



United States Department of Agriculture

Proposed Revisions to Regulations for Oil and Gas Operations Conducted on National Forest System Lands: Regulatory Impact Analysis and Consideration of Impacts to Small Entities

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Forest Service

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Executive Summary

The U.S. Department of Agriculture, Forest Service (USFS) is proposing revisions and updates to regulations for managing federal oil and gas resources on National Forest System lands (36 CFR Part 228, Subpart E, Oil and Gas Resources). The existing rule and the proposed revisions apply strictly to federal oil and gas minerals that occur beneath federal land managed by the Forest Service.

The proposed regulatory revision has been determined to be significant for the purposes of Executive Order 12866, and therefore has been reviewed by the Office of Management and Budget. The Forest Service has therefore prepared an economic analysis for this rule. The economic analysis provides a cost-benefit analysis, as required by Executive Orders 12866 and 13563, which direct agencies to assess all costs and benefits of available regulatory alternatives and, if regulation is necessary, to select regulatory approaches that maximize net benefits (including potential economic, environmental, public health and safety effects, and equity). Executive Order 13563 emphasizes the importance of quantifying both costs and benefits, of reducing costs, of harmonizing rules, and of promoting flexibility. The economic analysis also provides an initial regulatory flexibility analysis that examines the potential economic effects of this rule on small entities, as required by the Regulatory Flexibility Act. This report also considers impacts to energy distribution and markets, consistent with the Energy Act and Executive Order 13211.

Environmental and public health and safety costs and benefits considerations are not affected by the proposed revisions and are not a component of the analysis. The Forest Service prepared a programmatic environmental assessment of the proposed revisions and found the rulemaking actions would not, by themselves, have an effect on any natural or cultural resources or impact other forest uses. The proposed regulatory revisions are referred to as the ‘proposed rule’ which is compared to a baseline consisting of a continuance of current regulatory conditions.

Regulatory Impact Analysis (Analysis of Costs and Benefits)

The proposed rule affords an opportunity to modernize and streamline procedural requirements and provide a more consistent approach to federal oil and gas (‘oil and gas’) resource management across the National Forest System (NFS). Updating the processes for identifying lands available for leasing and reviewing and approving applications for permits to drill (including surface use plans of operation² or SUPOs), provides opportunities for efficiency gains for both the Forest Service (agency) and for operators, while still minimizing impacts to forest surface resources and preserving multiple use benefits.

Within the National Forest System, there are 3,165 oil and/or gas producing wells (across 39 National Forests and Grasslands), associated with 292 separate operators, as of September 2018. An estimated 96 percent of these operators (280) are small businesses (based on US Small Business Administration criterion of less than 1,250 employees), each operating an average of 9 producing wells. Almost 50 percent of these small businesses operate only 1 or 2 production wells. Average annual receipts from oil and gas extraction from all lands for small businesses in the US range from approximately \$3.3 million per year for the smallest firms (such as 0 to 20 employees) to \$1.1 billion per year (2018 dollars) for small firms with 500 to 1,250 employees. Most businesses (90 percent) operating on National Forest System lands are projected to be in the smallest size range with \$3.3 million in receipts per year. Twelve of the

² For federal oil and gas wells proposed on Forest Service managed surface, the Forest Service is responsible for approving the surface use plan of operation portion of an Application for Permit to Drill (APD). Department of the Interior’s Bureau of Land Management (BLM) is responsible for the downhole portion and the final approval of the complete APD.

operators with producing wells are determined to be large businesses (greater than 1,250 employees), operating an average of 56 producing wells on National Forest System lands. Seven of the large business operators are ranked in the top 150 U.S. oil and gas producing companies, averaging approximately \$100 billion in assets. Large business operators average approximately \$3 billion in receipts per year.

Costs to drill oil and gas wells are estimated to range from less than \$500,000 to \$8 million per well, depending on location and site conditions (e.g., horizontal vs. vertical drilling). Average annual sale value per oil and gas well on National Forest System lands was estimated to be approximately \$500,000 per well in FY 2018.

In addition to the producing oil and gas wells, there are an additional 1,360 wells of various status types including injection, disposal, abandoned and other support wells on National Forest System lands. In total, these 4,525 wells are linked to 401 operators (386 operators are small; 15 large). Of the total, 647 of the wells are coded as abandoned meaning the wells have been plugged (permanently sealed with cement and closed), but are still in the surface reclamation phase.

An average of 35 new surface plans of operation (SUPOs) are estimated to be approved per year on National Forest System lands over the five-year period, 2013 to 2017. Each SUPO is associated with a single application for a permit to drill a well (APD). A majority of the SUPOs have resulted in a producing oil wells, others have resulted in gas producing wells or different types of service wells (e.g., water disposal). Oil production levels from new wells have substantially outpaced existing well production declines, resulting in an overall doubling of oil production from 2013 to 2017. In FY2018, approximately 25 million barrels of oil and natural gas plant liquids (70,000 barrels per day) and 118 million MCF (MCF=1,000 cubic feet) of natural gas (500,000 MCF/day) were produced from National Forest System lands, accounting for 0.6 percent of total production of oil and 0.3 percent of total production of natural gas in the United States. Oil and gas production on National Forest System lands is estimated to have contributed to or supported approximately 3,000 direct, indirect, and induced jobs and \$200 million in labor income across all regions in 2016 (the last year for which analysis is available).

Total revenue of \$210 million was paid to the federal government in the form of bid bonuses, lease rents, and royalties in FY2018. Total value of oil and gas sales has remained relatively stable on National Forest System lands ranging from \$1.2 billion (2017 dollars) in 2011 to \$1.8 billion in 2018. The exception was a dip to \$761 million (2016 dollars) in 2016 due to lower oil prices. Future leasing and drilling activity on National Forest System lands will continue to be affected by trends or cycles in oil and gas prices.

The Forest Service estimates that between 15 and 18 percent of National Forest System lands are currently available for oil and gas lease, or 29 to 35 million acres. As of September 2018, there were an estimated 1,586 'parcels pending' containing almost 1.3 million acres of National Forest System lands where lease decisions or lease processing were pending. A majority of the parcels are located in Forest Service's Northern Region (MT, ND), Rocky Mountain Region (WY, CO), and Intermountain West Region (UT, ID), suggesting more potential for oil or gas development in those areas as well as a potential for additional leasing that might occur by addressing the backlog. Potential for development also exists across the Forest Service regions except the Pacific Northwest Region (OR, WA).

The analysis considers costs and benefits associated with updates, modifications, or clarifications to different sections of 36 CFR 228 Subpart E, as they relate to key procedural steps for oil and gas leasing and permitting on National Forest System lands. Changes in costs and benefits are discussed in a primarily qualitative manner due to the challenges with quantifying the shifts in costs and benefits at a programmatic level. Quantitative proxies are used when feasible to help describe the potential frequency or magnitude of activities affected by the proposed rule and subsequent cost savings and benefits.

Discussions of possible operator cost savings and expedited revenues are made in the context of existing operator costs and revenues to help clarify the potential significance of operator benefits and production response. An effort is made to monetize cost savings from streamlined procedures for processing and reviewing leasing decisions, including the requirement under the National Environmental Policy Act (NEPA) to prepare environmental impact statements (EISs). The intent is to demonstrate the potential for programmatic cost savings and efficiency gains, as well as operator benefits from revising agency procedures.

The proposed rule is not expected to have a significant or measurable impact on rates of oil and gas production on National Forest System lands; oil and gas prices and other market factors are likely to drive future changes in growth of development and production. The proposed rule is equally unlikely to have significant distributional impacts on job or income contributions from oil and gas activities on National Forest System lands. Potential impacts to jobs from the proposed rule would not be measurable in the context of impacts from shifts due to other market factors. There is potential for cost savings or increases in time value of revenue earned by operators that could serve as an incentive to change (increase) production. However, the potential magnitude of those savings (one time per well) and corresponding production impacts is expected to be relatively small and hard to measure when compared to the magnitude of existing operator costs, revenues, and market impacts, including:

- Operator well drilling costs ranging from less than \$500,000 to \$8 million per well,
- Average annual sale value of approximately \$500,000 generated per well on National Forest System lands,
- Annual receipts of \$3.3 million per business (from all wells, not just National Forest System lands) for the category of small oil and gas production businesses most commonly operating on National Forest System lands, and
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- Changes in oil prices; a significant example is the dip in oil prices causing sale value to drop from \$1 billion to \$760 million from National Forest System lands between 2015 and 2016; few new wells were coming on line by 2016 as a result of these dips.

