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Arctic National Wildlife Refuge (ANWR): An Overview

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Summary

In the ongoing energy debate in Congress, one recurring issue has been energy development in the Arctic National Wildlife Refuge (ANWR, or the Refuge) in northeastern Alaska. The policy question is whether to approve development—and if so, under what conditions—or whether to continue prohibiting development to protect the area's biological, recreational, and subsistence values. The Refuge is rich in fauna, flora, and oil and natural gas potential, but energy development in ANWR is currently prohibited by law. Legal status of the Refuge has been debated for more than 50 years, and sharp periodic increases in energy prices have intensified the debate at times. Low energy prices, such as those currently being experienced, negate the short-term incentives for developing ANWR because Alaskan production is relatively costly. This report provides a primer on this debate, which was given renewed impetus in 2015 by an Obama Administration proposal to designate the area as wilderness and then by pledges in the Trump Administration to support development of fossil fuels. The report discusses the history of the Refuge, its energy and biological resources, Native interests and subsistence uses, and options for both protection and development.

ANWR is administered by the Fish and Wildlife Service (FWS) under a variety of laws and executive authorities. Within the 19-million-acre Refuge, attention has focused on the 1.57-million-acre Coastal Plain, also known as the 1002 Area. Development proponents view this area as a promising onshore oil prospect, but it is also a center of activity for caribou and other wildlife and is designated as critical habitat for polar bears under the Endangered Species Act (16 U.S.C. §§1531-1544). A 1987 study of the area by the Department of the Interior recommended development, but controversies over the years have prevented any change in current law.

Under the Alaska National Interest Lands Conservation Act (ANILCA; 43 U.S.C. §§1601 et seq.), the status quo of no energy development in ANWR can be changed toward development or toward additional protection only by congressional action. The conflict between high oil potential and nearly pristine nature in the Refuge has created dilemmas for Congress. The most contentious question has been whether to permit energy development in the 1002 Area. Legislative proposals have included those to designate the 1002 Area as wilderness, designate it as a national monument, or allow partial or full development. Related questions concern the extent to which Congress should legislate special management to guide the manner of any development—for example, by limiting the footprint of energy activities. Some contend that newer technologies could help to consolidate oil and gas operations and reduce the environmental impacts of development, whereas others maintain that facilities would spread out in the 1002 Area and would significantly change the character of the Coastal Plain.

The history of ANWR is also intertwined with congressional efforts to settle land claims of Native Alaskans. As part of those efforts, some property in the Refuge was transferred to Native corporations, including surface lands and subsurface rights within the 1002 Area. If Congress were to open federal lands in ANWR to development, that decision also could open adjacent Native lands. The Native community, both between and within its villages and organizations, is significantly divided on the question of energy development in the Refuge.

Contents

Figures

Contacts

Introduction

The prospect of oil in the midst of a biologically rich Arctic ecosystem has been a focus of the American energy debate ever since oil was discovered on nearby state lands. At the heart of the debate is a part of the Arctic National Wildlife Refuge (ANWR, or the Refuge) with potentially significant oil and natural gas resources and a wealth of species such as polar bears, caribou, musk oxen, waterfowl, and others. The Fish and Wildlife Service (FWS) manages the Refuge and must periodically update plans to guide its management.[1]

On January 25, 2015, the Obama Administration announced a final decision on FWS's Revised Comprehensive Conservation Plan and Final Environmental Impact Statement (RCCP) for ANWR.[2] Public notice and comment on a draft plan, as well as consultation with state agencies and Native corporations, was required. The RCCP recommended that Congress designate the Coastal Plain[3] of the Refuge as wilderness. The designation, if Congress approved it, would mean that there would be no commercial development, except to meet the minimum requirements for managing the area as wilderness. Under the Wilderness Act (16 U.S.C. §§1131-1136), a "recommendation of the President for designation as wilderness shall become effective only if so provided by an Act of Congress."[4] In the meantime, under the new RCCP, the Coastal Plain is managed as it has been—under the Minimum Management Policy (MMP), which provides for minimal human intervention.

Energy development is currently prohibited in ANWR,[5] and the recommendation in the RCCP does not overturn this prohibition. However, the recommendation sparked renewed interest by some in opening ANWR for energy development. A steep drop in oil prices since 2014, which affects the amount of oil that is economically recoverable, may affect the timing or reduce the interest in energy exploration of the Refuge, were it to be opened by Congress. In the 115th Congress, two bills have been introduced that would affect the Coastal Plain; both bills would open the area to energy development.[6] The Trump Administration also has pursued policies favorable to fossil fuel development generally.

This report discusses

- the history of the Refuge (including Native claims and congressional actions from the 109th to the 115th Congresses);
- the energy resources (including relevant market forces and potential oil and gas resources);

[1] Plans are required under the Alaska National Interest Lands Conservation Act (ANILCA, P.L. 96-487, §304(g)).

[2] Available at http://www.fws.gov/home/arctic-ccp/. For a map of the wilderness recommendations, see http://www.fws.gov/home/arctic-ccp/pdfs/09_AppH_WldnssRvw.pdf, Map H-1.

[3] In the ANWR debate, the term *coastal plain* can have two meanings. First, it can be used in a geographic sense, to refer to the broad area extending from the northern foothills of the Brooks Range and north to the ocean, and from the Canadian border in the east to the Chukchi Sea in the west. Second, it is used by many (including authors of many bills that have been introduced in the past) to refer to the specific area in ANWR defined in statute, legislative maps, or regulation. When used in the latter sense, the term is generally capitalized: in effect, the Coastal Plain is a small, eastern portion of the coastal plain. To avoid possible confusion, this report will use the term *1002 Area* when referring to the area at issue for development in legislation (See "Alaska National Interest Lands Conservation Act," below, for the origin of this term).

[4] 16 U.S.C. §1132(c).

[5] P.L. 96-487, §1003.

[6] Specific legislation will not be explored in detail in this report.

- the Native interests and subsistence uses;
- biological resources;
- protection options and issues; and
- development options and issues (including environmental protection issues, revenue disposition, and limitations on judicial review, among others).

Background

ANWR consists of 19 million acres in northeast Alaska. It is administered by FWS within the Department of the Interior (DOI). Development proponents view its 1.57-million-acre Coastal Plain—also known as the 1002 Area—as a promising onshore oil prospect.[7] According to the U.S. Geological Survey (USGS), the mean estimate of *technically* recoverable oil[8] from multiple prospects on the federally owned land in the Refuge is 7.7 billion barrels (billion bbl); there is a low probability that more than 11.8 billion bbl could be recovered on the federal lands over the life of the prospective fields.[9] (In comparison, the United States currently uses about 7.1 billion bbl per year; see "Oil Resource Potential.")

The amount that can be recovered depends, in part, on the economics of the oil market. When oil prices are high, more oil will be economic to produce; when oil prices are low, less oil will be economic to produce. Since January 2014, oil prices have dropped by almost half, going from an average of $94.62/bbl to $52.50/bbl in January 2017.[10] For all of 2016, nominal prices ranged from a high of $54.01/bbl to a low of $26.19/bbl.[11] In 2005, in the most recent analysis available on ANWR, when oil was priced at $71.91/bbl in 2016 dollars,[12] the mean estimate of *economically* recoverable oil on the federal lands in the 1002 Area was 7.1 billion bbl,[13] and there was a small chance that the federal lands could have had more than 10.7 billion bbl of economically recoverable oil.[14] (See box, "Old Geological Data, Old Prices, and New Interest," on use of older data.) In comparison, the single giant field at Prudhoe Bay, Alaska, discovered in 1967 on the state-owned portion of the coastal plain located west of ANWR (shown in **Figure 1**), is now estimated to have held almost 14 billion bbl of economically recoverable oil. The available information indicates that any ANWR oil would be scattered among multiple smaller fields rather

[7] Multiple witnesses in multiple hearings have expressed this view, beginning with the legislative debate over ANILCA in the late 1970s; for a sample, see U.S. Congress, Senate Committee on Energy and Natural Resources, *Establishment of Arctic National Wildlife Refuge Oil and Gas Leasing Program*, 104th Cong., 1st sess., August 2, 1995, S.Hrg. 104-333 (Washington: GPO, 2006).

[8] *Technically recoverable* means the quantity of oil or natural gas assessed as being in a formation that can be recovered using current technology without regard to cost and prices.

[9] E. D. Attanasi, *Economics of 1998 U.S. Geological Survey's 1002 Area Regional Assessment: An Economic Update*, USGS Open-File Report 2005-1217, 2005, at http://pubs.usgs.gov/of/2005/1359/OF2005-1359.pdf.

[10] U.S. Energy Information Administration, *Spot Prices for Crude Oil and Petroleum Products*, March 1, 2017, at https://www.eia.gov/dnav/pet/pet_pri_spt_s1_d.htm.

[11] Ibid.

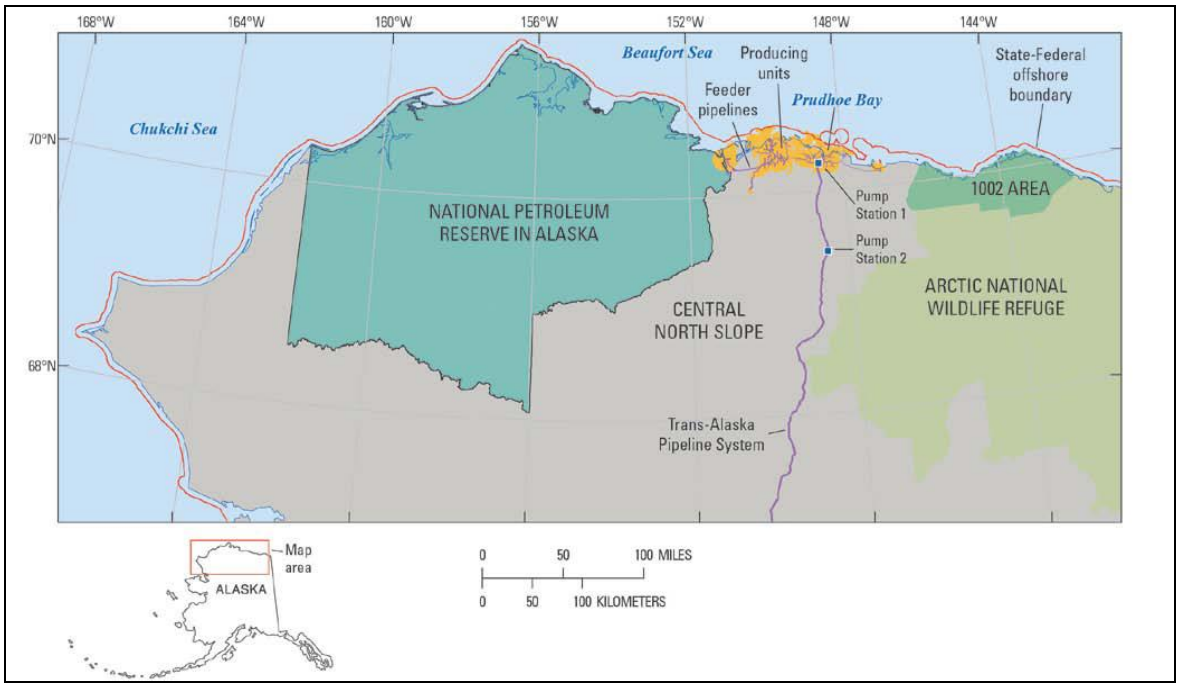
[12] The original analysis used $55/bbl in 2003 dollars.

[13] *Economically recoverable* means the portion of technically recoverable resources that could be produced at a given price, accounting for costs, and including a return on capital. It is not accurate to assume that the amount of economically recoverable resources will go up in the same proportion as prices may rise (i.e., if prices double, the amount of economically recoverable resources does not necessarily double).

[14] E. D. Attanasi, *Economics of 1998 U.S. Geological Survey's 1002 Area Regional Assessment: An Economic Update,* U.S. Geological Survey (USGS) Open-File Report 2005-1359, 2005, at http://pubs.usgs.gov/of/2005/1359/OF2005-1359.pdf. See "Current Market Conditions: Low Oil Prices Hinder Project Economics," below, for a discussion of price effects on oil prospects.

than concentrated in a single large field, which would make development more expensive and potentially expand the area in which any environmental effects might occur.[15]

Figure 1. North Slope of Alaska



Source: Figure 1 in Emil D. Attanasi and Philip A. Freeman, *Economic Analysis of the 2010 U.S. Geological Survey Assessment of Undiscovered Oil and Gas in the National Petroleum Reserve of Alaska*, U.S. Geological Survey, May 2011, at http://pubs.usgs.gov/of/2011/1103/ofr2011-1103.pdf.

