma.cc/QG9H-EEW3].

336. Fluid Mineral Leases and Leasing Process, 88 Fed. Reg. at 47579.

337. GOV'T ACCOUNTABILITY OFF., GAO-19-615, BUREAU OF LAND MANAGEMENT SHOULD ADDRESS RISKS FROM INSUFFICIENT BONDS TO RECLAIM WELLS (2019).

338. Mary Kang et al, *Environmental Risks and Opportunities of Orphaned Oil and Gas Wells in the United States*, 18 ENV'T RSCH. LETTER 1 (June 2, 2023).

339. Nicole Layton & Ginger Sprong, *Cut and Run: Bonding, Bankruptcies, and the Orphaned-Oil-Well Crisis,* 10 LSU J. ENERGY L. & RES. 1, 2 (2022).

340. *Id.* at 5.

341. Fluid Mineral Leases and Leasing Process, 88 Fed. Reg. at 47579.

342. *See id.*

343. *See Rental Term*, WILLIAMS & MEYERS, MANUAL OF OIL AND GAS TERMS (Patrick H. Martin ed., 18th ed. 2021).

over the past near-century.[344] The Proposal seeks to adjust the minimum rental to account for changes in inflation: the minimum rental would be "$3 per acre, or fraction thereof, for lease years 1 and 2; $5 per acre, or fraction thereof, for years 3 through 8, and $15 per acre, or fraction thereafter."[345] Not only will these changes account for changes in inflation, but they may also encourage the sooner exploration and development of leased land.[346] Accordingly, it is important to view the Proposal in its entirety to account for changes that will be effective for updating outdated standards, while avoiding the harm of inefficient regulations.[347]

V. CONCLUSION

The well-being of our nation and its economy hinges on the performance of the domestic oil and gas industry. The DOI's proposal to raise the minimum royalty will hurt federal domestic production and fail to remedy the problems it is designed to fix. While the DOI and the BLM are delegated the authority to ensure a fair return to taxpayers, preserve the nation's natural resources, and safeguard the environment, raising the minimum royalty for federal leasing from 12.5% to 16.67% will not help to achieve these intended outcomes. Increasing the frequency of ineffective regulations—namely, raising the minimum royalty that has been in place for over a hundred years—will not encourage *responsible* production. Instead, it will result in reduced investment and exploration, higher inflation, and increased dependency on exports. This will only further the collective environmental harm.

Alternatively, responsible domestic production must be encouraged to meet the demand for oil and gas. This can be done by replacing command-and-control regulation with cap-and-trade incentives for reducing carbon emissions. This will provide a financial impetus to encourage companies to enter federal leases. Furthermore, the government should adopt programs to encourage companies to replace their older technologies with newer technologies that mitigate

344. *See* Fluid Mineral Leases and Leasing Process, 88 Fed. Reg. at 47577.
345. *Id.*
346. *See* U.S. CONG. BUDGET OFF., OPTIONS FOR INCREASING FEDERAL INCOME FROM CRUDE OIL AND NATURAL GAS ON FEDERAL LANDS 8 (2016), https://www.cbo.gov/sites/default/files/114th-congress-2015-2016/reports/51421-oil_and_gas_options.pdf [https://perma.cc/BA3Q-5KQP].
347. *See. e.g.*, Fluid Mineral Leases and Leasing Process, 88 Fed. Reg. at 47577.

methane emissions. Companies can be motivated to invest in such technology with the "reward" of a lower royalty rate, or royalty relief, that will offset the newer expenses. Strategies such as these will provide a higher probability of successfully encouraging responsible production without devastating the industry and unraveling the country's economic stability.