The direct benefits of the proposed rule are reduced costs and time spent on identifying available lease areas, approving operations and addressing compliance actions, where costs and time include those incurred by the agency as well as proponents engaged in, or pursuing oil and gas operations on National Forest System lands. Indirect benefits can result from expedited access to leasable oil and gas resources on National Forest System lands, and include time-valued oil and gas revenue or returns to operators as well as time-valued bids, lease rentals, and royalties paid by operators to the federal government and public. The proposed rule is expected to continue minimizing potential for surface resource impacts, and maintain protection of forest ecosystems and corresponding goods and services (such as mandated multiple use opportunities) from oil and gas development and operations.

Details about potential benefits and costs associated with different steps in the leasing and permitting process for oil and gas development and operations include the following:

- Agency and federal cost savings are estimated to be \$100,000 to \$200,000 per year from more efficient decision-making about where and how National Forest System land can be made available for oil and gas leasing. In addition, the procedures for the subsequent processing of ‘expressions of interest’ in leasing from operators would be moved to the Forest Service’s manual or handbook where they could be more easily changed to keep up with technology and other Bureau of Land

Management (BLM) or Forest Service regulations. The savings is based on better coordination between the Forest Service and BLM and simplified steps to reach a leasing decision, while not losing the checks and balances and accountability of the current regulations.

- The proposed revisions would better align (harmonize) Forest Service procedures and regulatory language with BLM procedures and regulations. Additional administrative and processing costs savings for the agency and operators are possible from (i) updating provisions for lease stipulation waivers, exceptions, and modifications, (ii) clarifying and updating procedures for reviewing and approving Surface Use Plan of Operations (SUPOs), (iii) clarifying and requiring the use of Sundry Notices for changes in SUPOs, (iv) clarifying the ability of Forest Service to rely on the BLM for assistance in resolving cases of non-compliance, and (v) clarifying the process for determining the amount of reclamation bonds.
- Benefits to industry and the public include expedited oil and gas production from streamlined procedures, as well as time-valued revenue, rents, and royalties resulting from reduced processing or approval times for leases and well permits made possible by a number of the rule modifications, including clarified use of Master Development Plans.
- Consideration of, and protection from significant environmental impacts is not expected to change. The Forest Service prepared a programmatic environmental assessment of the proposed revisions and found the rulemaking actions would not, by themselves, have an effect on any natural or cultural resources or impact other forest uses. Compliance with the National Environmental Policy Act (NEPA) is still required for leasing decisions, SUPOs, and sundry notices involving additional surface disturbance. Increased reliance on the BLM for expedited resolution of non-compliance, as well as improved procedures for specifying reclamation bonds should provide additional assurances for environmental protection.
- Costs to estimate the amount of reclamation bonds required may increase for the agency, but those costs are expected to be more than offset by the long-term benefits of reduced reclamation risk.
- Costs may increase for operators in relation to (i) obtaining special use authorizations (SUAs) for off-lease activities (only those operators who would otherwise use a SUPO), (ii) administrative fees charged for mitigation of emergency situations (under non-compliance) by the Forest Service, and (iii) potential increases in bond amounts that are more accurate representations of reclamation needs. However, many of these potential costs are expected to be infrequent, incrementally small, and off-set by benefits from improved management or protection of National Forest System lands. Increasing administrative fees for non-compliance could be an incentive for reducing the incidence of non-compliance. However, changes in non-compliance rates may be limited or difficult to measure because (i) the potential magnitude of the fee (contingent on the extent/scope of non-compliance) may be small compared to other operator costs and revenues, and (ii) existing incidents of non-compliance suitable for monetary non-compliance are already few in number.

The total or aggregate net benefits associated with the proposed rule cannot be quantified, but are likely to be small or slightly more than the estimated agency cost savings of \$100,000 to \$200,000 per year for leasing analysis and processing expressions of interest. This result is primarily due to the relatively low numbers of oil and gas decisions and management action occurring on National Forest System lands, as suggested by the following evidence: only three leasing availability decisions in the last five years; 35 SUPOs with applications for permits to drill a well approved per year; few requests for lease stipulation waivers/exceptions/modifications; and only 19 cases of non-compliance referred to BLM for monetary penalties during the years 2013-2017. Potential cost savings and/or increases in time-value of expedited revenue for operators are expected to be relatively small when compared to other existing operator costs, annual revenues, or the impacts from other market factors (e.g., shifting oil prices). As a consequence, the

proposed rule is not expected to have a significant or measureable effect on oil and gas production rates on National Forest System lands.

However, the processes of reviewing and approving leasing availability decisions and permits to drill will continue to occur, as highlighted by the numbers of ‘parcels pending’ on almost 1.3 million acres of National Forest System lands. The proposed rule modernizes and improves the efficiency of that process, providing opportunities for cost savings, expedited public revenues, and operator returns. The proposed rule satisfies the agency’s legal requirement to provide access to oil and gas resources in a more efficient manner, while improving the agency’s ability to protect the surface resources of National Forests and Grasslands and opportunities for mandated multiple uses.

Regulatory Flexibility Analysis (Small Entity Impacts)

Small entities potentially impacted by the proposed rule include small businesses (firms) involved in oil and gas extraction operations (North American Industry Classification System (NAICS) 211111), drilling oil and gas wells (NAICS 213111), and support activities for oil and gas operations (NAICS 213112). The proposed rule could impact businesses that express interest in, decide to bid on, or decide to engage in oil and gas development and operations on National Forest System lands available for lease. Most provisions of the proposed rule are expected to reduce the times for reviewing and approving leases and permits, thereby saving operator costs and expediting opportunities for production and revenue.” This would apply to permits on existing leases as well.

There were 328 different firms operating oil and gas producing wells on National Forest System lands as of September 2018, of which 316 (96 percent) are estimated to be small businesses based on the Small Business Administration (SBA) small business criterion of 1,250 employees for NAICS 211111. The proposed rule will primarily impact a subset of operators that express interest in leasing National Forest System land, or apply for permits to drill new wells on National Forest System lands in the future. The average annual number of surface use plans of operations approved (35) provides the best available estimate for the number of small business that could be affected annually by the proposed revisions. For comparison to effects on 35 small businesses annually, the estimated number of small firms associated with the oil and gas extraction sector (NAICS 211111) for the nation is approximately 5,600. Therefore, the percent of small businesses impacted by the proposed rule on an annual basis is projected to be small (35 of 5,600 is less than 1 percent).

The aggregate impact of the proposed rule, compared to baseline regulatory conditions, is expected to be positive for a majority of entities involved in oil and gas leasing, development and operations on National Forest System lands, as noted in “Regulatory Impact Analysis”. Most provisions of the proposed rule are expected to reduce the times for reviewing and approving leases and permits, thereby saving operator costs and expediting opportunities for production and revenue. Exceptions might include cases where some operators may be faced with increases in reclamation bond amounts, have to apply for special use authorizations, or pay an administrative fee to mitigate emergency non-compliance situations under the proposed rule; however, these situations are expected to be infrequent or involve relatively small incremental costs.

Based on the evidence summarized above, the proposed rule is expected to increase opportunities for net benefits to small entities on average. Numbers of small entities impacted are not likely to be substantial. The proposed rule is therefore not expected to result in significant impacts to a substantial number of small entities (such as no SISNOSE), as defined by the Executive Order 13272 and SBREFA, indicating that a regulatory flexibility analysis is not required for the proposed rule.

Energy Act

The proposed rule is not expected to have a measurable effect (positive or negative) on oil and/or gas supply or distribution. The Forest Service proposed regulation does not make decisions about which lands are open or closed to leasing and subsequent development, but instead describes the process by which the FS makes such decisions. The proposed rule should streamline the oil and gas leasing process and clarify the processing of APDs on National Forest System lands. The streamlining should reduce time and costs of permitting or leasing though these times are influenced by conditions specific to locations on National Forest System lands.

The proposed rule is not expected to have a significant adverse effect on the supply, distribution, or use of energy; competition or prices; other agency actions related to energy; or raise novel issues regarding adverse effects on energy. The proposed rule is therefore not expected to be a significant energy action or require a statement of energy effects, consistent with OMB guidance for implementing Executive Order 13211.

Introduction

The U.S. Department of Agriculture, Forest Service (USFS) is proposing revisions and updates to regulations for managing oil and gas resources on National Forest System lands (36 CFR 228 Subpart E). The existing rule and the proposed revisions apply strictly to federal oil and gas minerals that occur beneath federal land managed by the Forest Service. The proposed regulatory revision has been determined to be significant for the purposes of Executive Order 12866, and has been reviewed by the Office of Management and Budget. The Forest Service has prepared an economic analysis for this rule. The economic analysis provides a cost-benefit analysis, as required by Executive Orders 12866 and 13563, which direct agencies to assess all costs and benefits of available regulatory alternatives and, if regulation is necessary, to select regulatory approaches that maximize net benefits (including potential economic, environmental, public health and safety effects, and equity). Executive Order 13563 emphasizes the importance of quantifying both costs and benefits, of reducing costs, of harmonizing rules, and of promoting flexibility. The analysis considers potential efficiency gains from revising agency decision-making and procedures associated with identifying leasing opportunities, implementing and managing leasing decisions, permitting and managing operations, and managing operator compliance on National Forest System lands. The revision also seeks to better align (harmonize) Forest Service procedures and regulatory language with BLM procedures and regulations.