Section 1003 of the Alaska National Interest Lands Conservation Act of 1980 (ANILCA; P.L. 96-487, 43 U.S.C. §§1601 et seq.) bars energy exploration and development of ANWR. If Congress were to open federal lands in ANWR to development, that decision in itself could open adjacent Native lands, based on current law. (See "Alaska Native Claims Settlement Act" and "Chandler Lake Agreement of 1983.") In addition, nearby onshore development would make state lands (already legally open to development) along the coast more economically attractive and, as a result, these state lands also might become more attractive to industry for exploration and development. Together, the federal, state, and Native ownerships likely have multiple individual fields with oil potential. Although only fields on the federal lands would produce federal revenue from bonus bids, royalties, and rents, the 2005 USGS figures show that when state and Native lands also are considered, the mean estimate of economically recoverable oil rises from 7.1 billion bbl to 9.7 billion bbl.[16] In addition, there is a small chance that economically recoverable

[15] Kenneth J. Bird and David W. Houseknecht, *Arctic National Wildlife Refuge, 1002 Area, Petroleum Assessment, 1998, Including Economic Analysis*, U.S. Geological Survey, USGS Fact Sheet FS-028-01, April 2001, p. 4, at https://pubs.usgs.gov/fs/fs-0028-01/fs-0028-01.pdf.

[16] For a brief discussion of these terms and how they apply to leasing on federal lands, see CRS In Focus IF10127, *Energy and Mineral Development on Federal Land*, by (name redacted) . Bonus bids are paid by companies competing for a lease, and at that time industry cannot be certain whether economically recoverable oil and/or natural gas is present. The bonus bids, rents, and royalties, under most development bills, would be shared 50:50 between the federal government and the state of Alaska. Thus, bonus bids would be paid to the state whether oil and/or natural gas is eventually produced or not.

oil in the three ownership areas might bring the total from 10.7 billion bbl to more than 14.6 billion bbl, if oil is priced at $71.91/bbl in 2016 dollars. (See box, "Old Geological Data, Old Prices, and New Interest," for a discussion of the use of old data and old prices, and see "Oil Resource Potential," for further discussion of prices.)

The Refuge, especially the nearly undisturbed coastal plain, is home to a wide variety of plants and animals. The presence of caribou, polar bears, grizzly bears, wolves, migratory birds, and other species in this wild area has led some to call the area "America's Serengeti."[17] (See "The Biological Resources.") Several species found in the area (including polar bears, caribou, migratory birds, and whales) are offered certain limited protections through international treaties or agreements. In the past there have been proposals that the Refuge and two neighboring parks in Canada join to form an international park, with continuing prohibitions on oil exploration and development.

The analysis below provides the legislative history of the Refuge; the economic and geological factors that have triggered interest in development; the Native interests in the area; and the biological and environmental quality factors that have been issues in past Congresses.[18]

The conflict between high oil potential and nearly pristine nature in the Refuge creates several dilemmas. Should Congress open the area for energy development, or should the area's ecosystem continue to be protected from development, perhaps permanently? What factors should determine whether, or when, to open the area? If the area is opened, to what extent can damages be avoided, minimized, or mitigated? To what extent should Congress legislate special management to guide the manner of any development? And to what extent should federal agencies be allowed to manage the area under existing law?

Old Geological Data, Old Prices, and New Interest

Because the Arctic National Wildlife Refuge (ANWR) has been closed since 1980 to "leasing or other development leading to production of oil and natural gas from the range" unless authorized by an act of Congress, research that would require field studies or seismic exploration inside the 1002 Area (shown in **Figure 2**) has not occurred for more than 30 years. The most recent geological data gathered on-site in the 1002 Area date from the 1980s as background for a study completed by the Department of the Interior in 1987 that is known as the 1002 report. Any studies of geological resources in the 1002 Area that have been published after the 1002 report are based on new analyses of data from earlier field investigations, extrapolations from exploration of nearby areas, and/or improved modeling of older data. Various new industry techniques also are considered in reevaluating the area's potential. As a result, the best available empirical data is often old.

The most recent federal government studies on economically recoverable amounts of oil were published in 2005, when oil was $71.91/bbl in 2016 dollars—higher than the January 2017 price of $52.50/bbl. Although oil prices may have some effect on how much oil ultimately may be recovered economically, the relationship is complex. (See "Advanced Technologies in Development and Production.")

Moreover, the congressional debate over ANWR has been relatively quiescent until recently, with fewer congressional documents, shorter hearings, and less floor consideration. As a result, wider exploration of issues may be found in sources that are more than a few years old.

[17] This characterization is widespread. For an example from the adventure tourism industry, see http://www.alaskaalpineadventures.com/alaska-destinations/anwr.

[18] For legal background, see CRS Report RL31115, *Legal Issues Related to Proposed Drilling for Oil and Gas in the Arctic National Wildlife Refuge (ANWR)*, by (name redacted). State lands on the coastal plain are shown at http://dog.dnr.alaska.gov/GIS/ActivityMaps.htm. An extensive presentation of arguments in favor of development can be found at http://www.anwr.org, sponsored by a consortium of groups. Opponents' arguments can be found at http://www.alaskawild.org/ and http://www.protectthearctic.com/.

Legislative History of the Refuge

The balance between oil and natural gas development and the preservation of biological resources of northern Alaska has been controversial for decades, even before Alaska became a state. In 1943, the federal government withdrew all lands on the North Slope (the land north of the crest of the Brooks Mountain Range and between Canada and the Chukchi Sea) by Public Land Order (PLO) 82 to prevent certain types of development.[19] In November 1957, Interior Secretary Fred Seaton filed a document protecting some of those lands (plus some additional lands south of the crest of the Brooks Range) for the benefit of wildlife and migratory birds.[20] Alaska was admitted to the Union in 1959. In 1960, PLO 2214 reserved the 1957 segregated area as the Arctic National Wildlife Range. The PLO withdrew the lands from "all forms of appropriation ... including mining but not the mineral leasing laws," thus leaving oil and natural gas development as a possibility.

Despite these withdrawals, not all of the Refuge is owned by the federal government. The history of ANWR (and its energy development restrictions) is intertwined with congressional efforts to settle land claims of Native Alaskans. As part of those efforts, some ANWR property was transferred to Native corporations. The next section provides a short history of those transfers to help explain the restrictions on development.

Alaska Native Claims Settlement Act

In 1971, Congress enacted the Alaska Native Claims Settlement Act (ANCSA)[21] to resolve Native claims against the United States. One purpose of ANCSA was to distribute land to Native corporations, which were created in the act. Native *village* corporations (for example, the Kaktovik Inupiat Corporation, based at the northern shore of the coastal plain of the Refuge) usually were entitled under the terms of ANCSA to select the surface estate of lands; they received the surface estate of approximately 22 million acres of land that had been held by the federal government.[22] Native *regional* corporations (for example, the Arctic Slope Regional

[19] PLO 82 is available at https://www.loc.gov/item/fr008024/ (see p. 121). According to BLM, "Public Land Orders (PLO's) implement the authority granted to the Secretary of the Interior by the Federal Land Policy and Management Act of 1976 [and earlier statutes] to make, modify, extend, or revoke land withdrawals. A withdrawal removes an area of Federal land from settlement, sale, location, or entry under some or all of the general land laws, for the purpose of limiting activities under those laws to maintain other public values in the area or reserving the area for a particular public purpose or program. Withdrawals are also used to transfer jurisdiction over an area of Federal land from one department, bureau, or agency to another." See https://www.blm.gov/wo/st/en/prog/more/lands/public_land_orders.html.

[20] Under the regulations in effect at that time, this document (called an *application*) was to "segregate" the lands in question (i.e., to remove them from disposal). This fact is important because just eight months later, the Alaska Statehood Act was passed, and on January 3, 1959, Alaska was formally admitted to the Union. Submerged lands in the Refuge that might have been treated as state property under the Equal Footing Doctrine were deemed federal property instead. The Supreme Court held that the segregation of lands before statehood prevented Alaska from owning certain submerged lands (such as river beds) in the refuge upon statehood. United States vs. Alaska, 521 U.S. 1 (1997).

[21] P.L. 92-203, 85 Stat. 688, 43 U.S.C. §§1601 et seq.

[22] The Bureau of Land Management provides this discussion of the difference between surface and subsurface estates:

> In split estate situations, the surface rights and subsurface rights (such as the rights to develop minerals) for a piece of land are owned by different parties. In these situations, mineral rights are considered the dominant estate, meaning they take precedence over other rights associated with the property, including those associated with owning the surface. However, the mineral owner must show due regard for the interests of the surface estate owner and occupy only those portions of the surface that are reasonably necessary to develop the mineral estate.

(continued...)

Corporation, covering the area north of the Brooks Range from the Chukchi Sea to Canada) were entitled to the selected subsurface estate, meaning they got the mineral rights. Usually the regional corporations could receive the lands beneath the village corporations in their area, but subsurface lands beneath pre-1971 refuges were not available, so other lands were substituted for them. ANCSA Section 22(g) also provided that surface lands that were conveyed within a refuge created before 1971 were subject to that refuge's regulations. The restriction on subsurface selections and Section 22(g) limit Native claims regarding oil development.[23]

Alaska National Interest Lands Conservation Act

In 1980, Congress enacted the Alaska National Interest Lands Conservation Act (ANILCA),[24] which expanded the Arctic National Wildlife Range to the south and west by 9.2 million acres of public domain lands and renamed it the Arctic National Wildlife Refuge. (See **Figure 2**.)

ANILCA Section 702(3) designated 8 million acres of the original Wildlife Range as a wilderness area. The remainder of the original refuge, defined in Section 1002 of ANILCA as the *Coastal Plain* and constituting 1.57 million acres, was not included in the wilderness designation. Debate over use of the area was intense, with one group favoring wilderness designation and another group (led by Alaska's two Senators at the time) favoring energy development. Instead, Congress postponed decisions on the development or further protection of the Coastal Plain. Section 1002 of ANILCA directed that all of the resources of the Coastal Plain be studied. (This section is the reason this part of ANWR is also referred to as the *1002 Area*.) That study by the Department of the Interior was completed in 1987 and is known as the 1002 report or the Final Legislative Environmental Impact Statement (FLEIS).[25] The 1002 report recommended full energy development.

For the future of the 1002 Area, the most significant aspect of ANILCA is Section 1003.[26] This section prohibited oil and natural gas production in the Refuge as a whole, as well as "leasing or other development leading to production of oil and natural gas from the range" unless authorized by an act of Congress.[27] Some have argued that ANILCA set aside the 1002 Area for energy development.[28] Although the requirements for an extensive study in Section 1002 would favor the assertion that the land was set aside, it is difficult to conclude from the debate at the time of ANILCA deliberations—as well as from the breadth of the required study—that one purpose was

(...continued)

Available at http://www.blm.gov/wo/st/en/prog/energy/oil_and_gas/best_management_practices/split_estate.html.

[23] 43 U.S.C. §1621(g).

[24] P.L. 96-487, variously codified; provisions relating directly to ANWR are found at 16 U.S.C. §§3141-3144.

[25] U.S. Dept. of the Interior, Fish and Wildlife Service, Geological Survey, and Bureau of Land Management, *Arctic National Wildlife Refuge, Alaska, Coastal Plain Resource Assessment*, Report and Recommendation to the Congress of the United States and Final Legislative Environmental Impact Statement., 1987; hereafter known as the *1002 report*.

