Exploratory Drilling in the Arctic Outer Continental Shelf

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ABSTRACT

As companies consider pursuing offshore exploratory drilling operations in the Arctic Outer Continental Shelf, the federal regulatory regime surrounding such activities continues to develop. In February 2015, the United States Department of the Interior released a proposed rule employing more stringent standards and requirements for offshore exploratory drilling operations in order to ensure effective and safe exploration in the Arctic Outer Continental Shelf. The proposed rule has received mixed responses, with environmental groups praising the government for regulating such activities while simultaneously requesting that the mandates become even more stringent. The regulated entities in the oil and gas industry oppose the rule because they argue it is redundant and unnecessary, while also imposing extravagant costs for relatively minimal improvements to the safety of these exploratory drilling operations. However, as with any regulation, controversy among different interest groups is to be expected. To determine whether the proposed rule is the appropriate regulatory approach, this article employs a familiar tool to determine the favorability of the proposed regulation: economic analysis. Although some claim that economic analysis is

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an improper tool for quantifying certain benefits such as environmental protection, it seems clear that the government must find some way to reconcile these conflicting interests and ensure the sustainable development of Arctic resources moving forward. This article provides a starting point for this discussion by assessing the economic costs associated with the proposed rule.

I.
INTRODUCTION

In February 2015, the United States Department of the Interior ("DOI"), acting through the Bureau of Ocean Energy Management ("BOEM") and the Bureau of Safety and Environmental Enforcement ("BSEE"), released a proposed rule aiming to ensure effective, responsible, and safe future exploratory drilling activities on the United States Arctic Outer Continental Shelf ("OCS") while protecting the environment and Alaskan Native population.[1] To achieve this protection, the proposed rule employs more stringent standards and requirements for offshore exploration drilling operations, specifically in the Beaufort Sea and Chukchi Sea Planning Areas.[2]

Recently, there has been renewed interest in these areas due to projections indicating that they "contain sizeable quantities of commercially recoverable oil and gas resources."[3] To BSEE and

1. *See* Oil and Gas and Sulphur Operations on the Outer Continental Shelf—Requirements for Exploratory Drilling on the Arctic Outer Continental Shelf, 80 Fed. Reg. 9916 (proposed Feb. 24, 2015) (to be codified at 30 C.F.R. pts. 250, 254, 550).

2. *Id.* at 9916.

3. Jonathan Simon & R. Scott Nuzum, *Interior Releases Proposed Arctic Drilling Rule*, VAN NESS FELDMAN (Mar. 4, 2015), http://www.vnf.com/interior-releases-proposed-arctic-drilling-rule.

BOEM, this increasing interest in exploiting the mineral resources of this area, as well as the many factors unique to the Arctic environment such as the "short operational season . . . , geographical remoteness, and environmental conditions like sea ice encroachment," stress the need for a more stringent regulatory regime.[4]

The proposed rule's new requirements focus on several major concerns, among others: 1) ensuring that operators engage in adequate pre-operation planning, 2) enhancing the safety and environmental quality of exploration activities, and 3) improving the planning process for oil spill responses for activities on the Arctic OCS.[5] As will be explained in more detail below, the rule has received varied responses since its initial proposal. Environmental groups, such as Oceana, have expressed their support for the proposed rule, while also arguing that the rule still falls short of ensuring safe operations.[6] Conversely, industry has criticized the rule as having redundant and unnecessary requirements.[7] The biggest concern with the proposed regulation is the likelihood that it will impose significant costs on exploration operations, which will discourage exploration and production efforts.[8] This concern is even more alarming considering how low

4. Darrell L. Conner et al., *Regulating Exploration on the Arctic OCS: U.S. Federal Regulators Propose Rules for Oil and Gas Exploratory Drilling on the Arctic Outer Continental Shelf*, K&L GATES (Feb. 23, 2015), http://www.klgates.com/regulating-exploration-on-the-arctic-ocs—us-federal-regulators-propose-rules-for-oil-and-gas-exploratory-drilling-on-the-arctic-outer-continental-shelf-02-23-2015/; *see* Requirements for Exploratory Drilling on the Arctic Outer Continental Shelf, 80 Fed. Reg. at 9926.

5. *See* Oil and Gas and Sulphur Operations on the Outer Continental Shelf—Requirements for Exploratory Drilling on the Arctic Outer Continental Shelf, 80 Fed. Reg. at 9916-17.

6. *See, e.g.* Press Release, Oceana, Government Proposes New Rules for Offshore Drilling in Arctic Ocean (Feb. 20, 2015), *available at* http://usa.oceana.org/press-releases/government-proposes-new-rules-offshore-drilling-arctic-ocean [hereinafter Oceana Press Release] (labeling the Proposed Rule as a "good first step" but fundamentally flawed and calling for more comprehensive federal reform).

7. *See* Sara K. Orr & Benjamin M. Lawless, *Drilling Down on DOI's Oil and Gas Regulatory Agenda*, LAW360 (July 21, 2015, 4:21 PM), *available at* https://www.lw.com/thoughtLeadership/drilling-down-on-dois-oil-and-gas-regulatory-agenda.

8. *Id.*

oil and gas prices are currently.[9]

The DOI accepted comments on the proposed rulemaking until May 27, 2015.[10] As of May 2016, the proposed rule and its accompanying comments are still undergoing the adjudication process, according to a BSEE official.[11]

This comment will begin by outlining the history of exploratory drilling operations in the OCS and the legislative and administrative background surrounding the DOI's recently proposed rule in Section II. Section III explains the various provisions of the proposed rule and how it will regulate exploratory drilling operations in the Arctic OCS. Section IV will provide an economic analysis of the proposed rule, as well as a discussion on the efficacy and efficiency of using economic analysis to evaluate environmental regulations. Lastly, Sections V and VI will discuss the reactions of various interest groups to the proposed rule, as well as various other concerns surrounding the proposed regulation, including issues such as environmental justice.