This report also considers small entity impacts consistent with requirements of the Regulatory Flexibility Act (RFA), as amended by the Small Business Regulatory Flexibility Enforcement Fairness Act of 1996 (SBREFA), and Executive Orders 13272 and 13563 (Proper Consideration of Small Entities in Agency Rulemaking). In addition, this report considers impacts to energy distribution and markets, consistent with the Energy Act and Executive Order 13211.

Description of the Proposed Rule and Need for Regulation

The regulations outlined in 36 CFR 228 Minerals Subpart E describe how the Forest Service carries out statutory responsibilities for leasing oil and natural gas resources on National Forest System lands, approving surface uses related to exploration and development of oil and gas on leased lands, inspecting surface operations on leases, and enforcing surface use and reclamation requirements. The proposed rule revises, updates, and clarifies procedures in 36 CFR 228 Subpart E (Sections 102 to 115) to improve the efficiency of, and streamline the oil and gas leasing process on National Forest Service lands (including National Grasslands). This analysis compares the proposed rule to the baseline, consisting of a continuation of current requirements in 36 CFR 228 Subpart E. The applicable directives in the Forest Service Manual will be revised under a separate action.

Although amended in 2007 to reflect an update to the joint USFS and USDI Bureau of Land Management rule, Onshore Order No. 1, and the Energy Policy Act of 2005, the regulations largely reflect legal requirements from when they were first promulgated in 1990. Updating the regulations affords an opportunity to modernize and streamline procedural requirements and provide a more consistent approach to federal oil and gas³ resource management across the National Forest System. Updating the process of leasing, developing, and managing National Forest System lands for oil and gas operations will provide opportunities for efficiency gains from those activities, while still minimizing impacts to forest surface resources and preserving potential multiple use benefits over time. Updates to regulations are expected to reduce agency costs as well.

³ Reference to “oil and gas” in this analysis means “federal oil and gas” unless otherwise noted.

Current Conditions and Projections – Oil and Gas Operations and Production

This section provides an overview of oil and gas production at the national level, followed by a description of current operations, production, and value on National Forest System lands. A description of projected oil and gas production on National Forest System lands, by Region, is presented at the end of this section.

National Oil and Gas Production

Production of crude oil, natural gas liquids, and natural gas has experienced substantial highs and lows in the last 20 years in response to broader economic trends and energy demand, as well as developments in technology (e.g., hydraulic fracturing) and capacity to access new reserves (e.g., horizontal drilling). Current conditions and trends for oil and gas production nationally, regionally, and on National Forest System lands, is summarized below.⁴

National Oil and Gas Liquid Trends and Projections

Historically, U.S. crude oil production peaked at 3.3 to 3.5 billion barrels per year between 1970 and 1985, then declined continuously to 1.8 billion barrels by 2008. After 2008, production increased to a contemporaneous peak of 3.4 billion barrels by 2015, remaining at that level in 2017 (supporting data for EIA, 2018⁵).

According to the Annual Energy Outlook 2018 (EIA, 2018), growth in U.S. crude oil and natural gas plant liquids production is projected to continue through 2050 mainly as a result of further development of tight oil resources (e.g., ‘shale oil’ from hydraulic fracturing). Lower than expected oil prices and/or slower development of resources and technology may dampen growth forecasts. Over this period, domestic consumption falls, making the United States a net exporter of liquid fuels under a variety of forecast assumptions. U.S. crude oil production is projected to continue growing as producers increase output under rising prices and decreasing production costs. Lower 48 onshore tight oil development continues to be the main driver of U.S. crude oil production, accounting for about 65 percent of cumulative domestic production under the base ‘Reference case’ forecast (EIA, 2018).

Under the Reference case, U.S. crude oil production levels off by 2030 to 2040, as tight oil development moves into less productive areas and as well productivity declines. The southwest region (NW Texas and E. New Mexico), followed by the Dakotas/Rocky Mountain region lead growth in U.S. crude oil production in the lower 48 through 2035 to 2040. Growth is expected mainly in the Permian Basin in the southwest region with dominant plays being formations containing tight oils. Growth in the Dakotas/Rocky Mountains is expected to be driven by production in the Bakken and Niobrara tight oil

⁴ The Forest Service reviewed the 2020 Annual Energy Outlook report and found that updating the analysis presented here would not result in any meaningful changes. However, this analysis will be updated prior to finalizing this rule using most recent data. This analysis was completed well before the significant downturn in the oil and gas industry caused by the COVID-19 pandemic. Though the U.S. Energy Information Agency provides short-term outlooks that include the impacts of the COVID-19 response, the agency has not published long-term projections of the type used in this analysis. The long-term impacts of COVID-19 that might impact this analysis are not known.

⁵ EIA, 2018. Annual Energy Outlook 2018 with projections to 2050. U.S. Energy Information Administration, U.S. Department of Energy, Washington DC. Downloaded 12/12/2018, <https://www.eia.gov/outlooks/aeo/withsupportingdata/downloadedfrom'SourcesandUses'athttps://www.eia.gov/> (12/12/2018).

plays. Production in the Gulf Coast region is forecast to increase through 2025 before flattening out as drilling in the Eagle Ford play in Texas becomes less productive (EIA, 2018).

Natural gas plant liquids (NGPL) production is projected to nearly double between 2017 and 2050 with most of the growth occurring before 2025 under the Reference case (EIA, 2018). The East and Southwest regions are expected to dominate the growth in NGPL production, almost tripling and doubling regional production respectively by 2030. Little change in NGPL production is forecast for other regions under the Reference case.

National Natural Gas Trends and Projections

Natural gas production increases under all forecast scenarios (EIA, 2018), supporting higher levels of domestic consumption and natural gas exports. However, these projections are sensitive to resource and technology assumptions. Under the baseline Reference case, natural gas production grows 6 percent per year from 2017 to 2020, which is greater than the 4 percent per year average growth rate from 2005 to 2015. However, after 2020, it slows to less than 1 percent per year through 2050. Increased natural gas production is the result of continued development of shale gas and tight oil, accounting for more than three-quarters of natural gas production by 2050. The Eastern region (e.g., Marcellus and Utica plays) is the main driver of projected growth in production of U.S. natural gas in most cases, with production from shale resources doubling by 2030. Production increases in the Gulf Coast region (e.g., Eagle Ford and Haynesville plays) is also forecast to be significant but leveling off by 2028. The Permian Basin in the southwest also contributes to growth in natural gas production (EIA, 2018).

Oil and Gas Production on National Forest System Lands⁶

Current Leases, Operations, Production, and Value on National Forest System lands

The first phase in oil and gas management on federal lands is the leasing phase. The Forest Service has the authority to determine which lands are open to lease and what stipulations may be needed to protect surface resources. The BLM also has to make a leasing decision for these lands and is responsible for holding the actual lease sales and issuing the lease contracts.

There have been three leasing analyses and decisions in the past five years that have resulted in defining areas available for oil and gas leasing on National Forest System lands. Typically, the NEPA analysis is an Environmental Impact Statement (EIS). While the Forest Service keeps some statistics on the number of lease parcels sent to BLM for sale in some years, the Forest Service does not track numbers of leases sold per year. There are 5,490 oil and gas leases covering 4.2 million acres (about 2 percent) of National Forest System lands. Of the total leases, 2,665 leases have production. Once a company buys a lease, they can submit an Application for Permit to Drill (APD) per the terms of the lease.

Oil and gas leases occur on 53 of the 175 National Forests and Grasslands. Thirty-nine of these units have active operations consisting of 3,165 actively producing oil and/or gas wells. During the five-year period, 2013 to 2017, the Forest Service approved an average of 35 new SUPOs annually.⁷ Each SUPO is associated with a single application for a permit to drill a well (APD). A majority of these SUPOs have resulted in producing oil wells, consistent with a general emphasis by industry on oil development. These

⁶ This analysis was completed when 2018 data was the most recent available. It will be updated using most recent data prior to finalizing the rule.

⁷ Source: BLM Automated Fluid Minerals Support System Reports 9-28-18 (BLM, 2019, spreadsheet) and Response to data call solicited by US Forest Service, Minerals and Geology Management, supporting this rule-making (Forest Service – MGM, 2018).

SUPOs have also resulted in gas producing wells or types of service wells (e.g., water disposal). Oil production levels from new wells have substantially outpaced existing well production declines, resulting in an overall doubling of oil production from 8.6 million barrels of oil in 2013 to 17.5 million barrels of oil in 2017. In contrast, natural gas production from NFS lands has been stable at just over 100 billion cubic feet per year over the same period.

