
# Bureau of Land Management

## Fluid Mineral Leases and Leasing Process – Final Rule

## Regulatory Impact Analysis and Regulatory Flexibility Analysis

## April 2024

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# Executive Summary

Executive Order (E.O.) 12866, as amended by E.O. 14094, requires government agencies to assess the benefits and costs of regulatory actions and to submit a report of the assessment to the Office of Management and Budget (OMB)'s Office of Information and Regulatory Affairs (OIRA) if the regulatory actions are significant. E.O. 12866 defines a significant regulatory action as one likely to have an annual effect on the economy of $200 million or more, or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities; create a serious inconsistency or otherwise interfere with an action taken or planned by another agency; materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in E.O. 12866 Section 3(f).

OIRA has determined that this final regulatory action constitutes a "significant regulatory action" within the scope of section 3(f)(1) of E.O. 12866, as amended by E.O. 14094. The Bureau of Land Management (BLM) has prepared this Regulatory Impact Analysis (RIA) and Regulatory Flexibility Analysis (RFA) in accordance with that determination.

The U.S. Department of the Interior, BLM is revising the regulations applicable to onshore oil and gas leasing by: increasing the minimum bond amounts for oil and gas leases, removing nationwide and unit bonding, and updating administrative fees to allow to recover the BLM's costs to process listed documents. In addition, the final rulemaking revises the regulations to reflect changes made by Section 50262, Mineral Leasing Act Modernization, the Inflation Reduction Act (IRA) of 2022 (Pub. L. No. 117-169). The IRA modified several provisions related to oil and gas leasing on public lands. For example, it increased the minimum royalty rates for oil and gas leases on Federal land. The IRA also increased rental rates and minimum bidding amounts for onshore oil and gas leases and established a new fee that must be paid by any person who submits and expression of interest to lease public lands for oil and gas development. Further, the IRA removed noncompetitive leasing.

*Discussion of the Rule Provisions Over Which the BLM Has Discretion*

The BLM is required by the Mineral Leasing Act, 30 U.S.C. § 226(g), to "ensure that an adequate bond, surety, or other financial arrangement will be established prior to the commencement of surface-disturbing activities on any lease, to ensure the complete and timely reclamation of the lease tract, and the restoration of any lands or surface waters adversely affected by lease operations after the abandonment or cessation of oil and gas operations on the lease." The BLM's existing regulations governing bonding requirements were issued in the 1950's and 1960's, and those requirements have never been updated, either to reflect the increased costs of reclamation or for inflation.

The BLM's final rule will increase the minimum bonding requirements from $10,000 to $150,000 for individual leases and from $25,000 to $500,000 for leases statewide. It removes the option to secure a nationwide or unit bond. This analysis examines the impact of the final rule on existing producing leases and newly producing leases. For existing producing leases, the BLM examined the types and values of bonds currently held by the BLM. The BLM also assumed that existing nationwide bonds will be switched

to statewide bonds, increasing the total number of bonds by 8 percent to account for the larger number of statewide bonds required to encompass all the leases currently covered by the nationwide bonds. The BLM then increased the total value of individual and statewide bonds to account for the new minimums.

The new administrative fees are expected to have minimal economic impact on an operator and will not affect an operator's decision to produce from existing leases, as well as minimal impact on an operator's decision to acquire new Federal leases. This is because the fees are a fixed, one-time payment made when the applications are submitted, and the fees are not material when compared to the variable costs or production revenue across the life of a lease. Moreover, the BLM has implemented the same or similar fees since 2005. The BLM added fees for unit agreements, gas storage agreements, and designation of successor operators for Federal agreements and updated fees for leases, class I lease reinstatements and geophysical exploration permits. The BLM determined these fees based upon a review of the processing costs for these types of applications. Therefore, this report does not further quantify the impacts to industry of the updated administrative fees in the final rule.

The BLM determined cost impacts from the final rule for newly producing leases and existing leases. For existing leases, cost impacts were based on the change in bonding requirements and historical data on the number of leases covered by state and individual bonds. The BLM calculated the cost impacts to newly producing leases by estimating the number of new (Federal and non-Federal) leases required to meet regional production forecasts from the U.S. Energy Information Administration's (EIA) 2022 Annual Energy Outlook (AEO). The BLM estimated the number of projected newly producing Federal leases per state and year by multiplying the total projected production with the average ratios of Federal production per total production and Federal leases per Federal production, in each state and in each year of the period of analysis, which is 20 years. The BLM estimated the number of new leases based on the average annual leases issued between 2010-2020 and the calculated incremental lease increases. The BLM then calculated the new incremental leases by subtracting the projected cumulative Federal leases per year by the number from the previous year. The BLM used this process to identify states where new bonds will be required by assuming forecasted production increases will result in additional Federal leasing.

Overall, the final rule will result in an increase to the total annual cost of bonds for new leases by about $2.3 million, assuming a cost of 1 percent of the bond value, or $4.7 million, assuming a cost of 2 percent of the bond value. For existing bonds, total annual costs are estimated to increase by $5.1 million to $10.5 million. The final rule is expected to provide benefits to the public by reducing the Federal funding that may be required to cover the plugging, remediation and reclamation costs of wells located on Federal lands and reducing the possible environmental damage associated with a delay in plugging and reclamation. BLM calculated public benefits by examining the historical number of wells that the BLM had to plug and reclaim due to the lack of financially viable responsible parties, and the cost incurred by the BLM to complete the work (the additional funds to cover the reclamation if the bond did not provide sufficient funding).

The BLM currently spends approximately $2.7 million per year plugging and reclaiming between 15 and 24 wells annually. At the current minimum bonding levels, the bonds associated with these leases only provide a small fraction of the reclamation costs. The BLM estimates that the total public burden for orphaned well plugging and reclamation is between $1.5 million and $4 million per year.

For purposes of this analysis, BLM assumes that each year an additional 15 to 24 orphaned wells will require plugging and reclamation under a similar range of costs. Under the final rule, the minimum bonding requirements will reduce the necessary public funding by between $1.3 million to $3.8 million per year.

Currently, when an orphaned well requires plugging and reclamation, and the existing bonding is insufficient to cover these costs, the BLM must expend effort and expenses to identify and require a current or past record title owner to provide the additional reclamation costs. BLM estimates that this process takes on average 240 days. The final minimum bonding amounts will cover the plugging and reclamation costs for a larger percentage of these orphaned wells, and the BLM will be able to begin plugging and reclaiming these adequately bonded wells on average 240 days sooner. The expedited timing for reclamation of these wells could provide benefits related to wildlife, vegetation, soil erosion, climate change (reduced greenhouse gas emissions from unplugged orphaned wells), visual and aesthetic resources, ground water, and allowing the surface land to be utilized for other uses sooner (for example, for grazing purposes). These benefits cannot currently be quantified using the information readily available to the BLM.

The total monetized costs and benefits of the final revisions to the bonding amounts are summarized below in **Table ES-1**. Costs and benefits are displayed in terms of costs to oil and gas operators and the public. Under the final rule, the costs mostly fall on the operators, whereas the benefits will be conferred on the public and affected communities. Additionally, bond surety companies are likely to see increased revenues and operating costs from the additional premium amount received from operators. The increases depend on many factors, including but not limited to, the percent of bonds for which companies may be required to pay out funds, changes to operating costs associated with increased bonding activity and bond amounts, and the specific annual premium payment by the operator, given that at least a portion of the annual premium payments by operators will benefit the bond surety companies.

The net costs to the economy range from a cost of $8.0 million to a cost of $13.2 million, depending on the cost of bonds (1 percent or 2 percent) and the number of wells BLM reclaims (15 wells or 24 wells). These costs do not include the value of environmental benefits or benefits from expedited timing of transitioning the lands to other uses which, if included, would reduce the net economic cost. If these benefits were monetized, the net economic costs would be lower.

**Table ES-1. Costs and Benefits of Final Rule**

| Group | Source of Impact | Annual Monetized (or Quantified) Costs Low Estimate - High Estimate | Annual Monetized (or Quantified) Benefits Low Estimate - High Estimate |
|---|---|---|---|
| **Lessees and Operators** | Secure Bonding for Existing Leases | $5,131,372 - $10,471,799. | |
| | Secure Bonding for New Leases | $2,305,800 - $4,706,642 | |

| Group | Source of Impact | Annual Monetized (or Quantified) Costs Low Estimate - High Estimate | Annual Monetized (or Quantified) Benefits Low Estimate - High Estimate |
|---|---|---|---|
| | Subtotal Monetized | $7,437,172 - $15,178,441 | |
| BLM / Public | BLM Administrative Costs | $1,854,391 - $1,854,391 | |
| | Plugging and Reclamation Expenses | | $1,300,000 - $3,800,000 |
| | Delay in Reclamation | | Value of avoiding 1,440-2,400 days of environmental impacts from unplugged well. (Non-Monetized) |
| | Subtotal Monetized | $1,854,391 - $1,854,391 | |
| **Total Monetized Costs or Benefits** | | $9,291,563 - $17,032,832 | $1,300,000 - $3,800,000 |
| **Monetized Net Economic Benefits** | | ($7,991,563 - $13,232,832) | |

While preparing the RIA for the final rule and in consultation with senior DOI economists, the BLM revised the way that it considers transfer costs in the above table. The BLM concluded that amounts, previously considered to be transfer payments, should instead be costs or benefits. Therefore, the BLM determined that the discretionary aspects of the rule would not result in any transfers.

The BLM's Regulatory Flexibility Analysis prepared for the final rule concluded that the cost impacts of the final rule will not disproportionally affect small businesses. This report also finds that small businesses will not be disproportionately impacted by the final rule. Both the oil and gas extraction and surety bonding industries consist of mostly small businesses (84% and 66% respectively). Small businesses will face the same requirements for bonding and fee recovery as larger firms, and firm size alone does not constrain a business from owning and operating many leases. The change in annual bonding costs will represent approximately 1% of the value of average production per lease. As described in Freeman (2021) wells producing at 5 barrels of oil equivalent (BOE)/day generate sufficient positive cash flow to remain economically viable under the final bonding levels.

*Discussion of the Rule's Provisions that Restate the IRA's Requirements*

The statutory changes described previously have been implemented by the BLM, as required by law. The BLM's inclusion or restating of the IRA's provisions in its final regulations does not have any bearing on the enforcement, implementation, or budgetary impacts of the law. Pursuant to E.O. 12866 and the OMB Circular A-4 "Regulatory Analysis," the OIRA has indicated that, with this final rulemaking, the BLM should consider a "pre-statutory baseline" and, more specifically, the budgetary effects of the IRA's provisions.

The BLM has disclosed these budgetary effects in a supplement to this analysis, which can be found in the appendix to this document.

The BLM estimates that the IRA's Section 50262 provisions will result in transfer payments from operators of new onshore Federal oil and gas leases to the U.S. Government, state governments, and various funds. Transfer payments do not affect the total resources available to society. An important, but sometimes difficult, problem in cost estimation is to distinguish between real costs and transfer payments. While transfers should not be included in the economic analysis estimates of the benefits and costs of a regulation, they may be important for describing the distributional effects of a regulation.

Over a 9-year[1] period of analysis, from FY 2023 to FY 2031, the BLM estimates that the IRA's Section 50262 provisions will generate incremental receipts of $25.5 million per year for the General Fund of the U.S. Treasury, $101 million per year for State Governments, $71.6 million per year for the Federal Reclamation Fund, and $11.5 million per year for the BLM Permit Processing Improvement Fund. The sum of these transfers from oil and gas operators to these beneficiaries is $210 million per year.[2]

Over the 20-year period of analysis, the BLM estimates that the IRA's Section 50262 provisions will generate incremental receipts of $57.4 million per year for the General Fund of the U.S. Treasury, $236 million per year for State Governments, $176 million per year for the Federal Reclamation Fund, and $15.5 million per year for the BLM Permit Processing Improvement Fund. The sum of these transfers from oil and gas operators to these beneficiaries is $485 million per year.[3]

**Table ES-2. Transfer Payments Resulting from the IRA's Section 50262, Enumerated for this Final Rule, $ in Millions**

| Estimates for FY 2023 to 2031 | Annualized Value 7% | Annualized Value 3% |
|---|---|---|
| General Fund of the U.S. Treasury | $ 25.5 | $ 21.0 |
| State Governments | 101.1 | 83.2 |
| Federal Reclamation Fund | 71.6 | 59.0 |
| BLM Permit Processing Improvement Fund | 11.5 | 9.5 |
| Operators | (209.8) | (172.7) |
| **Estimates for FY 2023 to 2042** | **Annualized Value 7%** | **Annualized Value 3%** |
| General Fund of the U.S. Treasury | $ 57.4 | $ 67.0 |
| State Governments | 235.8 | 276.0 |
| Federal Reclamation Fund | 176.3 | 208.1 |
| BLM Permit Processing Improvement Fund | 15.5 | 15.9 |
| Operators | (485.0) | (567.1) |

[1] When scoring the IRA, the Congressional Budget Office (CBO) used a 10-year window from 2022 to 2031 and noted that there was significant uncertainty beyond 2031.

[2] See the Appendix, Supplemental Analysis of the Budgetary Impacts Posed by the Inflation Reduction Act of 2022, Table 2. Shown here are the calculated annualized values using a 7% discount rate.

[3] See the Appendix, Supplemental Analysis of the Budgetary Impacts Posed by the Inflation Reduction Act of 2022, Table 2. Shown here are the calculated annualized value using a 7% discount rate. The supplemental analysis notes, as did the CBO, that there is significant uncertainty beyond 2031. However, to maintain consistency with the results in this document, the BLM has also disclosed the 20-year impacts.

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# TABLE OF CONTENTS

Chapter Page

Chapter 1. Introduction ..... 1
1.1 Background ..... 1
1.2 Rulemaking Guidance ..... 1
1.2.1 Distributional Effects ..... 2
1.2.2 Regulatory Flexibility Analysis ..... 2
1.2.3 Potential for Significant Energy Impacts as defined by Executive Order 13211 ..... 3
1.3 Need for Regulatory Action and How this Final Rule will Meet that Need ..... 3
1.4 Current Regulation ..... 4
1.4.1 Oil and Gas Lease Bonding ..... 4
1.4.2 Fixed Fees ..... 5
1.5 Final Rule ..... 5
Chapter 2. Analysis Approach and Methods ..... 8
2.1 Analysis Assumptions ..... 8
2.1.1 Inflation-Adjustment and Discount Rate ..... 9
2.1.2 Period of Analysis ..... 10
2.1.3 Baseline10
2.2 Analysis Approach Overview ..... 14
2.2.1 Bonding Cost Impacts for Existing and New Leases ..... 14
2.2.2 Liability Impacts ..... 19
2.2.3 Impacts from Fixed Fee Changes ..... 19
2.2.4 Administrative Costs ..... 20
2.2.5 Changes to Federal Lease Demand ..... 20
2.2.6 Environmental and Other Benefits ..... 20
2.2.7 Summary of Transfers and Net Economic Benefits ..... 21
2.2.8 Impacts from Other Provisions ..... 22
Chapter 3. Economic Analysis Results ..... 25
3.1 Estimated Costs Impacts of Final Rule on Operators ..... 25
3.1.1 Cost Impacts for Existing Leases ..... 25
3.1.2 Cost Impacts for New Leases ..... 30
3.1.3 Changes to Federal Lease Demand ..... 33
3.1.4 Administrative Costs of Final Rule ..... 38
3.2 Benefits of Final Rule ..... 39
3.2.1 Benefit of Increasing Bonding ..... 40
3.2.2 The Assignment of Costs and Benefits and the Distributional Impacts of the Final Rule ..... 43
3.3 Analysis of Net Economic Benefits ..... 44
3.3.1 Limitations of analysis ..... 45
Chapter 4. Economic Analysis Results for Other Alternatives ..... 47
4.1 Estimated Costs of Alternative Bonding Requirements on Operators ..... 47
4.1.1 Alternatives ..... 47
4.1.2 Alternatives Cost Impacts for Existing Leases ..... 47
4.1.3 Alternatives Cost Impacts for New Leases ..... 51
4.1.4 Changes to Federal Lease Demand Based Upon the Alternatives ..... 52
4.2 Estimated Benefits of Alternatives 2 and 3 ..... 53
4.3 Analysis of Net Economic Benefits for Alternatives 2 and 3 ..... 53
Chapter 5. Regulatory Flexibility Analysis ..... 57

Chapter 6. Conclusion ..... 63
Chapter 7. References ..... 65
Appendix 71

## TABLES

Page

Table 1. Fixed Fee Change Summary ..... 5
Table 2. This table contains a list of subparts or sections of the regulations in the final rule and the last time the BLM or Congress updated these subparts or sections to outline the baseline within the RIA ..... 11
Table 3. Five-Year Average Federal Percentage Production (2017-2021) ..... 16
Table 4. Distribution of Bonding Types for Approved* Bonds Under Current Rule Tied to Wells** ..... 25
Table 5. Distribution of Number of States Included in a Nationwide Bond ..... 26
Table 6. Estimated Totals in Accepted* Existing Statewide** Bonds ..... 26
Table 7. NPV of the Difference in Costs from Current Rule to Final Rule for Existing Leases[1] ..... 27
Table 8. Estimated Overview of Distribution of Bonding Types for Accepted* Bonds Tied to Wells** ..... 30
Table 9. Number of Current Federal Leases and Projected Leases ..... 31
Table 10. NPV of the Difference in Annual Costs from Current Rule to Final Rule for New Leases ..... 32
Table 11. Average Difference in Annual Bonding Costs from Current Rule to Final Rule for New Leases ..... 32
Table 12. Average Number of Leases per Company, by State ..... 33
Table 13. Number of Wells per Lease and Federal Bonding Requirements per Well ..... 34
Table 14. Comparison of State and Federal Bonding Requirements ..... 35
Table 15. Difference in Bond Value and Costs for Federal Lease under Final Rule and State Leases ..... 37
Table 16. Annual Hourly and Non-hour Burden Costs ..... 38
Table 17. Number and Costs of Plugging and Reclaiming Orphaned Wells in States (2021) ..... 42
Table 18. Sample Ecosystem Service Valuations ..... 43
Table 19. Costs and Benefits of Final Rule ..... 44
Table 20. Estimated Overview of Distribution of Bonding Types for Accepted* Bonds Tied to Wells** for Alternatives 2 and 3. ..... 48
Table 21. Estimated Annual Cost for Accepted* Bonds Tied to Wells** for Alternatives 2 and 3. ..... 48
Table 22. NPV of the Change in Costs for Alternative 2, for Existing Leases. ..... 49
Table 23. NPV of the Change in Costs for Alternative 3, for Existing Leases. ..... 50
Table 24. 20-Year NPV of the Change in Annual Costs for Alternatives 2 and 3, for New Leases. ..... 51
Table 25. Average Change in Annual Bonding Costs for Alternatives 2 and 3 for New Leases. ..... 51
Table 26. Costs and Benefits of Alternative 2. ..... 53
Table 27. Costs and Benefits of Alternative 3. ..... 54
Table 28. Number and Percentage of Oil and Gas Industry Firms and Establishment that meet the SBA Definition (2019) ..... 57
Table 29. Number and Percentage of Finance and Insurance Industry Firms and Establishment that meet the Small Business Definition (2019) ..... 59
Table 30. 20-Year Average Annual Bonding Costs for Small Businesses. ..... 60
Table 31. Cost-to-Revenue Impact of Bonding. ..... 61

## ACRONYMS AND ABBREVIATIONS

| | Full Phrase |
|---|---|
| AEO | Annual Energy Outlook |
| bbl | barrel of oil |
| BLM | Bureau of Land Management |
| BOE | barrels of equivalent |
| BOEM | Bureau of Ocean Energy Management |
| C.F.R | Code of Federal Regulations |
| CRA | Congressional Review Act |
| CRS | Congressional Research Service |
| DOI | Department of the Interior |
| EIA | U.S. Energy Information Administration |
| E.O. | Executive Order |
| GAO | Government Accountability Office |
| IRA | Inflation Reduction Act |
| mcf | thousand cubic feet |
| MLA | Mineral Leasing Act of 1920 |
| NPV | net present value |
| OIRA | Office of Information and Regulatory Affairs |
| OMB | Office of Management and Budget |
| SBA | Small Business Administration |
| U.S.C. | United States Code |

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# Chapter 1. Introduction

## 1.1 BACKGROUND

Executive Order (EO) 14008: *Tackling the Climate Crisis at Home and Abroad* called for a "Comprehensive review and reconsideration of Federal oil and gas permitting and leasing practices in light of the Secretary of the Interior's broad stewardship responsibilities over the public lands and in offshore waters, including potential climate and other impacts associated with oil and gas activities on public lands or in offshore waters." In accordance with this E.O., the U.S. Department of Interior (DOI) issued its *Report on the Federal Oil and Gas Leasing Program* (2021 Report) (DOI 2021). The 2021 Report details BLM's review of the regulations governing fiscal systems for Federal onshore oil and gas leasing and forms part of the basis for the BLM's final rule to update the BLM's oil and gas leasing and operating regulations codified at 43 C.F.R. Parts 3000, 3100, 3110, 3120, 3130, 3140, 3150, 3160, 3171, and 3180. Overall, the final rule aims to ensure a fair return to the taxpayer, the proper administration of Federal onshore leases, and reclamation when development is complete. Objectives for this rulemaking include the following:

- Enact bonding requirements to ensure that operators secure a bond to cover the costs to plug any wells and fully reclaim the lease.
- New and updated fixed filing fees to more accurately reflect government costs.
- Revise regulations to reflect statutory changes made by Section 50262, Mineral Leasing Act Modernization of the Inflation Reduction Act (IRA) of 2022 (Pub. L. No. 117-169).

The IRA modified several existing statutory provisions applicable to oil and gas leasing on public lands by increasing the minimum royalty rates and the rental rate and minimum bidding amounts for oil and gas leases on Federal lands. The IRA also established a new fee that must be paid by any person who submits and expression of interest to have public lands considered for oil and gas leasing. Further, the IRA removed noncompetitive leasing. The IRA became effective on August 16, 2022. This regulatory update is important so that the BLM's regulations reflect the current statutory requirements law, and that any potential confusion is avoided. This RIA evaluates the final revisions not mandated by the IRA, such as bonding. The BLM is also providing a supplemental analysis that discloses the estimated budgetary impacts attributed to the IRA only and not to the BLM's discretionary action.

Should the rule be finalized, it will only apply prospectively.

## 1.2 RULEMAKING GUIDANCE

E.O. 12866 and E.O. 14094 outlines the requirements for government agencies to assess the benefits and costs of regulatory actions, and the requirement for an agency whose action meets the definition of a significant regulatory actions to submit a report of the assessment to the OIRA for review. Section 3(f) of E.O. 12866, as amended by E.O. 14094, defines a significant regulatory action as a rule that meets any of the following four criteria:

- Has an annual effect on the economy of $200 million or more or adversely affects in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or state, local, or tribal governments or communities;

- Creates a serious inconsistency or otherwise interferes with an action taken or planned by another agency;
- Materially alters the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or
- Raises novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in the E.O.