II.
THE BACKGROUND OF THE PROPOSED RULE

The proposed rule will regulate exploratory drilling operations in the OCS seaward of Alaska ("Alaska OCS"), but more specifically, the Beaufort and Chukchi Sea Planning Areas ("Arctic OCS").[12]

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9. *See Crude Oil Prices – 70 Year Historical Chart*, MACROTRENDS, http://www.macrotrends.net/1369/crude-oil-price-history-chart (last visited June 11, 2016) (citing current crude oil prices at $48.91 per barrel compared to prices over $100 per barrel in April 2014).

10. Oil and Gas and Sulphur Operations on the Outer Continental Shelf—Requirements for Exploratory Drilling on the Arctic Outer Continental Shelf: Extension of Comment Period for Notice of Proposed Rulemaking, 80 Fed. Reg. 21,670, 21,670 (Apr. 20, 2015).

11. On May 20, 2016, John Caplis from BSEE's Oil Spill Response Division stated that the rule was still going through the adjudication process within the Department of Interior as well as in coordination with other agencies, but he did not have a timeline or expected date for the Final Rule. Telephone Interview with John Caplis, Bureau of Safety & Envtl. Enforcement, Oil Spill & Response Div. (May 20, 2016).

12. Oil and Gas and Sulphur Operations on the Outer Continental Shelf—

It is well known that the Arctic region has extensive potential for undiscovered and technically recoverable oil and gas.

> "According to BOEM's 2011 Assessment [], there are approximately 23.6 billion barrels of technically recoverable oil and about 104.4 trillion cubic feet of technically recoverable natural gas in the Beaufort Sea and Chukchi Sea Planning Areas combined."[13]

As a result of the increase in melting sea ice, more areas of the Arctic OCS are opening up for longer periods of time, leading to an increase in commercial and recreational activities.[14] Previously, oil and gas exploration and production has been limited on the Arctic OCS because of "the challenging operational environment, distance from offshore infrastructure, and underdeveloped regulatory context."[15] Due to the vast amount of oil and gas potential, the energy industry is clearly among those interested in pursuing commercial activities in the Arctic OCS.

When the proposed rule becomes final, it will be one of many regulations governing the Arctic OCS. Twenty-five years after enacting the Outer Continental Shelf Lands Act ("OCSLA") in 1953, Congress made significant amendments to the OCSLA in 1978 to make the Arctic OCS "available for expeditious and orderly development, subject to environmental safeguards in a manner which is consistent with the maintenance of competition and other national needs."[16] Additionally, Congress stressed that development should be performed with:

Requirements for Exploratory Drilling on the Arctic Outer Continental Shelf, 80 Fed. Reg. 9916, 9916 (proposed Feb. 24, 2015) (to be codified at 30 C.F.R. pts. 250, 254, 550).

13. *Id.* at 9918; *see also* BUREAU OF OCEAN MGMT., ASSESSMENT OF UNDISCOVERED TECHNICALLY RECOVERABLE OIL AND GAS RESOURCES OF THE NATION'S OUTER CONTINENTAL SHELF, 2011 (INCLUDES 2014 ATLANTIC UPDATE), (Dec. 2014), *available at* http://www.boem.gov/2011-National-Assessment-Factsheet/.

14. Oil and Gas and Sulphur Operations on the Outer Continental Shelf—Requirements for Exploratory Drilling on the Arctic Outer Continental Shelf, 80 Fed. Reg. at 9918.

15. Conner et al., *supra* note 4.

16. *See* Outer Continental Shelf Lands Act of 1953, Pub. L. No. 83-212, 67 Stat. 462; 43 U.S.C. § 1332(3) (1978). *See also* Outer Continental Shelf Lands Act Amendments of 1978, Pub. L. No. 95-372, 92 Stat. 629, 635.

> "technology, precautions and techniques sufficient to prevent or minimize the likelihood of blowouts, loss of well control, fires, spillages, physical obstruction to other users of the waters [], or other occurrences which may cause damage to the environment or to property, or endanger life or health."[17]

Since then, the OCSLA has been further amended to create an "oil spill liability trust fund" to accrue a reserve for cleanup costs,[18] as well as a mechanism for awarding a portion of proceeds from leasing sales to affected coastal states.[19]

Under the OCSLA, the Secretary of the Interior is tasked with administering the leasing program for mineral exploration and development of the OCS.[20] Fifty-two years after the passage of the original OSCLA, the Energy Policy Act of 2005 added a subsection to the OCSLA, granting the Secretary of the Interior the authority to "grant a lease, easement, or right-of-way on the outer Continental Shelf" for producing and transmitting energy from sources other than oil or gas.[21] The Secretary of the Interior later delegated most of its authority under the OCS oil and gas program to the Minerals Management Service, which is now BOEM and BSEE after reorganization.[22] Accordingly, BSEE and BOEM are

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17. 43 U.S.C. § 1332(6) (1978).

18. *See* 26 U.S.C. § 9509 (2012); Omnibus Budget Reconciliation Act of 1986, Pub. L. No. 99-509, tit. VIII, § 8803(a), 100 Stat. 1874, 1959-61.

19. Revenue sharing first appeared in the 1978 amendments, with a vague directive for the Secretary of the Interior to

> "offer the Governor of [the affected] coastal State the opportunity to enter into an agreement concerning the disposition of revenues which may be generated by a Federal lease within such area in order to permit their fair and equitable division between the State and Federal Government."

Outer Continental Shelf Lands Act Amendments of 1978, Pub. L. No. 95-372, § 205, 92 Stat. at 646. The 1985 amendments provided certainty by requiring the federal government to share 27% of revenues with affected coastal states. *See* Outer Continental Shelf Lands Act Amendments of 1985, Pub. L. No. 99-272, tit. VIII, § 8003, 100 Stat. 82, 148-49 (codified at 43 U.S.C. § 1337(g)(2) (2012)).

20. *See* 43 U.S.C. 1344(a) (2012).

21. Energy Policy Act of 2005, Pub. L. No. 109-58, § 388, 119 Stat. 594, 744 (codified at 43 U.S.C. § 1337(p)(1)(C) (2012)).