The 2,665 producing leases and 3,165 producing oil and gas wells are associated with 292 operators, as of September, 2018⁸ (table 1). There are 4,525 total wells of all status types on National Forest System lands, including production wells as well as injection, disposal, abandoned and other support wells, linked to 401 operators. Of the total, 647 of the wells are in abandoned status, plugged but awaiting final reclamation. The data set in Table 1 that excludes these abandoned wells indicates that 73 operators have no producing wells, but still have reclamation responsibilities.

An estimated 386 operators (96 percent of all National Forest System operators), with wells of all types, are identified as small businesses based on the SBA criterion⁹ of 1,250 employees. These small businesses include 280 operators that manage an average of 9 producing wells each on National Forest System lands as shown in the last dataset in Table 1 – Producing Oil and Gas Only. Almost 50 percent of small businesses with producing wells only operate 1 or 2 wells on National Forest System lands. There are 15 large businesses (4 percent of all operators) associated with wells of all status types. However, only 12 of these large businesses operate producing wells, with a range of 1 to 537 producing wells per large business operator.

Table 1. Numbers of oil and gas wells and operators on National Forest System lands

Wells	Data Points	Business Size (1) Large	Business Size (1) Small	Business Size (1) All
Wells – All Types and Status	Number of Operators	15	386	401
	Total Wells	834	3,691	4,525
	Average Wells per Operator	56	10	11
	Maximum Wells per Operator	593	237	593
Wells – Excluding Abandoned Wells	Number of Operators	12	316	328
	Total Wells	720	3,158	3,878
	Average Wells per Operator	60	10	12
	Maximum Wells per Operator	539	217	539
Wells – Producing Oil and Gas Only	Number of Operators	12	280	292
	Total Wells	675	2,490	3,165
	Average Wells per Operator	56	9	11
	Maximum Wells per Operator	537	208	537

(1) Small Business Administration criterion for small businesses is 1,250 employees (2019). Operator and well data obtained from BLM AFMSS database (Automated Fluid Mineral Support System) (9-28-2019). See USDA Forest Service (2019) workbook for data regarding operators, wells, and small business size class determination. Actual operators numbers may vary due to inconsistency in operator and subsidiary naming in the BLM AFMSS database.

⁸ BLM 9-28-18 AFMSS

⁹ For NAICS 211111 – Oil and Gas Extraction. US Small Business Administration - Table of small business size standards matched to NAICS codes (October 1, 2017). See “Small business determination” (Excel Workbook) by USDA Forest Service, Patrick O'Dell, Petroleum Engineer, Forest Service, Minerals and Geology Management (2019).

Of the 15 large business operators, seven are ranked in the top 150 oil and gas producing companies headquartered in the US, averaging approximately \$100 billion in assets¹⁰. Financial data is not available for small closely held businesses operating on National Forest System lands. However, it is estimated that annual receipts for small businesses involved in oil and gas extraction from all lands in the US range from approximately \$3.3 million per year for firms in the smallest category (such as 0 to 20 employees) to \$1.1 billion per year (firms with 500 to 1,250 employees) (table 2). A majority of businesses (90 percent) operating on National Forest System lands are projected to be in the smallest size category with \$3.3 million in receipts per year, operating an average of approximately 9 producing wells on National Forest System lands. The wells and operators on National Forest System lands account for approximately 0.04 percent of all producing wells¹¹ in the United States (991,000), and approximately 7 percent of the 5,658 businesses involved in oil and gas extraction in the United States¹².

Table 2. Estimated number of operators with producing wells, by size and annual receipts

Business Size (1)	Employees	Estimated % of Operators (2)	Estimated # Operators with Producing Wells (2)	Average Annual Receipts (\$1,000) (2)
Small	0 to 20	90%	260	\$3,300
Small	20 to 100	4%	12	\$55,000
Small	100 to 500	2%	6	\$220,000
Small	500 to 1,250	1%	3	\$1,100,000
Large	>1,250	4%	12	\$3,300,000
All			292	\$44,000 (Average)

(1) SBA small business criterion of 1,250 employees (NAICS211111)

(2) Source: 2012 Statistics of US Businesses – Annual Data Tables by Establishment Industry (US Census Bureau). Most recent year available for Receipt data is 2012. The 2012 values are updated to 2018\$ using Implicit Price Deflators for Gross Domestic Product (Bureau of Economic Analysis, Table 1.1.9 as revised on: March 26, 2020 Data is not available regarding employees for small business operators on NFS lands, so operator numbers are estimated (% * total operators).

Operator drilling costs vary with location and the type of well proposed. Most new wells that target federal minerals under National Forest System managed surface are being drilled horizontally to produce shale formations. Two of the most active Forest Service areas include the Bakken and Three Forks formation development on the Dakota Prairie National Grasslands in North Dakota and the Utica and Marcellus formations development on the Wayne National Forest (NF) in Ohio. The Bakken and Three Forks wells drill vertically 8,000 to 10,000 feet before starting the typical 10,000 feet of horizontal well. Typical costs for drilling and completing a Bakken well in North Dakota ranges from \$6 to \$8 million¹³. The Utica and Marcellus wells under the Wayne stretch 6,000 to 8,000 feet deep before turning sideways and drilling horizontally another 10,000 feet. Drilling and completion costs, while slightly less, are similar to the Bakken, ranging from approximately \$5 to \$8 million¹⁴. At the other end of the cost

¹⁰ Oil & Gas Journal, Volume 117, Issue 9, September 2, 2019.

¹¹ U.S. Energy Information Administration (EIA, 2017)

¹² For NAICS 211111. 2016 Statistics of US Businesses - Annual Data Tables by Establishment Industry (US Census Bureau)

¹³ 2018 WBPC: Bakken Now! Production Growth and Infrastructure Needs. Presented by the North Dakota Department of Mineral Resources on 5/24/2018

https://www.dmr.nd.gov/oilgas/presentations/WBPC052418_2400.pdf

U.S. Energy Information Administration (US EIA), Trends in U.S. Oil and Natural Gas Upstream Costs, March 2016 <https://www.eia.gov/analysis/studies/drilling/pdf/upstream.pdf> . Web site accessed 11/4/2019.

¹⁴ Ibid, US EIA. Personal communication with Theresa Bodus, USDA Forest Service Eastern Region Minerals and Geology Program Manager, 11/5/2019.

spectrum, shallow wells such as traditional vertical wells on the Wayne NF or coal bed methane wells on the Thunder Basin National Grasslands in Wyoming can cost less than \$500,000 per well¹⁵.

Other statistics of interest for the proposed rule include the number of stipulation waivers and level of non-compliance. Approximately four requests for lease stipulation waivers, exceptions, or modifications were made over the last five years according to responses to the data call for this rule-making. Incidents of operator non-compliance with lease terms or SUPO conditions of approval that require referral to BLM for monetary penalties are relatively uncommon, with 19 cases of non-compliance referred by the Forest Service during 2013 - 2017 to the BLM for assistance in resolving.

In FY 2018, wells on National Forest System lands produced approximately 25 million barrels of oil and natural gas plant liquids (70,000 barrels per day) and 118 million MCF¹⁶ of natural gas (500,000 MCF/day) (See table 3). These volumes account for 0.6 percent of total production of oil and 0.3 percent of total production of natural gas in the United States¹⁷.

Total revenue of \$210 million was paid to the federal government from oil and gas leases and production on National Forest System lands in FY2018¹⁸. Royalties from oil, natural gas, and natural gas plant liquids amounted to \$161 million, \$36 million, and \$9 million in FY2018 respectively. Lease bonuses (bids paid to obtain new leases) and rents (paid for leased land that is not yet producing) equaled \$1.2 million and \$2.0 million respectively.