E.O. 13563 – Improving Regulation and Regulatory Review reaffirms and expands upon the principles embodied in E.O. 12866 by encouraging agencies to coordinate their regulatory activities, and to consider regulatory approaches that reduce the burden of regulation while maintaining flexibility and freedom of choice for the public. To the extent feasible and permitted by law, E.O. 13563 also directs agencies to provide timely online access to the rulemaking docket for proposed and final rules, along with any relevant scientific and technical findings.

The Congressional Review Act (CRA) requires special considerations if OIRA determines that, the rule has resulted in or is likely to result in:

- An annual effect on the economy of $100 million or more;
- A major increase in costs or prices for consumers, individual industries, Federal, State, or local government agencies, or geographic regions; or
- Significant adverse effects on competition, employment, investment, productivity, innovation, or on the ability of United States-based enterprises to compete with foreign-based enterprises in domestic and export markets.[4]

OIRA has determined that this rule meets the criteria set forth in 5 U.S.C. 804(2).

### 1.2.1 Distributional Effects

Those who bear the costs of a regulation and those who enjoy its benefits often are not the same people. The term "distributional effect" refers to the impact of a regulatory action across the population and economy, divided up in various ways (e.g., income groups, race, sex, industrial sector, geography).

E.O.s 13563 and 12866 include direction for a separate description of distributional effects (i.e., how both benefits and costs are distributed among sub-populations of particular concern) so that decision makers can properly consider these costs along with the effects on economic efficiency (i.e., net benefits). Where distributive effects are important, the effects of various regulatory alternatives should be described quantitatively, to the extent possible, including the magnitude, likelihood, and severity of impacts on particular groups.

Examples of distributional effects that could potentially be quantified include reductions in sales by one business that are matched by increases in sales by another (transfer in economic activity), reductions in well-being from some consumers that are matched by increases in others (transfers of well-being), or costs imposed primarily on some entities (i.e. operators), while benefits are gained by others.

### 1.2.2 Regulatory Flexibility Analysis

The Regulatory Flexibility Act (5 U.S.C §§ 601 *et seq*.), as amended by the Congressional Review Act (Pub. L. No. 104-121), provides that whenever an agency is required to publish a general notice of proposed

[4] 5 U.S.C. 804(2).

rulemaking, it must prepare and make available an initial regulatory flexibility analysis, unless it certifies that the proposed rule, if promulgated, will not have a significant economic impact on a substantial number of small entities (5 U.S.C. § 605(b)). For final rules, the agency is required to publish a final regulatory flexibility analysis.

Small entities include small businesses, small organizations, and small governmental jurisdictions. For purposes of assessing the impacts of this rule on small entities, a small entity is defined as: (1) A small business in the oil or natural gas industry whose parent company has no more than 1,250 employees ; (2) a governmental jurisdiction that is a government of a city, county, town, school district, or special district with a population of less than 50,000; and (3) an organization that is any not-for-profit enterprise which is independently owned and operated and is not dominant in its field (Small Business Administration 2021).

### 1.2.3 Potential for Significant Energy Impacts as defined by Executive Order 13211

Under E.O. 13211, agencies are required to prepare and submit to OMB a Statement of Energy Effects for significant energy actions. This Statement is to include a detailed statement of "any adverse effects on energy supply, distribution, or use (including a shortfall in supply, price increases, and increase use of foreign supplies)" for the action, reasonable alternatives, and their effects.

Section 4(b) of E.O. 13211 defines a "significant energy action" as "any action by an agency (normally published in the Federal Register) that promulgates or is expected to lead to the promulgation of a final rule or regulation, including notices of inquiry, advance notices of rulemaking, and notices of rulemaking: (1)(i) that is a significant regulatory action under E.O. 12866 or any successor order, and (ii) is likely to have a significant adverse effect on the supply, distribution, or use of energy; or (2) that is designated by the Administrator of OIRA as a significant energy action." The BLM did not identify this rule to have a significant adverse effect on the supply, distribution, or use of energy. Upon further review, the BLM expects the supply and use of energy to remain the same. The shifts caused by the IRA are discussed in Section 2.1.3.

## 1.3 Need for Regulatory Action and How this Final Rule will Meet that Need

When the IRA of 2022 (Pub. L. No. 117-169) came into effect, aspects of the BLM's existing regulations relating to the fiscal terms of oil and gas leasing, including royalty rates, rental fees, and bonus bids, did not reflect the requirements of the law. In order to improve government operations and avoid any unnecessary confusion with the public, the BLM is updating its regulations to match the new statutory requirements. Similarly, the BLM is updating its regulations to remove the non-competitive leasing process, which the IRA removed from the Mineral Leasing Act.

The inadequacy of the existing minimum bond amounts has been the subject of multiple Government Accountability Office (GAO) and the Office of the Inspector General (OIG) reports.[5] The BLM recognizes that the minimum bond amounts required for oil and gas operations do not approach the costs of reclaiming these operations. Further, because the bond amounts have not been updated for decades and are woefully inadequate, the BLM is compelled to pursue the slow and inefficient process of exhausting the entire list of possible known responsible parties to pay for the reclamation and, if none are found, to

[5] See, e.g., GAO, "FEDERAL ENERGY DEVELOPMENT – Challenges to Ensuring a Fair Return for Federal Energy Resources" (Sept. 2019); GAO, "OIL AND GAS – Bureau of Land Management Should Address Risk from Insufficient Bonds to Reclaim Wells" (Sept. 2019); OIG, "BLM Oil and Gas Bonding Procedures" (Sept. 2012).

rely on the Congress to fund the reclamation. The fact that the American public, through Congress, will, in certain cases, pay for the reclamation instead of the responsible parties is a failure of the government processes. Through this rule, the BLM will improve government operations by facilitating more timely reclamation and ensuring that the responsible party pays for the reclamation.

The BLM has identified a number of other improvements to its oil and gas leasing regulations. Those modifications are all being issued pursuant to the goal of improving government processes. For example, the BLM conducted a review of its cost recovery fees, and it identified fee amounts that needed to be modified to reflect the true cost of activities and new fees that needed to be required. The changes to fees are also supported by GAO reports and recommendations.[6] Also, the BLM has identified efficiencies that could be gained in its leasing process by identifying preference criteria and issued policy guidance. This rule incorporates that guidance into regulation.

## 1.4 CURRENT REGULATION

This section outlines a summary of the current oil and gas leasing regulations which are modified in the final rule.

The Mineral Leasing Act of 1920, as amended (30 U.S.C. §§181 *et seq.*) (MLA), the Mineral Leasing Act for Acquired Lands of 1947, as amended (30 U.S.C. §§351 *et seq.*) (MLA for Acquired Lands), and other statutes pertaining to specific categories of land authorize the Secretary to lease Federal oil and gas resources. The MLA and MLA for Acquired Lands prescribe the minimum percentage of royalty reserved to the United States under a Federal onshore oil and gas lease, as discussed further below. The BLM is responsible for regulating onshore oil and gas leasing and development activities for the federally managed lands and subsurface mineral estate.

### 1.4.1 Oil and Gas Lease Bonding

The MLA authorizes the Secretary to establish standards ". . . as may be necessary to ensure that an adequate bond, surety, or other financial arrangement will be established prior to the commencement of surface-disturbing activities on any lease, to ensure the complete and timely reclamation of the lease tract, and the restoration of any lands or surface waters adversely affected by lease operations after the abandonment or cessation of oil and gas operations on the lease" (30 U.S.C. §226(g)). Consistent with this statutory direction, the existing regulations at 43 Code of Federal Regulations (C.F.R.) §3104.1 require that, prior to surface disturbing lease development, the lessee, sublessee, or operator must submit a surety or personal bond.

The purpose of the bond is to ensure the "complete and timely plugging of the well(s), reclamation of the lease area(s), and the restoration of any lands or surface waters adversely affected by lease operations after the abandonment or cessation of oil and gas operations" (43 C.F.R. §3104.1(a)). Currently, there are four different bond types:

1. Lease/Individual Bonds, which by regulation only provide coverage for one lease and must be in an amount of not less than $10,000;

[6] See GAO. GAO-22-103968: OIL AND GAS LEASING BLM Should Update Its Guidance and Review Its Fees. https://www.gao.gov/assets/gao-22-103968.pdf.

2. Statewide Bonds, which cover all leases and operations in one State and must be in an amount of not less than $25,000;
3. Nationwide Bonds, which cover all leases and operations nationwide and by regulation must be in an amount of not less than $150,000; and
4. Unit Operator's Bonds, which may be used in lieu of individual lease, statewide, or nationwide bonds for operations conducted on leases committed to an approved unit agreement. Existing regulations do not set a minimum amount for these types of bonds, but rather specify that the amount will be set by the Authorized Officer.

The BLM has not increased those minimum bond amounts since 1960.

### 1.4.2 Fixed Fees

Fixed fees are nominal filing or processing fees set in statute and are intended to reimburse BLM for reasonable processing costs. Current fixed fees are addressed in 43 C.F.R §3000.12 Fee Schedule for Fixed Fees. The table in this section displays the fixed filing fees that must be paid to the BLM for the services listed. These fees are nonrefundable and must be included with documents filed under that chapter of the regulations. These fees are adjusted annually according to the change in the Implicit Price Deflator for Gross Domestic Product. Revised fees are effective each year on October 1. These fees, initially set in 2005, were primarily intended to reflect the government's costs associated with administration of the onshore oil and gas program. Such fees are also referred to as cost recovery fees.

## 1.5 FINAL RULE

*Bonding:* The final rule will increase the amount of individual bonds from $10,000 to $150,000, statewide bonds from $25,000 to $500,000 and will add surface owner protection bonds with a minimum of $1,000. Given the minimal amount of this bond (usually between $1,000 and $15,000), its limited applicability (the BLM currently manages 45 surface owner protection bonds), and the BLM's expectation that these additional requirements will not change the number nor need for surface owner protection bonds, the costs associated with this bond are not discussed further or factored into the analysis in this document. The final rule will also remove nationwide bonds and unit operator bonds. There will be a phase-in period for the new bond amounts, starting with lease bonds.

*Fixed Fees:* A summary of the current fixed fees and the new final fees is included in **Table 1**, below.

**Table 1. Fixed Fee Change Summary**

| Description | Current Fee (FY 2024) | New Final Fee[2] (* Denotes Change) |
|---|---|---|
| Expression of Interest fee per acre, or fraction thereof[1] | Does not exist | $5* |
| Competitive lease application | $195 | $3,100* |
| Leasing under right-of-way | $505 | $680* |
| Leases consolidation | $560 | $560 |
| Assignment and transfer of record title or operating rights | $115 | $115 |
| Overriding royalty transfer, payment out of production | $15 | $15 |

| Description | Current Fee (FY 2024) | New Final Fee[2] (* Denotes Change) |
|---|---|---|
| Name change, corporate merger, sheriff's deed, dissolution, or transfer to heir/devisee | $265 | $265 |
| Lease reinstatement, Class I | $100 | $1,260* |
| Geophysical exploration permit application – all states | $30 (Alaska only) | $1,150 (all states) * |
| Renewal of exploration permit—Alaska | $30 | $30 |
| Final application for Federal unit agreement approval, Federal unit agreement expansion, Federal subsurface gas storage applications | Does not exist | $1,200* |
| Designation of successor operator for Federal agreements | Does not exist | $120* |

[1]This fee is not a cost recovery fee. It represents a fee as required under the IRA which goes to the Treasury under miscellaneous receipts, see 30 U.S.C. 191. In addition, the BLM will adjust this fee every four years by final rule for inflation according to the Implicit Price Deflator for Gross Domestic Product.

[2] Fees will be adjusted annually by publication in the Federal Register for inflation according to the Implicit Price Deflator for Gross Domestic Product and posted on BLM's website. Revised fees are effective each October 1st.

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# Chapter 2. Analysis Approach and Methods

## 2.1 Analysis Assumptions

The analysis is based on the BLM's final rule to increase the bond amounts for oil and gas leases from $10,000 to $150,000 for individual bonds and from $150,000 to $500,000 for statewide bonds and removing the alternatives of Nationwide and Unit bonding. In the 10th year an inflation adjustment will be calculated and those inflation-adjusted bonding levels will be phased in over the following few years. Those bond requirements will be updated for the lower 48 states. (BLM is not using this rulemaking to revise the regulations at 43 CFR part 3130, which govern oil and gas activity in the National Petroleum Reserve-Alaska.) The final rule also increases some administrative fees to reflect current costs. The impact of those increased and new administrative fees are discussed in Sections 2.2.3, 2.2.4, and 3.1.4.

The analysis estimates future Federal lease demand as driven by future oil and gas production. It assumes that future Federal oil and gas development will follow historical trends and the oil and gas industry will develop and manage future oil and gas production consistent with U.S. Energy Information Administration (EIA) Annual Energy Outlook (AEO) 2022 projections. The EIA AEO 2022 reference case represents a pre-regulation baseline against which the impacts of the proposed rule are measured. The reference model is designed to capture the interaction of energy supply, demand and prices. The 2022 projections from the AEO 2022 model do not include impacts of the proposed regulatory changes and the level of detail allows state-level analysis.[7]

The BLM considered, but did not carry forward, the use of the AEO 2023 forecast, which incorporates the expected effects of the IRA. For the forecast elements used in this analysis the difference between the AEO 2022 and 2023 reference forecasts were small both in absolute terms and in comparison to the year-to-year forecast variability discussed in a recent AEO report (Annual Energy Outlook Retrospective Review, September 14, 2022, U.S. Energy Information Administration - EIA - Independent Statistics and Analysis).

The BLM compared these additional forecasts and determined that their use is unlikely to significantly alter the estimated impacts presented for this rule. The overall forecast of net new wells per year differs by only 1% over the 20-year forecast period. Given that BLM estimates that only a few states are expected to need net new Federal leases, using the 2023 estimates would likely change BLM's forecast by less than 1% per year.

More generally our analysis indicates that the differences between the 2023 production forecasts and the 2022 estimates averaged 1 percent for oil and were negligible for natural gas. Historically the AEO forecasts for oil production differed from subsequent actual production by 19% and gas production forecasts missed actual production by 11%. The AEO reference case forecasts for oil and gas prices are higher in the AEO 2023, mostly due to large differences in the price forecasts in the first few years. These

[7] https://www.eia.gov/outlooks/aeo/narrative/introduction/sub-topic-02.php

differences also are less than the average differences between forecast and actual performance of nearly 50%. Note that our analysis in the final rule is not explicitly based upon resource prices.

Concerning the impact of the IRA implemented by the BLM, the EIA used the 2023 model to compare forecasts of the energy economy both with and without the IRA (AEO2023 Issues in Focus – Inflation Reduction Act Cases in the AEO2023, March 2023, AEO2023 Issues in Focus: Inflation Reduction Act Cases in the AEO2023 (eia.gov)). Specific to BLM's role in implementing the IRA were increased royalty rates. The results were ambiguous. The model excluding the IRA suggested little difference in oil production and possibly a 4% increase in natural gas production. In both oil and gas forecasts, the differences were driven by the assumed rate of adoption of technologies with lower carbon intensities.

The economic analysis is based on current oil and gas plays and known reserves. Factors such as unanticipated technology changes or unexpected world events could change the path of future oil and gas development relative to the path assumed in this analysis. There is greater uncertainty associated with leasing and production forecasts in the later phase of the analysis period (e.g., 15-20 years). The number of forecasted Federal leases per state may vary. The assumed ratio of Federal leases per unit of production may systematically differ between oil and gas production and across states. Nationwide, statewide and/or region-specific events or conditions may temporarily or permanently affect the demand for Federal leases.

### 2.1.1 Inflation-Adjustment and Discount Rate

The final rule specifies that minimum bonding values be inflation adjusted in the 10th year of the rule and that bonds be increased to the new minimums in years 11 or 12, depending upon the bond type. This analysis assumes that the costs of bonding-covered site reclamation increases at a 2.4% annual rate per year and in year 11 minimum bonding values will increase by 12.8% and remain at that level for years 11 through 20.

The OMB Circular A-4 (2023) provides guidance to Federal agencies conducting benefit-cost analyses of Federal programs, including regulatory impacts analyses[8]. It discusses the importance of discounting future benefits and costs when computing the net present value (NPV).

The BLM used a discount rate of 3 and 7 percent for baseline analyses based upon OMB Circular A-4 (2003). Under OMB Circular A-4 (2023), the OMB recommends agencies use a 2 percent discount rate based upon their estimate of the social rate of time preference. As the BLM completed this RIA under the prior version, the BLM did not change its discount rate in its analysis. OMB also recommended that agencies show sensitivity of the discounted NPV and other outcomes using additional discount rates. Literature suggests that there is a divergence between the private (considered by firms or industry) and social (considered by society) discount rates, with the private rates exceeding the social rates. From the private perspective, this difference is considered to result from a difference in risk premiums; meaning the cost of capital is higher as the risk increases. From society's perspective, the risk may be lower or there may be no-risk, in which case a lower discount rate is appropriate. It is common for regulatory impact analyses to analyze outcomes using a 3 percent discount rate, particularly for regulations with expected environmental benefits. As such, for the purposes of this analysis, we used the discount rates of 7 percent

[8] While in November 2023 the OMB released an update to Circular A-4 this proposed rule was submitted before the effective date of February 28, 2024.

and 3 percent to annualize the costs of capital investments or to represent the present value of cash savings occurring in the future.

### 2.1.2 Period of Analysis

The rule's requirements impose annual costs on lessees and operators and produce annual benefits to BLM and the public. The BLM has selected to forecast 20 years, through 2042, concluding that it is a suitable time horizon to reasonably capture all the significant benefits and cost savings likely to result from the final rule. Within 20 years all new development and drilling decisions and most of all Federal oil and gas production will take place under the new bond requirements. Activity beyond 20 years is more uncertain and does not significantly affect the discounted quantitative results. The analysis will include the impacts that occur within the 20-year period. Any ongoing impacts that occur after the 20-year period associated with leases issued during the 20-year period are outside the scope of the analysis period. We do not, however, expect the annual costs, or annual benefits, to be uniform over the 20-year period. Rather, costs and benefits could vary based on the rate of production over time as new leases are acquired and developed. The BLM assumed that all bond classes adjusted to the new requirements in the first year (2023) rather than the phased implementation in the final rule. The estimates, therefore, represent an upper bound to the actual expected effect.

### 2.1.3 Baseline

In August 2022, the U.S. Congress passed the IRA, Pub. L. No. 117-169, which eliminated the option to acquire a noncompetitive lease and updated Federal leasing fiscal terms for new oil and natural gas leases, including the following:

- Increased Federal royalty rates from 12.5 percent to 16.67 percent for the next 10 years, then after 10 years, 16.67 percent is the statutory minimum,
- Increased rental rates from $1.50 per acre in the first 5 years and $2.00 per acre each year thereafter to $3 per acre in the first 2 years, $5 per acre for years 3 through 8, $15 per acre each year thereafter, then after the next 10 years, the set rental rates will be the statutory minimum, and
- Increased the minimum bonus bid from $2 per acre to $10 per acre for the next 10 years, then after 10 years, $10 per acre is the statutory minimum.

The recent changes required by the IRA may change the total Federal revenue and total Federal production from new Federal oil and gas leases. The magnitude and direction of changes in revenue and production will depend on several factors, including the price elasticity of supply, operators' sensitivities to changes in cost and ability to pass on cost increases to consumers, availability and cost comparisons of leasing substitutes (i.e., for state or private leases), among others. One study analyzed the impacts of the IRA and found that there could be a change in total industry-wide consumption of less than 1 percent for oil and 3 to 10 percent for natural gas (Larsen et al. 2022). However, this study did not separately quantify the impacts on Federal production and revenue versus non-Federal production and revenue. Due to the data limitations, BLM's analysis calculates the base case scenario from historical averages to compare the incremental impacts from changes in bonding requirements. The impacts from bonding requirements will be above and beyond any changes that occurred from the IRA.

The BLM has added further discussion regarding the baseline in this RIA to assist readers in evaluating the impacts. When Congress passed the IRA and the President signed it into law, the BLM ended the non-

competitive leasing process as directed by the IRA and conducted all future lease sales in compliance with the IRA (increased royalty rate, rental rate, minimum bonus bid, and required an expression of interest filing fee). In analyzing the rule, the BLM has used a pre-statutory analytic baseline using the EIA's AEO 2022 data. The BLM examines the effects of the IRA provisions (which it has no discretion to change or modify) as transfer payments, described in this analysis and enumerated in detail in the Appendix. The BLM examines the effects of the remaining provisions (for which the BLM has discretion ) as costs and benefits, described in this analysis. **Table 2** lists the provisions of the rule by subpart or section and includes related information, such as the date of the last statutory or regulatory update and how the BLM analyzed the impacts in the RIA.