22. *See* BUREAU OF OCEAN ENERGY MGMT. & OFFICE OF RENEWABLE ENERGY PROGRAMS, COMMERCIAL WIND LEASE ISSUANCE AND SITE ASSESSMENT ACTIVITIES ON THE ATLANTIC OUTER CONTINENTAL SHELF OFFSHORE NEW JERSEY, DELAWARE, MARYLAND, AND VIRGINIA: FINAL ENVIRONMENTAL ASSESSMENT iii (2012), *available at* http://www.boem.gov/uploadedFiles/BOEM/

currently the two agencies responsible for overseeing OCS oil and gas activities.[23] BOEM is tasked with ensuring that oil development proceeds in an environmentally and economically responsible manner, which includes issuing leases, reviewing individual Exploration Plans, and overseeing environmental review.[24] The BSEE, on the other hand, enforces safety and environmental regulations, which separates and strengthens environmental analyses from resource management functions.[25]

Many events have led to BOEM and BSEE proposing this rule. First and foremost, the unfortunate Deepwater Horizon oil spill in the Gulf of Mexico in 2010 generated significant public concern and resulted in agency restructuring and further regulatory actions.[26] Fortunately, a similar incident has not occurred in the Alaska OCS. However, Shell Oil Company, which was actively involved in the Alaska OCS, nevertheless experienced many challenges to its exploratory drilling operations in 2012 due to:

> "environmental and weather conditions, geographical remoteness, social and cultural considerations, and the absence of fixed infrastructure to support oil and gas activity, including resources necessary to respond in the event of an emergency."[27]

In response, the DOI released a report reviewing Shell's OCS oil and gas exploration program.[28] The report "identified a number of lessons learned and recommended practices to ensure future Arctic oil and gas exploration activities continue to be carried out

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Renewable_Energy_Program/Smart_from_the_Start/MidAtlantic_Final_EA_012012.pdf.

23. *See The Reorganization of the Former MMS*, BUREAU OF OCEAN ENERGY MGMT., http://www.boem.gov/Reorganization/ (last visited May 3, 2016).

24. *See id.*

25. *See id.*

26. *See* Ocean Portal Team, *Gulf Oil Spill*, SMITHSONIAN NAT'L MUSEUM OF NATURAL HISTORY, http://ocean.si.edu/gulf-oil-spill (last visited June 11, 2016).

27. *See* DEP'T OF INTERIOR, REPORT TO THE SECRETARY OF THE INTERIOR: REVIEW OF SHELL'S 2012 ALASKA OFFSHORE OIL AND GAS EXPLORATION PROGRAM 6 (Mar. 8, 2013), *available at* https://www.doi.gov/sites/doi.gov/files/migrated/news/pressreleases/upload/Shell-report-3-8-13-Final.pdf [hereinafter REVIEW OF SHELL'S 2012 ALASKA OFFSHORE OIL AND GAS EXPLORATION PROGRAM].

28. *Id.*

in a safe and responsible manner."[29] These findings and recommendations included: integrating all phases of offshore operations, from preparations to drilling to emergency response plans, while providing extensive management and oversight by both the operator and the government; robustly managing and overseeing contractors; ensuring operators have an adequate understanding of the challenging environmental and weather conditions in Alaska; and coordinating with local and potentially affected communities.[30]

Additionally, BOEM and BSEE have developed this proposed rule in response to, and in coordination with, many previously articulated executive priorities. In July 2011, President Obama signed Executive Order 13580, which established the Interagency Working Group on Coordination of Domestic Energy Development and Permitting in Alaska ("Working Group"), a coalition chaired by the Deputy Secretary of DOI.[31] The Working Group is directed to facilitate "coordinated and efficient domestic energy development and permitting in Alaska while ensuring that all applicable [health, safety and environmental protection] standards are fully met."[32] In March 2013, the Working Group developed a report entitled "Managing for the Future in a Rapidly Changing Arctic, A Report to the President," which has helped to shape Arctic policies.[33] The purpose of the report was to provide policymakers with guidance when making decisions concerning the Arctic.[34] The report sought input from Alaska stakeholders and advocates for coordination among regulatory bodies, as well

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29. Oil and Gas and Sulphur Operations on the Outer Continental Shelf—Requirements for Exploratory Drilling on the Arctic Outer Continental Shelf, 80 Fed. Reg. 9916, 9919 (proposed Feb. 24, 2015) (to be codified at 30 C.F.R. pts. 250, 254, 550).

30. REVIEW OF SHELL'S 2012 ALASKA OFFSHORE OIL AND GAS EXPLORATION PROGRAM, *supra* note 28 at 3-5.

31. *See* Exec. Order No. 13,580, 76 Fed. Reg. 41,989, 41,989 (July 12, 2011).

32. *Id.*

33. *See* JOEL B. CLEMENT ET AL., INTERAGENCY WORKING GRP. ON COORDINATION OF DOMESTIC ENERGY DEV. AND PERMITTING IN ALASKA, MANAGING FOR THE FUTURE IN A RAPIDLY CHANGING ARCTIC: A REPORT TO THE PRESIDENT (Mar. 2013), *available at* https://www.doi.gov/sites/doi.gov/files/migrated/news/upload/ArcticReport-03April2013PMsm.pdf.

34. *Id.* at 5-7.

as the use of best available science, to integrate "economic, environmental, and cultural sensitivities and trends" into the decision-making process for development in the Arctic region.[35]

In March 2012, at Prince George's Community College in Largo, Maryland, President Obama addressed national energy policy, stating, "[w]e've got to invest in a serious, sustained, all-of-the-above energy strategy that develops every resource available for the 21st century."[36] The President's all-of-the-above strategy seeks to:

> "expand[] production of American energy resources, like oil and natural gas; increase[] energy efficiency to save families and businesses money at the pump; and develop[] cleaner, alternative fuels to reduce our oil dependence."[37]

Then, in May 2013, President Obama issued the National Strategy for the Arctic Region ("National Arctic Strategy"), which affirmed that significant economic opportunities likely exist in the region, but also cautioned against unrestricted development of these resources.[38] In a statement accompanying the National Arctic Strategy, the President emphasized that:

> "we must exercise responsible stewardship, using an integrated management approach and making decisions based on the best available information, with the aim of promoting healthy, sustainable, and resilient ecosystems over the long term."[39]

Combined, the National Arctic Strategy and the all-of-the-above energy strategy are intended to "reduce our reliance on imported oil and strengthen our Nation's energy security."[40] Moreover, one of the National Arctic Strategy's primary objectives

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35. *Id.* at 3.