Oil and Gas on National Forest System Lands – Trends and Projections by Region

The National Forest System includes 9 regions as shown in Figure 1. The Forest Service Region 1 (Northern Region), Little Missouri National Grassland (part of the Dakota Prairie NG), located in the Bakken play, dominated oil production and sales; Region 1 providing 76 percent of oil volume from

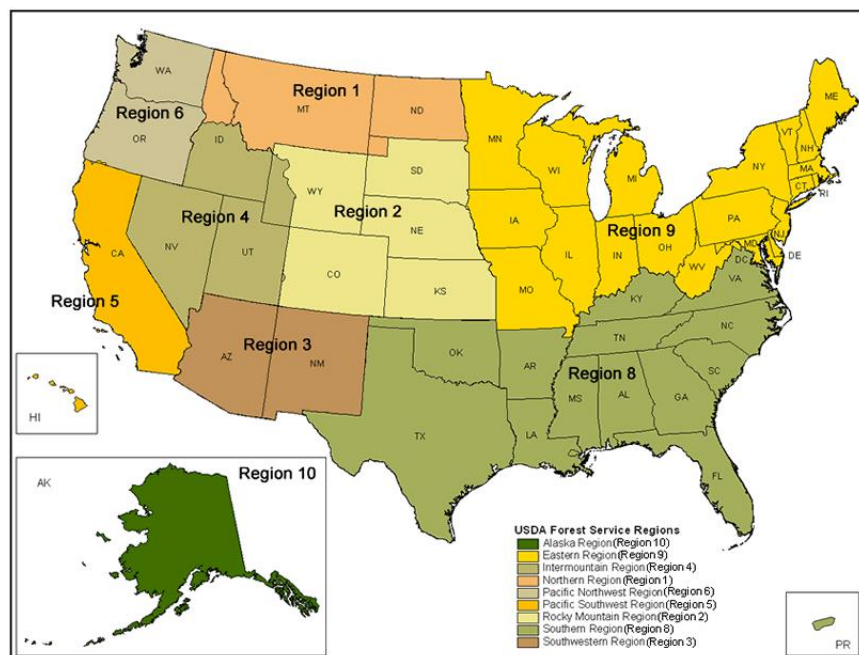


Figure 1: Regional map of the U.S. Forest Service.

National Forest System lands in FY2018 (table 3). Oil production was also significant in Region 2 (Rocky Mountain Region) with 19 percent of National Forest System oil production. Natural gas production occurred primarily in Regions 3 (Southwest Region), 1, 4 (Intermountain West Region), 2, and 8 (Southern Region) (in descending order of production), ranging from 30 percent in Region 3 to 9 percent in Region 8. Production of natural gas liquid products was greatest in Region 1 (57 percent)

¹⁵ Ibid., 2018 WBPC.

¹⁶ MCF=1,000 cubic feet

¹⁷ Sources: Department of Interior, Office of Natural Resource Revenue (2018) and EIA (2017).

¹⁸ Sources: Department of Interior, Office of Natural Resource Revenue (2018)

followed in order by Regions 2 and 3. Sales value from all oil and gas products was approximately \$1.8 billion in FY2018 with oil accounting for 76 percent of value, a majority of which comes from Region 1. Natural gas accounted for 19 percent of sales value, and gas liquid products responsible for the remaining 5 percent of value. For a total of 3,165 number of producing oil and gas wells on National Forest System lands at the end of FY 2018 (September) (see table 1), average annual sales value is estimated to be approximately \$500,000 per well.

Total oil and gas sales value has remained relatively stable on National Forest System lands since 2011 (\$1.2 billion, 2017\$), ranging up to \$1.8 billion in 2018. The one exception was a drop in value from \$1 billion to \$760 million due to dips in oil prices from 2015 to 2016. Active drilling occurring on National Forest System lands in 2014 dropped to the point where few new wells were coming on line by 2016 as a result of decreases in oil prices. Future leasing and drilling activity on National Forest System lands will continue to be affected by trends or cycles in oil and gas prices.

Based on locations of projected growth in U.S. oil and gas production (see section above), potential increases in oil and gas development and operations on National Forest System lands might occur in the following regions:

Oil:

- Forest Service Regions 1 (Northern) and 2 (Rocky Mountain) – including portions of National Forests and Grasslands overlapping the Bakken and Niobrara basins. As of end of FY 2018 (September), approximately 80 percent of pending applications for permits to drill (APDs) are in Colorado and North Dakota. An estimated 68 of 109 APDs (62 percent) were located on the Dakota Prairie Grasslands in North Dakota (R1) where horizontal drilling is more common. Another 19 (17 percent) APDs are located across 5 forests in Colorado¹⁹.
- Forest Service Regions 3 (Southwest) and 8 (Southern) - The New Mexico forests are on the uplifts that form the western edge of the Permian. The National Forests of Texas are mainly in eastern Texas in the Hayneville-Bossier play, which is good, but not as prolific as the Eagle Ford. The small and scattered Texas grasslands are seeing a little development, but are not in major development areas.

Natural Gas:

- Forest Service Region 9 (Eastern) – Portions of National Forests in Pennsylvania and West Virginia overlapping the Marcellus/Utica basin.
- Forest Service Region 8 (Southern)– Portions of National Forests in SE Texas, western Louisiana, and SW Arkansas over the Eagle Ford and Haynesville basins.

There are an estimated total of 1,586 ‘parcels pending’ containing almost 1.3 million acres of National Forest System lands where lease decisions are pending, parcels are available for lease, or having received ‘expressions of interest’ but not yet been offered for bid by the BLM for competitive sale. A majority of these parcels are located in Forest Service Regions 1 (MT, ND), 2 (WY, CO), and 4 (UT, ID), suggesting

¹⁹ Remaining 20 percent of APDs are located in seven forests in CA, MT, UT, OH, and WY. Source: USFS APD database and Workbook (status as of October 1, 2018), accessed and provided by L. Vaculik (Petroleum Engineer), US Forest Service, NFS-WO, Minerals and Geology Management, Technical Services, Washington DC.

potential for oil or gas development in those areas²⁰. The proposed rule is not expected to have a significant impact on the growth of oil and gas production on National Forest System lands. However, the proposed rule should help expedite the analysis, review, and processing of lease decisions, expressions of interest, and permits to drill and operate in the targeted areas of potential growth on National Forests and Grasslands described above. These changes have the potential to expedite and increase production on some National Forest System lands, but increases are likely to be small and difficult to measure in comparison to production changes motivated by other market factors (e.g., prices).

²⁰ Oil and gas parcels currently pending on National Forest System Lands as of September 30, 2018 – spreadsheet compiled by Sharon Gresl, Forest Service, Washington Office – Minerals and Geology Management. Each parcel represents a tract or tracts of land that would be offered as a single lease.

Table 3. Oil and gas production, revenue, and royalties on National Forest System (NFS) lands in FY2018

USFS Reg.	Volume Sold						Sales Value (2018 \$Million)					Revenue (2018 \$Million)						
	Oil (bbls x 1000)	% Oil	Nat. Gas (MCF x 1000)	% NG	Gas Product (bbls x 1000)	% Gas Product	Oil	Gas	Gas Product	Total	% Total Sales Value	Royalties			Bonus	Rent	Total	% Total
												Oil	Gas	Gas Product				
1	16432	76	28870	25	2127	57	1019	115	59	1193	68	120.9	13.8	4.5	0	0.26	139.46	66
2	4015	19	18535	16	878	23	251	44	26	321	18	32.7	5.0	2.8	.015	0.25	40.765	19
3	148	1	35174	30	609	16	8	85	17	110	6	0.9	9.0	1.7	0	0.03	11.63	6
4	340	1	20349	17	9	1	19	48	0.3	67.3	3	2.4	3.6	0.4	0	0.13	6.53	3
5	152	1	407	0	0	0	10	0.9	0	10.9	1	1.2	0.1	0	0	0	1.30	1
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	396	2	10473	9	31	2	24	29	0.9	53.9	3	3.0	3.6	0.1	.058	1.17	7.928	4
9	8	0	3831	3	9	1	0.5	9	0.4	9.9	1	.2	1.2	0.03	1.15	0.11	2.69	1
NFS	21491	100	117639	100	3663	100	1331.5	330.9	103.6	1766		161.3	36.3	9.53	1.223	1.95	210.303	100

Source: Department of Interior, Office of Natural Resource Revenue (ONRR), 2018 data for Federal leases on Forest Service managed lands. Data excludes oil and gas production from Coal facilities (product code). Bbl=barrel; mcf=1,000 cubic feet

Analytical Methods

Regulatory Impact Analysis

Executive Orders 13563 and 12866 direct agencies to conduct a regulatory impact analysis, including an assessment of costs and benefits (such as cost benefit analysis) of available regulatory alternatives and select regulatory approaches that maximize net benefits (including potential economic, environmental, public health and safety effects, distributive impacts, and equity considerations). Executive Order 13563 emphasizes the importance of quantifying both costs and benefits, of reducing costs, of harmonizing rules, and of promoting flexibility. Analysis is required to “assess both the costs and benefits” of the intended regulation, recognizing quantifiable analysis is not always possible, but that a reasoned determination be made that the benefits justify the regulatory costs. This analysis considers and describes the costs to the agency (government), benefits and compliance costs to oil and gas operators, as well as distributional impacts (such as jobs and income) of the proposed rule, as evidence supporting the proposed rule, consistent with Executive Order 13563.

Environmental and public health and safety protections and industry’s costs to implement them are not affected by the proposed revisions and are therefore not a component of the analysis. As with the existing 36 CFR 228 subpart E regulations, the proposed revisions do not make land use decisions or authorize any ground-disturbing activity. Compared to baseline, the proposed revisions do not expand or constrain future agency discretion. Rather, the rulemaking effort would adjust the administrative, procedural processes by which the Forest Service manages Federal oil and gas resources on NFS lands. The Forest Service prepared a programmatic environmental assessment of the proposed revisions and found the rulemaking actions would not, by themselves, have an effect on any natural or cultural resources or impact other forest uses.