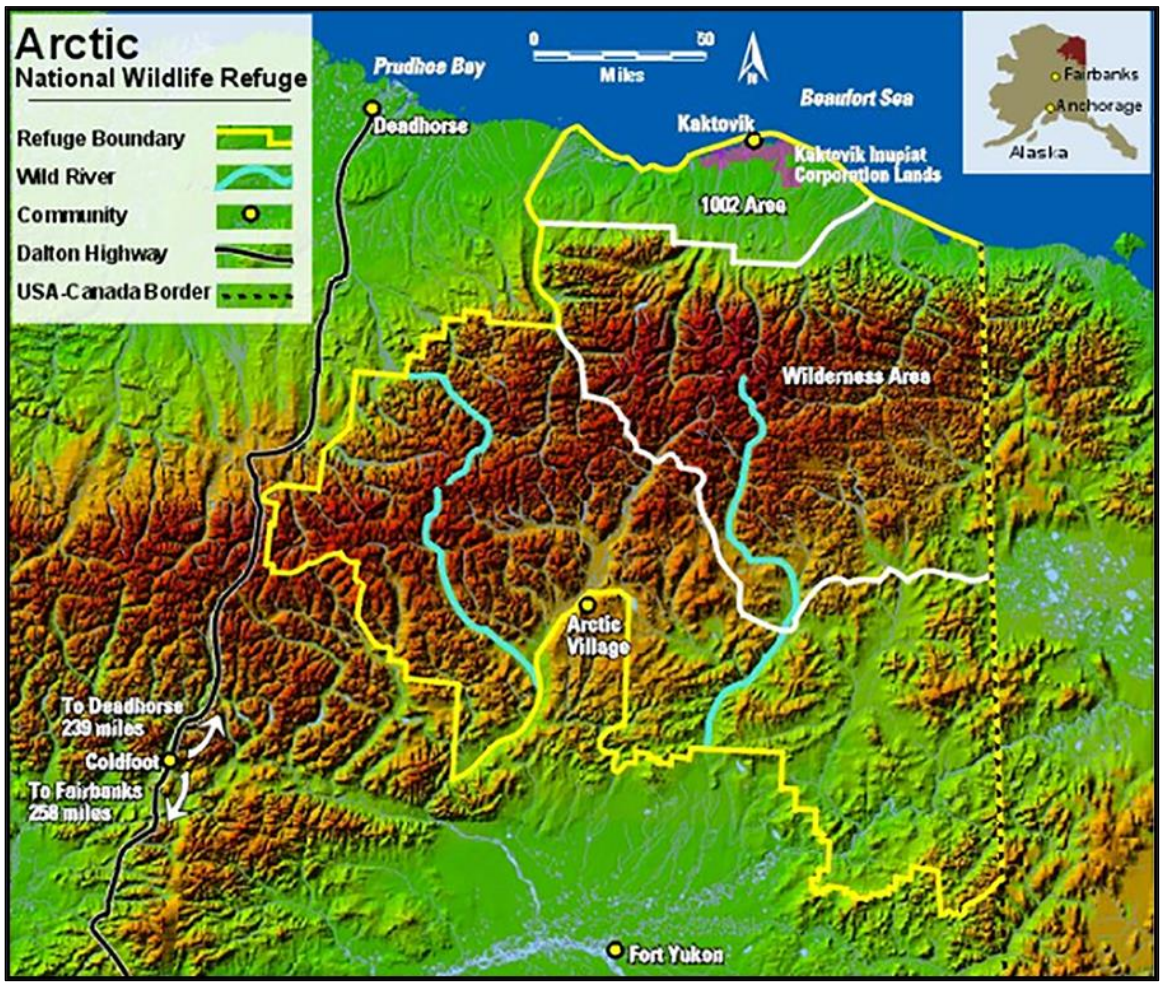
[26] 16 U.S.C. §3143. This section states that "Production of oil and gas from the Arctic National Wildlife Refuge is prohibited and no leasing or other development leading to production of oil and gas from the range shall be undertaken until authorized by an Act of Congress."

[27] The requirement in Section 1003 of ANILCA is statutory and therefore cannot be overridden by an executive order. See CRS Report RL31115, *Legal Issues Related to Proposed Drilling for Oil and Gas in the Arctic National Wildlife Refuge (ANWR)*, by (name redacted). For specific actions, including key votes, see CRS Report RL32838, *Arctic National Wildlife Refuge (ANWR): Votes and Legislative Actions Since the 95th Congress*, by (name redacted)

[28] For example, see statements of Rep. Don Young, "Securing America's Future Energy Act of 2001," House debate, *Congressional Record*, daily edition, vol. 147 (August 1, 2001), p. H5160.

favored over another. As noted, Section 1003 expressly reserves that decision for a future Congress.

Figure 2. Arctic National Wildlife Refuge: Current Boundaries



Source: https://www.fws.gov/uploadedImages/Region_7/NWRS/Zone_1/Arctic/Sections/Maps/shademap.jpg#a.

Note: Red-brown colors indicate Brooks Range. Purple area within 1002 Area indicates Kaktovik Inupiat Corporation lands.

Chandler Lake Agreement of 1983

In 1983, a further complication was added to energy development in ANWR. As allowed by ANCSA, the Kaktovik Inupiat Corporation (KIC) previously had selected the surface estate of certain lands near the northern boundary of the Refuge. These selections amounted to three townships. Because the Refuge was created before ANCSA, the Arctic Slope Regional Corporation (ASRC) was prohibited from taking title to the subsurface estate of those lands. ANILCA, in its definition of the 1002 Area,[29] excluded these three townships even though, in a geographic sense, they are within the coastal plain north of the Brooks Range. ANILCA further

[29] The definition was based solely with reference to a map, which is now missing. See discussion in "Evolving Maps."

authorized KIC to select more lands within the 1002 Area, as defined. These additional lands totaled approximately 19,588 acres. Together with the three townships, the KIC surface estate in ANWR totaled more than 92,000 acres (about four townships of land), although much of the total is defined as out of the 1002 Area. (In addition, there are at least eight individually owned Native allotments within the 1002 Area that, together with the KIC lands, total nearly 100,000 acres.)

Then, in 1983, an agreement between the United States and ASRC, known as the *Chandler Lake Agreement* (or sometimes the *1983 Agreement*), gave ASRC title to the subsurface estate beneath those KIC surface lands, even though the KIC lands all fall in a refuge area created before ANCSA.[30] The 1983 Agreement continues to prohibit development of the ASRC lands in ANWR unless Congress opens ANWR. An ANWR opening for energy development could affect development not only of any energy resources owned by ASRC but also of all 100,000 acres of Native lands, because they would become available for surface occupancy for storage, staging, and other development activities. These lands might even be preferred locations for such activities, depending on any restrictions Congress might place on use or surface occupancy of the remainder of the 1002 Area.

Actions in the 109th to 111th Congresses

A history of congressional action on the Refuge extends back as far as the 86th Congress, and perhaps farther. However, with little enacted legislation since ANILCA in the 96th Congress, this report will focus on more recent actions, beginning with the 109th Congress. The ANWR debate took two basic routes in the 109th Congress: (1) reconciliation bills (S. 1932 and H.R. 4241) under the budget process, which cannot be filibustered, and (2) other bills (H.R. 6, an energy bill; H.R. 2863, Defense appropriations; and H.R. 5429, a bill to open the Refuge to energy development), which can be filibustered.[31] These bills would have provided for an expedited opening of the Refuge to development to address national energy needs.[32] Two bills (H.R. 567 and S. 261) would have designated the area as wilderness. In the end, the 109th Congress did not send any of these bills to the President.

In the 110th Congress, there was a concurrent resolution (S.Con.Res. 70) to adjust budget levels to assume that there would be increased revenues from opening ANWR to leasing and exploration. However, on May 14, 2008, the House rejected the measure.[33] During debate on S. 2284 (a bill originally concerning flood insurance) on May 13, 2008, the Senate rejected S.Amdt. 4720 to open ANWR to energy development.[34] Rising gasoline prices during 2008 intensified interest in opening ANWR to development, and a number of bills to open the 1002 Area to development were introduced during the second session. Two bills (H.R. 39 and S. 2316) would have

[30] Agreement Between Arctic Slope Regional Corporation and the United States of America (Aug. 9, 1983). This agreement is also known as the Chandler Lake Agreement, referring to some of the property transferred as a result of the agreement. A copy is available from the authors of this report. Also see U.S. General Accounting Office (now U.S. Government Accountability Office), *Federal Land Management: Chandler Lake Land Exchange Not in the Government's Best Interest*, GAO/RCED-90-5. October 1989.

[31] For more on the budget process and budget enforcement, see CRS Report RS20368, *Overview of the Congressional Budget Process*, by (name redacted). For ANWR and reconciliation, see out-of-print CRS Report RS22304, *ANWR and FY2006 Budget Reconciliation Legislation*, available upon request from the authors.

[32] For details of these bills, and of House and Senate actions on them, see out-of-print CRS Report RL33523, *Arctic National Wildlife Refuge (ANWR): Controversies for the 109th Congress*, available upon request from the authors.

[33] Roll Call #321, yeas:185; nays: 229.

[34] Roll Call #123, yeas: 42; nays: 56.

designated the area as wilderness. In the end, the 110th Congress did not send any bill with ANWR provisions to the President.

Although 17 bills concerning the Refuge were introduced in the 111th Congress, no bills were reported by committees in either the House or Senate.

Actions in the 112th to 115th Congresses

Only one bill regarding the Arctic Refuge was reported from committee during the 112th Congress. H.R. 3407 was reported from the House Committee on Natural Resources on February 9, 2012.[35] Under its provisions, the Coastal Plain (defined in Section 2) would have been opened to energy leasing (Section 3). The bill named the Bureau of Land Management (BLM) in DOI as the lead agency, which would have reduced the role of FWS as the managing authority.

Section 3(a)(2) of H.R. 3407 would have required the Secretary of the Interior to administer the leasing program so as to "result in no significant adverse effect on fish and wildlife, their habitat, and the environment, [and to require] the application of the best commercially available technology" for energy exploration, development, and production. However, Section 3(a)(2) would have further required that this program be done "in a manner that ensures the receipt of fair market value by the public for the mineral resources to be leased." The bill did not clarify how the two goals of environmental protection and fair market value were to relate to each other (e.g., if environmental restrictions made some fields uneconomic). Sections 6(a)(3) and 6(a)(5) would have required lessees to be responsible and liable for reclamation of lands within the Coastal Plain (unless the Secretary approved other arrangements), and they would have required the lands to support pre-leasing uses, or a higher use be approved by the Secretary. These provisions also included requirements for mitigation, stipulations regarding the development of regulations, prohibitions on public access to service roads, and other transportation restrictions.

Section 8(a)(3) would have limited the surface area covered by specified facilities to 10,000 acres per 100,000 acres of leased area. If the entire 1002 Area were leased, then such facilities would have been limited to a total of 157,000 acres. (Leasing the entire 1002 Area is unlikely, however.)

Like previous development bills, H.R. 3407 would have limited the venue and scope of challenges. The bill (Section 9) would have required that any challenges be brought before the Circuit Court of Appeals for the District of Columbia. Section 10 would have allocated 50% of revenues from bonus bids, royalties, and rents to the U.S. Treasury. Unlike most previous bills, however, H.R. 3407 would not have directed these funds to any specific purpose.

The two bills (H.R. 139 and S. 33) that would have designated the area as wilderness were not reported during the 112th Congress.

In the 113th Congress, 15 bills relating to the Arctic Refuge were introduced. There were 13 promoting development in some form and 2 promoting wilderness designation, but no bills were reported by House or Senate committees during the 113th Congress.

As noted previously, during the 114th Congress, the Obama Administration approved the RCCP for ANWR. The RCCP recommended that Congress designate the Coastal Plain of the Refuge as wilderness. Under the Wilderness Act, a "recommendation of the President for designation as wilderness shall become effective only if so provided by an Act of Congress."[36] Two amendments

[35] H.Rept. 112-393. Frequently mentioned issues are discussed here. For more on this bill and how it compares with past debates, see individual headings under "Development Options and Issues."

[36] 16 U.S.C. §1132(c).

(H.Amdt. 577 and H.Amdt. 1355, both to H.R. 2822, providing for Appropriations for Interior and Related Agencies) were approved by the House to prohibit use of funds to implement the RCCP.[37] Neither became law. An amendment (H.Amdt. 961 to H.R. 2406) to designate the Coastal Plain as wilderness failed in a recorded vote. There were four other bills promoting development in some form and two promoting wilderness designation, but no bills were reported by House or Senate committees.

In the 115th Congress, two bills to promote development in the 1002 Area (H.R. 49 and S. 49) have been introduced, but neither has received floor consideration.

The Energy Resources

The developed parts of Alaska's North Slope suggest promise for energy prospects in the adjoining ANWR. Petroleum-bearing strata extend eastward from structures in the National Petroleum Reserve-Alaska through the Prudhoe Bay field, and they may continue into and through ANWR's 1002 Area. (See **Figure 3** and **Figure 5**.) Both changing prices and changing costs affect oil and natural gas prospects. New technologies may help alleviate some environmental concerns. However, production issues in some North Slope fields have raised doubts about ANWR's potential for oil and natural gas resource development.[38] Any ANWR resources would be expensive to produce and would require construction of new infrastructure, such as pipelines and processing units, due to location and environmental conditions.