**Table 2. This table contains a list of subparts or sections of the regulations in the final rule and the last time the BLM or Congress updated these subparts or sections to outline the baseline within the RIA.**

| Subpart or Section | Federal Register Notice (FRN) Source | FRN Source Date | Statute or Regulatory Update | Latest Date of Update | How Impacts Were Analyzed |
|---|---|---|---|---|---|
| **3000**: Minerals Management: General | 48 FR 33659 | July 22, 1983 | 88 FR 66699 | September 28, 2023 | Costs and Benefits (see Chapter 3.1.4). |
| **3100**: Onshore Oil and Gas Leasing: General | 48 FR 33662 | July 22, 1983 | 63 FR 52952 | October 1, 1998 | Minor Changes - No anticipated impact |
| **3101**: Issuance of Leases | 48 FR 33662 | July 22, 1983 | 71 FR 14823 | March 24, 2006 | Discussed Qualitatively (see Chapter 2.2.8) |
| **3102**: Qualifications of Lessees | 48 FR 33662 | July 22, 1983 | 53 FR 22837 | June 17, 1988 | Minor Changes - No anticipated impact |
| **3103**: Fees, Rentals and Royalty Payments | 48 FR 33662 | July 22, 1983 | Inflation Reduction Act (P.L. 117-169) | August 16, 2022 | Transfer Payments (see Chapter 2.1.3 and Appendix) |
| **3104**: Bonds NOTE: GAO identified that the minimum bond amounts were last updated in 1951 and 1960. | 48 FR 33662 | July 22, 1983 | 53 FR 31958 | August 22, 1988 | Costs and Benefits |
| **3105**: Cooperative | 48 FR 33662 | July 22, 1983 | 70 FR 58874 | October 7, 2005 | Costs and Benefits (see Chapter 3.1.4). |

| Subpart or Section | Federal Register Notice (FRN) Source | FRN Source Date | Statute or Regulatory Update | Latest Date of Update | How Impacts Were Analyzed |
|---|---|---|---|---|---|
| Conservation Provisions | | | | | |
| **3106**: Transfers by Assignment, Sublease, or Otherwise | 53 FR 17355 | May 16, 1988 | 70 FR 58874 | October 7, 2005 | Minor Changes - No anticipated impact |
| **3107**: Continuation and Extension | 48 FR 33662 | July 22, 1983 | 53 FR 31958 | August 22, 1988 | Minor Changes - No anticipated impact |
| **3108**: Relinquishment, Termination, Cancellation | 48 FR 33662 | July 22, 1983 | 71 FR 14823 | March 24, 2006 | Costs and Benefits (see Chapter 3.1.4). |
| **3109**: Leasing Under Special Acts | 48 FR 33662 | July 22, 1983 | 70 FR 58874 | October 7, 2005 | Minor Changes - No anticipated impact |
| **3110**: Noncompetitive Leases | 53 FR 22843 | June 17, 1988 | Inflation Reduction Act (P.L. 117-169) | August 16, 2022 | Discussed Qualitatively (see Chapter 2.2.1) |
| **3120**: Competitive Leases | 53 FR 22843 | June 17, 1988 | 81 FR 59905 | August 31, 2016 | Discussed Qualitatively (see Chapter 2.2.8 and 3.2) |
| **3137.23**: NPR–A unitization application. | 67 FR 17886 | April 11, 2002 | 73 FR 6444 | February 4, 2008 | Costs and Benefits (see Chapter 3.1.4). |
| **3137.61**: Change in unit operators. | 67 FR 17886 | April 11, 2002 | 67 FR 17886 | April 11, 2002 | Costs and Benefits (see Chapter 3.1.4). |
| **3138.11**: Applications for a subsurface storage agreement. | 67 FR 17893 | April 11, 2002 | 67 FR 17893 | April 11, 2002 | Costs and Benefits (see Chapter 3.1.4). |
| **3140**: Conversion of Existing Oil and Gas Leases and Valid Claims Based on Mineral Locations | 47 FR 22478 | May 24, 1982 | 70 FR 58614 | October 7, 2005 | Minor Changes - No anticipated impact |
| **3141**: Leasing in Special Tar Sand Areas | 48 FR 7422 | February 18, 1983 | 71 FR 28779 | May 18, 2006 | Minor Changes - No anticipated impact |

| Subpart or Section | Federal Register Notice (FRN) Source | FRN Source Date | Statute or Regulatory Update | Latest Date of Update | How Impacts Were Analyzed |
|---|---|---|---|---|---|
| **3142**: Paying Quantities/Diligent Development for Combined Hydrocarbon and Tar Sand Leases | 51 FR 7276 | March 3, 1986 | 70 FR 58616 | October 7, 2005 | Minor Changes - No anticipated impact |
| **3151**: Exploration Outside of Alaska | 53 FR 17359 | May 16, 1988 | 53 FR 17359 | May 16, 1988 | Costs and Benefits (see Chapter 3.1.4). |
| **3160.0–5**: Definitions | 53 FR 17362 | May 16, 1988 | 82 FR 61949 | Dec. 29, 2017 | Minor Changes - No anticipated impact |
| **3162.3–4**: Well abandonment. | 47 FR 47765 | Oct. 27, 1982 | 53 FR 22847 | June 17, 1988 | Costs and Benefits (see Chapter 3.1.4). |
| **3165.1**: Relief from operating and/or producing requirements. | 47 FR 47765 | October 27, 1982 | 61 FR 4752 | Feb. 8, 1996 | Discussed Qualitatively (see Chapter 2.2.8) |
| **3171.6**: Components of a complete APD package | 88 FR 39516 | June 16, 2023 | 88 FR 39516 | June 16, 2023 | Minor Changes - No anticipated impact |
| **3171.14**: Valid Period of Approved APD. | 88 FR 39516 | June 16, 2023 | 88 FR 39516 | June 16, 2023 | Costs and Benefits (see Chapter 3.1.4). |
| **3181.5**: Compensatory royalty payment for unleased Federal land. | 58 FR 58632 | November 2, 1993 | 59 FR 16999 | April 11, 1994 | Minor Changes - No anticipated impact |
| **3186**: Model Forms | 48 FR 26766 | June 10, 1983 | 59 FR 16999 | April 11, 1994 | Minor Changes - No anticipated impact |

The BLM's baseline is founded on the regulatory and legal structure of oil and gas leasing and development prior to the passage of the IRA. The impacts from the IRA are nondiscretionary and not discussed in detail within this document; however, the Appendix provides estimates based upon CBO of the transfers that will occur based upon the IRA. The baseline does not incorporate the other BLM proposed rules (e.g., Conservation and Landscape Health Rule, 88 FR 19583, or the Waste Prevention, Production Subject to Royalties, and Resource Conservation Rule, 87 FR 73588). The BLM reviewed the impacts from both rules. The BLM's analysis assumes the impacts for all three rules to have a parallel impact or mutually exclusive effect on the economy as they will impact the economy and industry independently. The impact of each rule is unaffected by the presence or absence of the other rules.

Because each of the rules functions independently, the other proposed rules do not affect the modeled impacts of the final rule in any ways that could significantly change the forecasted demand for Federal leases. The BLM does not have any evidence to say that this rule's bonding and fee increases would impact the demand for future Federal leasing or production relative to a baseline without these increases. BLM's analysis finds that the bonding/fee increases are very small relative to production revenue from Federal leases. If outside factors (such as other proposed rules) increase Federal oil and gas production costs the incremental effects of this rule become relatively smaller. This rule does not change the size of the Federal mineral estate that is available for leasing and BLM did not analyze the impacts of hypothetical changes to the Federal mineral estate.

## 2.2 ANALYSIS APPROACH OVERVIEW

The following section outlines the methodology that will be used for calculating the cost and benefits to the Federal and state governments as well as costs and benefits to operators and the net benefits to the economy.

### 2.2.1 Bonding Cost Impacts for Existing and New Leases

***Existing Leases***

Under current regulations well development may be bonded via individual lease bonds or as a group under statewide, nationwide or unit bonds. The final rule removes nationwide and unit bonding and raises the minimum bonding amounts for individual and statewide bonds. The final rule requires current bond amounts to be brought into compliance with the new bonding amounts and types on a phased basis - year 1 for nationwide and unit bonds, year 2 for statewide bonds, and year 3 for individual bonds.

This analysis uses data on existing BLM-administered oil and gas wells and bonding to estimate the bonding costs and composition under the requirements of the final rule. Data is included for active bonds covering existing oil and gas wells which have been approved by the BLM.

***Projected New Federal Leases***

The following section describes the methodology for estimating the impact of the change in minimum bonding amounts on operators' annual costs to secure bonds for new leases. The final rule requires each Federal leaseholder to secure a bond that will cover the operations at the final bonding amounts prior to surface disturbing activities. This requirement may be covered by a new or existing individual lease bond or statewide bond. In order to calculate the cost impact to leaseholders from the change in bonding amounts for newly producing leases, BLM projected the number of newly producing Federal leases using projected production data from EIA Annual Energy Outlook 2022 (AEO 2022) reference case and 5-year historical data on state production, Federal production, and Federal leases. Based on the existing oil and gas leasing regulations under 43 C.F.R 3104, bonds are required prior to surface disturbance. The existing leases that are not yet held in production are assumed to have not acquired a bond prior to the effective date of the final rule. As a result, development and production from these leases will require a bond under the new regulations and will be captured under the newly producing leases. BLM calculated the number of projected newly producing Federal leases per state and year by multiplying total projected production with a ratio of Federal production per total production and a ratio of Federal leases per Federal production, in each state and in each year of the period of analysis, then calculating the new incremental leases by subtracting the projected cumulative Federal leases per year by the number from the previous

year. The methodology for calculating each component used to estimate the number of projected new Federal leases per state per year is described below.

The BLM collected projected production from regional data from EIA AEO 2022 reference case and allocated projected production to each state by finding the 5-year average percentage of historical state production to historical regional production and multiplying that percentage by the projected regional production. The BLM gathered historical state and regional production from EIA (U.S. EIA 2021a, 2021b). These AEO supply region boundaries are shown in Figure 1. For 46 of the 48 states in the continental US, the AEO supply region boundaries follow state borders. In Texas and New Mexico, the AEO supply region boundaries cross these states such that AEO supply region data for New Mexico is split across two regions (Rocky Mountain and Southwest) and in Texas the AEO data is split across three regions (Southwest, Midcontinent, and Gulf Coast). Using data from previous AEOs the full-state production estimates were subtracted from the supply region totals and the remaining production was allocated to the state partially within the supply region boundary using a system of equations.

Figure 1. EIA AEO Oil and Gas Supply Regions


Source: EIA 2022c

The BLM calculated the amount of Federal oil and gas production, or percentage of total production coming from Federal lands by averaging historical Federal production divided by historical total production over 5 years (2017 to 2021), in each state. **Table 3** shows the 5-year average Federal production, total production including Federal, state and private leases, and the percent of total production coming from Federal production, for all states that had any Federal oil or gas production. Nevada had the highest percentage of Federal oil production to total production (100 percent) while New Mexico had the highest magnitude of Federal oil production at 181,742,677 barrels (bbl). Wyoming had the highest percentage of Federal dry natural gas production to total production (94 percent) as well as the highest magnitude of Federal dry natural gas production, about 1,279,315,006 thousand cubic feet (mcf). The BLM obtained five-year historical Federal production from the DOI Natural Resource Revenue Data (DOI 2022).

**Table 3. Five-Year Average Federal Percentage Production (2017-2021)**

| State | Oil (bbl) | | Natural Gas (mcf) (Dry Gas) | | | |
|---|---|---|---|---|---|---|
| | Federal Production | Total Federal + Non-Federal Production | Federal Production as a % of Total Production | Federal Production | Total Federal + Non-Federal Production | Federal Production as a % of Federal Total Production |
| Nevada* | 248,500 | 244,600 | 100% | 4,200 | 5,400 | 77% |
| Wyoming | 46,412,900 | 88,080,400 | 53% | 1,279,315,000 | 1,368,037,600 | 94% |
| New Mexico | 181,742,700 | 318,148,600 | 57% | 1,086,639,100 | 1,594,052,400 | 68% |
| Utah | 7,421,500 | 34,995,400 | 21% | 154,661,900 | 262,938,600 | 59% |
| Montana | 3,224,200 | 20,671,600 | 16% | 11,123,600 | 40,652,800 | 27% |
| Colorado | 7,481,400 | 163,282,600 | 5% | 608,956,000 | 1,723,049,800 | 35% |
| South Dakota* | 111,100 | 1,163,600 | 10% | 836,100 | 5,484,400 | 15% |
| North Dakota | 40,215,400 | 441,484,800 | 9% | 85,234,900 | 647,508,000 | 13% |
| Alabama | 20,100 | 5,232,200 | 0.5% or less | 9,687,400 | 73,494,600 | 13% |
| California | 9,346,900 | 153,448,800 | 6% | 8,656,200 | 169,315,000 | 5% |
| Idaho | 2,100 | 45,400 | 5% | 110,200 | 1,559,200 | 7% |
| Alaska | 1,031,000 | 169,754,000 | 1% | 16,076,300 | 282,638,400 | 6% |
| Mississippi | 280,300 | 15,842,800 | 2% | 249,000 | 32,592,200 | 1% |
| Kansas | 108,500 | 31,982,400 | 0.5% or less | 3,341,400 | 167,920,200 | 2% |
| Louisiana | 456,300 | 43,385,400 | 1% | 23,363,600 | 2,914,762,400 | 1% |
| Michigan | 12,800 | 4,953,200 | 0.5% or less | 1,143,000 | 80,370,000 | 1% |
| Arkansas | 2 | 4,695,800 | 0.5% or less | 9,008,600 | 547,451,400 | 2% |
| Nebraska | 22,400 | 1,887,800 | 1% | 29 | 390,000 | 0.5% or less |
| Oklahoma | 622,900 | 180,351,000 | 0.5% or less | 15,344,800 | 2,507,099,800 | 1% |
| Texas | 354,800 | 1,653,055,000 | 0.5% or less | 29,684,700 | 7,615,031,800 | 0.5% or less |
| Kentucky | 6,100 | 2,395,200 | 0.5% or less | 103,000 | 74,290,200 | 0.5% or less |
| Illinois | 13,700 | 7,836,800 | 0.5% or less | 3,100 | 2,108,800 | 0.5% or less |
| Ohio | 11,200 | 22,527,000 | 0.5% or less | 3,396,800 | 2,247,262,800 | 0.5% or less |
| Virginia | - | 5,600 | 0% | 125,700 | 106,400,800 | 0.5% or less |
| New York | - | 196,400 | 0% | 7,200 | 10,482,000 | 0.5% or less % |
| Pennsylvania | 700 | 6,276,400 | 0% | 63,500 | 6,589,032,200 | 0.5% or less % |
| West Virginia | - | 15,279,800 | 0.5% or less | 87,400 | 1,975,680,600 | 0.5% or less |

| State | Oil (bbl) | | Natural Gas (mcf) (Dry Gas) | | | |
|---|---|---|---|---|---|---|
| | Federal Production | Total Federal + Non-Federal Production | Federal Production as a % of Total Production | Federal Production | Total Federal + Non-Federal Production | Federal Production as a % of Federal Total Production |
| Total | 299,147,502 | 3,387,222,600 | 9% | 3,347,222,729 | 31,039,611,400 | 11% |

Sources: DOI 2022, EIA 2021a, EIA 2021b, and South Dakota Department of Agriculture & Natural Resources 2020

* Due to limitations in data availability, multiple data sources were used to estimate the proportion of Federal oil and gas production relative to total production. Federal production was provided by BLM and total production data was obtained from the EIA. Therefore, there is some uncertainty in the estimated value of the percent Federal production. Due to this uncertainty Federal oil production appears larger than the total oil production in Nevada, where 100 percent of oil production in the state is attributed to Federal production. The five-year average dry natural gas estimate for South Dakota was calculated using total production data gather from the South Dakota Department of Agriculture and Natural Resources.

The lease demand model estimates Federal lease demand as a function of combined Federal oil and dry natural gas production. Dry gas production was converted into barrel of oil equivalents (BOE) and added to Federal oil production using a conversion rate of 0.172455 mcf to BOE (Conversion-Website.com 2022). State-level average Federal oil and gas leases were based upon a five-year state average (2017 to 2021) gathered from BLM's Oil and Gas Statistics page (BLM 2021). Estimated Federal leases per unit of Federal production was calculated by dividing the average historical number of Federal oil and gas leases in each state by the historical Federal state-level combined production over 5 years (2017 to 2021). The standard deviation of this statistic was also calculated.

The historical Federal lease data included both competitive and noncompetitive leases. As discussed in Section 2.1.3, Baseline, the IRA removed the option to acquire noncompetitive leases. The IRA is not analyzed in detail in this document because the BLM does not have any discretion over whether to implement the changes made by the IRA. In general, since the lease demand model uses total leases per Federal production, including noncompetitive leases increases the lease demand model forecast relative to a model based upon historic competitive-only leases. The actual impact upon competitive lease demand is unclear. Since only around 1 percent of the noncompetitive leases issued produce in the 10-year primary term of the lease (GAO's report GAO-21-138[9]) these leases don't appear to create much future Federal production. In this analysis, the BLM assumes that all parcels that formerly would have been offered noncompetitively will be offered competitively and successfully leased. If ending noncompetitive leasing leads to relatively fewer leases, the BLM's model will overestimate future leasing and be an upper-bound estimate of lease demand.

This analysis assumes that the leases that would have been issued as noncompetitive leases will instead be successfully sold through the competitive lease sale process. The incremental impact of the final bonding requirements will be in addition to any changes that resulted from the IRA, which are not analyzed in this document, because the BLM does not have any discretion over whether to implement the changes made by the IRA.

[9] GAO: GAO-21-138. Onshore Competitive and Noncompetitive Lease Revenues. https://www.gao.gov/products/gao-21-138.

After the incremental new Federal leases was calculated, as described above, the incremental new Federal leases per year and state was compared to the standard deviation of Federal leases, which was calculated by multiplying the 5-year average standard deviation of leases per Federal production by the total Federal production. If the absolute value of the incremental new leases in a year in a state was less than half of the standard deviation of Federal leases for the previous year, then the production change that resulted in the change in leases was assumed to be accounted for through an increase or decrease in production from existing leases rather than new leases. If the absolute value of the incremental leases in a year and state was greater than half of the standard deviation, then it was assumed that there was a real change in the number of leases. The incremental new leases were then compared to the cumulative leases. If the incremental number of leases was negative, due to a decrease in production from one year to the next, then it was assumed that this reduction was due to retiring of existing leases, so no change to incremental leases or cost of bonds from new leases would occur. The overall number of incremental new leases is therefore based on 20-year projections for future production levels.

### *NPV of Cost to Operators for Securing Bond*

The surety bonds used to ensure eventual funding for plugging and reclaiming oil and gas operations are sold with an annual cost (premium paid to the surety company) based upon the value of the bond. The incremental impact on cost to operators to bring their leases into compliance with the final regulations was calculated by subtracting the cost for securing bonds at the current bond value ($10,000 per individual lease bond) from the cost for securing bonds at the new bond value ($150,000, per individual lease bond). The cost for securing bonds was calculated by multiplying the projected number of new Federal leases in each state and year (the approach for calculating this is outlined above) by the final bonding requirement and the annual percentage of bond value for determining the bond premium.

The requirement of continuous coverage by these bonds could be fulfilled by a series of overlapping fixed-duration bonds or a long-duration bond with flexible costs through surety companies. For the purposes of this analysis, 1 and 2 percent per year was used as the percentage of the bond value required to secure a surety bond for well plugging and reclamation. According to several bonding companies, these rates are representative of an operator with a FICO credit score in the high 600s, and one bonding company reported that over 70 percent of their small-business customers paid 2 percent or less on their surety bonds (Lance Surety Bond Associates, Inc. 2022, Bryant Surety Bonds, Inc. 2022, Insureon 2022, SuretyGroup.com 2022, Viking Bond Service, Inc. 2022). Specific data is not available for operators on Federal lands; therefore, BLM assumed these operators would fit this general profile for this analysis. The risk to the surety company, and the specific premium costs of the bond for an operator depends on factors including but not limited to (a) line of business, (b) the bond value and (c) credit rating of the operator.

The BLM calculated the NPV of the annual net costs to operators for the period of analysis using a 3 and 7 percent discount rate, as explained in Section 2.1, Inflation-Adjustment and Discount Rate.

It is possible that due to the increased bonding costs some number of operators of existing marginal wells may choose to cease production and plug and reclaim a specific wellsite sooner than they might in the absence of the bond increase. This could have some small impact upon total Federal production and revenue as well as monetized environmental benefits and costs. There is not sufficient data or analyses available to estimate the number of leases or wells or the amount of production that could be affected in this way by the final rule. Neither is data available to quantify the monetized net effect of a relatively earlier end-date of production from these leases.

***Statewide Bonds***

The estimated net cost to operators for securing bonds assumed that all new leases will require a separate individual lease bond; however, many companies will choose to secure statewide bonds rather than individual lease bonds to save costs, if/when they have multiple leases in the same state. Furthermore, if an existing operator has a statewide bond, new wells acquired or drilled by the operator may not need a bond, as they will be covered under the existing bond. The exact number of companies that will be covered under existing or new statewide bonds is difficult to quantify, so the costs calculated from the approach outlined above are representative of an upper bound on the potential cost impacts.

The assumption of companies choosing individual lease bonds versus statewide bonds was evaluated on a state-by-state basis by calculating the current average number of leases per company in each state. The number of leases that each company holds was gathered from data provided by the BLM (BLM 2022). If the average number of leases per company in a state was greater than 3.33 (the new statewide bond amount divided by the new individual lease bond amount), then most companies in that state will probably choose the statewide bonds and the cost impacts of the final rule will most likely be substantially lower than estimated above. If the average number of leases per company in a state was less than 3.33, then most of the companies in the state will probably choose individual lease bonds and the cost impacts of the final rule will be close to the costs estimated above in that state. It is not known to what extent historical trends in the number of leases by company in each state and the number of leases covered by existing bonds will be retained with the new bonding requirements. Based on a review of available data from 2012-2022, the number of new statewide bonds issued on an annual basis varied from zero for the BLM Eastern States administered bonds to 61 for bonds administered in the BLM New Mexico state office (including New Mexico, Oklahoma, Texas and Kansas).

### 2.2.2 Liability Impacts

The changes in bonding requirements reduce the public burden for well reclamation by transferring these costs to operators. Currently, the minimum bond amount does not usually cover the full cost of reclamation. Under the final rule, the bond amount will cover the average cost of reclamation, significantly reducing the need for BLM to spend time and effort trying to require those responsible to conduct the reclamation. This change could benefit the BLM by reducing the amount of administrative time and costs required to pursue other parties as well as reduce the amount of appropriated funds that the BLM must expend to conduct the reclamation itself. While this impact is not easily quantifiable, it is discussed qualitatively.

### 2.2.3 Impacts from Fixed Fee Changes

Because of the increased amounts for actions subject to cost recovery and increased fees for other actions, the BLM will have additional funds available. The BLM determined the amount of the increase using the average number of actions per year and the change in processing cost under the current and final regulations. Based on this data, the BLM and the Federal Government will collect an estimated additional $3 million dollars per year (from $990 thousand currently to $4.2 million).

The new and updated fees are transfers from current and prospective lessees and operators to the Federal government and do not in itself represent a change in the level of economic activity, as these fees (except expressions of interest) were calculated based upon actual effort and expense of the BLM staff who will continue to provide the same services. The new filing fee for expressions of interest in the final rule is required by the IRA. The fees collected from this activity go directly to the Department of the Treasury and are not used by the BLM as part of its cost recovery efforts. As a result, these costs are not considered

as contributing to the overall costs and benefits discussed in Analysis of Net Economic Benefits. Qualitative discussion about potential impacts from this change is included in Changes to Federal Lease Demand.

### 2.2.4 Administrative Costs

Administrative costs are provided based on analysis compiled per the Paperwork Reduction Act (PRA) (44 U.S.C. 3501–3521). For this analysis the BLM evaluated new and revised information collection requirements along with the resulting changes in public burdens. Details are included in annual costs and benefits summary.

### 2.2.5 Changes to Federal Lease Demand

Previous studies have not shown clear results on whether lessees and operators react to increased costs (such as costs to secure bonding) by moving operations away from Federal lands to state or private land. A report from the Congressional Research Service (2020) indicates that an increase in costs to obtain leases (which also included nomination fees, increased bonus bids, rentals, etc.) could result in a lower number of bids and leases sold (Congressional Research Service 2020); however, it is not clear how much costs will need to increase for there to be an impact on demand for Federal leases.

State bonding requirements vary substantially depending on the state. A comparison of state bonding requirements was conducted. All state bonding requirements that are not for statewide bonds are based on per well, rather than the per individual lease bonds that are accepted by the BLM. To compare the state bonds to Federal bonds, the average number of wells per lease will be calculated by dividing the average producible wells by the producing leases in each state. As discussed in the preamble, the new bonding requirements were determined based on the average cost to plug a well ($71,000) and 2 wells per lease, so the Federal bonds will also be compared to state bonds assuming 2 wells per lease.

For those states where the state bonding requirements and costs are greater than the new final Federal bonding requirements, impacts on shifting leasing from Federal lands to state lands will be considered minimal; however, for the states where state bonding requirements and costs are lower than the new final Federal bonding requirements, a more detailed review was conducted into leasing terms and discussed qualitatively.

Leasing duration is also difficult to quantify and forecast. Federal leases not held in production have fixed durations whereas the terms for Federal leases held in production (with an operating well accessing Federal minerals) remain in effect as long as a well is producing in paying quantities, the operators are in compliance with all Federal regulations, and the royalty is paid.