Changes in costs and benefits are discussed in a primarily qualitative manner due to existing information gaps and challenges with quantifying the *incremental* shifts in costs and benefits under the proposed rule at a programmatic level; future on-the-ground oil and gas activities affected by the proposed rule remain unknown. When possible, quantitative proxies are used to help the reader understand the potential frequency or magnitude of activities affected by the proposed rule and subsequent costs and benefits. The intent of the analysis is to demonstrate the potential for programmatic cost savings and efficiency gains, as well as operator benefits from revising agency procedures.

The analysis considers costs and benefits associated with updates, modifications, or clarifications to different sections of 36 CFR 228 Subpart E as they relate to key procedural steps for oil and gas leasing and permitting on National Forest System lands (see table 4). For the National Forest System lands that have geologic potential for oil and gas production, the following procedural steps occur under current (baseline) regulations:

1. The National Forests and Grasslands conduct a *leasing availability analysis*, subject to NEPA, to identify which lands are available (or open) to leasing, as well as stipulations for protecting surface resources. The leasing analysis may cover a part or whole of a National Forest or Grassland, or cover multiple smaller units within a geographical area (e.g., Grasslands of Texas). As noted in the “Findings” section, approximately 3 analyses occur every five years, across all National Forest System lands. The Forest Service notifies the BLM of availability decisions.

2. The BLM receives ‘*expressions of interest*’ (EOI) from industry, creates individual parcels and notifies the Forest Service if National Forest System lands are involved. The Forest Service reviews the parcels, verifies NEPA compliance, prepares a package showing the stipulations in effect on the parcels and notifies BLM of Forest Service’s consent to lease.
3. The BLM also verifies NEPA compliance and then holds competitive online oil and gas lease sales. A qualified entity may bid on a parcel at a lease sale (min. bid is \$2/acre). The high bidder (lessee) is awarded the lease, pays the equivalent of their bid, and once the lease is issued, pays an annual rental fee.
4. After a lease is awarded, in order to conduct actual operations, an operator may submit an *application for a permit to drill* (APD), including a ‘*surface use plan of operation*’ (SUPO) for each well, to BLM and Forest Service, subject to NEPA, Endangered Species Act, National Historic Preservation Act, etc. The Forest Service is only responsible for approving the SUPO. BLM approves the drilling plan, and after receiving an approved SUPO from the Forest Service, BLM approves the APD package as a whole. A *Master Development Plan* can include a Master SUPO for multiple wells with common design. During this time the operator may also (depending on circumstances):
 - a. Apply for *special use authorizations* (SUAs) for off-lease activities.
 - b. Request *lease stipulation waivers, exceptions, or modifications*, and
 - c. Decide whether to increase its existing lease bond with the BLM, or directly file a bond with the Forest Service to cover the reclamation amount determined by the Forest Service, where a bond increase is determined necessary.
5. After approvals of actions above are obtained, the operator begins drilling/operating and, once production starts, the operator stops paying rents and starts paying royalties (based on BLM regulations). During this time, operators may:
 - a. Submit a *supplemental plan notice* or *sundry notice* if they wish to request changes to the SUPO (may require NEPA).
 - b. Temporarily stop operations at a well if the cessation is expected for more than 45 days by requesting a *temporary cessation of operations* (verbally or in writing, no form).
6. When wells cease to produce, the operator plugs the well and conducts reclamation. The operator then submits a *Final Abandonment Notice* to the BLM. BLM oversees well plugging and other activities and the Forest Service determines if the surface reclamation has satisfied requirements of the SUPO and the regulatory requirements of Onshore Order No. 1 and 36 CFR 228 Subpart E and notifies the BLM of its determination. The BLM and Forest Service would determine release of any operator’s bonds when all obligations under them are satisfied.

Regulatory Flexibility Analysis (Consideration of Impacts to Small Entities)

Consistent with requirements of the RFA, SBREFA, and Executive Order 13272, the first step in the RFA decision process is to determine if the proposed rule will have a ‘substantial impact on a significant number of small entities’ (SISNOSE). This document provides a “Threshold Regulatory Flexibility Analysis” to make a SISNOSE determination based on a review of numbers of small entities (e.g., businesses) potentially impacted and the types of impacts the proposed rule may create. If it is determined that SISNOSE may occur, additional analysis and consultation is required; otherwise, no additional analysis is needed.

Findings

Costs and Benefits (Cost Benefit Analysis)

With the proposed rule, the Forest Service expects better coordination with the Bureau of Land Management for leasing analyses that identify appropriate protection of surface resources, while accounting for legal obligations to provide leasing opportunities. The proposed rule streamlines Forest Service procedures for consenting to lease.

The proposed rule seeks to clarify regulatory requirements for compliance with other state and federal statutes, applicability of Forest Service authorizations for programs other than oil and gas resource management, and operator's responsibilities related to health, safety, fire, and liability for operations on National Forest System lands. The rule further seeks to clarify the requirements for reviewing and approving proposed oil and gas wells, as well as attendant responsibilities of the lessee and/or operator. With these clarifications, the Forest Service anticipates a more efficient application and approval process for wells, consistent with continued conservation of National Forest System lands and resources. An example of clarification is the update of the current regulation name "supplemental plan of operation" to "sundry notice" which is the name used in BLM regulations. The change makes it easy for operators to understand that they are submitting the same information to both agencies.

The proposed rule also establishes criteria for assessing surface reclamation bonds, revises procedures for conducting inspections and enforcement, and revises procedures regarding corrective action requirements. These revisions better enable the agency to meet its obligations for minerals management by ensuring oil and gas operations are conducted in an environmentally sound manner and National Forest System lands are reclaimed to support other land uses, consistent with the agency's multiple use mandate.

The proposed rule is not expected to have a significant or measurable effect on oil and gas production on National Forest System lands; oil and gas prices and other market factors are more likely to drive any changes in development and production. These other factors include advances in technology for accessing reserves (e.g., fracturing), domestic and foreign energy policy and production, renewable energy and greenhouse gas policy, and trends in economic growth fueling energy consumption. There is potential for operators to benefit from cost savings and/or increases in time value of revenue from procedural efficiency gains under the various actions of the proposed rule (e.g., clarified and expedited processing and reviews of leasing, "expressions of interest", and SUPOs). Anticipation of those benefits could, in theory, provide incentives or stimulus for increased production by operators. However, the potential magnitude of those savings and corresponding production impacts is expected to be relatively small and hard to measure when compared to the magnitude of annual revenues, other costs, and other market impacts. Examples of revenues, other costs, and market price shifts that can dampen the influence of the rule on production behavior include:

- Operator well drilling costs ranging from less than \$500,000 to \$8 million per well, based on drilling conditions in areas where drilling is most likely on National Forest System lands; upper bound costs are more common on the Dakota Prairie NG where 68 percent of pending APDs are located and horizontal wells are common,
- Average annual sales value (see table 3) of approximately \$500,000 generated per well (3,165 producing wells) on National Forest System lands for FY 2018, recognizing this value can vary substantially across individual wells and within a well over time,

- Annual receipts of \$3.3 million earned per business (from all well operations, not just wells on National Forest System lands) for what is projected to be the most common size of small business (less than 20 employees) operating an average of 9 producing wells on National Forest System lands. Estimated average annual receipts range as high as \$1.1 billion per year for small business operators, and \$3.3 billion for larger firms., and
- Changes in oil prices such as the dip causing oil and gas sale value to drop from \$1 billion to \$760 million from National Forest System lands from 2015 to 2016; few new National Forest System wells went on-line in 2016 as a result of price dips.

Details about this information is provided in this report in the section “Oil and Gas Production on National Forest System Lands”.

The direct benefits of the proposed rule are reduced costs and time spent on identifying available lease areas, approving operations and addressing compliance actions, where costs and time include those incurred by the agency as well as those incurred by proponents engaged in, or pursuing oil and gas operations on National Forest System lands. Indirect benefits can result from expedited access to leasable oil and gas resources on National Forest System lands. Incremental benefits include time-valued oil and gas revenue or returns to operators as well as time-valued bids, lease rentals, and royalties paid by operators to the federal government (and the public). The proposed rule is expected to continue protecting, and, in some cases, increase assurances about protection of forest ecosystems and corresponding goods and services from the potential damages of oil and gas development and production activities.