Current Market Conditions: Low Oil Prices Hinder Project Economics

The United States consumed approximately 19.5 million barrels per day (million bbl/day) of oil in 2015, which includes petroleum products that may have been exported.[39] Of that, 9.4 million bbl/day came from imported sources of oil and 9.4 million bbl/day was produced domestically, with the difference being made up by the refining process. Production from Alaska accounted for about 0.48 million bbl/day, or 2.5% of U.S. consumption. Alaskan oil production, the bulk of which is from the North Slope, has been in steady decline since peaking in 1989.[40]

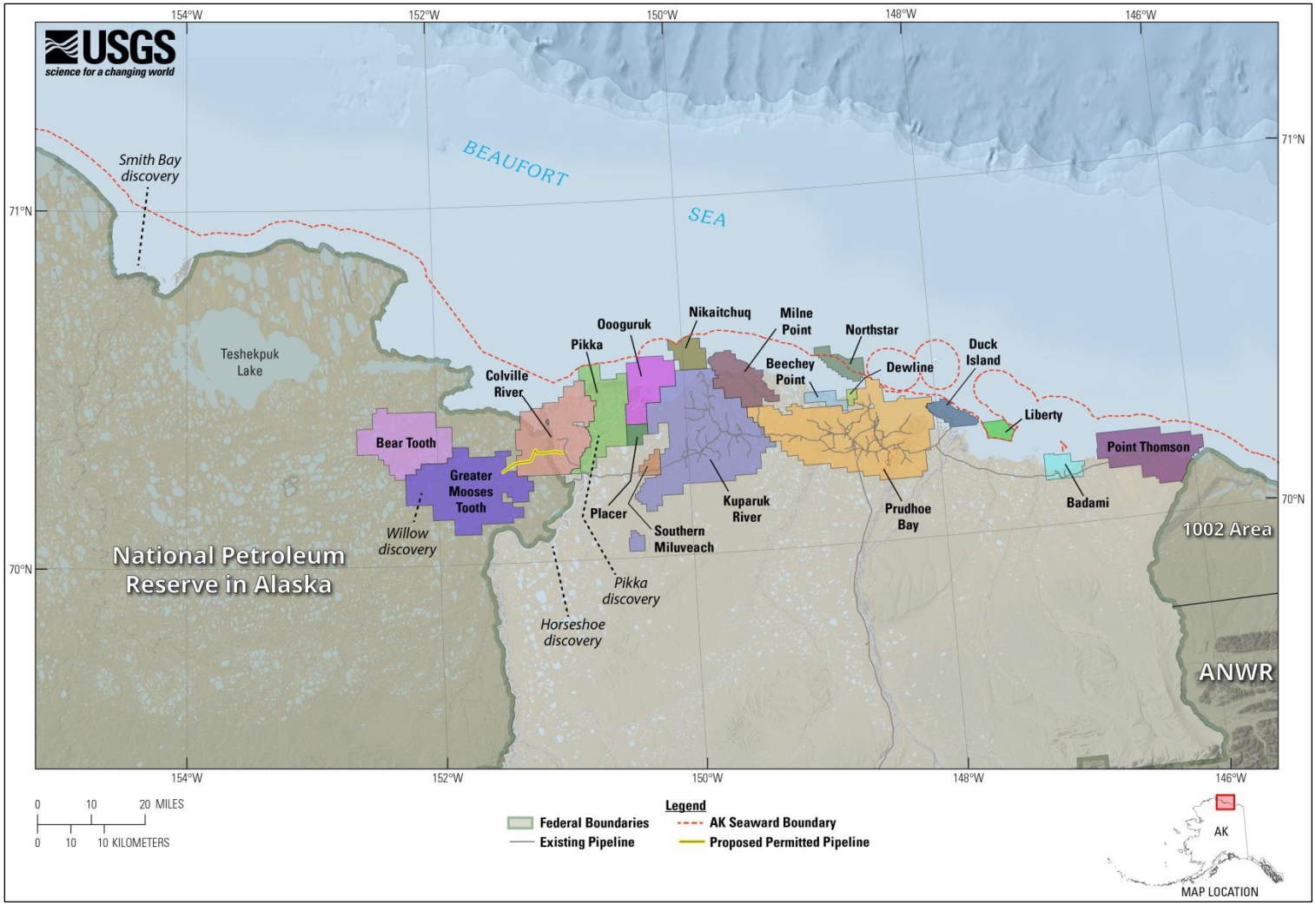
[37] Both amendments were worded to prevent expenditures to implement the entire RCCP, although floor debate focused on the recommendation that Congress enact a wilderness designation for the 1002 Area as well as for other major parts of the refuge.

[38] U.S. Department of Energy, National Energy Technology Laboratory, *Alaska North Slope Oil and Gas: A Promising Future or an Area in Decline?*, April 8, 2009, at http://www.boem.gov/uploadedFiles/BOEM/Oil_and_Gas_Energy_Program/Resource_Evaluation/Reserves_Inventory/2009DOENorthstarPotential.pdf.

[39] U.S. Energy Information Administration, *Product Supplied*, March 9, 2017, at https://www.eia.gov/dnav/pet/pet_cons_psup_dc_nus_mbblpd_a.htm.

[40] U.S. Energy Information Administration (EIA), "Petroleum & Other Liquids: Crude Oil Production," at http://www.eia.gov/dnav/pet/pet_crd_crpdn_adc_mbblpd_a.htm.

Figure 3. Active North Slope Petroleum Sites



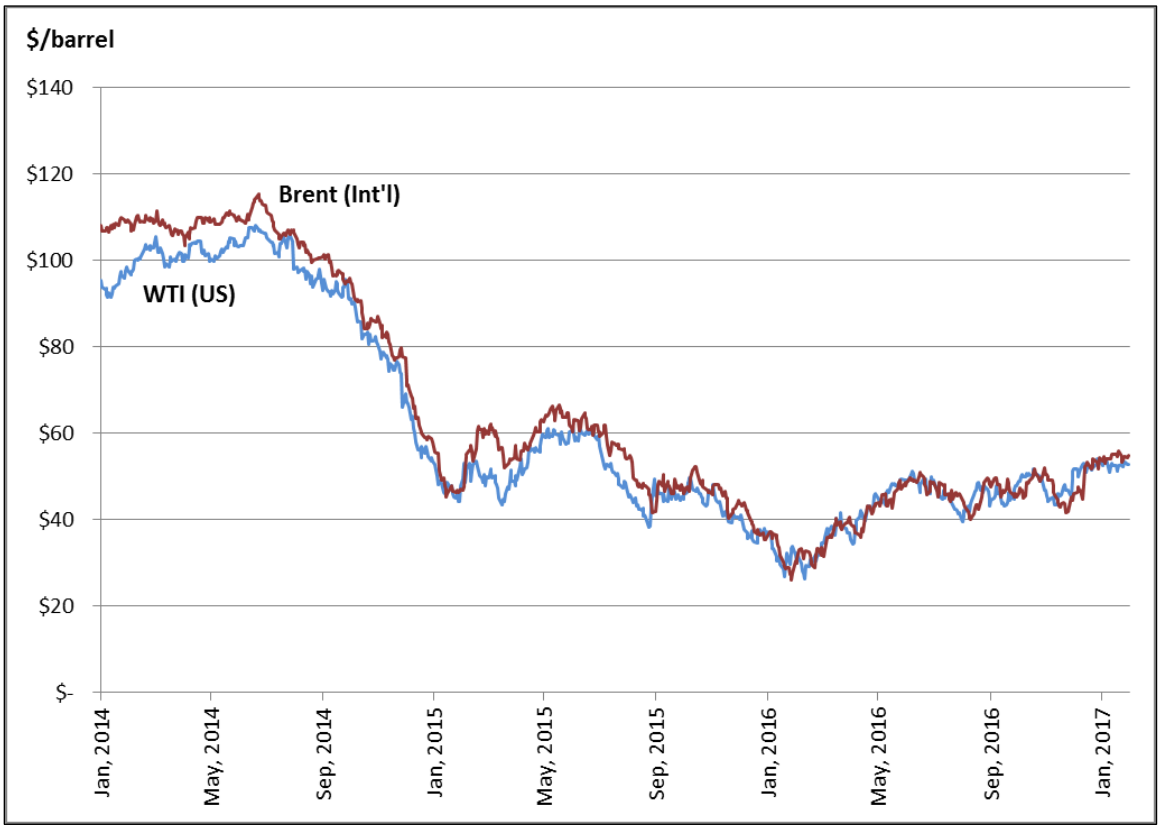
Source: USGS, personal communication, March 13, 2017.

Note: Colored polygons are currently producing fields; locations marked "discovery" are finds which are expected to produce commercial quantities of oil but have not begun to do so. Circles in the demarcation of Alaska's seaward boundary indicate small offshore islands. Some coastal leases on the state land between ANWR and NPRA extend beyond the coast, up to the limits of Alaska state waters.

Whether oil is produced domestically or imported, it is traded in a global market, and any one part of the market can affect other parts. The result is that oil prices are set by world markets. **Figure 4** shows the interconnectedness of crude oil prices in the United States and international markets. Starting in 2010, the demand for oil increased as the global economy improved and put upward pressure on oil prices. Political unrest in the Middle East and North Africa also pushed prices up for a time, though short of an earlier peak in 2008.[41] However, since May 2014, world oil prices have dropped significantly, and companies have been cutting back on capital expenditures and postponing the development of some relatively more expensive projects.

Figure 4. Daily U.S. and International Crude Oil Prices

(January 2014 through January 2017)



Source: CRS, based on data from U.S. Energy Information Administration (EIA), "Petroleum & Other Liquids: Spot Prices," at http://www.eia.gov/dnav/pet/pet_pri_spt_s1_d.htm.

Notes: Units = nominal U.S. dollars per barrel of oil. WTI is the U.S. benchmark crude oil, while Brent is the international benchmark.

Some oil companies' interest in ANWR likely decreases as oil prices are low, whereas other companies may maintain capital budgets for exploration and development in high-cost areas. Sustained low oil prices make development of more expensive oil resources less economically feasible. Even the outlook of sustained low oil prices will prompt companies to reconsider their resource development plans and capital budgets, as has been seen with current oil prices.[42]

[41] CRS Report R41683, *Middle East and North Africa Unrest: Implications for Oil and Natural Gas Markets*, by (name redacted)

[42] Arathy S. Nair, "Factbox: U.S. Oil Companies Cut 2016 CAPEX by $54 Billion or 40 Percent," *Reuters*, December

(continued...)

Additionally, the smaller fields thought to be present in the 1002 Area might be less attractive if prices are low.

Oil Resource Potential

Estimates of ANWR's oil potential are based on limited data and numerous assumptions about geology, economics and, in part, climate. Early attention focused on the northern and eastern parts of the 1002 Area. Since the 1990s, interest has shifted to parts of the 1002 Area west and north of the Marsh Creek anticline, roughly a third of the 1002 Area. (See **Figure 5**.) The shift was driven mainly by a reevaluation of geological data from nearby formations.

Assessments Evolve as Technology and Information Change

A 2011 report by the U.S. Geological Survey (USGS) on the National Petroleum Reserve-Alaska (NPRA) highlights the uncertainty of energy resources and the risks involved on the North Slope.[43] In its report, USGS revised its 2002 figures for undiscovered conventional technically recoverable oil and natural gas in the NPRA. The 2002 assessment mean values showed 10.6 billion bbl of oil and 61.4 trillion cubic feet of natural gas. The 2010 assessment shows 0.9 billion bbl of oil and 52.8 trillion cubic feet of natural gas, a reduction of more than 90% in oil estimates and 14% in natural gas estimates. On a barrel of oil equivalent basis, the 2010 assessment estimated that the composition of the prospective energy resources is 8% oil and 92% natural gas. In contrast, the 2002 assessment had estimated that the prospective resources had a much higher ratio of oil: 48% oil to 52% natural gas. The change in ratio was the result of data from drilling in other areas since the 2002 assessment.

The amount that would be economically recoverable depends in part on the price of oil. In its last economic assessment in 2005, USGS estimated that, at $71.91/bbl in 2016 dollars, there is a 95% chance that 4.0 billion bbl or more could be economically recovered and a small (5%) chance that 10.9 billion bbl or more could be economically recovered on the federal lands in the 1002 Area; the mean was 7.3 billion bbl.[44] These estimates reflected newer field development practices and cost and price changes, since USGS's 1998 assessment. Prices in January 2017 averaged between $50 and $55/bbl. If low prices are sustained over the long term, the estimates of economically recoverable oil could be less than the 2005 estimate.

About one-third more oil may be under adjacent state waters and Native lands than is available in the 1002 Area alone.[45] The state waters adjacent to the 1002 Area are far from any support system or land-based development, and any oil or natural gas that may be under them currently likely would not be economic to produce at current prices. If onshore development were to occur, leases in state waters could benefit from onshore transportation systems (airstrips, haul roads, pipelines, etc.) and supply bases (gravel mines, water treatment plants, staging areas, etc.), and these areas might become more attractive to industry. In addition, lifting the statutory prohibition on oil and natural gas development in the Refuge not only would lift the ban on Native lands but also might make smaller fields on Native lands more attractive, if they were able to share facilities with

(...continued)

1, 2016, pp. http://www.reuters.com/article/us-oilprice-capex-usa-factbox-idUSKBN13Q5KE, United States edition.