36. President Barack Obama, Remarks by the President on Energy (Mar. 15, 2012), *available at* https://www.whitehouse.gov/the-press-office/2012/03/15/remarks-president-energy.

37. *Obama Administration Record on an All-of-the-Above Energy Strategy*, THE WHITE HOUSE, https://www.whitehouse.gov/sites/default/files/docs/clean_energy_record_0.pdf (last visited May 3, 2016).

38. THE WHITE HOUSE, NATIONAL STRATEGY FOR THE ARCTIC REGION 4-5 (May 2013), *available at* https://www.whitehouse.gov/sites/default/files/docs/nat_arctic_strategy.pdf.

39. *See id.* at i.

40. *Id.* at 7.

is to reduce the risk of oil spills and marine pollution while improving global capacity for preparedness and response to oil spills or other incidents in the Arctic region.[41]

As a result of all of these previous events, challenges, and executive directives, BOEM and BSEE concluded in their proposed rule that "enhanced and more specific requirements can help ensure that oil and gas activities in the Arctic OCS are conducted in a safe and environmentally responsible manner."[42] Therefore, the agencies drafted this proposed rule taking into account the "needs of the multiple users who have an interest in the future of the U.S. Arctic region."[43] In August 2014, the agencies submitted a draft of this regulation to the White House Office of Management and Budget ("OMB") for review,[44] and on February 24, 2015, the proposed rule was published in the Federal Register.[45]

III.
THE PROPOSED RULE

Throughout the proposed rule, exploratory drilling means:

> any drilling conducted for the purpose of searching for commercial quantities of oil, gas, and sulphur, including the drilling of any additional well needed to delineate any reservoir to enable the lessee to decide whether to proceed with development and production."[46]

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41. *Id.* at 7-8.

42. Oil and Gas and Sulphur Operations on the Outer Continental Shelf—Requirements for Exploratory Drilling on the Arctic Outer Continental Shelf, 80 Fed. Reg. 9916, 9919 (proposed Feb. 24, 2015) (to be codified at 30 C.F.R. pts. 250, 254, 550).

43. *Id.* at 9918; *see also* 43 U.S.C. § 1332(6) (2012) (declaring that Congressional policy for the OCSLA includes preventing or minimizing occurrences which may damage the environment or property, or endanger life or health).

44. *See* Juan Carlos Rodriguez, *Interior Department Sends New Arctic Drilling Regs to OMB*, LAW360 (Aug. 18, 2014, 4:53 PM), http://www.law360.com/articles/568247/interior-department-sends-new-arctic-drilling-regs-to-omb.

45. *See* Oil and Gas and Sulphur Operations on the Outer Continental Shelf—Requirements for Exploratory Drilling on the Arctic Outer Continental Shelf, 80 Fed. Reg. at 9916.

46. *Id.* at 9919 (citation omitted).

Exploratory drilling occurs before development drilling activities. As the initial phase of an operation, exploratory drilling provides important data by determining the physical structure and characteristics of potential reserves of natural gas.[47] Given that these exploratory drilling operations in the Arctic are a relatively recent endeavor, exploratory drilling is the focus of the proposed rule. These proposed regulations will, therefore, only apply to exploratory drilling, not actual development drilling activities: "After the requirements for exploratory drilling are finalized and applied to those activities, DOI will be able to assess whether it should apply similar requirements to development drilling."[48]

The proposed rule contains both prescriptive and performance-based requirements addressing various objectives, including ensuring that operators:

> 1. Design and conduct exploration programs in a manner suitable for Arctic OCS Conditions (e.g., using equipment and processes that are capable of performing effectively and safely under extreme weather and sea conditions and in remote locations with relatively limited infrastructure);
>
> 2. Develop an [Integrated Operations Plan] that would address all phases of their proposed Arctic OCS exploration
>
> program . . . ;
>
> 3. Have access to, and the ability to promptly deploy, [Source Control and Containment Equipment] while drilling below or working below the surface casing;
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> 4. Have access to a separate relief rig located so that it could timely drill a relief well in the event of a loss of well control under the conditions expected at the site; [and]
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> 5. Have the capability to predict, track, report, and respond to ice conditions and adverse weather events . . . .[49]

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47. Rachel Curtis, *What is the Difference Between an Exploratory Well and a Production Well?*, INST. FOR ENERGY & ENVTL. RESEARCH FOR NE. PA. (Mar. 25, 2011), http://energy.wilkes.edu/pages/206.asp.

48. Oil and Gas and Sulphur Operations on the Outer Continental Shelf—Requirements for Exploratory Drilling on the Arctic Outer Continental Shelf, 80 Fed. Reg. at 9919.

49. *Id.* at 9919.

To meet these objectives, the proposed rule sets out a number of standards and requirements. First, in addition to an Exploration Plan ("EP") and an Application for Permit to Drill ("permit application"), the proposed rule requires an entirely new planning document. At least ninety days in advance of filing an Exploration Plan, operators must submit an Integrated Operations Plan ("IOP") to the DOI that should contain the preliminary details of the proposed exploratory drilling operation.[50]

The IOP is simply informational and, unlike an EP, is not subject to DOI approval.[51] The IOP primarily serves to "describe, at a strategic or conceptual level, how exploratory drilling operations will be designed, executed, and managed as an integrated endeavor from start to finish."[52] Therefore, the IOP is intended to demonstrate to the agencies and the public how their proposed operation will account for the challenging environmental conditions in the Arctic OCS.[53] The IOP should, at a minimal level, address:

1. Vessel and equipment design and configurations;
2. The overall schedule of operations, including contractor work on critical components;
3. Mobilization and demobilization operations and maintenance schedule(s);
4. In-theater drilling program objectives and timelines for each objective;
5. Weather and ice forecasting and management capabilities;
6. Contractor management and oversight; and
7. Preparation and staging of spill response assets.[54]

All IOPs will be made available to the public via the BOEM website before the EP, providing greater opportunity to understand proposed operations.[55] During a news conference on