An increase in the costs of bonding a Federal well may shorten its productive lifespan and with it the length of the Federal lease. With increased available bonding operators will face less plugging and reclamation costs above that covered by the bond, and the operator of a marginally producing well has a reduced incentive to continue producing at an economic loss if plugging and reclamation costs will be much greater than the losses from continuing operations.

### 2.2.6 Environmental and Other Benefits

#### *Timing of Reclaiming Wells*

The BLM is using recent data on orphaned wells on BLM administered parcels to forecast the number of orphaned wells that will be plugged and reclaimed under the final rule. For this analysis we assume that

over each year of the study period (20 years) an average of 20 orphaned Federal wells covered by the final rule will require plugging and reclamation. The timing necessary to plug these wells and reclaim the surrounding surface lands is expected to shorten, which could result in environmental and other benefits. As mentioned in Section 2.2.2, Liability Impacts, the final rule increasing the bond amount on average will cover the current full cost of reclamation. The BLM can use the bond to reclaim the well and will not need to pursue the other parties to hold them responsible for the reclamation. This is estimated to save the BLM about 240 days in the compliance process, which means the well and surrounding surface lands could start to be reclaimed 240 days sooner. Land reclamation is a management practice that is usually used with resources extraction. It is the process of returning damaged lands to their original condition or to an acceptable condition through land contouring and/or revegetation. Contouring is the stage in which the land is reshaped to resemble pre-use topography and drainage. Revegetation provides for the replacement of plant communities. Reclaiming lands is necessary for the sustainability of land, increases the area of usable land, and supports ecosystem stability. The benefits from expedited timing of reclamation are difficult to quantify, so this document discusses the environmental benefits of earlier reclamation qualitatively. If these environmental benefits from earlier reclamation could be quantified, their monetary values will likely increase the net economic benefits from the final rule.

### 2.2.7 Summary of Transfers and Net Economic Benefits

The OMB Circular A-4 requires agencies to report any significant distributional effects associated with economic costs, benefits or transfers. This would highlight if the people or entities who pay the costs are different from those who reap the benefits (OMB 2003). Therefore, the summary of net benefits includes a discussion on the distributional effects from the final rule. The distributional effects include discussion of the monetized costs to the oil and gas industry and a discussion on the potential benefits to the bond surety industry. Lastly, the distributional effects analysis includes a discussion on locational effects to highlight areas that would see greater costs to industry.

The final rule may lead to shifts in both economic costs and benefits as well as transfers of spending that are not treated as economic costs or benefits, and it may not be possible to estimate the monetized complete value of costs, benefits, or transfers.

The benefits and costs of the final rule come from changes in leasing demand. Where available data exists to estimate the monetized benefits and/or costs, the net benefits to the economy are calculated as the monetized benefits minus the monetized costs of the final rule. The average annual net benefits to the economy will be calculated over the 20-year period of analysis.

Under this final rule, some of the costs that the US public would otherwise pay to plug and reclaim under-bonded orphaned wells are transferred to the well operators. It also transfers to Federal lessees and operators some of the costs that the US public would otherwise pay to administer the fees discussed in Section 1.5 of the final rule. These transfers do not represent a change in net economic activity and are not included in net economic benefit calculations.

Relative to current regulations, these transfers will represent a shifting of spending where existing leaseholders and operators will pay more to bonding sureties and the US public will spend less on plugging and reclaiming under-bonded orphaned wells. The monetized value of these transfers is included in the process of establishing economic significance under Executive Order 12866.

Non-monetized benefits or costs are discussed qualitatively.

### 2.2.8 Impacts from Other Provisions

To address comments from industry and industry groups related to the impacts from the oil and gas leasing preference criteria in § 3120.32 of the final rule, the increased distance to move well locations in § 3101.12 for surface use rights, and the changes to lease suspensions in § 3165.1, the BLM has added a discussion of the impacts to the economy from these two provisions.

#### *Leasing Preference Criteria*

In general, the oil and gas leasing preference criteria in § 3120.32 will not result in any costs or benefits to the economy as (1) the BLM has had a similar approach to leasing since 1988 called the public interest determination; (2) the BLM is already implementing the preference criteria under BLM Instruction Memorandum 2023-007;[10] and, (3) the BLM added § 3120.32 into the regulations to provide a transparent oil and gas leasing process. The preference criteria are not a novel approach to leasing as it is similar to the public interest determination, which the BLM has used since 1988. *See 53 FR 22828* (June 17, 1988) ("It is Bureau policy prior to offering the lands to determine whether leasing will be in the public interest."). More recently, the BLM has applied the preference criteria to its leasing decisions in conformance with IM 2023-007. For example, in BLM Colorado's June 2022 oil and gas lease sale, the BLM started the lease sale by scoping 119 parcels with a total of 141,675.22 acres and ultimately offered 6 parcels with a total of 2,444.13 acres. BLM Colorado deferred multiple parcels due to resource concerns and continued tribal consultation, which reflects the preference criteria of § 3120.32(c) and (d). With this change, the public and the regulated community now have a clearer understanding of the BLM's process.

Therefore, the BLM determined that the addition of the oil and gas leasing preference criteria in § 3120.32 of the final rule will not result in any costs or benefits to the public. Instead, it will provide greater transparency to the public and the regulated community on how the BLM determine which lands to lease.

#### *Surface Use Rights*

For § 3101.12, the BLM increased the distance that it could move locations from 200 meters to 800 meters and increased the timeframe in which the BLM could prohibit new surface disturbance from 60 days to 90 days. The BLM does not expect these changes to result in any costs or benefits to the economy as this provision is used after discussions with the lessee or operator. Application of these provisions will not affect the ability of a lessee or operator to develop its lease. These changes are a recognition of the technological improvements that are already being used on Federal lands.

First, the BLM only uses this provision when there is a resource conflict and the oil and gas development may cause harm to another resource or use within or around the lease. This occurs during BLM's review of the Application for Permit to Drill and involves a discussion between the BLM and the operator to determine a location that will meet the operator's needs and protect the resource.

Second, even with the increased distance or timing limitation, industry will still be able to develop its lease. In BLM's experience, oil and gas lessees are currently using this technology to drill directional wells that stretch between 10 meters and 1,000 meters and horizontal wells that stretch between 1 mile (1,600 meters) and 3 miles (4,830 meters). The technological improvements include:

[10] https://www.blm.gov/policy/im-2023-007

**Directional Drilling**: Traditional vertical drilling limits access to reservoirs, but directional drilling allows wells to be drilled at angles, reaching reservoirs that are located horizontally or diagonally from the drilling location. This enables access to multiple pockets of hydrocarbons from a single well pad, maximizing resource extraction efficiency and reducing surface disturbance. This technology is commonly used currently on Federal land.

**Horizontal Drilling**: Horizontal drilling involves drilling vertically to a certain depth and then turning horizontally to follow the reservoir. This technique exposes a larger section of the reservoir to the wellbore, increasing production rates and ultimate recovery, while reducing surface disturbance. This technology is commonly used currently on Federal land.

**Multilateral Wells**: These wells have multiple branches that extend from a single main borehole. They enable access to multiple reservoirs or different sections of the same reservoir from one well, reducing costs and surface footprint. This technology is used on Federal land.

For the increased timing limitation, technology has also improved the drilling timeframe. For example, the Society of Petroleum Engineers estimates that rigs can drill twice as fast as compared to 2014 based upon a Rystad chart.[11] Examples of this technology include:

**Improved Drill Bits**: Advanced drill bit designs, including polycrystalline diamond compact (PDC) bits and roller cone bits, provide better drilling performance, durability, and efficiency in various formations. These bits can withstand higher temperatures and pressures, allowing for faster penetration rates and reduced drilling time.

**High-Torque Top Drives**: Top drive systems provide rotational power to the drill string from the top of the drilling rig, allowing for faster and more efficient drilling compared to traditional rotary table systems. High-torque top drives can deliver increased power, enabling faster drilling in challenging formations.

**Automated Drilling Systems**: Automation technologies, including advanced control systems and algorithms, optimize drilling parameters such as weight on bit, rotary speed, and mud flow rate in real-time. This automation reduces human error and improves drilling efficiency, leading to faster well construction.

**Improved Drilling Fluids**: Advanced drilling fluid formulations enhance wellbore stability, lubrication, and cuttings removal, reducing friction and drag on the drill string. This results in smoother drilling operations and faster penetration rates.

**Downhole Motors and Rotary Steerable Systems**: Downhole motors and rotary steerable systems provide precise directional control, allowing operators to drill complex well trajectories more efficiently. These systems can drill faster in horizontal and extended reach wells compared to traditional methods.

**Continuous Circulation Systems**: Continuous circulation systems maintain constant flow of drilling fluid during connections and tripping operations, reducing downtime and improving overall drilling efficiency.

**Real-Time Drilling Monitoring and Data Analytics**: Advanced sensors and monitoring systems provide real-time data on drilling parameters, downhole conditions, and formation properties. Data

[11] https://jpt.spe.org/the-trend-in-drilling-horizontal-wells-is-longer-faster-cheaper

analytics and predictive modeling help optimize drilling operations, identify potential issues, and minimize downtime.

As the above technology is commonly used on BLM land, the BLM does not expect the increased timing limitation (60 to 90 days) nor the increased distance (200 to 800 meters) to result in costs or benefits to the public.

***Oil and Gas Lease Suspensions***

In § 3165.1, the BLM, in response to GAO reports, updated this section related to oil and gas lease suspensions to ensure that both the lessee and the BLM timely monitor lease suspensions. In general, the BLM's updates to the oil and gas lease suspension criteria in § 3165.1 will not result in any costs or benefits to the economy as (1) the BLM is already implementing the provisions under BLM Instruction Memorandum 2023-012[12] and (2) the BLM added § 3165.1 into the regulations to provide a transparent oil and gas lease suspension process and ensure lease suspensions are reviewed annually. In addition, the GAO recommended that the BLM "develop official agency procedures for monitoring oil and gas lease suspensions."[13] The BLM developed policy to reflect this recommendation; however, the BLM determined that incorporating the existing policy into the regulations will provide more transparency on the BLM's process when reviewing lease suspensions. This policy update will not increase a lessee's workload. With this change, the public and the regulated community now have a clearer understanding of the BLM's process.

Therefore, the BLM determined that the modifications to the oil and gas lease suspension criteria in § 3165.1 of the final rule will not result in any costs or benefits to the public. Instead, it will provide greater transparency to the public and the regulated community on how the BLM will manage oil and gas lease suspensions.

***Conclusion***

Based on the above review and analysis, the BLM has determined that §§ 3101.12, 3120.32, and 3165.1 in the final rule are not expected to result in costs or benefits to the public and are not analyzed in further detail.

[12] https://www.blm.gov/policy/im-2023-012
[13] https://www.gao.gov/assets/gao-18-411.pdf

# Chapter 3. Economic Analysis Results

## 3.1 ESTIMATED COSTS IMPACTS OF FINAL RULE ON OPERATORS

The following subsection describes the results of the economic impact analysis to operators for securing bonds due to increased bonding requirements from the final rule. See Section 3.3 for an analysis of the net economic benefits of the proposed rule.

### 3.1.1 Cost Impacts for Existing Leases

**Table 4** represents the statistics for active bonds covering existing oil and gas wells which have been accepted by the BLM. There was a total of 1,512 unit, individual, statewide or nationwide bonds tied to producing wells. Currently individual and statewide bonds represent 24 percent and 67 percent, respectively, of the total bonds while nationwide bonds account for 9 percent. There are also a small number (7) of collective or unit bonds tied to wells. The total value of the bonds represented in the table was $152 million, with statewide bonds representing 61% of the total value, nationwide bonds representing 31% and individual bonds 7%. Approximately 75% of Individual bonds and 70% of Statewide bonds are currently set at their regulatory minimums of $10,000 and $25,000 respectively[14]. An additional 20% of the bonds in both categories had values above the existing minimum but below the new final minimums. Average value of these bonds ranged from $26,000 for individual bonds to $387,000 for nationwide bonds. Based on existing bond data, approximately 6% of current individual bonds and around 10% of statewide bonds already meet or exceed the new bonding requirements of $150,000.

**Table 4. Distribution of Bonding Types for Approved* Bonds Under Current Rule Tied to Wells****

| Bond Type | Number of Bonds | Sum of Bond Amount ($000) | Average Bond Amount ($000) |
|---|---|---|---|
| Individual | 369 | $10,440 | $26 |
| Statewide | 1,007 | $92,746 | $100 |
| Collective (unit) | 7 | $1,387 | $198 |
| Nationwide | 129 | $47,150 | $387 |
| Total | 1,512 | $151,723 | N/A |

*Incudes bonds with "accepted" or "restricted" status only.
**Includes bonds tied to wells with liability only; bonds not tied to any disturbance are excluded.

In response to the new final requirements, we expect nationwide bondholders to switch to carrying some combination of statewide and/or individual bonds to comply with the changes. The data shows that 49 % of the nationwide bonds covered wells located in a single state and the weighted average of the number of states associated with a nationwide bond was 1.96 (see **Table 5**). Only 16 % of nationwide bonds covered wells in four or more states (see **Table 5**).

[14] These statistics are from a separate analysis of active leases with bonding status of "accepted, which is close but not identical to the data set analyzed in Table 3.

**Table 5. Distribution of Number of States Included in a Nationwide Bond**

| Number of States with Wells Covered by the Nationwide Bond | % of Nationwide Bonds |
|---|---|
| 1 State | 49 |
| 2 States | 19 |
| 3 States | 15 |
| 4 or more states | 16 |
| Total | 100 |

Based on data shown in **Table 4**, a statewide bond at the average value is less expensive than holding five or more individual bonds at the average individual bonding value and a nationwide bond at the average value of nationwide bonds is cheaper than four or more statewide bonds at the average statewide bonding values.

Under the new bonding requirements current nationwide bonds will need to be converted to at least one statewide bond. As shown in **Table 5**, the large majority (84%) of nationwide bonds cover operations in three or fewer states. Applying the bond types and amounts to the composition of current bondholders, we assume that the quantity of individual bonds will be unchanged and statewide bonding will increase by additional liabilities currently captured under nationwide bonding. Existing unit and nationwide bonds will be replaced by statewide bonds one year after the effective date of the final rule. A summary of current bond coverage by state and anticipated changes under the final rule is included in **Table 5**.

**Table 7** shows the NPV for the estimated change in bonding costs for statewide and individual bonds.

**Table 6. Estimated Totals in Accepted* Existing Statewide** Bonds**

| | Under Current Rule | Under Final Rule |
|---|---|---|
| Wyoming | 268 | 342 |
| New Mexico | 286 | 301 |
| Colorado | 80 | 87 |
| Utah | 71 | 82 |
| North Dakota | 44 | 46 |
| Montana | 54 | 56 |
| Oklahoma | 44 | 54 |
| Kansas | 13 | 14 |
| California | 27 | 28 |
| Texas | 28 | 33 |
| Arkansas | 10 | 11 |
| Ohio | 14 | 14 |
| Louisiana | 13 | 13 |
| West Virginia | 1 | 1 |

| | Under Current Rule | Under Final Rule |
|---|---|---|
| Mississippi | 12 | 13 |
| South Dakota | 9 | 9 |
| Pennsylvania | 1 | 1 |
| Michigan | 10 | 11 |
| Kentucky | 4 | 4 |
| Nevada | 12 | 12 |
| Alaska | 0 | 1 |
| Alabama | 2 | 2 |
| Nebraska | 2 | 3 |
| Virginia | 1 | 2 |
| Illinois | 1 | 2 |
| New York | 0 | 1 |
| Idaho | 0 | 0 |
| Arizona | 0 | 0 |
| Total | 1,007 | 1,143 |

*Incudes bonds with "accepted" or "restricted" status only.
**The number of individual lease bonds needed to cover existing wells are assumed to remain unchanged and is not included here. Statewide bonds will increase by the addition of liabilities currently captured under nationwide bonds as well as unit bonds that will be replaced by statewide bonds under the final rule.

**Table 7. NPV of the Difference in Costs from Current Rule to Final Rule for Existing Leases[1]**

| State | | Change in Costs of Individual Bonds ($000) | | Change in Costs of Statewide Bonds ($000) | |
|---|---|---|---|---|---|
| | | 3% Discount Rate | 7% Discount Rate | 3% Discount Rate | 7% Discount Rate |
| Wyoming | 1% of bond value | $1,496 | $1,440 | $28,923 | $27,842 |
| | 2% of bond value | $2,991 | $2,879 | $57,846 | $55,683 |
| New Mexico | 1% of bond value | $1,627 | $1,566 | $25,963 | $24,993 |
| | 2% of bond value | $3,254 | $3,133 | $51,927 | $49,985 |
| Colorado | 1% of bond value | $651 | $626 | $7,684 | $7,397 |
| | 2% of bond value | $1,302 | $1,253 | $15,368 | $14,793 |
| Utah | 1% of bond value | $330 | $317 | $5,730 | $5,516 |
| | 2% of bond value | $659 | $634 | $11,460 | $11,032 |
| North Dakota | 1% of bond value | $341 | $328 | $5,322 | $5,123 |

| State | | Change in Costs of Individual Bonds ($000) | | Change in Costs of Statewide Bonds ($000) | |
|---|---|---|---|---|---|
| | | 3% Discount Rate | 7% Discount Rate | 3% Discount Rate | 7% Discount Rate |
| | 2% of bond value | $682 | $657 | $10,645 | $10,247 |
| Montana | 1% of bond value | $864 | $832 | $3,419 | $3,292 |
| | 2% of bond value | $1,728 | $1,663 | $6,839 | $6,583 |
| Oklahoma | 1% of bond value | $167 | $160 | $3,816 | $3,673 |
| | 2% of bond value | $3,333 | $321 | $7,632 | $7,346 |
| Kansas | 1% of bond value | $101 | $98 | $1,606 | $1,546 |
| | 2% of bond value | $203 | $195 | $3,213 | $3,093 |
| California | 1% of bond value | $243 | $234 | $624 | $600 |
| | 2% of bond value | $486 | $468 | $1,248 | $1,201 |
| Texas | 1% of bond value | $172 | $166 | $804 | $774 |
| | 2% of bond value | $345 | $332 | $1,607 | $1,547 |
| Arkansas | 1% of bond value | $54 | $52 | $1,011 | $973 |
| | 2% of bond value | $108 | $104 | $2,021 | $1,946 |
| Ohio | 1% of bond value | $177 | $170 | $466 | $449 |
| | 2% of bond value | $353 | $340 | $932 | $897 |
| Louisiana | 1% of bond value | $130 | $125 | $302 | $290 |
| | 2% of bond value | $260 | $250 | $603 | $581 |
| West Virginia | 1% of bond value | $136 | $131 | $231 | $222 |
| | 2% of bond value | $272 | $262 | $461 | $444 |
| Mississippi | 1% of bond value | $46 | $44 | $201 | $193 |
| | 2% of bond value | $91 | $88 | $401 | $386 |
| South Dakota | 1% of bond value | $19 | $18 | $287 | $276 |
| | 2% of bond value | $38 | $36 | $574 | $552 |
| Pennsylvania | 1% of bond value | $59 | $57 | $100 | $96 |

| State | | Change in Costs of Individual Bonds ($000) | | Change in Costs of Statewide Bonds ($000) | |
|---|---|---|---|---|---|
| | | 3% Discount Rate | 7% Discount Rate | 3% Discount Rate | 7% Discount Rate |
| | 2% of bond value | $118 | $113 | $200 | $192 |
| Michigan | 1% of bond value | $7 | $6 | $249 | $240 |
| | 2% of bond value | $13 | $13 | $499 | $480 |
| Kentucky | 1% of bond value | $25 | $24 | $169 | $163 |
| | 2% of bond value | $50 | $48 | $338 | $326 |
| Nevada | 1% of bond value | $20 | $19 | $102 | $99 |
| | 2% of bond value | $40 | $39 | $205 | $197 |
| Alaska | 1% of bond value | $28 | $27 | $48 | $46 |
| | 2% of bond value | $56 | $54 | $95 | $92 |
| Alabama | 1% of bond value | $16 | $15 | $53 | $51 |
| | 2% of bond value | $31 | $30 | $106 | $102 |
| Nebraska | 1% of bond value | $10 | $10 | $53 | $51 |
| | 2% of bond value | $21 | $20 | $105 | $101 |
| Virginia | 1% of bond value | $0 | $0 | $83 | $80 |
| | 2% of bond value | $0 | $0 | $166 | $160 |
| Illinois | 1% of bond value | $3 | $3 | $22 | $21 |
| | 2% of bond value | $6 | $6 | $43 | $41 |
| New York | 1% of bond value | $3 | $3 | $12 | $11 |
| | 2% of bond value | $7 | $7 | $23 | $22 |
| Idaho | 1% of bond value | $0 | $0 | $0 | $0 |
| | 2% of bond value | $0 | $0 | $0 | $0 |
| Arizona | 1% of bond value | $0 | $0 | $0 | $0 |
| | 2% of bond value | $0 | $0 | $0 | $0 |

Note: Table 6 shows change in bonding costs by state based on the change in bonding fees and estimated change in statewide bonds due to removal of unit and nationwide bonds. Current costs for unit and nationwide bonds determined on a proportional basis. No total cost included, as current total costs for unit and nationwide bonds are not displayed.

Overall, under the final rule and the assumptions of how nationwide bondholders will replace their existing coverage, the number of bond instruments will increase by 8%. A total of 369 individual bonds with a value of over $55 million will be necessary. A total of 1,143 statewide bonds valued at nearly $572 million will also be required to meet the new final regulatory requirements. The current total value of these bonds covering the current wells will increase fivefold, from $152 million to $627 million (see **Table 7**).

**Table 8. Estimated Overview of Distribution of Bonding Types for Accepted* Bonds Tied to Wells****

| Bond Type | Under Current Rule | | Under Final Rule | | Change in Bond Cost | |
|---|---|---|---|---|---|---|
| | Number of Bonds | Sum of Bond Amount ($000) | Number of Bonds | Sum of Bond Amount ($000) | 1% Cost of Bonds ($000) | 2% Cost of Bonds ($000) |
| Collective (unit) | 7 | $1,387 | 0 | $0 | -$13.9 | -$27.7 |
| Individual | 369 | $10,440 | 369 | $55,350 | $449.1 | $898.2 |
| Nationwide | 129 | $47,150 | 0 | $0 | -$471.5 | -$943 |
| Statewide | 1,007 | $92,746 | 1,143 | $571,500 | $4,787.5 | $9,575.1 |
| Total | 1,512 | $151,723 | 1,512 | $626,850 | $4,751.3 | $9,502.5 |

*Incudes bonds with "accepted" or "restricted" status only.
**Includes bonds tied to wells with liability only; bonds not tied to any disturbance are excluded.

(It should be noted that based on current BLM data, approximately 39 % of bonds are not associated with specific wells). Operators may choose to keep these bonds open for several reasons, including flexibility to initiate well development in changed market conditions. With the increased bonding requirements, however, operators may request bond termination for some or all of these bonds. Table 8 includes only bonds associated with existing wells.

### 3.1.2 Cost Impacts for New Leases

The final rule requires that existing bonds be brought into compliance with the new regulations on a phased schedule and requires bonds for wells authorized after the effective date to meet the new requirements. Thus, bonds for new leases were analyzed separately, and the section below describes the results for new leases only. As discussed in the methods section, this analysis used EIA future projected production levels by region and historical data on state percentages of Federal development to estimate the number of new leases by state.