As noted in the “Analytical Methods” section, changes in costs and benefits are discussed in a primarily qualitative manner, or when possible, with quantitative proxies to help describe the potential frequency or magnitude of activities affecting costs or cost savings. However, an effort is made to monetize cost savings from streamlined procedures for processing and reviewing leasing decisions, including the need to conduct environmental impact statements (EIS) or supplemental environmental impact statements (SEIS). The agency estimates approximately 3 leasing decisions every five years are occurring for National Forest System lands, based on a review²¹ of decisions dating back to the 1980’s (29 decisions between 1985 and 2018, but decision rates have slowed somewhat in more recent years). Each of these decisions is normally accompanied by completion of a final EIS, with an average cost of about \$1 million each based on a survey of costs for six forests.²² These requirements and level of effort are not expected to change under the proposed rule. However, supplemental EISs (SEISs) have been completed in the case of seven forests (in Regions 1-4 and 9) since 1998 (21 year period) at an average estimated cost of \$600,000 (based on cost information from 2 of the 7 forests, Santa Fe, \$200,000, and Dakota Prairie NG, \$1 million). It is assumed that the proposed rule will help mitigate the need for 50 percent to 100 percent of SEISs through better coordination with BLM. These cost savings to the agency can be calculated to be \$100,000 to \$200,000 annually. The 100 percent cost savings estimate is derived as: 7 SEIS * \$600,000 = \$4.2 million over 21 years, or \$200,000 per year. The 50 percent cost savings is half, or \$100,000 per year.

²¹ US Forest Service, 2018. Forest Plans, Oil and Gas Analysis, and Associated Decisions. Workbook compiled by S. Gresl, Lead Land Law Examiner (Leasing Team Lead), and L. Matson (Survey of Forests – Leasing Decisions), Geologist, USDA Forest Service – WO-Minerals and Geology Management. Washington DC. The workbook is available for public review on regulations.gov (Docket No. FS-2020-0007).

²² Survey of forests compiled by Liane Mattson, Forest Service, Washington Office, Minerals and Geology Management.

Table 4 provides details about costs and benefits by rule section, in relation to changes in agency and proponent costs or time, timeliness of oil and gas leasing and operation approvals and development, assurances about consideration of environmental impacts, and analytical or decision-making transparency.

Table 4. Costs and benefits, by section

Action	Proposed 36 CFR 228 Subpart E Section reference	Benefits and Costs of the Proposed Rule (compared to Baseline)
Streamline the identification of National Forest System lands open for leasing (including leasing availability analysis) and processing of 'expressions of interest' from operators	103	<p>Updates language to (i) create one clear point of leasing decision (and objection); (ii) simplify industry and public review; and (iii) decrease redundancy between Forest Service and BLM. The Forest Service has provided analysis for approximately three decisions affirming the availability of National Forest System lands for oil and gas leasing in the last five years (see "Oil and Gas Production on National Forest System Lands").</p> <p>NEPA requirements and compliance with non-discretionary laws will not change (same level of environmental impact consideration and protection).</p> <p>Agency and proponent cost savings are expected from rule updates and clarifications. Improved lease decision-making efficiency will allow BLM to respond to 'expressions of interest' (EOI) and create parcels for sale on National Forest System lands in a timelier manner. Agency and federal cost savings are estimated to be \$100,000 to \$200,000 per year from better coordination with BLM and more efficient decision-making about land available for leasing and subsequent processing of 'expressions of interest' from operators by BLM (a).</p> <p>There is potential for cost savings or increases in time value of revenue earned by operators that could provide incentives or stimulus for increased production. However, the potential magnitude of those one-time savings and corresponding production impacts is expected to be relatively small and hard to measure when compared to the magnitude of annual revenues, other costs, and market impacts, such as (see text above this Table, and Section "Oil and Gas Production on National Forest System Lands" for details):</p> <ul style="list-style-type: none"> • Operator well drilling costs ranging from <\$500,000 to \$8 million per well, • Average annual sale value of approximately \$500,000 generated per well on National Forest System lands, • Annual receipts of \$3.3 million per business (from all wells, not just National Forest System lands) for the most common of small businesses operating an average of 9 producing wells on National Forest System lands, and • Changes in oil prices such as the dip causing oil and gas sale values to drop from \$1 billion to \$760 million from National Forest System lands in 2015 to 2016; few new National Forest System wells were coming on line by 2016 as a result of price dips.

Action	Proposed 36 CFR 228 Subpart E Section reference	Benefits and Costs of the Proposed Rule (compared to Baseline)
Update provisions for lease stipulation waivers, exceptions, and modifications	104	<p>Clarifies consistency with BLM by adopting similar approval criteria. The rate or frequency of when these actions are proposed is not expected to change significantly. Four (4) requests were processed by the agency in the last five years (all in 2017); one was approved, three are pending (Source: Data call for this rule-making, 2018).</p> <p>Changes could result in time and cost savings, but annual savings are expected to be small given the few numbers of requests received in the past. There should be increased operator confidence in how the agency will process their request.</p>
Clarify and update procedures for reviewing and approving Surface Use Plan of Operations (SUPOs)	106, 107	<p>Updates language to be more consistent with BLM and Onshore Order #1. Updates include (i) clarifying opportunities for operators to submit a <i>Master Development Plan</i> that covers multiple drilling locations (ii) clarifications about what information operators should include in SUPOs, and (iii) the requirement that operators must use separate special use authorizations (SUAs) for ancillary oil and gas activities located on National Forest System lands outside of lease or unit areas (e.g., off-lease roads).</p> <p>There were 21 to 65 SUPOs approved per year from 2013-2017 based on the data call, with an average of 35 approvals per year.</p> <p>Clarifications and flexibility could ease confusion and trigger some agency and proponent cost savings (e.g., operators provide better information to the Agency, reducing time needed to review and approve SUPOs), but incremental savings are hard to quantify and expected to be small given an average of 35 SUPOs approved per year. Requiring operators to obtain an SUA for off-lease activities could impose some additional time and cost on operators who would otherwise use a SUPO to authorize ancillary off-lease activities, but aggregate increases in costs are expected to be small, given there are only an average of 35 SUPOs approved per year and not all SUPOs would need an SUA. Expanded use of Master Development Plans could result in timelier approval of individual well applications within a master plan.</p>
Clarifying and requiring the use of Sundry Notices	108	<p>Clarifies that operators will use <i>Sundry Notices</i> instead of 'supplemental plans' to request changes to their plans of operation, consistent with BLM. NEPA review is needed for sundry notice only if it causes additional surface disturbance.</p> <p>Clarification will help operators quickly understand that the same information is being submitted to both the BLM and the Forest Service which may create potential for some time and cost savings to the operators.</p>

Action	Proposed 36 CFR 228 Subpart E Section reference	Benefits and Costs of the Proposed Rule (compared to Baseline)
Addressing Noncompliance	112	<p>Clarifies situations that the Forest Service will refer incidences of operator noncompliance to the BLM if an operator is not responsive. Operators may be charged 25% of administrative costs for Forest Service abatement of emergency situations; this is consistent with the BLM.</p> <p>Based on the data call, the Forest Service units requested BLM use monetary enforcement authority to remedy non-compliance in 19 cases during the 5 years, 2013 – 2017. BLM assisted in 16 of these cases, and the remaining three received no BLM assistance.</p> <p>Increased assistance from BLM for resolving noncompliance with monetary penalties is expected to save agency costs and avoid long delays in mitigating noncompliance. Earlier resolution of noncompliance may provide greater protection of natural resources. Operator costs are not expected to change. Increasing the risk of incurring administrative fees (i.e., penalty imposed on operators) could reduce the incidence of non-compliance. However, given that (i) the potential magnitude of this fee (contingent on the extent/scope of non-compliance) may be small relative to other existing operator costs and revenue, and (ii) existing rates of non-compliance are relatively low, changes in non-compliance rates may be limited or difficult to measure.</p>
Bonds	109	<p>Clarifies the process for determining bonds. Does not impose new bond amounts, but allows the agency to better identify and communicate full reclamation needs and costs in a timelier manner. Clarifications should help ensure surface reclamation in cases of operator default.</p> <p>It is difficult to estimate number of bonds, because wells can be bundled under a single bond (b). These bonds are all currently held by the BLM. The proposed rule enables the agency to determine if the existing BLM bonds are sufficient and if they should consider applying the full cost of reclamation when necessary. Agency costs to estimate bonds may increase, and increases in bonds (e.g., to better cover reclamation) would be an additional expense to operators. However, increases in bond amounts, when necessary, will better ensure appropriate reclamation and forest resource protection, and save agency time and taxpayer costs in the long-run.</p>
Material Noncompliance	113	<p>Clarifies, streamlines (reduces steps from 25 to 7) and better aligns the process with requirements of the Onshore Oil and Gas Leasing Reform Act of 1987. There is no evidence showing the agency has pursued material non-compliance, but streamlining would result in an overall cost savings to the agency if material noncompliance proceedings against an operator are pursued.</p>