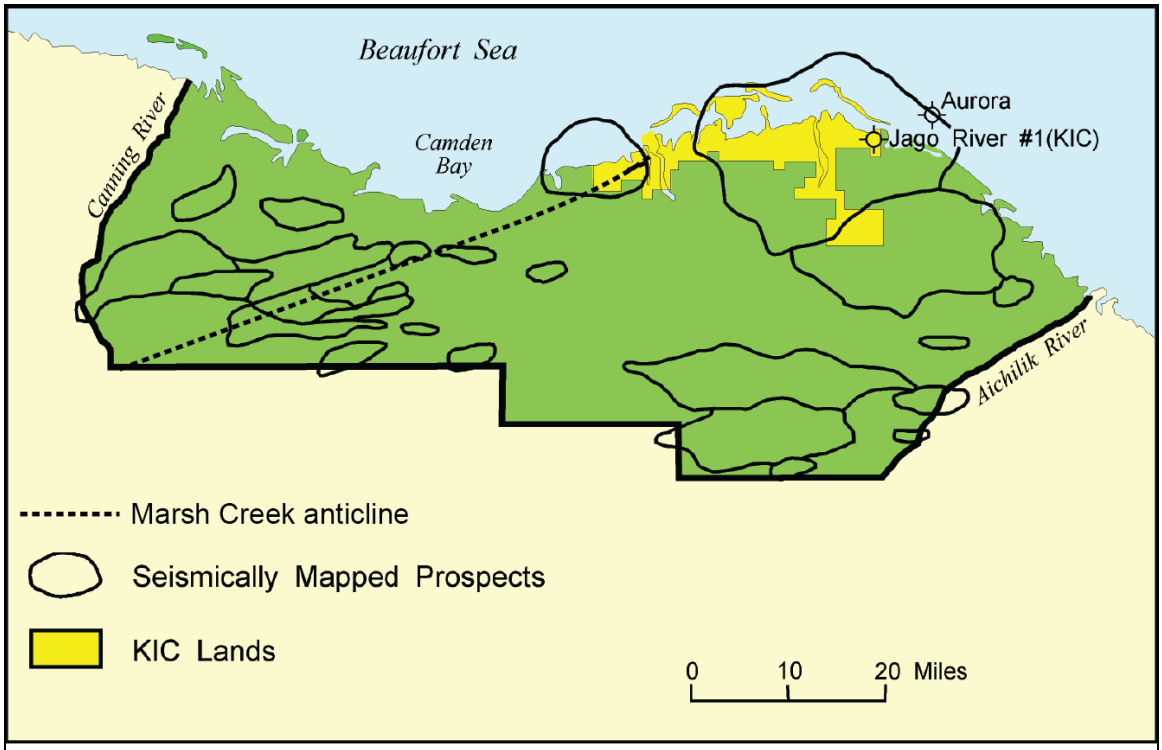
[43] Emil D. Attanasi and Philip A. Freeman, *Economic Analysis of the 2010 U.S. Geological Survey Assessment of Undiscovered Oil and Gas in the National Petroleum Reserve of Alaska*, U.S. Geological Survey, May 2011, at http://pubs.usgs.gov/of/2011/1103/ofr2011-1103.pdf.

[44] E. D. Attanasi, *Economics of 1998 U.S. Geological Survey's 1002 Area Regional Assessment: An Economic Update*, USGS Open-File Report 2005-1217, 2005). See Table 4. The three figures shown here include very minor amounts of natural gas liquids, which would be produced along with any oil.

[45] According to the 1998 USGS report, if state and Native lands are included, there is a mean estimate that 9.7 billion bbl could be economically recovered at this price, a 95% chance of 5.4 billion bbl or more, and a 5% chance of 14.6 billion bbl or more.

nearby development or if they became preferred locations for support facilities due to fewer restrictions on surface development.[46]

Figure 5. 1002 Area of Arctic National Wildlife Refuge (ANWR)



Seismic Prospects used by BLM for estimating undiscovered economically recoverable oil resources in the 1002 Area - ANWR in 1987 and 1991.

Sources: Based on Bureau of Land Management, *Comparisons Between Petroleum Systems in the Arctic National Wildlife Refuge, Alaska,* September 1998, at http://www.blm.gov/style/medialib/blm/ak/aktest/tr.Par.13487.File.dat/ak_tr18_1998.pdf. Marsh Creek anticline added by the Congressional Research Service based on Figure 2 in the U.S. Geological Survey's map in *Undiscovered Oil Resources in the Federal Portion of the 1002 Area of the Arctic National Wildlife Refuge: An Economic Update*, 2005, at http://pubs.usgs.gov/of/2005/1217/pdf/2005-1217.pdf.

Prices Unlikely to Support Natural Gas Development

USGS has projected that in addition to oil, large quantities of natural gas may be found in the 1002 Area, as in other areas on the North Slope. Unlike oil, the United States imports very little natural gas (about 10% of consumption in 2015, mostly from Canada). Prices for natural gas are more regionally based than oil, and with ample supplies, the United States has experienced relatively low prices over the last nine years compared to other parts of the world.[47]

Current North American natural gas prices likely would not support building the infrastructure, including a pipeline that would be required to transport ANWR natural gas to the lower 48 states or Canada. Globally, natural gas prices tend to be linked to oil prices, which have fallen since July 2014 by about 50%, and therefore natural gas prices around the world have declined, making

[46] For more detail on possible oil under Native lands and state waters, contact author for a copy of out-of-print CRS Report RS21170, *ANWR Oil: Native Lands and State Waters*.

[47] BP, *BP Statistical Review of World Energy, 2016*, June 2016, p. 27.

additional U.S. exports of liquefied natural gas (LNG) less attractive. This situation presents a major obstacle to developing ANWR's natural gas resources as well as those in the rest of northern Alaska. Natural gas prices in the United States, on average, are projected to stay relatively low compared to most other fuels for the rest of the decade and beyond.[48] The State of Alaska, through the Alaska Gasline Development Corp., has taken over as the lead developer of a project to export North Slope natural gas after partners Exxon Mobil, BP, and ConocoPhillips backed out.[49] If completed, the project, which is in its early stages of development, would consist of gas processing facilities on the North Slope, an 800-mile pipeline, and a liquefaction facility for export. The estimated cost is between $45 billion and $60 billion.

Advanced Technologies in Development and Production

The industry has looked for ways to adapt its practices to the harsh and changing environment of the Arctic region. The cost of operating in Arctic conditions is higher than the industry costs in other parts of the United States, in part due to the remoteness of the area. Environmental concerns have prompted companies to reduce their footprint in the region, which has resulted in smaller production sites, among other changes.

According to the American Petroleum Institute, in 2014 the average cost per well onshore and offshore in Alaska was 38% higher than the average cost per well onshore and offshore in the lower 48 states.[50] This cost differential highlights the difficulties and challenges of producing oil and natural gas in Arctic conditions and the need for substantial finds of oil and natural gas to cover the higher costs. The presumed dispersed nature of ANWR's oil and natural gas resources may make development too costly to pursue.

Recent Energy Information Agency (EIA) analyses have reinforced earlier findings. According to an EIA analysis in 2008, "the main impact of such approaches [enhanced recovery techniques such as natural gas reinjection and development of smaller fields] on the amount of oil actually recovered from ANWR is likely to occur after 2030, the current time horizon for EIA analyses."[51] Although prices are down since 2014, EIA concluded, concerning changing prices, that

> [t]he basic intuition that higher crude oil prices would likely result in higher ultimate recovery from whatever resource exists in place is sound. However, given the timing and cost considerations outlined above, EIA does not expect the recent increase in oil prices to affect the projected profile of ANWR development and production activities prior to 2030 ... Therefore, this current analysis of projected production from ANWR through 2030 parallels our prior recent analyses ... that have used similar or identical information on ANWR resources notwithstanding the recent run-up in world crude oil prices.[52]

[48] U.S. Energy Information Administration. *Annual Energy Outlook 2017*, Reference Case, Table: Energy Prices by Sector and Source, at https://www.eia.gov/outlooks/aeo/data/browser/#/?id=3-AEO2017&cases=ref2017&sourcekey=0.

[49] Margaret Kriz Hobson, "Alaska Advances LNG Project Against Long Odds," *Energywire*, February 6, 2017, online edition.

[50] American Petroleum Institute, Independent Petroleum Association of America, Mid-Continent Oil & Gas Association, *Joint Association Survey on 2014 Drilling Costs*, December 2015.

[51] U.S. Department of Energy, Energy Information Administration, *Analysis of Crude Oil Production in the Arctic National Wildlife Refuge*, May 2008, p. 6, at https://www.eia.gov/analysis/requests/2008/anwr/.

[52] Ibid., p. 8.

Reducing the footprints of development has been a major goal of industry, partly in an effort to reduce environmental impacts and associated costs. As North Slope development proceeded after the initial discovery at Prudhoe Bay, oil field operators developed less environmentally intrusive ways to develop Arctic oil, primarily through innovations in technology. New drill bits and fluids and advanced forms of drilling—such as extended reach, horizontal, and "designer" wells—permit drilling to reach laterally far beyond a drill platform. Advanced drilling technologies are commonly more costly than simpler techniques.

In the 1002 Area, ice-based transportation infrastructure may be modified or limited because of safety concerns resulting from the rolling terrain.[55] Normally, ice-based infrastructure can serve remote areas during the exploratory drilling phase on ice roads and on insulated ice pads at the drill site. During exploration, drilling pads made of ice are approximately 3-10 acres in size.[56] During the production phase, pads are built of gravel, and they can double in area. Pads are not regularly staffed during the production phase, and they are feasible when linked to larger pads providing worker housing, equipment storage and maintenance facilities, airfields, and other production support. The linkage may be by road or small airfields, which provide access for periodic maintenance or servicing.

The Alpine Development Example

Because it is held as a model of modern oil and gas development, the history of the Alpine field, located along the border of the National Petroleum Reserve-Alaska (NPRA) west of Prudhoe Bay, is relevant to ANWR's possible development. Run by Houston-based ConocoPhillips, it is considered innovative because of the short gravel road connecting the two initial pads and the lack of a road connection with the remainder of North Slope development, except in winter via ice road. At first, the two initial pads, their connecting road, and an airstrip totaled about 100 acres. In the next 10 years, two additional pads were added, including one connected by an additional road of more than 3 miles, plus a pipeline. The other pad is joined to the first two pads only by a pipeline; to compensate for the absence of a road, it has its own airstrip. A fifth pad inside NPRA was completed and is connected by a new 6-mile road; mineral rights at the fifth pad are owned largely by the Arctic Slope Regional Corporation. First production from the fifth pad began in October 2015. To support construction, additional facilities for office space and dormitories were added to the main Alpine camp.[53] Altogether, the expansion of the field was expected to add roughly 27.5 miles of gravel roads to the first 3 miles of roads and to create 1,845 acres of disturbed soils, including 316 acres of gravel mines or gravel structures.[54] Approximately 150 miles of roads would be constructed if the field is fully developed. The Alpine example illustrates the difficulty in keeping development to the smallest possible footprint as additional discoveries are made.

In addition, although oil and natural gas development is becoming more dependent on ice roads and pads in some areas of Alaska, by 2007 warming trends in Arctic latitudes shortened heavy equipment winter access across the tundra by more than 50% and led to changes in the standards for use of ice roads.[57] Industry has responded by creating new technologies to begin construction

[53] Construction history for the fifth pad taken from two ConocoPhillips press releases (both undated, but after October 2016), available at http://alaska.conocophillips.com/who-we-are/alaska-operations/Pages/alpine.aspx and at http://alaska.conocophillips.com/Documents/Fact%20Sheet%20CD5%20Construction%20-%20update.pdf.

[54] Bureau of Land Management, *Alpine Satellite Development Plan: Final Environmental Impact Statement*, September 2004, Figure 2.4.6-1, at http://www.blm.gov/eis/AK/alpine/dspfeisfig.html. Figures given here do not represent full development of the field over the next 20 years.

[55] On a slope, gravel structures provide greater traction than ice structures and have been permitted instead of ice pads for exploration on state lands south of Prudhoe Bay.

[56] U.S. Department of the Interior, Bureau of Land Management, *Northeast: National Petroleum Reserve - Alaska*, Final Supplemental: Integrated Activity Plan/Environmental Impact Statement (Vol. 2: Chap. 4, Secs. 4.1-4.6), May 2008, pp. 4-21. Note, ice pads closer to three acres likely require a larger pad close by to house workers and equipment.

[57] S. R. Bull, D. E. Bilello, J, Ekmann, M. J. Sale, and D. K. Schmalzer, 2007: Effects of climate change on energy production and distribution in the United States (Box 3.3) in *Effects of Climate Change on Energy Production and Use* (continued...)

of ice roads earlier in the winter, using different kinds of vehicles to construct ice roads sooner in winter. Over the long term, if warming trends continue, heavy reliance on ice technology could be reduced further and might force greater reliance on gravel structures, with inherently longer-lasting impacts and higher costs. Rigid adherence to ice technology (instead of more expensive gravel construction) might put some marginal fields out of reach due to the higher cost of exploration, development, or operations, due to the shorter season, or difficult terrain. Moreover, fields that could begin with few roads might expand their gravel road network as the field is defined. However, companies have adapted to the changing conditions, in some cases using two drilling rigs, starting ice road construction from both ends simultaneously, using aircraft to reach remote sites, and prepositioning equipment and materials so that tasks can be accomplished more quickly during the shorter winter season. Nevertheless, it is expected that projects, such as the possible development of ANWR, would need to adapt to a shorter development and maintenance season.

Development and operating technologies have advanced over earlier decades and could reduce or mitigate some environmental impacts of petroleum operations, but would not eliminate such impacts. Advocates of wilderness protection maintain that facilities of any size would still be industrial sites and would change the character of the Coastal Plain, in part because the sites would be spread out in the 1002 Area and connected by pipelines and probably roads. Instead of seeing the Alpine development (see box, "The Alpine Development Example") as an advance, they see its growing collection of footprints as indicative of the spread that would occur if the Refuge were opened for exploration and if commercial fields were developed over time.