50. *Id.* at 9924-25.
51. *Id.* at 9924.
52. *Id.* at 9924.
53. *Id.*
54. *Id.* at 9924.
55. *Id.* at 9927. The posting of IOPs would be informational only, as BOEM

February 20, 2015 following OMB's release of this proposed rule, BSEE's Director, Brian Salerno, stated that "[t]he whole purpose behind the operational plan is to provide early indications of how an operator proposes to approach a drilling season."[56]

Next, the proposed rule requires operators who use a mobile offshore drilling unit ("MODU") to have Source Control and Containment Equipment ("SCCE") available to deploy in the event of a loss of well control.[57] Under the proposed rule, the SCCE would include a capping stack, a cap and flow system, and a containment dome,[58] which are not currently required in other areas of the domestic OCS.[59] Additionally, operators must have access to a separate drilling rig to drill a relief well and "sufficient mechanical oil recovery equipment to recover all oil spilled in a worst case spill scenario."[60] A relief well is defined as a second well drilled after a well blowout to permanently seal the blowout well through the injection of cement into the well bore.[61] All of this required equipment must be located in close proximity to wells to assist in the event of a loss of well control within specified timeframes.[62]

Further, an operator must be able to apply a capping stack – a

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does not intend to solicit public input for IOPs when made available online. *Id.*

56. *See* Alan Bailey, *Arctic Regs Published: DOI Wants Operation Plan, Relief Well Rig for Exploration Drilling*, PETROLEUM NEWS (Mar. 1, 2015), http://www.petroleumnews.com/pntruncate/832840429.shtml.

57. Oil and Gas and Sulphur Operations on the Outer Continental Shelf—Requirements for Exploratory Drilling on the Arctic Outer Continental Shelf, 80 Fed. Reg. at 9925; *see also id.* at 9967-68 (proposing 30 C.F.R. § 250.471).

58. *Id.* at 9925. These terms are defined later in the proposed rule. *See id.* at 9931-32.

59. Conner et al., *supra* note 4.

60. Bailey, *supra* note 43; *see also* Oil and Gas and Sulphur Operations on the Outer Continental Shelf—Requirements for Exploratory Drilling on the Arctic Outer Continental Shelf, 80 Fed. Reg. at 9925, 9968 (proposing 30 C.F.R. § 250.472).

61. *See* Bailey, *supra* note 43.

62. *See* Oil and Gas and Sulphur Operations on the Outer Continental Shelf—Requirements for Exploratory Drilling on the Arctic Outer Continental Shelf, 80 Fed. Reg. at 9968 (proposing 30 C.F.R. § 250.472(b)) (requiring the relief rig to be located in such a manner that it can fix the blowout well "prior to expected seasonal ice encroachment at the drill site, but no later than 45 days after the loss of well control."). The BSEE specifically requests comments on whether this 45-day timeframe should be extended or reduced. *Id.* at 9940.

device used to seal the wellhead – to the well site within twenty-four hours of any incident and must implement a cap-and-flow system and containment dome within seven days of a loss of well control to gather spilled oil and transfer it to surface vessels.[63] The separate relief rig must also be available to drill a relief well within forty-five days,[64] a timeframe which assumes: (1) twenty days for a relief rig to transit from Dutch Harbor (the nearest U.S. deep-water port) to the furthest well location in the Beaufort Sea; (2) twenty days to drill the relief well; and (3) five days to plug and test the uncontrolled well and move off the well site.[65] Given these short timeframes (twenty-four hours to apply a capping stack and seven days to implement a containment dome), as well as the remote nature of the Arctic region, it would be infeasible for an operator to rely on the capping and containment systems many oil companies already possess and utilize for their operations in the Gulf of Mexico when responding to spills in the Arctic OCS.[66] Therefore, these regulated response times force operators to invest in additional, and often duplicative, equipment for sole use in the Arctic OCS region.

However, the proposed rule provides a potential loophole in the form of the opportunity to request alternative compliance measures:

> "Operators may request approval of alternative compliance measures under existing regulations, if they can demonstrate that such alternative equipment or procedures could provide a level of safety and environmental protection equal to or surpassing the protection provided by the proposed SCCE and relief rig requirements[]."[67]

This provision is intended to allow for innovative technological advancements. The operator qualifies for the exception if it can establish that the proposed technology is capable of providing at least the same level of protection required under the proposed

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63. *Id.* at 9967 (proposing 30 C.F.R. § 250.471).

64. *Id.* at 9968 (proposing 30 C.F.R. § 250.472(b)).

65. *Id.* at 9940.

66. Bailey, *supra* note 43.

67. Oil and Gas and Sulphur Operations on the Outer Continental Shelf—Requirements for Exploratory Drilling on the Arctic Outer Continental Shelf, 80 Fed. Reg. at 9925.

rule.[68]

Next, once an operation has been approved and begins production, the operator is required to immediately notify BSEE if the operator detects any movement of sea ice or other environmental conditions that could affect operations or require ice management actions.[69] The operator must also notify BSEE at the start and termination of any ice management activities, along with written reports after completing any such activities.[70] Further, during drilling operations an operator will be required to transmit drilling data to an onshore location to be stored and monitored by qualified personnel with the authority to initiate any response actions necessary following abnormal data reports.[71] This data must be made available to BSEE upon request.[72]

The next section of the proposed rule addresses oil spill response preparedness in the Arctic OCS, stating that it will:

> "establish specific planning requirements to maximize the application of oil spill response technology and ensure a coordinated response system that is designed to address the challenges inherent in the Arctic region."[73]

The next provision requires the operator to capture and prevent from entering into the marine environment "all petroleum-based mud and associated cuttings" from exploratory drilling operations in the Arctic OCS.[74] When these materials are not captured, they could potentially affect subsistence hunting or fishing for Alaskan Natives or interfere with the migratory patterns and natural habitats of marine mammals and fish.[75]

Lastly, the proposed rule requires operators to:

> "provide an explanation, at a conceptual level, of how they would apply their oversight and risk management protocols to both personnel and contractors to support safe and responsible