From 2023 to 2042, there were five states that had projected production increases large enough to warrant new leases and bonds above the annual average number of leases issued each year: Colorado, Illinois, Montana, Nevada, and Wyoming. **Table 10** shows the number of current producing leases and the total projected incremental leases over a 20-year period, for all states that have Federal leases. The amount of projected incremental leases is an amount projected above the annual average number of leases that are issued each year. For example, the states with zero projected incremental leases, oil and gas production is expected to increase by an amount that could be obtained from existing leases, through the annual average number of leases issued each year, or oil and gas production is expected to decrease,

potentially resulting in retired leases.[15] Out of the 5 states that are projecting an increase in leases, all except for Illinois are in the top 5 states in terms of percentage of Federal production to total production for oil and/or gas (see **Table 3**).

**Table 9. Number of Current Federal Leases and Projected Leases**

| | Annual Average Number of Federal Leases Issued from 2010-2020[1] | Baseline - Current Number of Producing Leases (2020) | Amount above Baseline - Total Projected Incremental Leases (2023 to 2042) |
|---|---|---|---|
| Wyoming | 398 | 7,372 | 1,182 |
| New Mexico | 69 | 6,827 | 0 |
| Colorado | 95 | 2,145 | 356 |
| Utah | 63 | 1,485 | 0 |
| North Dakota | 54 | 1,405 | 0 |
| Montana | 108 | 1,377 | 363 |
| Oklahoma | 17 | 950 | 0 |
| Kansas | 2 | 423 | 0 |
| California | 8 | 314 | 0 |
| Texas | 27 | 301 | 0 |
| Arkansas | 11 | 259 | 0 |
| Ohio | 8 | 231 | 0 |
| Louisiana | 36 | 161 | 0 |
| West Virginia | 0 | 150 | 0 |
| Mississippi | 48 | 77 | 0 |
| South Dakota | 32 | 76 | 0 |
| Pennsylvania | 1 | 65 | 0 |
| Michigan | 12 | 59 | 0 |
| Kentucky | 1 | 55 | 0 |
| Nevada | 129 | 37 | 9 |
| Alaska | 14 | 31 | 0 |
| Alabama | 8 | 23 | 0 |
| Nebraska | 1 | 19 | 0 |
| Virginia | 0 | 18 | 0 |
| Illinois | 0 | 7 | 3 |
| New York | 0 | 5 | 0 |
| Idaho | 1 | 2 | 0 |
| Arizona | 1 | 0 | 0 |
| Total | 1,144 | 23,874 | 1,913 |

[15] As explained in the methodology discussion above, the incremental Federal leases were calculated using the 5-year average ratio of Federal leases per Federal production. Because there is variation across how much production is associated with a lease (and variation across how many leases are needed to produce a certain amount) within a state, the incremental new Federal leases calculated from the average Federal leases per production was compared to the number of leases calculated from half of the standard deviation of Federal leases per Federal production. If the amount of projected incremental leases needed to meet the projected production increase was within half of the standard deviation, then it was assumed that the production could be produced by existing leases. For many of the states, this was the case. The states for which there were potentially retired leases due to decreases in production, the retired leases were expected to be existing prior to the effective date of the final rule and thus would not impact the number of new leases. See Section titled
Analysis Approach and Methods
for more information on the methodology.

1 Includes competitive and non-competitive leases. Under the IRA, all future leases will be issued on a competitive basis which may impact total number of leases issued.

**Table 9,** below, shows the NPV of the increase in annual costs for the 5 states due to the final rule compared with the current rule. The total NPV across 20 years ranges from about $33 million with 1 percent cost of bonds to $67 million with 2 percent cost of bonds at a 3 percent discount rate and about $22 million with 1 percent cost of bonds to $44 million with 2 percent cost of bonds at a 7 percent discount rate.[16]

**Table 10. NPV of the Difference in Annual Costs from Current Rule to Final Rule for New Leases**

| State | Annual Cost of Bond | 10-Year NPV ($000) | | 20-Year NPV ($000) | |
|---|---|---|---|---|---|
| | | 3% Discount Rate | 7% Discount Rate | 3% Discount Rate | 7% Discount Rate |
| Colorado | 1% of bond value | $2,270 | $1,794 | $5,838 | $3,765 |
| | 2% of bond value | $4,540 | $3,588 | $11,677 | $7,530 |
| Illinois | 1% of bond value | $12 | $10 | $30 | $19 |
| | 2% of bond value | $24 | $20 | $58 | $38 |
| Montana | 1% of bond value | $3,801 | $3,061 | $7,743 | $5,266 |
| | 2% of bond value | $7,601 | $6,123 | $15,486 | $10,532 |
| Nevada | 1% of bond value | $64 | $51 | $137 | $92 |
| | 2% of bond value | $127 | $103 | $273 | $184 |
| Wyoming | 1% of bond value | $7,800 | $6,166 | $19,689 | $12,735 |
| | 2% of bond value | $15,601 | $12,331 | $39,380 | $25,472 |
| Total | 1% of bond value | $13,947 | $11,083 | $33,438 | $21,878 |
| | 2% of bond value | $27,894 | $22,165 | $66,875 | $43,755 |

**Table 10** shows the annual average increase in costs to secure bonding for the new leases in the 5 states. The total annual costs on average, over 20 years, ranges from about $2.4 million with 1 percent cost of bonds to $4.8 million with 2 percent cost of bonds.

**Table 11. Average Difference in Annual Bonding Costs from Current Rule to Final Rule for New Leases**

| State | Annual Cost of Bond | 10-Year Average Annual Bonding Cost ($000) | 20-Year Average Annual Bonding Cost ($000) |
|---|---|---|---|
| Colorado | 1% of bond value | $274 | $422 |
| | 2% of bond value | $548 | $843 |
| Illinois | 1% of bond value | $1 | $2 |
| | 2% of bond value | $3 | $4 |
| Montana | 1% of bond value | $453 | $538 |
| | 2% of bond value | $905 | $1,076 |
| Nevada | 1% of bond value | $8 | $10 |
| | 2% of bond value | $15 | $19 |

[16] The 10-Year NPV doesn't include the inflation-adjustment to minimum bonding levels.

| State | Annual Cost of Bond | 10-Year Average Annual Bonding Cost ($000) | 20-Year Average Annual Bonding Cost ($000) |
|---|---|---|---|
| Wyoming | 1% of bond value | $942 | $1,420 |
| | 2% of bond value | $1,884 | $2,839 |
| Total | 1% of bond value | $1,677 | $2,391 |
| | 2% of bond value | $3,355 | $4,784 |

The analysis above assumes all new leases will secure individual bonds rather than statewide bonds. This is a conservative assumption as there will be cost savings for some companies that have multiple leases in one state to choose a statewide bond. Furthermore, as shown in the Section 3.1.1, Cost Impacts for Existing Leases, about 70 percent of bonds for existing leases are expected to be statewide (2,288 out of 3,239 total bonds). **Table 11** shows the average number of leases per company for each of the 5 states. Only Illinois fell below 3.33 (the statewide bond amount divided by the individual lease bond amount), which suggests that most of the companies in Illinois will choose individual bonds. For the rest of the states—Colorado, Montana, Nevada, and Wyoming—it is expected that most companies will choose statewide bonds and the total impact from the final rule will be less than the costs outlined above.

**Table 12. Average Number of Leases per Company, by State**

| State | Average Number of Leases per Company |
|---|---|
| Colorado | 4.8 |
| Illinois | 1.4 |
| Montana | 4.8 |
| Nevada | 5.1 |
| Wyoming | 7.7 |

### 3.1.3 Changes to Federal Lease Demand

The increase in bonding costs might lead some operators to decide to pursue leases on state lands rather than Federal lands if the bonding requirements on state lands is cheaper. However, there are many factors that go into decisions on where to acquire leases including leasing costs (such as bonus bids), fiscal terms (such as rental rates, royalty rates, and bonding amounts), and production potential, so even if state bonding requirements are less than Federal bonding requirements, the impacts on changes to Federal lease demand is difficult to quantify.

Overall, the BLM cannot predict the changes to Federal lease demand based upon the increased bonding amounts. Operators may contemplate moving their operations from Federal to state or private leases due to the higher costs related to the new minimum bond amounts. However, there are several barriers that oil and gas operators face if they shift from their existing oil and gas leases on federal lands to other lands. These barriers include the availability of suitable land to acquire; the regulatory differences that may exist between the state/private leases and the federal leases; the administrative processes and costs related to divesting and acquiring the new lands; financial considerations related to their existing investments for the federal leases; and market dynamics related to committing to the new leases. Based upon the barriers that operators face when shifting new well locations from existing Federal lands to non-Federal lands, the BLM

cannot quantitively predict the change in Federal lease demand. It is possible that the additional costs of bonding may incrementally reduce the number of oil and gas leases sought and acquired or the total number of Federal acres leased. The relationship between the change in leased Federal mineral acres and eventual Federal production is less clear. The reduction in Federal mineral acres leased will likely come from those locations with lower geological potential for containing paying quantities of oil and gas or locations with already depleted geologic reservoirs, and a change in production is likely to represent a fraction of the changes in leasing. Some affected interested parties could instead seek and lease non-Federal minerals and future production from these leases will further reduce the net effect of these costs.

Most state bonding requirements are per single well or statewide, so to compare Federal to state requirements, an estimate must be made of number of wells per lease.

**Table 13.** shows the average number of wells per lease calculated from historical data, from 2016 to 2020 based on available data. The number of wells per lease range from 1 to 5. This means that the final bonding requirement applied to a single well ranges from $30,000 to $150,000.

**Table 13. Number of Wells per Lease and Federal Bonding Requirements per Well**

| Region | Average Number of Wells per Individual Bond | Current Federal Requirement per Single Well | Final Federal Requirement per Single Well |
|---|---|---|---|
| Arkansas | 4 | $2,500 | $37,500 |
| California | 4 | $2,500 | $37,500 |
| Colorado | 3 | $3,333 | $50,000 |
| Illinois | 2 | $5,000 | $75,000 |
| Kansas | 1 | $10,000 | $150,000 |
| Louisiana | 4 | $2,500 | $37,500 |
| Mississippi | 2 | $5,000 | $75,000 |
| Montana | 2 | $5,000 | $75,000 |
| Nevada | 3 | $3,333 | $50,000 |
| New Mexico | 5 | $2,000 | $30,000 |
| North Dakota | 1 | $10,000 | $150,000 |
| Ohio | 1 | $10,000 | $150,000 |
| Oklahoma | 3 | $3,333 | $50,000 |
| Pennsylvania | 3 | $3,333 | $50,000 |
| South Dakota | 1 | $10,000 | $150,000 |
| Texas | 3 | $3,333 | $50,000 |
| Utah | 1 | $10,000 | $150,000 |
| West Virginia | 1 | $10,000 | $150,000 |
| Wyoming | 4 | $2,500 | $37,500 |

*Average number of wells per individual lease bond is based on available data for accepted surety bonds with states assigned. Estimated average is based on language from the preamble that explains the rationale behind increasing the bonding requirement to $150,000 was to cover the average cost of well reclamation and to cover two wells per lease.

**Table 13** shows the bonding requirements by state and provides a comparison to the current and final Federal bonding requirements[17]. In many cases, the bonding requirements from the state and for both single well and statewide bonds are less than the final rule. However, with the cost of bonds at 1 to 2 percent of the bonding value, the amount of money operators will save by switching to non-Federal leases will be very small, for example, $300 to $400 per year for a single well bond in Colorado and Nevada with 1 percent annual cost to $1,440 to $1,470 per year for a single well bond in Illinois with 2 percent annual cost (see **Table 15**). Therefore, it is not anticipated that bonding costs will significantly influence an operators' decision to change from leasing on Federal to non-Federal lands.

**Table 14. Comparison of State and Federal Bonding Requirements**

| State | State Requirements | | Comparison of State to Federal Requirements | |
|---|---|---|---|---|
| | Single Well | Statewide | Single Well | Statewide |
| Alabama | $5,000-$50,000 (depending on well depth) | $100,000 | Equal or Higher than Current Rule, Lower than Final Rule | Higher than Current Rule, Lower than Final Rule |
| Alaska | $400,000 | $2,000,000-$30,000,000 (depending on number of wells in the state) | Higher than Current and Final Rule | Higher than Current and Final Rule |
| Arizona | $10,000-$20,000 (depending on well depth) | $25,000-$250,000 (depending on number of wells in the state) | Higher than Current Rule, Lower than Final Rule | Equal or Higher than Current Rule, Lower than Final Rule |
| Arkansas | $3,000 | $25,000-$100,000 (depending on number of wells in the state) | Lower than Current and Final Rule | Equal or Higher than Current Rule, Lower than Final Rule |
| California | $25,000-$40,000 (depending on depth of well) | $200,000-$3,000,000 (depending on number of wells) | Higher than Current Rule, Lower than Final Rule | Higher than Current Rule, Depends on number of wells in state for Final Rule |
| Colorado | $10,000-$20,000 (depending on well depth) | $60,000-$100,000 (depending on number of wells in the state) | Higher than Current Rule, Lower than Final Rule | Higher than Current Rule, Lower than Final Rule |
| Idaho | $10,000 plus $1/foot | $50,000-$150,000 (depending on number of wells in the state) | Higher than Current Rule and Depends on well depth for Final Rule | Higher than Current Rule, Lower than Final Rule |
| Illinois | $1,500-$3,000 (depending on well depth) | $25,000-$100,000 (depending on number of wells in the state) | Lower than Current Rule and Final Rule | Equal or higher than Current Rule, Lower than Final Rule |

[17] This comparison is for current and new final bonding levels. After 10 years the Federal bonding minimums will likely increase, but so may some or all of the state minimums.

| State | State Requirements | | Comparison of State to Federal Requirements | |
|---|---|---|---|---|
| | Single Well | Statewide | Single Well | Statewide |
| Kansas | A single performance bond totaling $0.75 times the total aggregate depth of all wells, including inactive and disposal wells, may be paid in lieu of those listed | $7,500-$45,000 (depending on depth of well and number of wells) | – | Depends on Number of Wells in state under Current Rule, Lower than Final Rule |
| Kentucky | $2/foot, $25,000-$40,000 (depending on well type) | $20,000-$1,500,000 (depending on number of wells in the state) | Depends on well depth | Depends on Number of Wells in state |
| Louisiana | $2-5/foot | $50,000-$500,000 (depending on number of wells in the state) | Depends on well depth | Higher than Current Rule and Equal or Lower than Final Rule |
| Michigan | $20,000-$60,000 (depending on well depth) | $100,000-$250,000 (depending on well depth) | Higher than Current Rule, Lower than Final Rule | Higher than Current Rule, Lower than Final Rule |
| Mississippi | $20,000-$60,000 (depending on well depth) | $100,000 | Higher than Current Rule, Lower than Final Rule | Higher than Current Rule, Lower than Final Rule |
| Montana | $1,500-$10,000 (depending on well depth) | $50,000 | Depends on well depth for Current Rule, Lower than Final Rule | Higher than Current Rule, Lower than Final Rule |
| Nebraska | $10,000 | $100,000 | Higher than Current Rule, Lower than Final Rule | Higher than Current Rule, Lower than Final Rule |
| Nevada | $10,000 | $50,000 | Higher than Current Rule, Lower than Final Rule | Higher than Current Rule, Lower than Final Rule |
| New Mexico | $25,000 plus $2/foot | $50,000 -$250,000 (depending on number of wells) | Higher than Current Rule, Depends on Well Depth for Final Rule | Higher than Current Rule, Lower than Final Rule |
| New York | $2,500-$5,000 (depending on well depth) | $25,000-$150,000 (depending on well depth and number of wells in the state) | Equal or Lower than Current Rule, Lower than Final Rule | Equal or Higher than Current Rule, Lower than Final Rule |
| North Dakota | $50,000 | $100,000 | Higher than Current Rule, Lower than Final Rule | Higher than Current Rule, Lower than Final Rule |
| Ohio | $5,000 | $15,000 | Equal to Current Rule, Lower than Final Rule | Lower than Current and Final Rule |

| State | State Requirements | | Comparison of State to Federal Requirements | |
|---|---|---|---|---|
| | Single Well | Statewide | Single Well | Statewide |
| Oklahoma | A bond totaling the estimated plugging and abandoning cost of each well is allowed, if less than $25,000 | $25,000 | – | Equal to Current Rule, Lower than Final Rule |
| Pennsylvania | $4,000-$10,000 (depending on well depth) | $25,000-$430,000 plus $10,000 for each well over 150 wells (depending on well depth and number of wells in the state) | Depends on well depth for Current Rule, Lower than Final Rule | Equal or Higher than Current Rule, Depends on Well Depth and Number of Wells in State under Final Rule |
| South Dakota | $50,000 | $100,000 | Higher than Current Rule, Lower than Final Rule | Higher than Current Rule, Lower than Final Rule |
| Texas | $2/foot | $25,000-$250,000 (depending on number of wells in the state) | Depends on well depth under Current and Final Rule | Equal or Higher than Current Rule and Lower than Final Rule |
| Utah | $1,500-$60,000 (depending on well depth) | $15,000-$120,000 (depending on well depth) | Depends on Well Depth under Current Rule, Lower than Final Rule | Depends on Well Depth under Current Rule, Lower than Final Rule |
| Virginia | $10,000 plus $2,000/acre | $25,000-$200,000 (depending on number of wells in the state) | Higher than Current Rule, Depends on Well Depth for Final Rule | Equal or Higher than Current Rule, Lower than Final Rule |
| West Virginia | $5,000 | $50,000 | Equal to Current Rule, Lower than Final Rule | Higher than Current Rule, Lower than Final Rule |
| Wyoming | $10/foot | $100,000 | Depends on well depth for Current Rule and Final Rule | Higher than Current Rule, Lower than Final Rule |

Source: Igleheart 2022

**Table 15. Difference in Bond Value and Costs for Federal Lease under Final Rule and State Leases**

| State | Difference in Bond Value of Federal Lease from State | | Difference in Annual Bond Cost of Federal Lease from State (1 percent cost) | | Difference in Annual Bond Cost of Federal Lease from State (2 percent cost) | |
|---|---|---|---|---|---|---|
| | Single Well | Statewide | Single Well | Statewide | Single Well | Statewide |
| Wyoming | $65,000-$73,500 | $450,000 | $650-$735 | $4,500 | $1,300-$1,470 | $9,000 |
| Colorado | $30,000-$40,000 | $400,000-$440,000 | $300-$400 | $4,000-$4,400 | $600-$800 | $8,000-$8,800 |
| Montana | $65,000-$73,500 | $450,000 | $650-$735 | $4,500 | $1,300-$1,470 | $9,000 |

| State | Difference in Bond Value of Federal Lease from State | | Difference in Annual Bond Cost of Federal Lease from State (1 percent cost) | | Difference in Annual Bond Cost of Federal Lease from State (2 percent cost) | |
|---|---|---|---|---|---|---|
| | Single Well | Statewide | Single Well | Statewide | Single Well | Statewide |
| Nevada | $40,000 | $450,000 | $400 | $4,500 | $800 | $9,000 |
| Illinois | $72,000-$73,500 | $400,000-$475,000 | $720-$735 | $4,000-$4,750 | $1,440-$1,470 | $8,000-$9,500 |

In the final rule, the BLM will adjust the minimum bonus bids, rentals, and minimum bond amounts for inflation in the future. The BLM would adjust the minimum bonus bids and rentals starting after August 2032 and every four years thereafter. These adjustments are expected to increase the revenue from an individual lease; however, the BLM assumes that the Federal governments' revenue remains the same due to operators bidding upon fewer leases. This means that the overall revenue collected by the government would remain unchanged or neutral in the future. Therefore, the BLM does not expect an economic impact from these inflation adjustments. It is possible that the additional costs of leasing and exploration, resulting from the increase in fixed cost recovery fees may incrementally reduce the number of oil and gas leases sought and acquired or the total number of Federal acres leased. The relationship between the change in leased Federal mineral acres and eventual Federal production is less clear. The reduction in Federal mineral acres leased will likely come from those locations with lower geological potential for containing paying quantities of oil and gas, and a change in production is likely to represent a fraction of the changes in leasing. Some affected interested parties could instead seek and lease non-Federal minerals and future production from these leases will further reduce the net effect of these costs.

It is assumed that the change in fee structure and fees will not lead existing operators to alter the planned operation of existing wells. Only in the case of designation of successor operator agreements do existing operators face a new or changed fee for operation of an existing well. The size of post-production filing fees, and in this case the fee is small ($120) and is extremely unlikely to significantly impact the net revenue generated by a well.

### 3.1.4 Administrative Costs of Final Rule

Per the Paperwork Reduction Act (PRA) (44 U.S.C. §§ 3501–3521), the BLM evaluated the collection of information and estimated the number of annual responses, annual burden hours and non-hour burden costs associate with the changes in the regulations. In total, annual costs were estimated at $1,854,391 for the reporting requirements added for shut-in wells and temporary wells, as well as the updated and new filing fees in the rule (see **Table 16**).

It should be noted that the annual costs associated with rulemaking changes represent a small fraction of total costs; the majority of costs changes are based upon transfers of burdens between PRA supporting statements, standard adjustments for inflation, and the passage of the IRA. Additional details of all hourly and non-hour cost burdens are available in the PRA Supporting Statements prepared in association with this rulemaking effort.

**Table 16. Annual Hourly and Non-hour Burden Costs**

| | Annual Responses | Annual Burden Hours | Non-hour Burden Costs |
|---|---|---|---|

| OMB Control Number | Current | Final | Change | Current | Final | Change | Current | Final | Change |
|---|---|---|---|---|---|---|---|---|---|
| 1004-0NEW (transfer from 1004-0137) | 28,121 | 33,621 | +5,500 | 208,928 | 260,928 | +52,000 | $31,080,000 | $35,400,000 | +$4,320,000 |
| 1004-0162 | 68 | 68 | 0 | 26 | 26 | 0 | $25 | $1,150 | +$1,125 |
| 1004-0185 | 9,132 | 16,340 | +7,208 | 37,695 | 29,410 | +-8,285 | $751,415 | 1,793,159 | +$1,041,744 |
| 1004-0196 | 21 | 24 | +3 | 220 | 223 | +3 | $0 | $1,320 | +$1,320 |
| Total Burden Changes: | 37,342 | 49,553 | +12,211 | 246,869 | 282,587 | +35,716 | $31,831,440 | $39,125,897 | +$5,364,189 |
| Minus Burden Transferers from 1004-0034 | ---- | ---- | -8,796 | ---- | ---- | -4,398 | ---- | ---- | -$923,580 |
| Minus Burden Transfer from 1004-0137 | ---- | ---- | -28,121 | ---- | ---- | -208,928 | ---- | ---- | +$4,320,000 |
| Minus changes from the IRA in 1004-0185 for EOIs: | ---- | ---- | -395 | ---- | ---- | -3,160 | ---- | ---- | -$1,975,000 |
| **Net Burden Changes** | ---- | ---- | **+3,520** | ---- | ---- | **+36,160** | ---- | ---- | **+$1,854,391** |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Resulting from the Final Rule:** | | | | | | | | | |

## 3.2 BENEFITS OF FINAL RULE

The benefits of the final rule are made possible from reducing the effort needed to begin plugging and reclaiming orphaned wells, reducing public spending on orphaned wells, and increasing regulatory compliance.