Native Interests and Subsistence Uses

The Native community, both between and within its villages and organizations, is significantly divided on the question of energy development in the Refuge, but some patterns can be discerned. Generally, the Alaska Natives along the North Slope (Inuit) have supported ANWR development, whereas the Natives of interior Alaska (Gwich'in) have opposed it, though neither group is unanimous.[58] Some parts of the Native community are heavily dependent for their subsistence uses on the caribou herd that calves in the 1002 Area, and because of the lengthy migration of the caribou herds, this dependency is an important factor for them even if they live at a considerable distances from the coastal plain. Seeing energy development as a threat to the safety or success of

(...continued)

in the United States. A Report by the U.S. Climate Change Science Program and the Subcommittee on Global Change Research. Washington, DC. More recently, the Pacific Marine Environmental Laboratory at the National Oceanic and Atmospheric Administration summarized the situation:

> Rising temperatures are leading to a shortening of ice road transport seasons and the melting ice roads are creating transportation challenges. The opening dates for tundra roads in northern Alaska has shifted two months later from early November (pre-1991) to January (recent years), dramatically decreasing the potential work period during which ice roads can be used for transportation. It should be noted that the decrease in time of tundra travel is not only a function of warming, but also of changes in regulatory criteria. Recently, the ice road season has been extended by using low impact vehicles for initial pre-packing activities, careful choice of routes based on vegetation and landforms that are more resistant to damage, amending with snow and/or ice chips and new methods of ice road construction. (See http://www.pmel.noaa.gov/arctic-zone/detect/land-road.shtml?page=land, viewed on March 16, 2017.)

[58] For views of Native groups supporting development, see http://anwr.org/2014/11/residents-of-anwr-support-opening-the-refuge/. For views of Native groups opposing development, see https://www.culturalsurvival.org/news/alaska-natives-mount-resistance-latest-anwr-drilling-legislation.

calving season, these groups oppose drilling the Refuge. Among these opponents are most members of the Gwich'in tribe, whose members are found both south and east of the Refuge in Alaska and Canada.[59]

Among the Native groups supporting ANWR development are the Arctic Slope Regional Corporation (ASRC) and Doyon Limited (both Native regional corporations) and the Native Village of Kaktovik (a Native organization in Kaktovik, the only town within the coastal plain of ANWR). The chief arguments cited by these groups are the increases in both North Slope employment and revenues from increased business activity. According to ASRC, "Chevron Texaco and BP currently hold leases to all of the ASRC/KIC acreage within the ANWR coastal plain."[60] In support, they noted that the Central Arctic Herd of caribou has increased for a time; however, from 2010 to 2016, the herd declined from approximately 70,000 to 22,000.[61] (See "The Biological Resources" on caribou.)

The Biological Resources

The 1002 report, issued in 1987, rated the Refuge's biological resources highly—"The Arctic Refuge is the only conservation system unit that protects, in an undisturbed condition, a complete spectrum of the Arctic ecosystems in North America."[62] It also stated that "[t]he 1002 area is the most biologically productive part of the Arctic Refuge for wildlife and is the center of wildlife activity."[63] The biological value of the 1002 Area rests on intense productivity in the short Arctic summer; many species arrive or awake from dormancy to take advantage of this biological richness and leave or become dormant during the remainder of the year. Caribou have long been the center of the debate over the biological impacts of Refuge development. Among the other species most frequently mentioned are polar bears (which were listed under the Endangered Species Act[64] [ESA] as threatened in 2008), musk oxen, and the 135 species of migratory birds that breed or feed there. In addition, the effects of energy development on marine mammals (many of which are protected under ESA and all of which are protected under the Marine Mammal Protection Act)[65] could become an issue if expanded infrastructure development onshore made nearby offshore development more economically attractive.[66]

[59] The Gwich'in Steering Committee is the lead organization expressing this view. See http://ourarcticrefuge.org/.

[60] See http://www.asrc.com/Lands/Pages/Oil.aspx, viewed on March 6, 2017. Many Native supporters argue that development and production practices can be carried out so as to avoid damage to the caribou that calve in the area. For a sample of Native expressions of support, see statement of the Arctic Slope Regional Corporation regarding ANWR development "Alaskan Natives Support Development" at http://www.anwr.org/index2.php?option=com_content&do_pdf=1&id=52.

[61] See Fish and Wildlife Service, "Caribou," at https://www.fws.gov/refuge/arctic/caribou.html.

[62] 1002 report, p. 46.

[63] 1002 report, p. 46.

[64] 16 U.S.C. §§1531-1544. For more information on the Endangered Species Act, see CRS Report RL31654, *The Endangered Species Act: A Primer*, by (name redacted) and (name redacted) .

[65] 16 U.S.C. §1361ff. For more information on the Marine Mammal Protection Act, see CRS Report R41613, *Fishery, Aquaculture, and Marine Mammal Issues in the 112th Congress*, by (name redacted).

[66] For more information on biological resources of the 1002 Area, see the ANWR Revised Comprehensive Conservation Plan, at https://www.fws.gov/home/arctic-ccp/. The changes in the polar environment due to climate change are affecting polar ecosystems. How these changes will affect the ecosystem of the ANWR coastal plain is uncertain. For more on climate change effects on the polar environment, see CRS Report R41153, *Changes in the Arctic: Background and Issues for Congress*, coordinated by (name redacted) , and discussion of "Polar Bears" in this report.

Research

The Biological Resources Division of USGS published an updated assessment of the array of biological resources in the coastal plain in 2002. The report analyzed new information about caribou, musk oxen, snow geese, and other species in the Refuge, and it concluded that development impacts on wildlife would be significant.[67] A subsequent memorandum[68] on caribou by one of the assessment's authors clarified that if development were restricted to the western portion of the Refuge (an option being considered at that time by the George W. Bush Administration), the Porcupine Caribou Herd would not be affected during the early calving period, since the herd is not normally found in the area at that time. The memorandum did not discuss impacts that might occur when the herd subsequently moved into the area.

A March 2003 report by the National Research Council (NRC) highlighted impacts of existing development at Prudhoe Bay on Arctic ecosystems.[69] NRC noted harmful environmental impacts, including changes in the migration of bowhead whales, in distribution and reproduction of caribou, and in populations of predators and scavengers that prey on birds. NRC also credited industry for its strides in decreasing or mitigating environmental impacts. NRC cited some beneficial economic and social effects of oil development in northern Alaska, but it also said that some social and economic impacts have been harmful.[70] The NRC report specifically avoided determining whether beneficial effects were outweighed by harmful effects.

Industry supporters counter that impacts on wildlife can be reduced or mitigated by various measures. Among these are (1) restricting activities at the exploration phase to the winter season, with maximum use of ice roads and ice platforms; (2) careful placement of gravel roads and platforms to minimize wetlands disturbance; (3) re-injection of wastes below the permafrost layer; (4) limiting human access to the oil field; (5) management of garbage to avoid build-up of scavenger populations; (6) reducing the footprint of development; and (7) other measures already in effect in current oil fields.[71]

Polar Bears

In 2008, FWS listed polar bears as threatened under the ESA.[72] The primary factors in listing the species were the effect of accelerated polar climate change on polar bears and their prey

[67] USGS, *Arctic Refuge Coastal Plain Terrestrial Wildlife Research Summaries*, Biological Science Report: USGS/BRD/BSR-2002-0001. 2002. For example, see pp. 33-34 regarding caribou; pp. 62-63 regarding musk oxen; pp. 67-69 regarding polar bears; and pp. 73-74 regarding snow geese.

[68] Brad Griffith (USGS, Alaska Cooperative Fish and Wildlife Research Unit), Memorandum to Director, USGS, "Evaluation of additional potential development scenarios for the 1002 Area of the Arctic National Wildlife Refuge" (April 4, 2002).

[69] National Research Council (NRC), *Cumulative Environmental Effects of Oil and Gas Activities on Alaska's North Slope*, March 2003, p. 452, at http://dels.nas.edu/Report/Cumulative-Environmental-Effects/10639.

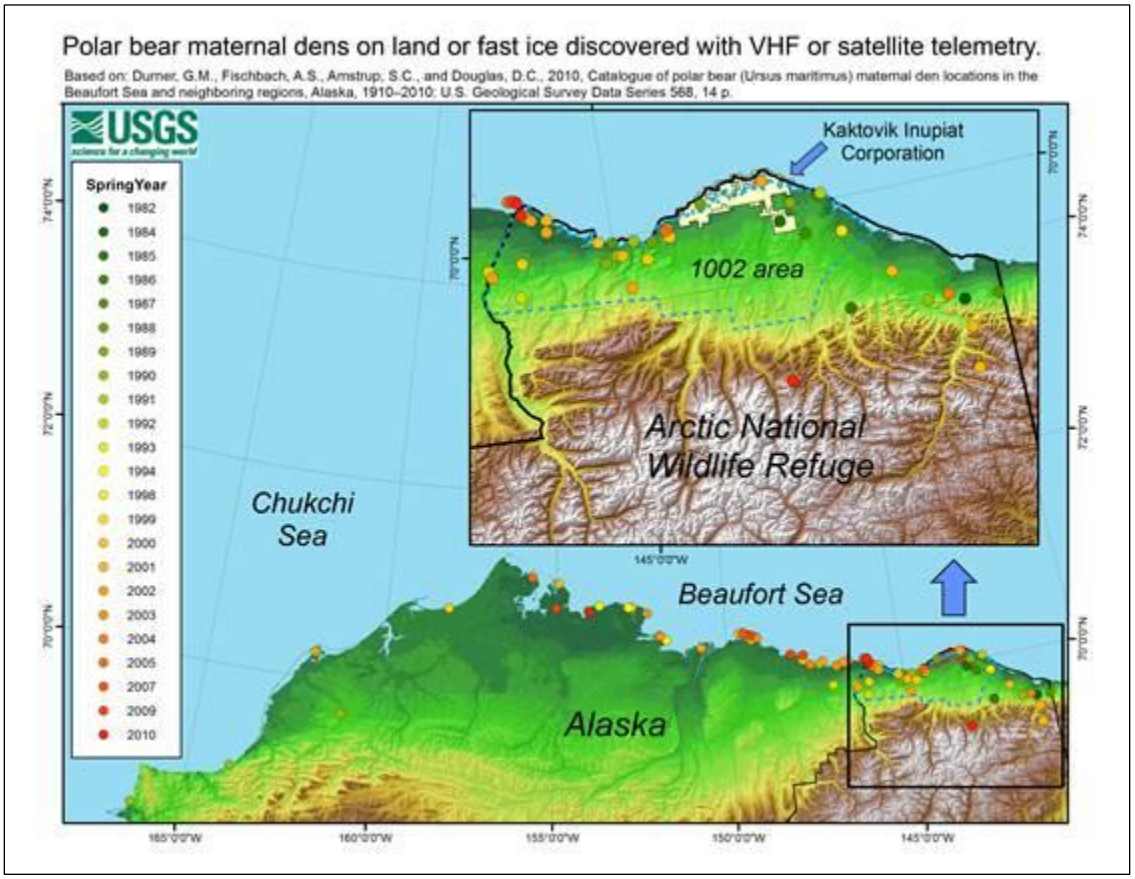
[70] Examples of impacts include marked increases in average local personal income of North Slope residents, changes in cultural traditions to both inland (Gwichi'in) and coastal (Inupiat) peoples, dependence on a monetary economy that would eventually require significant sources of external revenue to maintain, lack of jobs in industry, effects on subsistence hunting and whaling, health impacts, and more. See NRC report, p. 214-240.

[71] See, for example, Fact Sheet "Strategic Energy Resources: ANWR, Alaska," American Petroleum Institute, at http://www.api.org/~/media/files/policy/exploration/energy-resources/08_04_21_strategic_energy_res_anwr.pdf.

[72] Fish and Wildlife Service, "Endangered and Threatened Wildlife and Plants; Review of Native Species That Are Candidates for Listing as Endangered or Threatened; Annual Notice of Findings on Resubmitted Petitions; Annual Description of Progress on Listing Actions," 73 *Federal Register* 28211-28303, May 15, 2008; 50 C.F.R. §17.11(h); Fish and Wildlife Service, "Endangered and Threatened Wildlife and Plants; Special Rule for the Polar Bear; Interim Final Rule," 73 *Federal Reg*ister 28305-28318, May 15, 2008; 50 C.F.R. §17.40(q). Also see CRS Report RL33941, (continued...)

(primarily seals) and the effects of oil and natural gas development. The ESA prohibits activities that harass or harm listed species.[73] The listing of polar bears could have a significant impact on energy development in ANWR, because the 1002 report stressed the unusual importance of the 1002 Area as a location for dens of pregnant female polar bears. (See **Figure 6**.) Female polar bears are known to abandon their dens when disturbed. If the cubs are young and unable to maintain their body temperature, abandonment of a den would probably be fatal. The arguments against listing, as cited by FWS in the final rule to list the species, included observations that the species was increasing in population in some parts of the Arctic; the possibility that some species of seals (a common prey for polar bears) might increase; questions concerning the accuracy of climate models as they might affect population levels of the species; and claims that existing regulations were adequate to maintain population levels. FWS analyzed these arguments, holding that, on balance, the species warranted listing as threatened throughout its range.