68. *Id.*
69. *Id.*
70. *Id.* at 9925.
71. *Id.* at 9966 (proposing 30 C.F.R. § 250.452(b)).
72. *Id.*
73. *Id.* at 9925.
74. *Id.*
75. *Id.*

exploratory drilling on the Arctic OCS."[76]

The plan should provide both general and specific information addressing the project in its entirety from its planning to its implementation.[77] Additionally, operators would be required to:

> "[r]eport threatening sea ice conditions and ice management activities, and unexpected operational issues that could result in a loss of well control . . . , [c]onduct real-time monitoring of various aspects of well operations . . . ,[and] [e]nhance their oil spill preparedness and response capabilities for Arctic OCS operations."[78]

More specifically, the proposed rule requires pressure testing for blowout preventers occur every seven days, as opposed to the current standard of testing every fourteen days.[79]

IV.
ECONOMICS OF REGULATION

As required by Executive Order 12866, regulations should address a compelling public need (such as material failures of private markets), be based on an assessment of all costs and benefits of available regulatory alternatives (including the alternative of not regulating), and maximize net benefits to society unless otherwise constrained by law.[80] In addition to these requirements, agencies must provide an Initial Regulatory Impact Analysis addressing the anticipated costs and benefits of a proposed regulation.[81]

In accordance with the Executive Order, the BOEM and BSEE proposed rule included an Initial Regulatory Impact Analysis ("RIA") that estimates that the rule would cost between $1.1 to 1.2 billion over 10 years, depending on the discount rate used in the analysis.[82] This value reflects the increase in costs over baseline

76. *Id.* at 9925.
77. *Id.* at 9925-26.
78. *Id.* at 9926.
79. *Id.* at 9923, 9966 (proposing 30 C.F.R. § 250.447(b)).
80. Exec. Order 12,866, 58 Fed. Reg. 51,735, § 1(a) (Sept. 30, 1993).
81. *Id.* at § 1(b)(6).
82. Oil and Gas and Sulphur Operations on the Outer Continental Shelf—Requirements for Exploratory Drilling on the Arctic Outer Continental Shelf, 80

costs.[83] The baseline cost is an estimate of the costs to comply with current regulatory requirements and industry standards.[84] Although this baseline figure would normally include the costs of regulations passed by DOI in 2012 requiring the availability of a relief rig, the agencies erred on the conservative side and chose not to include those costs in the baseline.[85] Based on assumptions, BOEM and BSEE anticipate that operators will share resources initially to provide a standby relief rig, but as the number of wells on the Arctic OCS increases, the agencies expect that operators will instead use a second operating rig as a relief rig.[86] Therefore, in the economic analysis of the proposed rule, the agencies included the costs associated with a standby rig for only the first two years of the 10-year time period, but did not include the costs of a standby relief rig for the remaining eight year time period in their calculations.[87] Given the assumptions DOI relied on and the uncertainty surrounding those assumptions, the anticipated costs of the proposed rule are likely much higher than the RIA indicates.

As far as the benefits of the regulation, the proposed rule states that the primary benefits from the regulation take the form of preventing catastrophic oil spills or reducing their severity or duration, both of which are largely unquantifiable.[88] The proposed rule acknowledges the low probability of a catastrophic oil spill but cites the Deepwater Horizon incident to justify the DOI's decision to place greater value on these unquantifiable benefits.[89] The proposed rule also benefits Alaskan Natives since it will protect against further harm to native fish and marine mammal populations, both of which are "critical components of the Alaska Natives' livelihood" given that "they rely on fishing and hunting

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Fed. Reg. at 9919.

83. *Id.* at 9919-20.

84. *Id.* at 9920.

85. *Id.*

86. *Id.*; Conner, *supra* note 4.

87. Oil and Gas and Sulphur Operations on the Outer Continental Shelf—Requirements for Exploratory Drilling on the Arctic Outer Continental Shelf, 80 Fed. Reg. at 9920.

88. *Id.*

89. *Id.* at 9923.

for traditional cultural purposes and for subsistence."[90] The proposed rule also attempts to capture, as a benefit of the regulation, the value that many Americans place on protecting ecosystems and wildlife, especially in such a "frontier" environment.[91] Given these substantial, albeit imprecise, values, the RIA states that a "catastrophic oil spill . . . would have extremely high cultural and societal costs, and prevention of such a catastrophe would have correspondingly high cultural and societal benefits."[92] Overall, the RIA acknowledges that it is difficult to quantify the benefits to the public of protecting the environment.[93] The RIA even refrains from estimating the benefits of the rule by providing a dollar amount or range of amounts relating to these benefits. Rather, the RIA merely states that:

> While the economic and other benefits of the proposed rule – based primarily on preventing or reducing the severity or duration of catastrophic oil spills – are difficult to quantify, BOEM and BSEE have determined that it is appropriate to proceed with this proposal.[94]

When it comes to unquantifiable benefits—that is, benefits with no market price to associate with a specific gain—there are limited mechanisms to measure the benefit. One potential method for measuring these unquantifiable benefits is through contingent valuation, which is a way of measuring the value of a certain resource to an individual through a survey asking how much that individual would be willing to pay to preserve it.[95] The technique is named contingent valuation because individuals are stating their valuation of the resource contingent on a particular hypothetical scenario.[96] The most prominent critique of

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90. *Id.* at 9920.

91. *Id.*

92. *Id.*

93. *Id.*

94. *Id.*

95. *See* Dale B. Thompson, *Valuing the Environment: Courts' Struggles with Natural Resource Damages*, 32 ENVTL. L. 57, 58 (2002).

96. *See* Steven Shavell, *Contingent Valuation of the Nonuse Value of Natural Resources: Implications for Public Policy and the Liability System*, *in* CONTINGENT VALUATION: A CRITICAL ASSESSMENT 371, 372 (J.A. Hausman ed.,

contingent valuation is that its results are inaccurate. Because the individuals being surveyed are not actually paying for the good or service, respondents tend to indicate that they value the good or service more than they would if they actually had to pay.[97] This valid critique leaves contingent valuation as an imperfect, yet nonetheless valuable, tool for quantifying these nebulous benefits. So, does a more precise method exist for calculating a cost-benefit analysis?