The BLM focused its analysis on the benefits of increased bonding. Other benefits of the final rule include ensuring that reclamation costs reside with oil and gas lessees, operating rights owners, and operators, and not the American public. This includes adjusting the BLM's cost recovery mechanisms so that project applicants provide a more equitable share of the BLM's up-front costs for processing these applications. Finally, the BLM implements several changes to provide a transparent leasing process that focuses leasing on areas with a greater likelihood of being developed with fewer resource conflicts and ensuring transparency in these processes. Overall, having industry bear the costs for leasing and increasing transparency will result in the benefits related to fiscal responsibility, efficiency, revenue generation, transparency and accountability, and environmental protection.

**Fiscal Responsibility**: Industry bearing the costs of leasing ensures that the burden of regulatory oversight is placed on those who directly benefit from their activities. This prevents taxpayers from subsidizing the regulatory process for specific industries.

**Efficiency**: When industries are responsible for covering leasing costs, they are incentivized to streamline their requests and adhere to regulations more closely. This will lead to a more efficient process for both the industry and the government, reducing bureaucratic delays and improving overall effectiveness.

**Revenue Generation**: The new and increased fees will serve as a source of revenue for the government, helping to fund the BLM and its processing of leasing activities.

**Transparency and Accountability**: A transparent process for leasing, as laid out in § 3120.32, ensures that decisions are made based on established criteria and objective assessments of environmental and public health impacts. This transparency fosters public trust in the regulatory system and allows for meaningful public participation in decision-making processes.

**Environmental Protection**: By requiring industries to bear the costs of permit requests and ensuring transparency, the government can better enforce regulations aimed at protecting the environment and public health. This can lead to more rigorous oversight of potentially harmful activities and help mitigate negative impacts on ecosystems and communities.

Overall, shifting the financial responsibility for leasing to industries and ensuring transparency in the decision-making process will result in a more effective, fair, and accountable regulatory framework that benefits both businesses and society as a whole.

### 3.2.1 Benefit of Increasing Bonding

The existing bonding levels do not cover plugging and reclamation costs for orphaned wells. Therefore, identifying, plugging, and reclaiming these wells represent cost that will be paid for by the public.

Under the BLM's Instruction Memorandum Number 2021-039, *Orphaned Well Identification, Prioritization, and Plugging and Reclamation*, the BLM provides the policy and process to identify orphaned wells. The BLM identifies a well as orphaned based upon pursuing all liable parties after identifying an issue related to a well. If BLM cannot identify a responsive, liable party, it will consider the well to be orphaned. To verify that a liable party is nonresponsive, the BLM will issue enforcement actions pursuant with 43 C.F.R 3163. The BLM will:

1. Issue a written order to the party,
2. Issue an incident of noncompliance for failure to comply (the BLM may start with this step if the BLM identifies a violation related to the well),
3. Issue a second incident of noncompliance with a notice of proposed civil penalties,
4. Send a notice of increased civil penalties, and
5. Issue a bill for the civil penalties.

In general, the BLM first pursues all liable parties before collecting any existing bond. On average, it takes the BLM 120 days to pursue a liable entity, and BLM must pursue multiple entities if the operator does not comply with the enforcement actions. This is a significant administrative burden.

For this analysis, BLM assumes that the BLM will spend approximately 365 days or one year to determine that no responsible party exists to pay plugged and reclamation costs and thus, the well has been orphaned.

Based upon information from FY2021 and FY2022, the BLM estimates it spent approximately $2.7 million annually to plug and reclaims orphaned wells for between 15 and 24 orphaned wells per year. This analysis uses these estimates. BLM assumes that it will annually identify between 15 and 24 orphaned wells to be plugged and reclaimed each year at an average cost of between $112,500 and $180,000 per well.

As noted in Section 3.1, Cost Impacts for Existing Leases, 75% of existing individual bonds and 70% of statewide bonds are for the minimum regulatory amounts ($10,000 and $25,000 respectively). Assuming the orphaned wells identified in FY2021 and FY2022 were covered under individual bonds valued at $10,000, plugging and reclaiming these wells costs the taxpayer between $102,500 and $170,000 per well or between $1.5 million and $4 million per year. The BLM considers this a benefit as the American public will not bear this cost for plugging orphaned wells and reclaiming orphaned surface locations. Instead, the increased bonding amounts will allow the BLM to pull the bond and address orphaned wells and locations instead of requesting additional funds from Congress for this liability.

The exact distribution of future orphaned well costs is unknown. Ho et al. (2018) found that the current minimum bonding amounts for onshore oil and gas wells in 11 of 13 states were insufficient to cover the average reclamation costs of orphan wells. In 2019 the GAO found that only 16% of newly identified orphaned BLM wells had reclamation bonding sufficient to cover the remaining reclamation costs (GAO-19-615). Assuming the actual range of plugging and reclamation costs of orphaned wells is evenly distributed across the estimated range of $112,500 to $180,000, the minimum value for individual bonds ($150,000) will fully cover plugging and reclamation costs for over one-half (56%) of orphaned wells and total annual unfunded costs of plugging and reclaiming orphaned wells will be reduced by between $1.3 million and $3.8 million per year. The BLM did update its average plugging and reclamation cost for

orphaned wells to $114 thousand per well based on additional orphaned well data. This value does not change the benefits of increased bonding in this section.

**Table 17. Number and Costs of Plugging and Reclaiming Orphaned Wells in States (2021)**

| State | Number of Wells Plugged and/or Reclaimed by the BLM | Total Cost to Plug and Reclaim Wells | Number of Orphaned Wells that Need to be Plugged |
|---|---|---|---|
| Alaska | 0 | $0 | 2 |
| California | 0 | $0 | 1 |
| Colorado | 0 | $0 | 1 |
| Eastern States | 0 | $0 | 4 |
| Montana | 1 | $40,280 | 5 |
| Utah | 0 | $0 | 11 |
| Wyoming | 14 | $1,212,292 | 0 |
| Total | 15 | $1,252,572 | 24 |

Source: BLM 2022c

Based upon historic data, BLM will save on average 240 days for each orphaned well requiring plugging and reclamation. Work on the well and surrounding lands could begin 240 days sooner, potentially reducing pollutants and emissions discharged and the economic and social costs associated with these pollutants. The expedited timing for reclamation could provide benefits to public, or ecosystem services, including but not limited to benefits associates with improvement of wildlife habitat (e.g., reduction in fragmentation) and vegetation cover, improved water quality, reduced greenhouse gas emissions from unplugged orphaned wells, as well as benefits associated with visual and aesthetic setting.

(It should be noted that total reclamation time may take several years and is variable dependent upon site specific conditions such that any benefits will likely be realized over a time and not immediately.)

Using the 2019 GAO data the final rule will decrease the percentage of orphaned wells with insufficient bonding by an additional 40% or between 6 and 10 wells.

The BLM does not have data available to produce a reasonable estimate of the reduction in greenhouse gas emissions from orphaned BLM wells, and without this, we cannot estimate the monetized benefit of this reduction. It could be assumed that a correctly plugged well will emit no greenhouse gasses, but there is significant uncertainty in the GHG emissions from abandoned wells (see Williams, Regehr and Kang 2021 where methane emissions from an abandoned well ranges between 0.0018 g/h and 48 g/h).

In the RIA prepared for the proposed rule, the BLM requested comments on additional data and approaches to estimate GHG emissions from orphaned BLM wells and on how to best apply emissions estimates from the literature. The BLM received one comment discussing a 1998 EPA estimate that 2.15 million of the estimated 3.11 million abandoned wells in the US were unplugged and that these wells emitted 7 MMT CO2e in methane in 2018 (EPA 2018). Upon reviewing this report, the BLM found that the methodology used in underlying analysis could only be roughly applied to the specifics of Federal orphaned wells under the BLM's management.

The monetizable benefits from avoiding some environmental cost associated with oil and gas development varies on a case-by-case basis and is based on quality and quantity of the site-specific resources; therefore, the environmental value associated with this benefit cannot be quantified here. These same benefits will apply based upon plugging and reclamation occurring earlier for wells based on an adequate bond amount.

Sample values for relevant ecosystem services from relevant literature are presented in **Table 17** below. These values are not representative of all areas but demonstrate the wide range of values that may be associated with ecosystem values.

**Table 18. Sample Ecosystem Service Valuations**

| Benefit | Values | Sources |
|---|---|---|
| Wildlife habitat | $48 and $29 per household to avoid a 1% increase in wildlife habitat fragmentation | Siikamaki and Krupnick (2014) |
| Water filtration/ Purification | $6-$1,509/ acre-foot water/year | Krieger 2001 |
| Soil health | $15-$1,255/ acre/year | Foundation for Sustainable Development 2021 |
| Visual aesthetics and passive use | $22-$494/ household/year | Ancona et al. 2016; Krieger 2001 |

While multiple uses are frequently available on land leased for oil and gas development, the shortened timing for reclamation could benefit the public by allowing the surface land to be available sooner for other uses which are not compatible with an active well sites. The extent to which the timing will benefit the economy and the BLM is dependent on the suitability of the surface, the amount of revenue associated with the use, the fees that the BLM charges for use, among other things, and thus, it is difficult to quantify on a state or national level.

The final rule increases the percentage of current leaseholders that are in compliance with the requirements for plugging, surface remediation, and cleanup of abandoned wells as stated in 43 CFR 3104 and 36 CFR 228 Subpart E.

We also note that the rule will have a distributional and positive impact on the Direct Property and Casualty Insurance Carriers Industry (NAICS 524126). Additional premiums will be paid by lessees in the oil and natural gas extraction industries to surety companies who will be providing the coverage to meet the new requirements.

### 3.2.2 The Assignment of Costs and Benefits and the Distributional Impacts of the Final Rule

In this analysis of the final rule BLM chooses to treat the changes in expenditures as changes in benefits and costs and to evaluate the distributional impacts of all the identified monetized costs and benefits. We do not assign any of these expenditure shifts as transfer payments.

Those who bear the costs of a regulation and those who enjoy its benefits often are not the same people. The term "distributional effect" refers to the impact of a regulatory action across the population and

economy, divided up in various ways (e.g., income groups, race, sex, industrial sector, geography). Under the final rule, the additional bonding and fixed costs fall on the lessees and operators, whereas the incremental benefits will be enjoyed by the public in lower expenses and environmental improvements. Bond surety companies will likely benefit from the additional bonding premiums received from operators.

E.O.s 13563 and 12866 include direction for a separate description of distributional effects (i.e., how both benefits and costs are distributed among sub-populations of particular concern) so that decision makers can properly consider these costs along with the effects on economic efficiency (i.e., net benefits).

In this final rule, the distributional effects are limited. Environmental improvements produced from the quicker plugging and reclamation of orphaned wells are shared by the public. Regulatory costs fall upon the operators, the majority of which are considered to be small businesses but whose employees receive above-average incomes. Since Federal oil and gas production represents relatively small fractions of overall US production, even if producers could shift all the additional bonding costs to the end consumer the net effect upon gasoline and natural gas prices will be negligible.

## 3.3 Analysis of Net Economic Benefits

The section below compares and summarizes the annual economic costs and benefits that were discussed in detail above.

**Table 19** summarizes the monetized and quantified costs and benefits of the final rule.

The costs and benefits are assigned to Lessees and Operators or the BLM/Public. Costs for Lessees and Operators will increase by $7.4 to $15 million annually due to higher bonding expenses. Total costs for the BLM (and implicitly the US public) for additional administrative expenses will increase by $1.9 million while the unmonetized costs associated with between 1,440 and 2,400 fewer days spent seeking responsible parties to pay for orphaned well clean-up will likely reduce this total.

The BLM/Public will benefit from a $1.3 to $3.8 million annual reduction is plugging and reclamation expenses and from avoiding 1,440-2,400 days of negative environmental impacts from orphan wells.

The total monetized net economic costs are estimated at between $8.0 and $13 million per year.

**Table 19. Costs and Benefits of Final Rule**

| Group | Source of Impact | Annual Monetized (or Quantified) Costs Low Estimate - High Estimate | Annual Monetized (or Quantified) Benefits Low Estimate - High Estimate |
|---|---|---|---|
| **Lessees and Operators** | Secure Bonding for Existing Leases | $5,131,372 - $10,471,799 | |
| | Secure Bonding for New Leases | $2,305,800 - $4,706,642 | |

| Group | Source of Impact | Annual Monetized (or Quantified) Costs Low Estimate - High Estimate | Annual Monetized (or Quantified) Benefits Low Estimate - High Estimate |
|---|---|---|---|
| | Total Monetized | $7,437,172 - $15,178,441 | |
| **BLM / Public** | BLM Administrative Costs | $1,854,391 - $1,854,391 | |
| | Plugging and Reclamation Expenses | | $1,300,000 - $3,000,000 |
| | Delay in Reclamation | | Value of avoiding 1,440-2,400 days of environmental impacts from unplugged well. (Non-Monetized) |
| | Total Monetized | $1,854,391 - $1,854,391 | |
| **Total Monetized Cost or Benefits** | | $9,291,391 - $17,032,832 | $1,300,000 - $3,000,000 |
| **Monetized Net Economic Benefits (Cost)** | | ($7,991,563 - $13,232,832) | |

After reviewing the comments received, the BLM has revised its analysis and determined that any transfer costs considered in the proposed rule more appropriately reside in the costs and benefits table. Therefore, the BLM determined that the rule would not result in any transfers.

### 3.3.1 Limitations of analysis

The analysis presented in this document is based on available data on leases, wells and bonds. For existing leases, analysis is based on historical data and assumes a general continuation of operations following historic trends. For new leases, the analysis uses historical data and EIA production forecasts to determine the potential for new leases. Many factors may impact the validity of these forecasts and this analysis, including, but not limited to, other regulatory changes and changes to the global and national energy market.

As discussed in section 3.1.2, this analysis is based on individual lease bonds, but existing or new statewide bonds are likely to cover multiple leases. The number of wells covered under existing or new statewide bonds will depend upon the distribution of companies.

Existing well operators may be required to update their bonding and will expend effort determining how they will reconfigure and increase their bonding to the necessary levels. It is assumed that in most cases and for most operators, the cost-minimizing approach will be to contract with a surety company for the additional guarantees, but there is not sufficient data to estimate the average internal costs of such efforts. That is a private matter between companies and sureties to which the BLM is not a party. The credit risk of operators is a factor that is not addressed in this analysis that may impact the degree to which individual

companies are able to acquire surety bonds under the new bonding requirements. The phase-in period represents an opportunity for surety companies to reevaluate their existing bonds and some companies may no longer meet a surety's qualifications for obtaining a bond or may face annual premium costs higher than the 1-2 percent estimated in this study. In addition, it is also unclear if additional surety bonding will increase the size of the surety firms offering these contracts or lead to more firms and locations. As a note, as operators determine how they will reconfigure their bonding, the final rule will still allow operators to file personal bonds with the BLM. Personal bonds will be able to be secured by sending the BLM a cashier's check, a certified check or a negotiable Treasury security of a value equal to the amount specified in the bond. When the BLM receives a cashier's check or certified check, the deposited monies sit in the BLM's suspense account (a noninterest-bearing account) until the BLM either appropriates the funds to use for plugging and reclamation or the monies will be refunded to the operator if the bond is no longer required under the applicable regulations. For personal bonds secured by a negotiable Treasury security, the operator can earn interest on the Treasury security until the BLM either appropriates the funds to use for plugging and reclamation or the security is released if the bond is no longer required under the applicable regulations. The final rule does not make any changes to these processes, so these are not discussed in this report.

Any shift of future drilling and production to or from non-Federal resources may place lower or higher administrative burdens upon the developer due to differences in how States regulate their fluid mineral estates. These changes can impact the predicted distribution of bonds in this analysis.

The range of Federal orphaned wells to be reclaimed in a year is based on an estimate using the best available data. The actual number of Federal orphaned wells and associated costs to the public could vary. Additionally, the average number of wells per lease is variable and therefore the cost per well is variable. Some leases contain over 50 wells on lease, while other leases only contain one well. This variability is based upon the size of the lease and the well development based upon the State's spacing. Some states have identified spacing units with one well per 160 acres. Other states have identified spacing units with one well per 10 acres. This causes significant variability in the number of wells and types of wells per lease. In addition, the well depth varies significantly, which also causes large variability in the cost to plug one well. Finally, this analysis assumes a minimum bond amount under current regulations. As discussed in section 1.9, Cost Impacts for Existing Leases, current bond rates are often above minimum bond amounts.[18]

Under the framework of benefit-cost analysis the assignment of the types of expenditures as a cost, benefit, or transfer payment may affect the size and direction of the absolute and relative impacts. By mis-classifying an expenditure BLM could over or underestimate the net effects of the final rule.

[18] Note that the estimated economic impacts of the final regulation come from the changes in the size of the bonds, not the actual plugging and reclamation costs.

# Chapter 4. Economic Analysis Results for Other Alternatives

## 4.1 Estimated Costs of Alternative Bonding Requirements on Operators

The following subsection describes the results of the RIA for two alternatives to the bond increase enacted by the BLM.

### 4.1.1 Alternatives

The BLM identified two alternatives for consideration when reviewing the bonding amounts. The BLM first considered an alternative where the BLM only adjusted the bond amounts based upon inflation. The BLM has not increased its minimum bond amounts, which are currently $10,000 for individual lease bonds, $25,000 for statewide bonds, and $150,000 for nationwide bonds, since 1951 (statewide and nationwide bonds) and 1960 (individual lease bonds). Accounting for inflation, the 2022 equivalents of those bond amounts are $100,105, $281,399, and $1,688,394 respectively. (See https://www.usinflationcalculator.com/). The BLM named this Alternative 2. Rounding the bond to the nearest $50,000 for ease of payment and administration would result in the following bond amounts:

- Lease/Individual Bond: $100,000
- Statewide Bond: $300,000

Additionally, the BLM considered an alternative for a full liability bond. The BLM named this Alternative 3. In this type of bond, the BLM would require the field office and operator to estimate the cost for plugging and reclamation for all APDs and existing wells. The BLM would then require the operator to either submit a new bond or increase the existing bond with a rider to cover any new Federal wells drilled or acquired by the company. To evaluate this approach, the BLM estimated the bond amounts by taking the average number of wells per statewide bond (66) and the average number of lease/individual bonds (14) and multiplying these numbers by $71,000 (the average cost to plug an orphaned well and reclaim the surface). This resulted in the following average bond amounts:

- Lease/Individual Bond: $994,000
- Statewide Bond: $4,686,000

The BLM estimated the economic impact of these two alternatives to assist the public in providing comments on the preferred alternative and solicit comments on other alternatives not considered in the final rule[19].

### 4.1.2 Alternatives Cost Impacts for Existing Leases

Like the preferred analysis, the BLM expects the nationwide bondholders to switch to carrying some combination of statewide and/or individual bonds to comply with the changes. The BLM kept the same assumptions for the preferred alternative when evaluating alternative 2 and 3.

[19] These alternatives were analyzed prior to the decision to inflation-adjust bonding amounts as discussed in Section 2.1.1.

Compared to the final rule, alternative 2 will produce less cost impacts upon existing leaseholders, while alternative 3 will produce more impacts. Overall, under the final rule and the assumptions of how nationwide bondholders will replace their existing coverage, the number of bond instruments will increase by 8 %. For alternative 2, a total of 369 individual bonds with a value of $37 million and a total of 1,143 statewide bonds valued at nearly $343 million would be required. Overall, alternative 2 would result in the current total value of these bonds to increase twofold, from $152 million to $380 million. For alternative 3, a total of 369 individual bonds with a value of $367 million and a total of 1,143 statewide bonds valued at nearly $5.4 billion would be required. Overall, alternative 3 would result in the current total value of these bonds to increase by a multiple of 37, from $152 million to $5,723 million (see **Table 20**).

**Table 20. Estimated Overview of Distribution of Bonding Types for Accepted* Bonds Tied to Wells** for Alternatives 2 and 3.**

| Bond Type | Alternative 2: Adjust for Inflation | | Alternative 3: Full Liability Bond | |
|---|---|---|---|---|
| | Number of Bonds | Sum of Bond Amount ($000) | Number of Bonds | Sum of Bond Amount ($000) |
| Collective (unit) | 0 | $0 | 0 | $0 |
| Individual | 369 | $36,900 | 369 | $366,786 |
| Nationwide | 0 | $0 | 0 | $0 |
| Statewide | 1,143 | $342,900 | 1,143 | $5,356,098 |
| Total | 1,512 | $379,800 | 1,512 | $5,722,884 |

*Incudes bonds with "accepted" or "restricted" status only.
**Includes bonds tied to wells with liability only; bonds not tied to any disturbance are excluded.

With the increased bonding requirements, however, operators may request bond termination for some or all of these bonds. **Table 20** includes only bonds associated with existing wells. Based upon the increased bond amounts, the BLM estimated the cost for operators to acquire a surety bond under alternative 2 and 3 as seen in **Table 21**.

**Table 21. Estimated Annual Cost for Accepted* Bonds Tied to Wells** for Alternatives 2 and 3.**

| Bond Type | Alt. 2: Adjust for Inflation | | Alt. 3: Full Liability Bond | |
|---|---|---|---|---|
| | 1% Cost of Bonds ($000) | 2% Cost of Bonds ($000) | 1% Cost of Bonds ($000) | 2% Cost of Bonds ($000) |
| Collective (unit) | ($13.87) | ($27.74) | ($13.87) | ($27.74) |
| Individual | $264.60 | $529.20 | $3,563.46 | $7,126.92 |
| Nationwide | ($471.50) | ($943.00) | ($471.50) | ($943.00) |
| Statewide | $2,501.54 | $5,003.08 | $52,633.52 | $105,267.04 |
| Total | $2,280.77 | $4,561.54 | $55,711.61 | $111,423.22 |

*Incudes bonds with "accepted" or "restricted" status only.
**Includes bonds tied to wells with liability only; bonds not tied to any disturbance are excluded.

For the remainder of the analysis, the BLM will only present the economic impacts from the 1 percent cost of bonds. To determine the 2 percent cost, multiple the future results by 2 to calculate the impacts of the 2 percent cost of bonds.

**Table 22** shows the NPV for the estimated change in bonding costs for bonds based upon alternative 2. This was calculated by using the ratio of the increased bond amounts between the final alternative for bonding and alternative 2, which is 2/3 for individual bonds and 3/5 for statewide bonds.