Figure 6. Terrestrial Polar Bear Den Locations in Northern Alaska
(1982-2010)



Source: U.S. Geological Survey, based on the portion of the data collected by telemetry from 1982 to 2010 in the cited report. Supplied by USGS on March 17, 2017.

(...continued)

Polar Bears: Listing Under the Endangered Species Act, by (name redacted), (name redacted), and (name redacted) .

[73] 16 U.S.C. §1532(19); 16 U.S.C. §1538(A)(1); and 50 C.F.R. 17.3.

In December 2010, FWS established a wide area in northern Alaska, including the 1002 Area and a considerable area offshore, as critical habitat under ESA for polar bears.[74] The designation provided a stronger role for the ESA in shaping any federal agency activities, such as energy development, taking place in critical habitat. Under ESA, federal agencies must avoid actions that jeopardize listed species or that destroy or adversely modify their designated critical habitat.[75] The action agency must consult with FWS (or the National Marine Fisheries Service for some species) to determine whether such jeopardy or destruction might occur. If there is such a risk, the action agency must modify the action to reduce the risk.[76] Scientists cite research on the risk to polar bears: many female polar bears have responded to thinning or vanishing offshore ice by moving more of their dens to locations onshore, and many females that historically denned on land to the west of Prudhoe Bay have moved their dens to the east, into or nearer the Refuge.[77] This shift increases the importance of the Refuge's coastal plain to the polar bear population and adds to the significance of consultation under ESA in any federal action related to exploration; this heightened importance is because exploration and development are more likely to take place in winter, when such activities are more cost-effective, but also when denning female polar bears are likely to be present.

The Basic Question: To Protect or To Develop?

The basic and most contentious ANWR question Congress has considered has been whether to permit energy development in the 1002 Area. Taking no action has left current prohibitions on development in place; legislative proposals have ranged from designating the 1002 Area as wilderness to designating it as a national monument to allowing partial or full development. The analysis below describes some of the issues that have been raised most frequently in the past legislative debate.

In addition to the basic issue of whether development should be permitted at all, key aspects of the past legislative debate have included restrictions that might be specified in legislation: limits on the footprints of development; the regulation of activities on Native lands; the disposition of revenues; labor issues; oil export restrictions; compliance with the National Environmental Policy Act (NEPA);[78] and other matters. These issues are discussed below under "Development Options and Issues." If Congress chooses to add further protection to the 1002 Area, any development options would become moot. Therefore, protection options and issues will be considered first, followed by development options and issues.

Protection Options and Issues

Interest in protecting the ecosystem of the Arctic Refuge and its coastal plain has focused on protecting the array of wildlife found living within its borders or using the 1002 Area of the

[74] Fish and Wildlife Service, "Designation of Critical Habitat for the Polar Bear (*Ursus maritimus*) in the United States; Final Rule," 75 *Federal Register* 76086, Dec. 7, 2010.

[75] 16 U.S.C. §1536.

[76] For a more detailed discussion of consultation under ESA §7, see CRS Report RL31654, *The Endangered Species Act: A Primer*, by (name redacted) and (name redacted) .

[77] The proportion of dens on pack ice declined from 62% in 1985–1994 to 37% in 1998–2004. See A.S. Fischbach, S.C. Amstrup, and D.C. Douglas, "Landward and eastward shift of Alaskan polar bear denning associated with recent sea ice changes," *Polar Biology*, 30 (2007), pp. 1395-1405. The authors concluded that the changes in denning related to changing ice conditions.

[78] 42 U.S.C. §§4321-4347.

Refuge seasonally. (See "The Biological Resources.") To date, three options have been discussed to achieve that end: (1) wilderness designation; (2) designation as a national monument; and (3) maintaining the status quo.

Wilderness Recommendation and Designation

The strongest environmental protection for the 1002 Area would be wilderness designation by Congress.[79] As noted previously, the FWS Revised Comprehensive Conservation Plan (RCCP), approved in January 2015, recommended this protection.[80] However, the recommendation does not change current management policies.

Energy development is not permitted in wilderness areas unless there are preexisting rights or unless Congress specifically allows it.[81] Wilderness designation generally prohibits commercial activities and may tend to preserve existing recreational opportunities and related jobs, as well as the existing subsistence resources. (In the 1002 Area, this protection of subsistence resources would include the Porcupine Caribou Herd, for example.)

The practical effect of the RCCP wilderness recommendation appears limited, however, because it produces little if any change in the current minimal management policy and no change in the Alaska National Interest Lands Conservation Act's (ANILCA's) Section 1003, which already prohibits energy exploration and development.[82] Unless Congress acts, FWS will continue to manage the area to preserve its wilderness values:

> Until Congress makes a decision regarding their designation, lands recommended for Wilderness status are managed under the Minimal Management category. If Congress were to designate recommended lands, only then would their management convert to Wilderness Management as defined in the Revised Plan.[83]

The Wilderness Act, directly and by cross-reference in virtually all subsequent wilderness statutes, generally prohibits commercial activities, motorized uses, and roads, structures, and facilities in congressionally designated units of the National Wilderness Preservation System. Specifically, Section 4(c) states,

> Except as specifically provided for in this chapter, and subject to existing private rights, there shall be no commercial enterprise and no permanent road within any wilderness area designated by this Act and, except as necessary to meet minimum requirements for the administration of the area for the purpose of this Act (including measures required in emergencies involving the health and safety of persons within the area), there shall be no temporary road, no use of motor vehicles, motorized equipment or motorboats, no landing of aircraft, no other form of mechanical transport, and no structure or installation within any such area. (16 U.S.C. 1133(c))

[79] Only Congress can designate an area as wilderness, but as with any legislation, a later Congress could still reverse the designation and authorize development.

[80] See ANWR, "Revised Comprehensive Conservation Plan. Final Environmental Impact Statement," January 2015, at http://www.fws.gov/home/arctic-ccp/.

[81] See out-of-print CRS Report R41649, *Wilderness Laws: Statutory Provisions and Prohibited and Permitted Uses*, available upon request from the authors.

[82] For more on wilderness uses, see out-of-print CRS Report R41649, *Wilderness Laws: Statutory Provisions and Prohibited and Permitted Uses*, available upon request from the authors.

[83] RCCP, Executive Summary, p. S-47; also see Table 1, S-25-26 for details on a range of activities that are permitted in the ANWR areas recommended for wilderness status. Section 707 of the Alaska National Interest Lands Conservation Act also directs management of wilderness areas in accordance with the Wilderness Act.

Section 4 thus prohibits most businesses, except "for activities which are proper for realizing the recreational or other wilderness purposes of the areas" (§4(d)(6)). It also effectively prohibits development of commercial resources, such as timber, although the Wilderness Act permits livestock grazing and some mineral development.

Designation as a National Monument

Some groups seeking to preserve the 1002 Area advocate proclaiming the area as a national monument, using the President's power under the Antiquities Act.[84] However, ANILCA's Section 1326 limits withdrawals from the public lands in Alaska to 5,000 acres unless Congress passes a joint resolution to approve the withdrawal within one year of the President's proclamation. Congress could designate the 1.5 million acres of 1002 Area as a national monument, a designation which does not necessarily convey the more clearly defined statutory protections provided in the Wilderness Act.[85] Consequently, it is unclear how a congressional monument designation could restrict development any more than ANILCA already does. If Congress wished to protect the area, designating it as wilderness arguably would have a bigger impact.

Status Quo

Another option is to take no new legislative action. Those supporting no new action often argue that not enough is known about either the probability of discoveries of recoverable oil or the environmental impact if development is permitted. Others argue that oil deposits should be saved for an unspecified "right time."[86] Because current law prohibits development unless Congress acts, the no-action option also prevents energy development on both federal and Native lands because of the provisions of ANILCA and the 1983 Agreement. (See "Legislative History of the Refuge.")

Development Options and Issues

Development is the other basic option. Within this option, Congress might choose simply to authorize development, or it could set specific restrictions or relaxations of other laws that would apply. Below are several of the options and issues that could be addressed in development legislation.

Environmental Protection

If Congress authorizes development, it could address environmental matters in several ways. Congress could impose a higher standard of environmental protection than is normally required because the 1002 Area is in a national wildlife refuge or because of the fragility of the Arctic environment, or it could legislate a lower standard to facilitate development. The choice of administering agency and the degree of discretion given to that agency also could affect the approaches to environmental protection. For example, Congress could make either FWS or BLM

[84] 16 U.S.C. §431. See, for example, Sierra Club Press Release of Dec. 6, 2010, "Arctic 50th Anniversary: Make It a Monument, Citizens Say," at http://action.sierraclub.org/site/PageNavigator/E-Newsletters/Pressroom.

[85] For a description of the protection options afforded by national monument designation, see CRS Report R41330, *National Monuments and the Antiquities Act*, by (name redacted) .

[86] Both of these arguments have been elements in bills directing a preliminary exploration program in the 1002 Area. See, for example H.R. 3601 in the 100th Congress. As introduced, this bill contained a provision for a limited exploration program directed by DOI; the resulting data were to be used in shaping a subsequent leasing and development program. The idea appears not to have been contained in bills introduced in later congresses.

the lead agency (possibly assuming that FWS management would give more support to protecting wildlife values).[87] It could include provisions requiring use of "the best available technology," "the best commercially available technology," or some other standard. Existing laws such as NEPA and ESA already require consideration of various environmental impacts of federal actions. Or, to facilitate development, Congress could choose to limit judicial review under NEPA, ESA, or other laws, of some or all of a development program, including standards and implementation. Congress also could leave much of the environmental direction to the Secretary. (References below to the "Secretary" refer to the Secretary of the Interior, unless stated otherwise.) A number of bills in various Congresses contain language that would require the Secretary to ensure that leasing, development, and production have "no significant adverse effect on fish and wildlife, their habitat, subsistence resources, and the environment ... by requiring the application of the best commercially available technology." However, the bill could also require "the receipt of fair market value by the public for the mineral resources to be leased."[88] The latter language appears to subordinate environmental protection to fair market value by specifying that the Secretary's duty to the former must be carried out "in a manner that ensures" fair market value for the mineral resources.

Size of Footprints

Newer technologies permit greater consolidation of leasing operations, which tends to reduce the size and the environmental impacts of development. Since the 1980s, an element of the ANWR debate in Congress has been the size of the footprints—or physical area—in the development and production phases of energy leasing. The term *footprint* does not have a universally accepted definition (e.g., the inclusion of exploratory structures, drilling pads, roads, gravel mines, port facilities, etc.), and therefore the types of structures falling under a *footprint restriction* are arguable.[89] In addition, it is unclear whether exploratory structures, or structures on Native lands, would be included under any provision limiting footprints.[90]

For over a decade, development bills for ANWR have proposed a 2,000-acre limit on the acreage of surface disturbance.[91] Development facilities have to be dispersed, because one single consolidated facility of 2,000 acres (3.1 square miles) would not permit full development of the 1002 Area. Dispersal is necessary due to the limits of lateral (or extended-reach) drilling. Full development of the 1002 Area would require that facilities, even if limited to 2,000 acres in total

[87] The mission of the National Wildlife Refuge System is "to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans." (16 U.S.C. §668dd). In contrast, for BLM, Congress declared that "the public lands be managed in a manner which recognizes the Nation's need for domestic sources of minerals, food, timber, and fiber from the public lands including implementation of the Mining and Minerals Policy Act of 1970 (84 Stat. 1876, 30 U.S.C. 21a) as it pertains to the public lands.... " (43 U.S.C. §1701(a)(12).

[88] For example, in the 114th Congress see Section 3(a) of H.R. 339.

[89] See CRS Report RL32108, *North Slope Infrastructure and the ANWR Debate*, by (name redacted)

[90] For discussion of an acreage limit, see CRS Report RS22143, *Oil and Gas Leasing in the Arctic National Wildlife Refuge (ANWR): The 2,000-Acre Limit*, by (name redacted) and (name redacted).

[91] It is unclear where the specific figure of 2,000 acres originated. It first appeared in legislation in the 107th Congress on August 1, 2001, when the House passed the Sununu amendment (H.Amdt. 297) to H.R. 4 to limit specified surface development of the 1002 Area to a total of 2,000 acres (228-201, recorded vote #316). With small variations (e.g., see S. 352 in the 112th Congress), it has been a common feature of ANWR development bills since that date. The language of the provision is not entirely clear on whether all surface disturbances necessary to development would be included under the restriction.

surface area, be widely dispersed. However, it is important to remember that the location and dispersal of any potential oil and natural gas in ANWR remains unknown.