According to Professor Lisa Heinzerling of Georgetown Law, no such method exists to quantify these uncertain benefits. Heinzerling is a well-known commentator on the subject of unquantifiable benefits of regulation and has written on this topic extensively. Heinzerling, along with Frank Ackerman, argues:

> Cost-benefit analysis differs, however, from other analytical approaches in the following respect: it demands that the advantages and disadvantages of a regulatory policy be reduced, as far as possible, to numbers, and then further reduced to dollars and cents. In this feature of cost-benefit analysis lies its doom. Indeed, looking closely at the products of this pricing scheme makes it seem not only a little cold, but a little crazy as well.[98]

Heinzerling goes on to assert:

> Cost-benefit analysis cannot overcome its fatal flaw: it is completely reliant on the impossible attempt to price the priceless values of life, health, nature, and the future. Better public policy decisions can be made without cost-benefit analysis, by combining the successes of traditional regulation with the best of the innovative and flexible approaches that have gained ground in recent years.[99]

On the other hand, Eric Posner and Matthew Adler defend the use of cost-benefit analysis by agencies but concede that it should

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1993).

97. *See, e.g.*, Donald J. Boudreaux et al., *Talk Is Cheap: The Existence Value Fallacy*, 29 ENVTL. L. 765 (1999) (arguing that contingent valuation is conceptually problematic and should not be relied upon for determining individuals' true valuations).

98. Frank Ackerman & Lisa Heinzerling, *Pricing the Priceless: Cost-Benefit Analysis of Environmental Protection*, 150 U. Pa. L. Rev. 1553, 1553 (2002).

99. *Id.* at 1584.

be modified or abandoned in many circumstances. They also concede that it is implausible to expect cost-benefit analysis to always lead to results that maximize the satisfaction of the public's preferences.[100] Therefore, contingent valuation seems to be the only available method for measuring the costs and benefits of environmental regulations in dollar amounts.

Aside from environmental protection and resource conservation, another benefit that is difficult to quantify or associate with a dollar amount is the additional predictability that results from regulations. The proposed rule provides guidance and clarity and defines expectations. Having a clear understanding of the expectations surrounding business operations helps industry avoid costly litigation and/or enforcement actions. The current lack of clarity surrounding the regulatory regime in the OCS while the proposed rule is being reviewed has even been cited as one of Shell's main rationales behind their recent decision to cease drilling operations in the OCS for the foreseeable future.[101] The Director of Shell Upstream Americas, Marvin Odum, stated that Shell's "decision reflects . . . the challenging and unpredictable federal regulatory environment in offshore Alaska."[102]

Yet still, the benefits to industry from regulatory predictability pale in comparison to the guaranteed increase in costs of operation that will result from the proposed rule. Industry representatives assert that the costs of the separate relief rig requirement greatly exceed the potential benefits, claiming that companies will have to end their operations a month earlier in the season simply to ensure that any emergency operations that may become necessary will occur in ice-free waters.[103] Industry advocates further push that the requirement for a same-season relief well will deduct

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100. *See* Matthew D. Adler & Eric A. Posner, *Rethinking Cost-Benefit Analysis*, 109 Yale L.J. 165, 167-68 (1999).

101. *See* Terry Macalister, *Shell Abandons Alaska Arctic Drilling*, THE GUARDIAN (Sept. 28, 2015, 1:29 PM), https://www.theguardian.com/business/2015/sep/28/shell-ceases-alaska-arctic-drilling-exploratory-well-oil-gas-disappoints.

102. *Id.*

103. Jennifer A. Dlouhy, *Oil Industry Takes Aim at Proposed Arctic Drilling Mandates*, FUELFIX (May 28, 2015), http://fuelfix.com/blog/2015/05/28/oil-industry-takes-aim-at-proposed-arctic-drilling-mandates/.

another 30 to 40 days from the seasonal operation time, potentially extending the time to complete a well to the following season.[104] Not only is the requirement for a separate relief rig costly, the added safety benefits of a separate relief rig are not even proven. Shell stated to the Office of Management and Budget that there has not been a recorded instance of a relief well effectively controlling a blowout and that new capping technology and improved well management could effectively reduce the likelihood of a loss of well control.[105] In fact, the American Petroleum Institute and the National Ocean Industries Association argued that the proposed rule's relief well requirement would introduce *additional* risk by reducing an operator's incentive or ability to use alternative measures that might be more appropriate for that drilling program.[106]

From a consumer's perspective, it is difficult to determine whether the societal and cultural benefits outweigh the costs to industry for a multitude of reasons. First, as discussed above, it is immensely difficult to estimate the dollar amount associated with the benefits of the proposed rule. Secondly, to further complicate the analysis, different values could be placed on the same benefits depending on individual preferences. Lastly, the major benefit of the rule is the prevention of catastrophic events with a relatively low likelihood. Such infrequent, yet potentially disastrous, events are inherently hard to quantify because the value assigned to these events will depend heavily upon the risk tolerance of each person. Moreover, it will likely be impossible to determine if the absence of such a catastrophic event was due to the unlikely nature of such an event or an actual outcome of the regulation.

V.
REACTIONS TO REGULATION

The reactions to the proposed rule have varied greatly, reflecting the conflict between protecting the environment and allowing for development and investment. In a recent e-mail,

104. *Id.*
105. *See* Bailey, *supra* note 43.
106. *Id.*

Shell spokeswoman Megan Baldino stated that Shell "support[s] regulations that further these imperatives [for safety and environmental protection] in the Arctic, provided they are clear, consistent and well-reasoned" and vowed to work with stakeholders to ensure that the company's drilling program meets the highest standards.[107]

Senator Lisa Murkowski from Alaska, chair of the Senate Committee on Energy and Natural Resources, expressed concerns about the economic consequences of the rule and emphasized the need for "clear direction to [] leaseholders in the region on how they can proceed."[108] Conversely, many environmental organizations approve of the proposed rules, praising the new stringent regulations while simultaneously requesting further action.[109] For instance, Oceana's Deputy Vice President, Susan Murray, applauded the federal government's recognition of the inadequate existing regulations but thought that the proposed rules "do not ensure safe and responsible operations in the Arctic Ocean . . . companies simply are not ready for the Arctic Ocean."[110]