**Table 22. NPV of the Change in Costs for Alternative 2, for Existing Leases.**

| State | Individual Bonds ($000) | | Statewide Bonds ($000) | |
|---|---|---|---|---|
| | 3% Discount Rate | 7% Discount Rate | 3% Discount Rate | 7% Discount Rate |
| Wyoming | $997 | $960 | $17,354 | $16,705 |
| New Mexico | $1,085 | $1,044 | $15,578 | $14,996 |
| Colorado | $434 | $417 | $4,610 | $4,438 |
| Utah | $220 | $211 | $3,438 | $3,310 |
| North Dakota | $227 | $219 | $3,193 | $3,074 |
| Montana | $576 | $555 | $2,051 | $1,975 |
| Oklahoma | $111 | $107 | $2,290 | $2,204 |
| Kansas | $67 | $65 | $964 | $928 |
| California | $162 | $156 | $374 | $360 |
| Texas | $115 | $111 | $482 | $464 |
| Arkansas | $36 | $35 | $607 | $584 |
| Ohio | $118 | $113 | $280 | $269 |
| Louisiana | $87 | $83 | $181 | $174 |
| West Virginia | $91 | $87 | $139 | $133 |
| Mississippi | $31 | $29 | $121 | $116 |
| South Dakota | $13 | $12 | $172 | $166 |
| Pennsylvania | $39 | $38 | $60 | $58 |
| Michigan | $5 | $4 | $149 | $144 |
| Kentucky | $17 | $16 | $101 | $98 |
| Nevada | $13 | $13 | $61 | $59 |
| Alaska | $19 | $18 | $29 | $28 |
| Alabama | $11 | $10 | $32 | $31 |
| Nebraska | $7 | $7 | $32 | $31 |
| Virginia | $0 | $0 | $50 | $48 |
| Illinois | $2 | $2 | $13 | $13 |
| New York | $2 | $2 | $7 | $7 |
| Idaho | $0 | $0 | $0 | $0 |
| Arizona | $0 | $0 | $0 | $0 |

**Table 23** shows the NPV for the estimated change in bonding costs for bonds based upon alternative 3. This was calculated by using the ratio of the increased bond amounts between the final alternative for bonding and alternative 3, which is 6.627 for individual bonds and 9.372 for statewide bonds.

**Table 23. NPV of the Change in Costs for Alternative 3, for Existing Leases.**

| State | Individual Bonds | | Statewide Bonds | |
|---|---|---|---|---|
| | 3% Discount Rate | 7% Discount Rate | 3% Discount Rate | 7% Discount Rate |
| Wyoming | $9,914 | $9,543 | $271,066 | $260,935 |
| New Mexico | $10,782 | $10,378 | $243,325 | $234,234 |
| Colorado | $4,314 | $4,149 | $72,014 | $69,325 |
| Utah | $2,187 | $2,101 | $53,702 | $51,696 |
| North Dakota | $2,260 | $2,174 | $49,878 | $48,013 |
| Montana | $5,726 | $5,514 | $32,043 | $30,853 |
| Oklahoma | $1,107 | $1,060 | $35,764 | $34,423 |
| Kansas | $669 | $649 | $15,051 | $14,489 |
| California | $1,610 | $1,551 | $5,848 | $5,623 |
| Texas | $1,140 | $1,100 | $7,535 | $7,254 |
| Arkansas | $358 | $345 | $9,475 | $9,119 |
| Ohio | $1,173 | $1,127 | $4,367 | $4,208 |
| Louisiana | $862 | $828 | $2,830 | $2,718 |
| West Virginia | $901 | $868 | $2,165 | $2,081 |
| Mississippi | $305 | $292 | $1,884 | $1,809 |
| South Dakota | $126 | $119 | $2,690 | $2,587 |
| Pennsylvania | $391 | $378 | $937 | $900 |
| Michigan | $46 | $40 | $2,334 | $2,249 |
| Kentucky | $166 | $159 | $1,584 | $1,528 |
| Nevada | $133 | $126 | $956 | $928 |
| Alaska | $186 | $179 | $450 | $431 |
| Alabama | $106 | $99 | $497 | $478 |
| Nebraska | $66 | $66 | $497 | $478 |
| Virginia | $0 | $0 | $778 | $750 |
| Illinois | $20 | $20 | $206 | $197 |
| New York | $20 | $20 | $112 | $103 |
| Idaho | $0 | $0 | $0 | $0 |
| Arizona | $0 | $0 | $0 | $0 |

### 4.1.3 Alternatives Cost Impacts for New Leases

Similar to the preferred alternative for bonding, bonds for new leases in alternatives 2 and 3 were analyzed separately, and the section below describes the results for new leases only. This analysis used EIA future projected production levels by region and historical data on state percentages of Federal development to estimate the number of new leases by state. **Table 24,** below, shows the NPV of the increase in annual costs for the 5 states due to alternative 2 and 3 compared with the current rule. This was calculated by using the existing data for the preferred alternative and multiplying it by the factor increase (or in this case decrease) in bonding for alternative 2, which is 0.667, and for alternative 3, which is 8.125. For alternative 2, the total NPV across 20 years ranges from about $20 million with 1 percent cost of bonds to $40 million with 2 percent cost of bonds at a 3 percent discount rate and about $14 million with 1 percent cost of bonds to $27 million with 2 percent cost of bonds at a 7 percent discount rate. For alternative 3, the total NPV across 20 years ranges from about $247 million with 1 percent cost of bonds to $493 million with 2 percent cost of bonds at a 3 percent discount rate and about $165 million with 1 percent cost of bonds to $329 million with 2 percent cost of bonds at a 7 percent discount rate.

**Table 24. 20-Year NPV of the Change in Annual Costs for Alternatives 2 and 3, for New Leases.**

| | Alt. 2: 3% Discount Rate | Alt. 2: 7% Discount Rate | Alt. 3: 3% Discount Rate | Alt. 3:7% Discount Rate |
|---|---|---|---|---|
| Colorado | $3,534 | $2,325 | $43,046 | $28,324 |
| Illinois | $18 | $12 | $219 | $146 |
| Montana | $4,686 | $3,252 | $57,086 | $39,618 |
| Nevada | $83 | $57 | $1,008 | $691 |
| Wyoming | $11,917 | $7,865 | $145,169 | $95,810 |
| Total | $20,239 | $13,511 | $246,537 | $164,588 |

**Table 25** shows the annual average increase in costs to secure bonding for the new leases in the 5 states for alternatives 2 and 3. Like Table 24, the same ratios identified for alternatives 2 and 3 were used to calculate the average difference in annual bonding costs from current rule to alternative 2 and 3 for new leases. The total annual costs on average, over 20 years, ranges from $1.42 million (1 percent cost of bonds) to $2.24 million (2 percent cost of bonds) for alternative 2 and from $17.36 million (1 percent cost of bonds) to $34.71 million (2 percent cost of bonds) for alternative 3.

**Table 25. Average Change in Annual Bonding Costs for Alternatives 2 and 3 for New Leases.**

| State | Alt. 2: 10-Year Average Annual Bonding Cost ($000) | Alt. 2: 20-Year Average Annual Bonding Cost ($000) | Alt. 3: 10-Year Average Annual Bonding Cost ($000) | Alt. 3: 20-Year Average Annual Bonding Cost ($000) |
|---|---|---|---|---|
| Colorado | $183 | $251 | $2,226 | $3,063 |

| State | Alt. 2: 10-Year Average Annual Bonding Cost ($000) | Alt. 2: 20-Year Average Annual Bonding Cost ($000) | Alt. 3: 10-Year Average Annual Bonding Cost ($000) | Alt. 3: 20-Year Average Annual Bonding Cost ($000) |
|---|---|---|---|---|
| Illinois | $1 | $1 | $8 | $16 |
| Montana | $302 | $320 | $3,681 | $3,900 |
| Nevada | $5 | $6 | $65 | $73 |
| Wyoming | $628 | $846 | $7,654 | $10,303 |
| Total | $1,119 | $1,424 | $13,626 | $17,347 |

Like the preferred alternative, the analysis above assumes all new leases would secure individual bonds rather than statewide bonds. This is a conservative assumption for alternative 2 as there will be cost savings for some companies that have multiple leases in one state to choose a statewide bond. Furthermore, as shown in the Section 3.1.1, Cost Impacts for Existing Leases, about 70 % of bonds for existing leases are expected to be statewide (2,288 out of 3,239 total bonds).

### 4.1.4 Changes to Federal Lease Demand Based Upon the Alternatives

The increase in bonding costs might lead some operators to decide to pursue leases on state lands rather than Federal lands, if the bonding requirements on state lands are cheaper. However, there are many factors that go into decisions on where to acquire leases including leasing costs (such as bonus bids), fiscal terms (such as rental rates, royalty rates, and bonding amounts), and production potential, so even if state bonding requirements are less than Federal bonding requirements, the impacts on changes to Federal lease demand is difficult to quantify.

Most state bonding requirements are per single well or statewide, so to compare Federal to state requirements, an estimate must be made of number of wells per lease. Like the preferred alternative, the final lease/individual bonding requirement applied to a single-well ranges from $20,000 to $100,000 for alternative 2. For alternative 3, the BLM would require a full reclamation bond for each well, either through a rider to an existing bond or through a new bond. For this analysis, the BLM assumed that all wells would require a bond amount of $71,000 for alternative 3.

Since alternative 2 has a lower bond amount than the final rule and the preferred alternative, the amount of money operators would save by switching to non-Federal leases would be very small. Therefore, it is not anticipated that bonding costs would significantly influence an operators' decision to change from leasing on Federal to non-Federal lands with alternative 2.

For alternative 3, it is more likely that the additional costs of leasing and exploration resulting from the final increase in fixed cost recovery fees would incrementally reduce the number of oil and gas leases sought and acquired or the total number of Federal acres leased. The relationship between the change in leased Federal mineral acres and eventual Federal production is less clear. The reduction in Federal mineral acres leased would likely come from those locations with lower geological potential for containing paying quantities of oil and gas, and a change in production is likely to represent a fraction of the final changes in leasing. Some affected interested parties could instead seek and lease non-Federal minerals, and future production from these leases would further reduce the net effect of these costs.

## 4.2 ESTIMATED BENEFITS OF ALTERNATIVES 2 AND 3

Like the preferred alternative, alternatives 2 and 3 would produce benefits from reducing public spending on and the speeding up of plugging and reclamation of orphaned wells. The size of these benefits is proportional to the percentage of these orphaned wells that are adequately bonded under each alternative. Alternative 2 would likely not cover the full costs spent by the BLM, and some public funds would be spent on plugging and reclaiming orphaned wells. For this analysis, it is assumed that the increased bonding in alternative 2 would cover two thirds of the reduction to the delay in reclamation covered by the preferred alternative. Alternative 2 would then reduce the delay in reclamation between 960 and 1,600 days. In addition, the number of orphaned wells where plugging and reclamation is delayed each year due to insufficient bonding declines by between 4 and 7 wells.

For alternative 3, the BLM would not spend time or appropriated funds to pursue current or past lessees. After the operator refuses to address an existing liability, the BLM would pull the bond and address the orphaned well and well site itself. This would save the BLM effort related to pursuing liable parties; however, it would also result in increased workload in adjusting bond amounts for each application for permit to drill. For now, the BLM is estimating the benefit of reduced public liability to be similar to the preferred alternative.

By not expending the time seeking a responsible party, alternative 3 could avoid the average delay of 240 days in plugging and reclaiming each of the 15 to 24 orphaned wells targeted each year and the size of the environmental benefits to the public under alternative 3 would be relatively larger than that under the final rule.

## 4.3 ANALYSIS OF NET ECONOMIC BENEFITS FOR ALTERNATIVES 2 AND 3

The BLM finally compares and summarizes the annual economic costs and benefits of Alternative 2 in **Table 26**.

**Table 26. Costs and Benefits of Alternative 2.**

| Group | Source of Impact | Annual Monetized (or Quantified) Costs Low Estimate - High Estimate | Annual Monetized (or Quantified) Benefits Low Estimate - High Estimate |
|---|---|---|---|
| **Lessees and Operators** | Secure Bonding for Existing Leases | $4,561,540 – $9,123,080 | |
| | Secure Bonding for New Leases | $1,424,000 - $2,848,000 | |
| | Total Monetized | $5,985,540 – $11,971,080 | |
| BLM / Public | BLM Administrative Costs | $1,854,391 - $1,854,391 | |

| Group | Source of Impact | Annual Monetized (or Quantified) Costs Low Estimate - High Estimate | Annual Monetized (or Quantified) Benefits Low Estimate - High Estimate |
|---|---|---|---|
| | Delay in Reclamation | Value of saving 960-1,600 days effort seeking responsible parties | Value of avoiding 960-1,600 days of environmental impacts from unplugged well. |
| | Total Monetized | $1,854,391 - $1,854,391 | |
| **Total Monetized Cost or Benefits** | | $7,839,931 – $13,825,471 | |
| **Monetized Net Economic Benefits (Cost)** | | ($7,839,931 – $13,825,471) | |

The BLM finally compares and summarizes the annual economic costs and benefits of Alternative 3 in **Table 27**.

**Table 27. Costs and Benefits of Alternative 3.**

| Group | Source of Impact | Annual Monetized (or Quantified) Costs Low Estimate - High Estimate | Annual Monetized (or Quantified) Benefits Low Estimate - High Estimate |
|---|---|---|---|
| **Lessees and Operators** | Secure Bonding for Existing Leases | $111,423,220 – $222,846,440 | |
| | Secure Bonding for New Leases | $17,347,000 – $34,694,000 | |
| | Total Monetized | $128,770,220 – $257,540,440 | |
| BLM / Public | BLM Administrative Costs | $1,854,391 – $1,854,391 | |
| | Delay in Reclamation | Value of saving 1,440-2,400 days effort seeking responsible parties | Value of avoiding 1,440-2,400 days of environmental impacts from unplugged well. |
| | Total Monetized | $1,854,391 – $1,854,391 | |
| **Total Monetized Cost or Benefits** | | $130,624,611 – $259,394,831 | |
| **Monetized Net Economic Benefits (Cost)** | | ($130,624,611 – $259,394,831) | |

Based upon the BLM's review and discussion the two alternatives, the BLM is proposing to go with the preferred alternative, where bond amounts are adjusted by inflation and wells, instead of using Alternative 2 or Alternative 3.

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# Chapter 5. Regulatory Flexibility Analysis

The purpose of the regulatory flexibility analysis is to examine the impacts of the final rule on small businesses, and if it is determined that there are significant impacts to small businesses from the rule, then to investigate alternatives that would limit the impacts.

The U.S. Small Business Administration (SBA) defines small businesses depending on the industry. For the Crude Petroleum Extraction and Natural Gas Extraction industries (NAICS codes 211120 and 21130, respectively), the SBA defines small businesses as those that have 1,250 employees or fewer. For Direct Property and Casualty Insurance Carriers industry (NAICS code 524126), the SBA defines small business as those with less than 1,500 employees.

The U.S. Census Bureau reports employment data for firms and establishments by state and industry (U.S. Census Bureau 2022). **Table 28,** below, shows the number of firms and establishments in states where there are Federal oil and gas leases in the Mining, Quarrying, and Oil and Gas Extraction Industry (NAICS code 21) that had a certain range of employees in 2019. The U.S. Census Bureau does not report firms and establishments with between 1,000 and 1,250 employees, so to estimate the number of businesses under 1,250 employees, the number of businesses that had 1,000 to 1,499 employees was divided in half and added to the number of businesses with under 1,000 employees. Number of firms are rounded to whole numbers.

**Table 28. Number and Percentage of Oil and Gas Industry Firms and Establishment that meet the SBA Definition (2019).**

| State | Number of Firms and Establishments in the Mining, Quarrying, and Oil and Gas Extraction Industry | | | | Percentage of Firms with Under 1,250 Employees |
|---|---|---|---|---|---|
| | Under 1,000 Employees | Estimated 1,000 to 1,250 Employees[1] | Under 1,250 Employees | Total Number of Firms Regardless of Number of Employees | |
| Alabama | 136 | 3 | 139 | 203 | 68% |
| Alaska | 105 | 2 | 107 | 151 | 71% |
| Arizona | 133 | 0 | 133 | 200 | 67% |
| Arkansas | 232 | 2 | 234 | 299 | 78% |
| California | 477 | 10 | 487 | 652 | 75% |
| Colorado | 959 | 14 | 973 | 1,147 | 85% |
| Idaho | 97 | 0 | 97 | 110 | 88% |
| Illinois | 407 | 0 | 407 | 472 | 86% |
| Kansas | 813 | 2 | 815 | 864 | 94% |
| Kentucky | 304 | 0 | 304 | 370 | 82% |
| Louisiana | 1,112 | 14 | 1,126 | 1,376 | 82% |

| State | Number of Firms and Establishments in the Mining, Quarrying, and Oil and Gas Extraction Industry | | | | Percentage of Firms with Under 1,250 Employees |
|---|---|---|---|---|---|
| | Under 1,000 Employees | Estimated 1,000 to 1,250 Employees[1] | Under 1,250 Employees | Total Number of Firms Regardless of Number of Employees | |
| Michigan | 271 | 4 | 275 | 318 | 86% |
| Mississippi | 267 | 2 | 269 | 308 | 87% |
| Montana | 299 | 7 | 306 | 336 | 91% |
| Nebraska | 90 | 0 | 90 | 118 | 76% |
| Nevada | 151 | 0 | 151 | 183 | 83% |
| New Mexico | 562 | 10 | 572 | 687 | 83% |
| New York | 199 | 0 | 199 | 261 | 76% |
| North Dakota | 436 | 7 | 443 | 536 | 83% |
| Ohio | 531 | 6 | 537 | 655 | 82% |
| Oklahoma | 2,434 | 15 | 2,449 | 2,685 | 91% |
| Pennsylvania | 785 | 10 | 795 | 982 | 81% |
| South Dakota | 49 | 0 | 49 | 62 | 79% |
| Texas | 6,561 | 81 | 6,642 | 7,748 | 86% |
| Utah | 350 | 3 | 353 | 403 | 87% |
| Virginia | 176 | 0 | 176 | 249 | 71% |
| West Virginia | 409 | 3 | 412 | 517 | 80% |
| Wyoming | 543 | 6 | 549 | 672 | 82% |
| United States[2] | 20,762 | 213 | 20,975 | 25,077 | 84% |

Source: U.S. Census Bureau 2022 Notes: [1] The U.S. Census Bureau does not report firms and establishments with between 1,000 and 1,250 employees, so to estimate the number of businesses under 1,250 employees, the number of businesses that had 1,000 to 1,499 employees was divided in half. [2]US total represents the total number of firms from all states, including those states not represented on this table. Only states where there are existing Federal oil and gas leases were shown on this table.

**Table 29** displays the number of firms and establishments in the Finance and Insurance industry which meet SBA classification. Impacts to small businesses in this sector will likely be limited, given that the final rule is likely to represent a benefit to these companies overall. Surety companies set the premium terms for the bonds issued and companies which they ensure which may, however, vary for larger firms and small businesses in this sector.

**Table 29. Number and Percentage of Finance and Insurance Industry Firms and Establishment that meet the Small Business Definition (2019).**

| State | Number of Firms and Establishments in the Direct Property and Casualty Insurance Carriers Industry | | Percentage of Firms and Establishments with Under 1,500 Employees |
|---|---|---|---|
| | Under 1,500 Employees | Total | |
| Alabama | 4,477 | 7,383 | 61% |
| Alaska | 490 | 788 | 62% |
| Arizona | 5,870 | 9,677 | 61% |
| Arkansas | 3,224 | 4,458 | 72% |
| California | 34,094 | 51,070 | 67% |
| Colorado | 7,137 | 10,595 | 67% |
| Idaho | 1,997 | 3,040 | 66% |
| Illinois | 14,633 | 20,920 | 70% |
| Kansas | 4,603 | 5,953 | 77% |
| Kentucky | 4,437 | 6,519 | 68% |
| Louisiana | 5,361 | 7,460 | 72% |
| Michigan | 8,525 | 12,780 | 67% |
| Mississippi | 3,290 | 4,620 | 71% |
| Montana | 1,494 | 2,020 | 74% |
| Nebraska | 3,243 | 4,425 | 73% |
| Nevada | 2,742 | 4,315 | 64% |
| New Mexico | 1,712 | 2,633 | 65% |
| New York | 17,832 | 26,490 | 67% |
| North Dakota | 1,423 | 1,747 | 81% |
| Ohio | 9,784 | 16,245 | 60% |
| Oklahoma | 5,042 | 6,765 | 75% |
| Pennsylvania | 11,150 | 17,624 | 63% |
| South Dakota | 1,503 | 1,973 | 76% |
| Texas | 26,627 | 41,291 | 64% |
| Utah | 3,851 | 5,346 | 72% |
| Virginia | 6,822 | 11,340 | 60% |
| West Virginia | 1,461 | 2,054 | 71% |
| Wyoming | 778 | 1,085 | 72% |
| United States[1] | 313,051 | 476,687 | 66% |

Source: U.S. Census Bureau 2022 Note: [1]US total represents the total number of firms from all states, including those states not represented on this table. Only states where there are existing Federal oil and gas leases were shown on this table.

**Table 30** shows the average annual bonding costs across 20 years, using 1 percent and 2 percent cost of securing bonds, allocated to the proportion of small businesses in each state. The annual average bonding cost for small businesses across the 5 states (Colorado, Illinois, Montana, Nevada, and Wyoming) is about $1.9 million for 1 percent cost of bonds and $3.7 million for 2 percent cost of bonds for states where additional incremental leases are anticipated. For existing leases, a greater level of costs will be anticipated in those states with the highest levels of currently producing leases at an individual or statewide basis (i.e. Wyoming, New Mexico, Colorado, Utah, South Dakota, and Montana [see **Table 8** and **Table 9)**.

**Table 30. 20-Year Average Annual Bonding Costs for Small Businesses.**

| State | Annual Cost of Bond | Total Average Bonding Cost (new leases) ($000) | Average Annual Bonding Cost Allocated to Small Businesses ($000) |
|---|---|---|---|
| Colorado | 1% of bond value | $377 | $336 |
| | 2% of bond value | $753 | $671 |
| Illinois | 1% of bond value | $2 | $2 |
| | 2% of bond value | $4 | $4 |
| Montana | 1% of bond value | $480 | $438 |
| | 2% of bond value | $961 | $877 |
| Nevada | 1% of bond value | $9 | $8 |
| | 2% of bond value | $17 | $15 |
| Wyoming | 1% of bond value | $1,268 | $1,088 |
| | 2% of bond value | $2,535 | $2,175 |
| Total | 1% of bond value | $2,135 | $1,872 |
| | 2% of bond value | $4,271 | $3,742 |

The BLM finds the impact from the final rule are not significant to small businesses. While most of the firms in each of the Crude Oil Extraction, Natural Gas Extraction, and Direct Property and Casualty Insurance Carriers industries are considered small businesses, the impact on these firms will not be significant.

Small businesses will face the same requirements for bonding and fee recovery as larger firms, and firm size alone does not constrain a business from owning and operating many leases. The cost impacts of the final rule upon the affected leaseholder will depend, in part, on the financial conditions of the firm. Small businesses may tend to have tighter finances or less funds available to cover changes in operating costs relative to larger businesses, but the economic decision for the individual well is the same for both small and larger businesses. Firms whose leases produce at lower levels, and firms with higher per-lease operating costs, will be more sensitive to the price increases.

Under the final rule, the annual costs of the additional surety bonds, at 1 to 2 percent of the bond value, are estimated to be an additional $1,400 to $2,800 for individual lease bonds and an additional $4,750 to $9,500 for statewide bonds. At projected prices for oil and natural gas this change in bonding is equivalent

to 1 percent of the annual Federal production per lease for the average individual bondholder, independent of firm size[20].