Although the cost of lateral drilling has declined somewhat, it remains more expensive than simpler methods. As a result, strict adherence to a 2,000-acre limit could make some marginal fields uneconomic or inaccessible. If so, a policy choice could be between not developing such fields, and expanding the allowed limit on the footprint of development. If no new technology were developed to enable economical drilling with greater extended-reach, industry would likely prefer to expand the footprint, rather than to allow otherwise economic resources to be neglected.

The structures themselves have the potential for impacts over a much larger portion of the 1002 Area. Research evidence indicates that the roads, pads, airfields, gravel mines, pipelines,[92] and other structures, plus associated human activity, may deter caribou cows from calving in areas that have been most frequently used in the past, cause avoidance by cows with very young calves, or deter other species that use the 1002 Area.[93] Expansion beyond 2,000 acres likely would be opposed by development critics based on impacts on recreation, subsistence, vegetation, and wildlife beyond areas actually covered by development.[94]

In some previous bills, the 2,000-acre limit was dropped in favor of a more expansive provision to limit surface occupancy to 10,000 acres for every 100,000 acres leased.[95] A footprint restriction at this standard would allow for development of more remote areas. Moreover, if the length of the winter season, when ice-based technology is feasible, continues to decline, this provision would allow more gravel surfaces generally and could make more prospects attractive to industry.

Native Lands

As noted (see section on "Chandler Lake Agreement of 1983"), if oil and natural gas development were authorized for the federal lands in the Refuge, then development also would be allowed or would become feasible on the nearly 100,000 acres of Native lands. Any acreage limitation applying to development on the federal lands might or might not affect Native lands, depending on how development legislation was framed. The extent to which the Native lands might fall under any management restrictions on the 1002 Area as a whole, and therefore could be regulated to protect the environment, is uncertain, given the status of allotments and some of the language in the 1983 Agreement cited above.[96]

[92] There is debate on how to count the footprint of a pipeline. To date, legislative limits on footprints have uniformly counted only the area covered by pipeline supports: S. 494 in the 114th Congress refers to "piers for support of pipelines" in its provision limiting the footprints of development. Wilderness advocates would count, at minimum, the entire area underneath a pipeline, and usually some area beyond that, to account for disturbance to wildlife, any changes in vegetation, or any other effects.

[93] The question of displacement of caribou during the calving period has been raised frequently in this debate, and has been documented in various studies. See, for example, C. Nellemann and R.D. Cameron, "Cumulative impacts of an evolving oil-field complex on the distribution of calving caribou," *Canadian Journal of Zoology*, vol. 76 (1998), p. 1435.

[94] A variety of effects are commonly cited by environmental or scientific groups. A list of such effects beyond the immediate physical footprint of structures may be found at http://arcticcircle.uconn.edu/ANWR/anwr_fws.htm.

[95] For example, see H.R. 3407 (Section 8(a)(3)) in the 112th Congress.

[96] See also CRS Report RL31115, *Legal Issues Related to Proposed Drilling for Oil and Gas in the Arctic National Wildlife Refuge (ANWR)*, by (name redacted), and "Evolving Maps" below.

Evolving Maps

During the 109th Congress, bills in both the House and Senate would have created ANWR leasing programs. They contained new definitions of the term *Coastal Plain* by referencing maps that had not been used in past legislation.[97] The Coastal Plain was first defined in Section 1002 of ANILCA as the area indicated on an official August 1980 map referenced in ANILCA. An administrative articulation of the boundary by the Secretary of the Interior was authorized by Section 103(b) of ANILCA, and has the force of law. The 1980 map is missing from FWS files.[98] Because the 1980 map is missing, evaluating whether the administrative description[99] properly reflected that map is now impossible. The description excluded three Native townships from the articulated Coastal Plain (1002 Area).[100] (Some bills in various Congresses also have excluded these same Native lands from the 1002 Area by referring to the 1980 map and the administrative description.) As noted, the fourth Native township (selected later) is not excluded from the Coastal Plain (1002 Area) by that description. The choice of new or old maps or new or old legal descriptions, with their varying inclusions and exclusions, may affect Native rights, environmental restrictions, development costs, or resource potential.

Revenue Disposition

Another issue is whether Congress may validly provide for a disposition of revenues other than the 90% state-10% federal split mentioned in the Alaska Statehood Act (P.L. 85-508)[101] A court indicated that the language in the Statehood Act means that Alaska is to be treated like other states for federal leasing conducted under the Mineral Leasing Act (MLA), which contains (basically) a 90%-10% split.[102] Arguably, Congress could establish a different, non-MLA leasing regimen—such as the existing separate leasing arrangements that govern the National Petroleum Reserve-Alaska, where the revenue sharing formula is 50%-50%—but this matter was not before the court and hence remains an open issue.[103] Most development bills in the past have opted for a 50%-50% federal-state split, often allocating a small part of the federal share to aid Alaska in dealing with impacts of development and the remainder to benefit one or more federal conservation, land acquisition, or energy efficiency programs. Sometimes these last provisions provided for mandatory spending.

Project Labor Agreements

In general, project labor agreements (PLAs) are a recurring issue in federal and federally funded projects. The issue is whether project owners or contractors should be required, by agreement, to use union workers under PLAs. Such agreements have been a feature of most ANWR development bills over the last 30 years. PLAs establish the terms and conditions of work that

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[97] See CRS Report RS22326, *Legislative Maps of ANWR*, by (name redacted)

[98] Felicity Barringer, "Arctic Map Vanishes, and Oil Area Expands," *New York Times*, October 21, 2005. The cause of the map's disappearance is not known, and it is still missing. (Personal communication with FWS, March 4, 2015.)

[99] 48 Fed. Reg. 16858, Apr. 19, 1983; 50 C.F.R. Part 37, App. I.

[100] Questions continue to surround this description. See CRS Report RL31115, *Legal Issues Related to Proposed Drilling for Oil and Gas in the Arctic National Wildlife Refuge (ANWR)*, by (name redacted).

[101] For more on the sharing of federal revenues with states, see CRS Report R41770, *Leasing and Selling Federal Lands and Resources: Receipts and Their Disposition*, by (name redacted) and (name redacted) .

[102] Alaska v. United States, 35 Fed. Cl. 685, 701 (1996).

[103] For more on this issue, see CRS Report RL31115, *Legal Issues Related to Proposed Drilling for Oil and Gas in the Arctic National Wildlife Refuge (ANWR)*, by (name redacted).

would apply for the particular project, and they also may specify a source to supply the craft workers. Construction and other unions strongly support PLAs and argue that PLAs ensure a reliable, efficient labor source, help keep costs down, and ensure access for union members to federal and federally funded projects. PLA provisions in past ANWR bills have led to labor endorsements from some unions, such as the Teamsters[104] and the Iron Workers.[105] (Union support of ANWR development has not been unanimous, however, as some unions see more job creation in other energy strategies.) Opponents, including nonunion firms and their supporters, believe PLAs inflate costs, reduce competition, and unfairly restrict access to those projects.

Oil Export Restrictions

Export of North Slope oil in general, and any ANWR oil in particular, has been an issue, beginning with the authorization of the Trans Alaska Pipeline System. The Trans Alaska Pipeline Authorization Act specified that oil shipped through the pipeline could be exported internationally,[106] but only under restrictive conditions. In the mid-1990s, high volumes of Alaskan oil that could legally be shipped only to the four Pacific states resulted in falling oil prices on the West Coast.[107] As California prices fell below the world market in the mid-1990s, there were complaints from both North Slope and California producers. Congress responded by amending the MLA to provide that oil transported through the pipeline may be exported unless the President finds, after considering specified criteria, that exports are *not* in the national interest.[108] North Slope exports rose to a peak of 74,000 bbl per day in 1999, or 7% of North Slope production. These exports ceased voluntarily in May 2000 as West Coast buyers had to pay world prices to compete with foreign buyers for Alaskan oil.[109] The first crude export cargo from the North Slope in a decade left Alaska in September 2014 destined for South Korea.[110] Since 2014, additional cargos of Alaskan crude oil have been exported, with total Alaskan crude exports for 2016 at about 3 million barrels or 8,400 bbl per day.

NEPA Compliance

NEPA requires the preparation of an environmental impact statement (EIS) to examine major federal actions with significant effects on the environment and to provide the opportunity for public involvement in agency decisions. The last full EIS examining the effects of development in ANWR was the 1002 report, which was completed in 1987. NEPA requires an EIS to analyze an array of alternatives, including a no-action alternative—a process that can take years for complex or controversial actions. To hasten development in ANWR, some bills have included provisions to truncate the process by stipulating that the 1002 report would be considered as satisfying NEPA requirements. The 30-year gap and changed circumstances since the last analysis could

[104] See http://old1.teamster.org/comm/leader/sept2001.htm#1.

[105] See *The Ironworker*, June 2012, p.6. However past expressions of support may have weakened, as some union members see greater opportunity in the renewable energy sector. For example, see https://www.bluegreenalliance.org/wp-content/uploads/2016/08/092713-FutureOfOil_vFINAL.pdf. This paper makes no specific mention of the ANWR debate, however.

[106] P.L. 93-153; 43 U.S.C. §§1651 et seq.

[107] Very minor amounts also went through the Panama Canal to refineries on the Gulf of Mexico.

[108] P.L. 104-58, 30 U.S.C. §185(s).

[109] For additional information on U.S. crude oil export policy, see CRS Report R43442, *U.S. Crude Oil Export Policy: Background and Considerations*, by (name redacted) et al.

[110] Michael Muskal, "Alaska oil, exported for first time in a decade, heads to South Korea," *Los Angeles Times*, September 30, 2014.

necessitate a thorough update of the 1002 report if development is authorized unless development legislation were to waive a new examination.[111] The 2015 RCCP is simultaneously a final environmental impact statement, which could obviate the need for some more recent analysis of some matters addressed therein; notably, the document does not analyze impacts of energy development, because the activity is prohibited under current law.

Compatibility with Refuge Purposes

Under current law for the management of national wildlife refuges (16 U.S.C. §668dd), and under regulations at 43 C.F.R. Section 3101.5-3 for Alaskan refuges specifically, an activity may be allowed in a refuge only if it is compatible with the purposes of the particular refuge and with those of the National Wildlife Refuge System as a whole. Many past bills have addressed this issue by stating that the energy leasing program and activities in the 1002 Area would be deemed to be compatible with the purposes for which ANWR was established and that no further findings or decisions would be required to implement this determination. This language appears to eliminate the usual compatibility determination that would be conducted by FWS. If a bill did not specify that development is to be considered compatible, the extent of leasing "activities" that might be determined to be compatible is debatable. For example, a compatibility test that rejected necessary support activities, such as construction and operation of port facilities, bridges, gravel mines, staging areas, and personnel centers, could prevent development.

Judicial Review

To put an ANWR leasing program in place promptly, the expediting, curtailing, or prohibiting of judicial review could help to achieve that goal. Congress could expedite judicial review through statute by reducing the time limits within which suits must be filed, avoiding some level(s) of review, curtailing the scope of the review, or increasing the evidentiary burden imposed on challengers. The counterargument raised in such discussions is that the prospect of judicial review leads to better decisionmaking by the agency, in full consideration of all statutory factors, and that judicial review provides the opportunity to correct any errors.

Special Areas

Within the context of development, and beginning with the 1002 report, there has been consideration of setting aside certain small portions of the 1002 Area to protect specific ecological or cultural values. This could be done by designating the areas specifically in legislation or by authorizing the Secretary of the Interior to set aside areas to be selected after enactment. The 1002 report identified four special areas that together total more than 52,000 acres (about 3% of the 1002 Area). The Secretary could be required to restrict or prevent development in these areas or any others that may seem significant, or to select among areas if an acreage limitation on such set-asides is imposed. Many past development bills have contained provisions that would limit the Secretary to prohibiting leasing in only a specific number of acres (commonly 45,000 acres).

[111] Only four years after the 1002 report was issued, a court in a declaratory judgment action (NRDC v. Lujan, 768 F. Supp. 870 (D.D.C. 1991)) held that DOI should have prepared a Supplemental EIS (SEIS) at the time to encompass new information about the 1002 Area in connection with the Department's recommendation that Congress legislate to permit development. With the passage of 26 additional years, it is still more likely that an SEIS or a new EIS would have to be prepared, absent specific direction to the contrary.

Conclusion

The Coastal Plain of the Arctic National Wildlife Refuge is an area that has been prized for decades for its biological and geological resources, and for generations by the people who have lived in it or depended on it for their livelihoods. Energy development has been prohibited since 1980, and the Obama Administration recommended further protection through congressional designation as wilderness. Congress has not acted on this recommendation nor enacted legislation related to ANWR development since that time. Interest in ANWR development and ANWR protection is now an active topic in part because of efforts by the Trump Administration and other federal and state policymakers to support fossil fuel development broadly and oil development in Alaska specifically. Basic choices for over three decades have focused on the relative value of all of the resources and, if energy development were to be legislated by Congress, the degree to which the environment and Native interests would be protected and at what cost. Also at issue is whether relevant factors and priorities have changed in a manner sufficient to affect policy decisions and significantly alter the debate going forward.

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