Most operator opposition has been in response to the mandate for a separate relief rig, a requirement that adds significant costs to their operations.[111] BSEE Director Salerno stated at the press conference for the proposed rule that the same-season relief rig requirement, although controversial, "sets a level of protection for the Arctic that is necessary."[112] Operators also oppose the requirement for oil recovery equipment because alternative techniques exist, such as in-situ burning and dispersant use, which may be effective in certain circumstances.[113]

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107. *Id.*
108. *Id.*
109. *See* Oceana Press Release, *supra* note 6.
110. Bailey, *supra* note 43.
111. *See* Dlouhy, *supra* note 108.
112. *See id.*
113. *See id.*

VI.
OTHER CONCERNS

There are other concerns with this proposed rule that should be addressed. One concern is environmental justice, specifically in relation to groups that may suffer from the direct impact of these exploratory drilling operations, such as Native Alaskans. As defined by the United States Environmental Protection Agency, environmental justice is:

> "the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies."[114]

In some cases, the Alaskan Native population is not adequately represented in the political process with the opportunity to weigh in on issues like the proposed rule, nor are they adequately informed or equipped as to how they can become a part of the political process and have a voice in the different mechanisms available to them, such as the public comment process. However, according to DOI, the proposed rule "does not have a disproportionately high or adverse human health or environmental effect on native, minority, or low-income communities."[115]

Additionally, the Organization of the Petroleum Exporting Countries' ("OPEC") production practices over the last several years have led to tremendous declines in oil and gas prices.[116] This drop in prices has led to a decrease in profits for many of the companies that this proposed rule would affect.[117] These current

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114. *See Environmental Justice*, U.S. ENVTL. PROT. AGENCY, http://www.epa.gov/environmentaljustice/ (last updated Apr. 14, 2016).

115. Oil and Gas and Sulphur Operations on the Outer Continental Shelf—Requirements for Exploratory Drilling on the Arctic Outer Continental Shelf, 80 Fed. Reg. 9916, 9960 (proposed Feb. 24, 2015) (to be codified at 30 C.F.R. pts. 250, 254, 550).

116. *See* Gregg Laskoski, *A Mixed Blessing at the Pump*, U.S. NEWS & WORLD REPORT (Dec. 3, 2014, 5:00 PM), http://www.usnews.com/opinion/economic-intelligence/2014/12/03/opec-decision-not-to-curb-production-causes-oil-prices-to-plummet.

117. *See* Clifford Krauss & Stanley Reed, *Exxon Mobil's Profits Fall and BP Cites Low Oil Prices in $3.3 Billion Loss*, N.Y. TIMES (Feb. 2, 2016),

circumstances, when combined with the increased costs associated with this proposed rule, could greatly decrease the amount of investment and development in the Arctic OCS unless and until the price of oil and gas rise.

Lastly, many groups requested an extension on the comment period of the proposed rule. The American Petroleum Institute, the U.S. Chamber of Commerce's Institute for 21st Century Energy, and the National Ocean Industries Association requested that the public comment period be extended for at least an additional sixty days, or until no earlier than June 27, 2015.[118] The letter requesting the extension states:

> The agencies' proposed rule evaluates and solicits comments on a variety of complex technological, scientific and commercial issues relating to exploratory drilling conducted by floating drilling vessels and jackup rigs and potential oil and gas operations on the Arctic OCS. Development of thoughtful comments in the time provided is clearly unachievable and is therefore inconsistent with the providing adequate or lawful public participation.[119]

The parties also addressed the fact that the Secretary of Energy was releasing a research study on oil and gas operations in the Arctic OCS, prepared by the National Petroleum Council, to the public on March 27, 2015:

This study is expressly intended to provide broad context on prudent development of energy resources in the Arctic OCS, and to provide information to inform government and industry planning for such operations. It is in the interest of the government and all who share an interest in safe and responsible oil and gas activities in the Arctic OCS to allow the public

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http://www.nytimes.com/2016/02/03/business/energy-environment/oil-company-earnings.html?_r=0.

118. *See* Letter from Richard Ranger, Senior Policy Advisor, API, Matthew Koch, Vice President, Inst. for 21st Century Energy, U.S. Chamber of Commerce & Jeff Vorberger, Vice President Policy & Gov't Affairs, Nat'l Ocean Indus. Ass'n, to Bureau of Safety and Envtl. Enforcement (Mar. 6, 2015), *available at* http://www.energyxxi.org/sites/default/files/150306%20Final%20API-US%20Chamber-NOIA%20Ltr%20Requesting%20Extension%20of%20Comment%20Period%20BSEE-BOEM%20Arctic%20Rule.pdf.

119. *Id.*

additional time to review the proposed rule, the NPC Arctic research study, and other relevant technical, scientific and policy information.[120]

These groups thought it would serve both the public and the government's interest to receive comments after this study had been thoroughly analyzed and considered. Apparently, the DOI was at least willing to compromise. Though the agency did not extend the comment period by the requested sixty days, the agency elected to extend the comment period by thirty days, making the new deadline May 27, 2015.

VII.
CONCLUSION

The DOI's proposed rule for exploratory drilling in the Arctic OCS is a perfect example of a regulation that attempts to strike the proper balance between economic development and environmental protection. However, as can be seen in the varied responses to the proposed rule, these objectives typically stand contrary to one another and will continue to compete for favorable regulations. As with any regulation, it is practically impossible to propose a rule that appeals to all interested parties. After all, there will always be stakeholders with conflicting priorities and objectives. As seen here, there are many groups who want to ensure the protection of the marine environment in the Arctic OCS, while other groups want to ensure that costs for exploratory offshore drilling are not so high as to discourage investment or development, especially given the country's need to reduce its dependence on foreign oil. There are many issues and values to consider in finding the right balance. Now that the comment period has concluded, it is up to the discretion of the DOI to weigh these conflicting objectives and develop a regulatory scheme that promotes the goals of our nation's all-of-the-above energy strategy in the frontier environment of the Arctic OCS.

120. *Id.*