There are not sufficient available data to determine if operators from small businesses have higher per-lease operating costs or are more reliant upon wells with marginal production for overall revenue. While there is a lower bound to the minimum production needed to keep a well in production, evidence suggests this is a small number. A recent study estimates that even wells producing at 5 BOE/day can remain profitable but an additional $800 a month in costs may not allow continued operation of these wells (Freeman 2021). On a per-lease basis this suggests even lower production levels can be economically sustained.

A sample of current lessees were selected to further evaluate the changes in bonding costs upon small business finances. Information from financial statements were combined with data from MLRS, AFMSS and ONRR. Companies were selected based upon their reported employment and the ability to associate a lessee with both the required financial and production data.

**Table 31. Cost-to-Revenue Impact of Bonding.**

| ID | Total Revenue in 2022 ($mil) | Change in Cost-to-Revenue | |
|---|---|---|---|
| | | Using Surety[1] | Funding Full Bonding[2] |
| Company A | $254 | 0.054% | 0.5% |
| Company B | $456 | -0.019% | -0.1% |
| Company C | $359 | 0.004% | 0.1% |
| Company D | $3,417 | 0.001% | 0.0% |
| Company E | $459 | 0.004% | 0.1% |
| Company F | $3,647 | 0.003% | 0.0% |
| Company G | $53 | 0.053% | 1.4% |
| Company H | $343 | 0.010% | 0.1% |

1. 3% annual surety payment on difference between existing bonding and new final levels.

2. Full difference between existing bonding and new final levels settled in first year.

**Table 31** shows the total revenue and changes in the cost-to-revenue ratio if the final bonding totals are funded via an annual surety payment or as a lump-sum purchase in 2022. Total revenue from these companies in 2022 ranged from $53m to $3.6 billion and full-time employment for these firms ranged from 40 to approximately 625. For these firms the percentage of revenues coming from Federal royalties ranged from less than 1% to slightly more than one-half of total revenue.

[20] Using the average projected wellhead price over the next 20 years for the lower 48 states (EIA 2022b) of $74 per bbl for oil and natural gas is $3 per mcf operators would need to produce about an additional 19 to 38 bbl of oil or 442 to 885 mcf of natural gas per year to make up the difference of an individual bond. Using the 5 year average Federal production per producing Federal lease averaged across the 5 states that are projected to have increases in lease this is at most 1 percent of Federal production per lease.

Using the most cost-effective approach, the sample companies will require between one to five statewide bonds to support their existing leases. The change in bonding costs from their existing bonding levels will range from a reduction of $533,000 to an additional $1.78 million in bonding.

The impact of the change in bonding costs were measured by how much these additional costs affected their cost-to-revenue ratios. If these companies paid sureties 3% of the additional bonding cost annually, their overall cost-to-revenue ratios will increase by less than one-tenth of one percent and if these companies instead chose to fund the full bonding amount out of revenues their cost-to-revenue ratio will increase by at most 1.4% for one year.

**Conclusion:**

Based upon this analysis, the BLM concludes that the costs posed by the rule do not represent a significant share of a small business' revenue. Therefore, the BLM certifies that the rule will not pose a significant economic impact on a substantial number of small entities.

**Policy Considerations Made to Reduce Potential Impacts on Small Businesses:**

The BLM considered alternatives and ultimately selected a final policy approach that will lessen the financial burdens on small businesses. One option considered was whether the BLM should require operators to secure bonds covering the full cost of reclamation. Not only would this approach have posed greater costs to small businesses, but it would have deviated from the BLM's existing policy framework of allowing for lease and statewide bonds at established amounts. As such, this alternative would have been more difficult for small businesses to comply with administratively.

In the final rule, the BLM has included phase-in provisions, which also offer regulatory flexibility to small businesses. Operators must increase or replace all statewide bonds not meeting the appropriate minimum bond amount within 2 years. Operators must increase or replace all individual bonds not meeting the appropriate minimum bond amount within 3 years. In the final rule, the BLM deliberately swapped the phase-in periods, allowing additional time for operators holding individual bonds to comply. The BLM believes these operators are more likely to be small entities, and therefore the new phase-in provisions would provide for greater regulatory flexibility for smaller firms.

Lastly, in the final rule, the BLM reinstated an operators' ability to post personal bonds secured with letters of credit (LOCs) and certificates of deposit (CDs). Reinstating these financial instruments will provide additional regulatory flexibility for small operators.

# Chapter 6. Conclusion

The RIA provided in this document finds that the increase in bonding requirements in the final rule will result in a net economic cost on a range of $8.0 million to $13.2 million per year, not including environmental benefits and benefits associated with expedited timing for transitioning the land to other uses. The regulatory flexibility analysis of the final rule finds that small entities will not be disproportionately or adversely impacted.

E.O. 12866 requires government agencies to assess the benefits and costs of regulatory actions and to submit a report of the assessment to OIRA if the regulatory actions are significant. The annual effect on the economy of the final rule does not exceed the $200 million or more threshold that would categorize the final rule as significant; however, the transfers applied by the IRA, which are over $200 million, caused the Office of the Information and Regulatory Affairs to consider this rule significant under Section 3(f)(1) of E.O. 12866.

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# Appendix

## Supplemental Analysis of the Budgetary Impacts Posed by the Inflation Reduction Act of 2022

### Background

The purpose of this supplemental analysis is to enumerate the estimated budgetary impacts from certain provisions of the Inflation Reduction Act of 2022 (or "IRA"). When the IRA was signed into law by the President on August 16, 2022, these provisions took immediate effect. Since that time, the Bureau of Land Management (BLM) has planned to update its existing regulations to reflect the changes made by the IRA as part of a larger notice and comment rulemaking ("Fluid Mineral Leases and Leasing Process," RIN 1004-AE80). The BLM has conducted an RIA of the discretionary aspects of the regulatory action. This supplemental analysis discloses impacts of the IRA provisions that are already enacted by law.

This regulatory update is important so that the BLM's regulations reflect the Federal law, and that any potential confusion is avoided. We note that these IRA provisions are specific, require no interpretation or clarification from the BLM, and have been in effect since the IRA's enactment. Simply put, the BLM's inclusion or restating of the IRA's provisions in its regulations does not have any bearing on the enforcement, implementation, or budgetary impacts of the law.

Pursuant to Executive Order 12866 "Regulatory Planning and Review" and the Office of Management and Budget's (OMB) Circular A-4 "Regulatory Analysis," the OMB's Office of Information and Regulatory Affairs (OIRA) has indicated that, with this rulemaking, the BLM should consider a "pre-statutory baseline" and, more specifically, the budgetary effects of the IRA's provisions. The budgetary effects enumerated within this supplement are attributed to the IRA only and not to the BLM's discretionary action.

### Budgetary Impacts of the IRA

The IRA is a wide-ranging law that has some specific provisions impacting the development of oil and natural gas from Federal lands. At section 50262, the IRA set the onshore Federal oil and gas royalty rate at 16.67%[21] for 10 years and increased rental rates and minimum bid requirements for new leases. This section also eliminated non-competitive leasing (which frequently produces leases set at the minimum rental and bonus bid rates) and required an expression of interest (EOI) fee for nominating parcels for leasing (which covers some of the administrative costs associated with leasing).

The Congressional Budget Office (CBO) estimated that the IRA's provisions in sections 50261 through 50265 combined[22] would reduce the deficit by $484 million from FY23 to FY31.[23] Based on the available CBO data, the BLM calculated the net present value (NPV) of that deficit reduction to be $392 million

[21] This represents an increase from the previous statutory minimum of 12.5% but was below the 18.5% rate the BLM had specified on parcels in the most recent sales preceding the IRA's enactment.
[22] Section 50261 pertains to offshore Federal oil and gas. Section 50263 pertains to royalties on flared methane. Section 50264 pertains to offshore Federal lease sales. Section 50265 stipulates conditions under which wind and solar energy rights-of-way can be issued.
[23] CBO Cost Estimate, Summary, Estimated Budgetary Effect of Public Law 117-169, to Provide for Reconciliation Pursuant to Title II of S. Con. Res. 14. September 7, 2022. See p. 26 "Part 6. Fossil Fuel Resources." https://www.cbo.gov/system/files/2022-09/PL117-169_9-7-22.pdf

(using a 7% discount rate) or $439 million (using a 3% discount rate). The annualized value of the deficit reduction is $60 million per year (using a 7% discount rate) or $56 million per year (using a 3% discount rate). See Table 1. The CBO analysis does not provide the estimates in greater detail, e.g., either by individual section or by individual provision within a section. Therefore, from the available information, it is not possible to isolate the budgetary impacts of section 50262 from the other four sections. In addition, the CBO's data, assumptions, and methodology are not provided.[24]

Separately, the BLM has estimated the budgetary impacts of the provisions in section 50262 only. The BLM estimates these provisions will generate $276 million in additional receipts to the General Fund of the U.S. Treasury between FY23 to FY31.[25] The NPV of those receipts is $179 million (using a 7% discount rate) or $228 million (using a 3% discount rate). The annualized value of those receipts is $25.5 million per year (using a 7% discount rate) or $21 million per year (using a 3% discount rate). See Table 2. The BLM also calculated budgetary impacts through FY42, since the RIA of the discretionary items in the rule are assessed until that year. However, we note as CBO did, that there is significant uncertainty beyond FY31.

**Other Beneficiaries of Onshore Federal Oil and Gas Revenues**

The General Fund of the U.S. Treasury is one of several beneficiaries of proceeds from onshore Federal oil and gas development. P.L. 113-67 requires that 2% of gross receipts be retained by the U.S. Treasury. This deduction is intended to partially cover Federal program administration costs. After that deduction, the U.S. Treasury disburses (or retains for itself) the remaining collections, as follows:

- Bonus Bids: 50% to State Governments; 40% to the Reclamation Fund; and 10% is retained by the General Fund of the U.S. Treasury.
- Rents for Leases on Acquired Lands: 50% to State Governments; 40% to the Reclamation Fund; and 10% is retained by the General Fund of the U.S. Treasury.
- Rents for Leases on Public Domain Lands: 50% to State Governments; and 50% to the BLM's Permit Processing Improvement Fund.
- Royalties: 50% to State Governments; 40% to the Reclamation Fund; and 10% is retained by the General Fund of the U.S. Treasury.

State Governments: The BLM estimates that section 50262 of the IRA will generate $1.1 billion in additional funds for State Governments between FY23 to FY31. The NPV of that disbursement is $710 million (using a 7% discount rate) or $908 million (using a 3% discount rate). The annualized value of those disbursements is $101 million per year (using a 7% discount rate) or $83.2 million per year (using a 3% discount rate).

The Reclamation Fund: The BLM estimates that section 50262 of the IRA will generate $787 million in additional funds for the Reclamation Fund between FY23 to FY31. The NPV of that disbursement is $503 million (using a 7% discount rate) or $646 million (using a 3% discount rate). The annualized value of that

[24] The CBO has produced several publications describing how, in general, it analyzes the budgetary effects of energy industry regulation. See "How CBO Analyzed the Effects of Charging the Oil and Gas Industry for Methane Emissions" for an example https://www.cbo/gov/publications/58166. These publications are not a sufficient to evaluate CBO's methodology with respect to the IRA.

[25] The General Fund of the U.S. Treasury retains 2% of gross receipts under P.L. 113-67. After that deduction, it retains 100% of the Expression of Interest fees, 10% of bonus bids and royalties, 10% of the rents for leases on Acquired Lands, and none of the rents for leases on Public Domain Lands.

disbursement is $71.6 million per year (using a 7% discount rate) or $59 million per year (using a 3% discount rate).

The BLM's Permit Processing Improvement Fund: The BLM estimates that section 50262 of the IRA will generate $120 million in additional funds for the BLM's Permit Processing Improvement Fund between FY23 to FY31. The NPV of that disbursement is $81.1 million (using a 7% discount rate) or $125 million (using a 3% discount rate). The annualized value of that disbursement is $11.5 million per year (using a 7% discount rate) or $9.5 million per year (using a 3% discount rate).

See Table 2 for detail on the disbursements to all beneficiaries and for estimates over the 20-year period from FY23 to FY42.

**These Revenues are Transfer Payments from Operators within the Oil and Gas Industries to the U.S. Government, State Governments, and Funds**

The incremental EOI fees, bonus bids, rental payments, and royalties are revenue gains to the U.S. Government, state governments, and funds, but they are costs to operators of new onshore Federal oil and gas leases. As such, they are transfer payments that do not affect the total resources available to society. An important, but sometimes difficult, problem in cost estimation is to distinguish between real costs and transfer payments. While transfers should not be included in the estimates of the benefits and costs of a regulation, they may be important for describing the distributional effects of a regulation.

The total transfers from the oil and gas industries are represented in the "Total" column of Table 2. The BLM estimates that Section 50262 of the IRA will result in transfers from (or costs to) the oil and gas industries of $2.29 billion between FY23 to FY31. The NPV of those transfers is $1.47 billion (using a 7% discount rate) or $1.9 billion (using a 3% discount rate). The annualized value of those transfers is $210 million per year (using a 7% discount rate) or $173 million per year (using a 3% discount rate).

Section 50262 of the IRA increased the costs of developing new Federal oil and gas leases and higher Federal revenues are consistent with relatively inelastic demand for crude oil and natural gas. With higher royalty and rents, operators could be expected to lower bonus bids. The 16.67% royalty rate is still on the low end of or below the prevailing state royalty rates and lower than our understanding of private royalty rates.[26] Overall, economic theory suggests that the quantity of Federal oil or gas produced under these provisions would be less than it would absent these increased costs of production.

The IRA also includes changes which may directly or indirectly affect the profitability of Federal leasing and/or production relative to non-Federal resource development. These include changes to corporate taxation and operations which reduce firm profitability within the energy sector (e.g., Section 60113 - Methane Emissions Reduction Program) or across industries (e.g., Minimum Tax rates). There is insufficient information available to analyze the impact of these factors upon federal fluid mineral development.

**Transfers by Individual Provisions of IRA Section 50262**

[26] Agalliu I, Montero A, Hsieh G, Coan J, Olmstead R. 2019. 2018 Comparative Assessment of the Fed Oil and Gas Fiscal Systems: Onshore Report. U.S. Department of the Interior, Bureau Land Management. See pp. 109-110 and Appendix A.

The BLM's analysis of the section 50262 provisions, from FY23-FY31, reveals that majority of the transfers, about 91%, will be attributed to the royalty rate change.[27] About 8% of the transfers will be attributed to the rental rate increases. A fraction of a percent of the transfers will be attributed to either the minimum bonus bid increase or the new EOI fee. Table 3 shows the total estimated transfers by revenue stream on an annual basis. It illustrates how the royalty rate change will generate increased transfer payments over time as new leases are issued under the 16.67% rate.

**Federal Leases are Expected to be on Par with or Remain More Attractive Than State Leases**

In 2018, the BLM issued a contract to IHS Markit to conduct a comparative analysis of the Federal onshore oil and gas fiscal system.[28] The report was completed in 2019. The objective of the study was to "inform the [Department of the Interior] about the relative competitive position of the Federal oil and gas fiscal systems with oil and gas fiscal systems of the respective states and private mineral estates competing for investment, to help ensure that oil and gas investment on Federal lands remains competitive, and that the public is receiving a fair return for Federal resources. To achieve this objective, the study compares North American fiscal systems against current Federal lease terms, as well as alternative royalty rates requested by the DOI to be included in this study" (Agalliu, 2).

At the time of the study, the Federal onshore royalty rate was 12.5%, while the state royalty rates varied from 16.67% to 25%.[29] To inform an alternative royalty rate policy, the BLM directed IHS Markit to evaluate a scenario where the Federal royalty rate would be changed to match the applicable state royalty rate. For example, the Federal royalty rate would be 16.67% for Federal leases in Montana, 20% for Federal leases in Colorado, etc.

The study found that, under the alternative royalty rate policy, Federal resources were either on par with or still more attractive to investors than the counterpart state resources, as measured by Internal Rate of Return (IRR) and Net Present Value per Barrel of Oil Equivalent (NPV/boe). In addition, the unconventional resources on Federal lands offered attractive IRR and NPV/boe under the alternative royalty rate policy.

**Estimation Methodology**

The BLM estimated the incremental transfer payments, presented in Table 2 and Table 3, as the change from the pre-statutory baseline to the post-statutory scenario. The BLM based its baseline for the RIA on the regulations and current policy in 2022 and prior to the passage of the IRA. The BLM identified the estimated transfers caused by the IRA in this appendix, using the CBO estimates provided as part of the IRA.

Incremental royalties were estimated based on forecasted production attributed to new Federal oil and gas leases. The BLM forecasted this stream of future Federal production using as a share of the total U.S.

[27] The calculated percentages in this paragraph were derived using the FY23-FY31 NPV 7 estimate in Table 3.

[28] Agalliu I, Montero A, Hsieh G, Coan J, Olmstead R. 2019. 2018 Comparative Assessment of the Fed Oil and Gas Fiscal Systems: Onshore Report. U.S. Department of the Interior, Bureau Land Management. BLM Study 2019. 252 p. The study is available at https://www.blm.gov/sites/blm.gov/files/docs/2022-01/2018%20Comparative%20Analysis%20of%20the%20Federal%20Oil%20and%20Gas%20Fiscal%20Systems%20Onshore%20Report_0.pdf.

[29] The state royalty rates analyzed were: 16.67% in Montana, Wyoming, and Utah; 18.75% in North Dakota; 20% in Colorado and New Mexico; and 25% in Texas.

forecasted production, as provided by the Energy Information Administration's (EIA) Annual Energy Outlook (AEO) 2022. The BLM's model assumes that the value of new Federal production would be brought online at a rate of 2.2% percent per year (the average for recent years), starting in 2024. Forecasted commodity prices reflect those presented in the EIA AEO 2022; however, the BLM assessed a discount of 3% for natural gas to reflect the transaction price received at the wellhead. The incremental royalty reflects the difference in the new royalty rate of 16.67% minus the old royalty rate of 12.5%.[30]

For each year of the forecast period, the incremental changes in Federal revenue streams due to changes in bonus bids, rental rates, and the new EOI fee (introduced by the IRA) were calculated relative to the legacy Federal leasing and development estimates. Incremental bonus bids were estimated by multiplying the difference between the new and existing bid per acre to the number of acres newly-leased each year. EOI fees were calculated based upon the number of newly leased acres in the previous year. The percentage of leased Federal acreage following the IRA provisions increased by 2.2% per year with the remaining Federal acreage generating Federal revenues at the legacy rates.

After estimating the stream of transfer payments for those four categories, the BLM calculated the final disbursements based on the mandated budgetary requirements in Federal law, as described on p. 2.

The BLM's methodology is subject to data limitations. It does not consider a price-elasticity of demand response from industry in response to higher costs. We might assume that with higher development costs, there would be some reduction in the demand for Federal leases or that some development might otherwise occur on non-Federal minerals. This effect would move the estimated transfer payments in the direction of zero, or in other words, the estimated transfer payments presented in this supplement are expected to constrain the likely effect of the IRA's section 50262.

**Results – Discussion and Tables**

As shown on Table 1, IRA Sections 50261 – 50265 are estimated by CBO to increase annual Treasury receipts by $484 million by 2031. Using a separate analysis, the BLM estimates that IRA section 50262 represents $276 million of Treasury receipts (see Table 2). This Treasury funding originates from private industry payments and represent transfers from private industry to the Federal government. The royalty provisions account for 89%, higher rental rates account for 8%, and the new EOI fees and increases in minimum bonus bids account for less than 1% each of the of incremental revenues (see Table 3, 2023-2031 NPV 7 estimates).

[30] It is worth noting that BLM specified an 18.5% royalty rate on leases offered in the sales immediately preceding the IRA's enactment. For this analysis, we chose to analyze the incremental royalty as a change from the 12.5% royalty rate due to its historical precedent.

**Table 1: CBO Cost Estimate for IRA Sections 50261 – 50265; Budget Authority and Estimated Outlays; $ in MM [31,32,33]**

| Year | Budget Authority | Estimated Outlays |
|---|---|---|
| 2023 | -235 | -235 |
| 2024 | -44 | -44 |
| 2025 | -22 | -22 |
| 2026 | -26 | -26 |
| 2027 | -23 | -23 |
| 2028 | -19 | -19 |
| 2029 | -41 | -41 |
| 2030 | -35 | -35 |
| 2031 | -39 | -39 |
| 2023-2031 Total | -484 | -484 |
| NPV 7% | -392 | -392 |
| NPV 3% | -439 | -439 |
| Annualized Value 7% | -60 | -60 |
| Annualized Value 7% | -56 | -56 |

[31] Source: CBO Cost Estimate, Summary, Estimated Budgetary Effect of Public Law 117-169, to Provide for Reconciliation Pursuant to Title II of S. Con. Res. 14. September 7, 2022. See p. 26 "Part 6. Fossil Fuel Resources." https://www.cbo.gov/system/files/2022-09/PL117-169_9-7-22.pdf. Net Present Values and Annualized Values were calculated by the BLM.

[32] Note: Per 2 USC 622. The terms "budget outlays" and "outlays" mean, with respect to any fiscal year, expenditures and net lending of funds under budget authority during such year. The term "budget authority" means the authority provided by Federal law to incur financial obligations, as follows: …offsetting receipts and collections as negative budget authority, and the reduction thereof as positive budget authority.

[33] Note: The CBO provides aggregated estimates for the five sections and the BLM is unable to ascertain from these data which estimates are specific to the onshore provisions. Also, the CBO notes that it cannot determine whether title V, part 6, of P.L. 117-169 will increase or decrease deficits after 2031 because of significant uncertainty concerning the scope of federal mineral leasing and energy development activities and related receipts after 2031.

**Table 2: BLM Cost Estimate for IRA Section 50262; Disbursements to All Beneficiaries; $ in MM**

| Estimates for 2023 to 2031 | | | | | |
|---|---|---|---|---|---|
| Beneficiary | Total | NPV 7 | NPV 3 | AV 7 | AV 3 |
| General Fund of the U.S. Treasury | 275.5 | 179 | 228 | 25.5 | 21.0 |
| State Governments | 1,104 | 710 | 908 | 101.1 | 83.2 |
| Federal Reclamation Fund | 787 | 503 | 646 | 71.6 | 59.0 |
| BLM Permit Processing Improvement Fund | 120 | 81 | 125 | 11.5 | 9.5 |
| Total | 2,287 | 1,473 | 1,907 | 209.8 | 172.7 |
| Estimates for 2023 to 2042 | | | | | |
| Beneficiary | Total | NPV 7 | NPV 3 | AV 7 | AV 3 |
| General Fund of the U.S. Treasury | 1,497 | 608 | 997 | 57.4 | 67.0 |
| State Governments | 6,175 | 2,499 | 4,107 | 235.8 | 276.0 |
| Federal Reclamation Fund | 4,683 | 1,868 | 3,096 | 176.3 | 208.1 |
| BLM Permit Processing Improvement Fund | 321 | 164 | 237 | 15.5 | 15.9 |
| Total | 12,677 | 5,138 | 8,437 | 485.0 | 567.1 |

Note: Totals may not sum due to rounding. NPV is Net Present Value at either 7% or 3%. AV is Annualized Value at either 7% or 3%, and is calculated as -PMT (rate, number of years, NPV at given rate).

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