Action	Proposed 36 CFR 228 Subpart E Section reference	Benefits and Costs of the Proposed Rule (compared to Baseline)
		<ul style="list-style-type: none">• Lack of coordination between Forest Service and BLM has caused implementation problems following the Forest Service leasing decision. The proposed revision includes a step requiring and clarifying Forest Service and BLM coordination. The estimate of cost saving to the agency assumes that the agencies will avoid these problems and with the streamlined procedures will thus save the Forest Service \$100,000 to \$200,000 per year. See text for details; USDA Forest Service, 2018. Workbook compiled by S. Gresl, Lead Land Law Examiner (Leasing Team Lead), and L. Matson (Survey of Forests – Leasing Decisions Costs), Geologist, USDA Forest Service – WO-Minerals and Geology Management. Washington DC.• An operator has the option of establishing a lease bond of \$10,000, a state wide bond of \$25,000, or a nationwide bond of \$150,000 covering the operator's wells within a lease, a State, or the nation respectively. The nationwide bond amount of \$150,000 has not changed since 1970, and is generally no longer sufficient to cover reclamation needs in today's dollars. <p>Source: BLM Automated Fluid Minerals Support System Reports 9-28-18 (spreadsheet, 2019)</p>

The total benefits (cost savings, expedited revenue), costs, and net benefits associated with the proposed rule cannot be quantified, but are likely to be small or slightly more than the estimated agency cost savings of \$100,000 to \$200,000 per year for leasing analysis and processing expressions of interest. This result is primarily due to the relatively low numbers of oil and gas decisions and management action occurring on National Forest System lands, as suggested by the following evidence:

- Three leasing availability decisions in the last 5 years:
- An average of 35 SUPOs approved per year (associated with applications to drill a similar number of producing or service wells per year):
- Few requests for lease stipulation waivers/exceptions/modifications: and
- Only 19 cases of non-compliance in the last 5 years.

Potential cost savings and/or increases in time-value of expedited revenue for operators are expected to be relatively small when compared to other existing operator costs, annual revenues, or the impacts from other market factors (e.g., shifting oil prices). As a consequence, the proposed rule is not expected to have a significant or measureable effect on oil and gas production rates on National Forest System lands.

However, the process of reviewing and approving leasing availability decisions and permits to drill will continue to occur, as highlighted by the estimated 1,586 ‘parcels pending’ on almost 1.3 million acres of National Forest System lands²³. The proposed rule modernizes and improves the efficiency of that process. The proposed rule satisfies the agency’s legal requirement to provide access to oil and gas resources in a more efficient manner, while improving the agency’s ability to protect National Forests and Grasslands for mandated multiple uses.

Economic Impacts (Distributional Impacts)

The Forest Service estimates that oil and gas production on National Forest System lands contributed to, or supported approximately 3,000 jobs and \$200 million in labor income across all regions in 2016 (the last year for which analysis is available)²⁴. Jobs include direct, as well as indirect and induced employment impacts for oil and gas extraction, drilling, and support services.

The proposed rule is not expected to result in a substantial change to future rates of oil and gas development or production on National Forest System lands and is therefore unlikely to have a significant impact on jobs or income contributions from those activities. However, the proposed rule is expected to provide a more consistent and efficient process for reviewing and approving leasing decisions and permits to drill that should help sustain opportunities for National Forest System lands to contribute to jobs and labor income in the oil and gas sectors.

Market Impacts (Energy Act Compliance)

The proposed rule is not expected to have a measurable effect (positive or negative) on oil and/or gas supply or distribution. The Forest Service regulation does not make decisions about which lands are open or closed to leasing and subsequent development. It sets the process. The revision should streamline processing of the USFS oil and gas leasing process, and clarify the processing of APDs. The streamlining should reduce time and costs of permitting or leasing though these times are highly influenced by the unique locations and NEPA analysis.

²³ See section “Oil and Gas Production on NFS Lands”

²⁴ Analysis of economic contributions by National Forests for 2016 completed using IMPLAN, US Forest Service, WO-Ecosystem Management Coordination – Economics Team, Washington DC.

The proposed rule is not expected to have a significant adverse effect on the supply, distribution, or use of energy; competition or prices; other agency actions related to energy; or raise novel issues regarding adverse effects on energy. The proposed rule is therefore not expected to be a significant energy action or require a statement of energy effects, consistent with OMB guidance for implementing Executive Order 13211.

Threshold Regulatory Flexibility Analysis Results – Small Entity Impacts

Small entities potentially impacted by the proposed rule include small businesses (firms) involved in oil and gas extraction operations (NAICS 211111), drilling oil and gas wells (NAICS 213111), and providing support activities for oil and gas operations (NAICS 213112). The proposed rule could directly benefit the small percentage of small businesses that express interest in, bid on, or are otherwise engaged in oil and gas development and operations on National Forest System lands available for lease. The proposed rule does not mandate certain decisions. It sets the process for making decisions. Therefore, the lands available for leasing and under what conditions, or how operations could be conducted are not changed by the proposed rule.

Potential cost saving from proposed changes to the regulations that streamline the leasing process will be internal to the Forest Service. Companies may benefit from quicker leasing decisions – new lands available for leasing sooner – but the time value cannot be quantified. Baseline factors other than the proposed rule, such as Forest Service’s budget and other program priorities, could have a larger influence on the timeliness of leasing decisions.

Portions of the proposed revisions not dealing with leasing, such as processing SUPOs or noncompliance and enforcement, may have some indirect impacts on business engaged in oil and gas operations. There were 328 different firms with oil and gas producing wells on National Forest System lands as of September, 2018²⁵, of which 316 (96 percent) are estimated to be small businesses based on the SBA small business criterion²⁶ of 1,250 employees for NAICS 211111 (see table 1 for details). For comparison, the estimated number of small firms associated with the oil and gas extraction sector (NAICS 211111) for the nation is approximately 5,600²⁷. The number of small businesses operating oil or gas wells on National Forest System lands (316) is therefore a relatively small percentage of total small operators (6 percent) in the U.S. The proposed rule will primarily impact a subset of operators that are applying for permits to drill new wells on National Forest System lands or have existing operations. As a proxy for numbers of operators seeking new permits to drill, an average of 35 Surface Plans of Operation (SUPOs) were approved, 2013 – 2017, for new wells on National Forest System lands, implying that the number and percent of small businesses impacted by the proposed rule on an annual basis is small (less than 1 percent) if each new SUPO is submitted by a different firm (which is unlikely). In addition to small business operators, there will be other small businesses providing drilling (NAICS 213111) and support services (NAICS 213112) to the operators. It is not possible to track how many of these businesses are hired by operators and therefore operate on National Forest System lands, but their numbers for each

²⁵ BLM 9-28-18 AFMSS

²⁶ US Small Business Administration - Table of small business size standards matched to NAICS codes (October 1, 2017). Small business determination by Patrick O'Dell, Petroleum Engineer, Forest Service, Minerals and Geology Management (2019).

²⁷ 2016 County Business Patterns, U.S. Census Bureau. “Number of Firms, Number of Establishments, Employment, and Annual Payroll by Enterprise Employment Size for the United States, All Industries: 2016”.

sector (NAICS 213111 and 213112) may be similar to the number of operators requesting approval of SUPOs each year.

The aggregate impact of the proposed rule, compared to baseline regulatory conditions, is expected to be positive for a majority of entities involved in oil and gas leasing, development and operations on National Forest System lands, as noted in the Section “Findings – Costs and Benefits”. Most provisions of the proposed rule are expected to reduce the times for reviewing and approving leases and permits, thereby saving operator costs, as well as expediting opportunities for oil and gas production and generating revenue. Exceptions might include cases where operators are faced with potential increases in reclamation bond amounts or paying an administrative fee to mitigate emergency non-compliance situations under the proposed rule; however, these situations are expected to be infrequent or involve relatively small incremental costs and therefore not likely to create significant economic impacts to a substantial number of small businesses.

This proposed rule has been considered in light of Executive Order 13272 regarding proper consideration of small entities and the Regulatory Flexibility Act (5 U.S.C. 601 et seq) as amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA). Based on the evidence summarized above, the proposed rule is expected to increase opportunities for net benefits to small entities on average. Though the number of small entities indirectly impacted has not been estimated, the number is not expected to be substantial in light of relatively low numbers of directly affected small businesses currently operating on National Forest System lands or requesting permits to drill new wells on National Forest System lands, compared to national numbers of small businesses in the oil and gas sectors. These results indicate that the proposed rule is not expected to result in significant impacts to a substantial number of small entities (such as no SISNOSE), as defined by the Executive Order 13272 and SBREFA, indicating that a regulatory flexibility analysis is not required for the proposed rule. This analysis supports certification that this rule will not have a significant economic impact on a substantial number of small entities.