Congressional Research Service
Informing the legislative debate since 1914

Arctic National Wildlife Refuge (ANWR): An Overview

Laura B. Comay
Analyst in Natural Resources Policy

Michael Ratner
Specialist in Energy Policy

R. Eliot Crafton
Analyst in Natural Resources Policy

January 9, 2018

Congressional Research Service
7-5700
www.crs.gov
RL33872

CRS REPORT
Prepared for Members and Committees of Congress

Summary

In the ongoing energy debate in Congress, one recurring issue has been whether to allow oil and gas development in the Arctic National Wildlife Refuge (ANWR, or the Refuge) in northeastern Alaska. ANWR is rich in fauna and flora and also has significant oil and natural gas potential. Energy development in the Refuge has been debated for more than 50 years. On December 20, 2017, President Trump signed into law P.L. 115-97, which provides for an oil and gas program on ANWR's Coastal Plain. The Congressional Budget Office estimated federal revenue from the program's first two lease sales at $1.1 billion, but actual revenues may be higher or lower depending on market conditions and other factors. This report discusses the oil and gas program in the context of the Refuge's history, its energy and biological resources, Native interests and subsistence uses, energy market conditions, and debates over protection and development.

ANWR is managed by the U.S. Fish and Wildlife Service (FWS) in the Department of the Interior (DOI). Under P.L. 115-97, DOI's Bureau of Land Management (BLM) is to administer the oil and gas program in a portion of the 19-million-acre Refuge: the 1.57-million-acre Coastal Plain, also known as the 1002 Area. This area is viewed as a promising onshore oil prospect and is also a center of activity for caribou and other wildlife. It 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 DOI had recommended energy development, but the Alaska National Interest Lands Conservation Act of 1980 (ANILCA; 43 U.S.C. §§1601 et seq.) prohibited development unless authorized by an act of Congress. (Development was thus barred prior to the December 2017 enactment of P.L. 115-97.) The conflict between oil and natural gas potential and valued natural habitat in the Refuge has created dilemmas for Congress, with the most contentious question being whether to permit energy development in the 1002 Area. Previous legislative proposals ranged from those to designate the 1002 Area as wilderness or a national monument (with energy development prohibited) to those to allow partial or full development. Related questions have concerned 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. Under P.L. 115-97, surface development is limited to 2,000 acres, which need not be concentrated in a single area. Some contend that newer technologies will help to consolidate oil and gas operations and reduce the environmental impacts of development, whereas others maintain that facilities will likely spread out in the 1002 Area and significantly change the character of the Coastal Plain.

The history of ANWR is 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. The opening of federal lands in ANWR to development under P.L. 115-97 also opens adjacent Native lands. The Native community, both between and within its villages and organizations, is divided on the question of energy development in the Refuge.

Other legislation related to ANWR's Coastal Plain was introduced in the 115th Congress prior to the enactment of P.L. 115-97. H.R. 1889 and S. 820 would establish the Coastal Plain as wilderness, meaning there would be no commercial development, except to meet the minimum requirements for managing the area as wilderness. Such a designation would be consistent with recommendations made by the Obama Administration in its planning documents for the Refuge. By contrast, H.R. 49 and S. 49 proposed oil and gas leasing programs for the Coastal Plain, which are similar but not identical to the program mandated by P.L. 115-97. These bills address some issues that were not addressed in P.L. 115-97, such as environmental compliance, judicial review, and exports of ANWR oil. Congress could choose to consider some of these other issues in future legislation and oversight.

Contents

Figures

Contacts

Introduction

The prospect of oil development in the biologically rich ecosystem of the Arctic National Wildlife Refuge (ANWR, or the Refuge), on Alaska's North Slope, 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 Refuge that has potentially significant oil and natural gas resources and also serves as habitat for numerous species, such as polar bears, caribou, waterfowl, and others. The U.S. Fish and Wildlife Service (FWS), within the Department of the Interior (DOI), manages the Refuge and has periodically updated plans to guide its management.[1]

On December 20, 2017, President Trump signed into law P.L. 115-97, which establishes an oil and gas program in the Refuge's Coastal Plain,[2] to be administered by DOI's Bureau of Land Management (BLM).[3] The ANWR provisions were included in tax reform legislation enacted under the budget reconciliation process.[4] The law requires at least two lease sales (of no fewer than 400,000 acres each) for the Coastal Plain within 10 years and contains provisions for the distribution of revenues and royalties. Surface development is limited to 2,000 acres, which need not be concentrated in a single area.

The Congressional Budget Office estimated the state and federal revenue from the first two lease sales at approximately $2.2 billion over 10 years (with 50% of revenues—$1.1 billion—going to the State of Alaska and 50% to the federal government). However, once the areas for lease are determined, and depending on the market conditions at the time of the lease sales, the bids the government receives may be higher or lower. Drilling in ANWR, as elsewhere in the Arctic, is a difficult and expensive prospect. A key factor in what companies may bid for leases is the price of oil, which as of January 2018 is relatively low.[5] After acquiring a lease, companies will have to analyze seismic data and drill exploratory wells to determine where oil may be located and estimate amounts in relation to possible revenues, in order to decide if they want to develop any discoveries and produce oil. In addition to the work on hydrocarbon discoveries, moving oil found in ANWR to market will require infrastructure, most likely new pipelines, to transport the oil to shipping terminals and eventually to refineries.

The oil and gas program mandated by P.L. 115-97 is similar but not identical to ANWR oil and gas leasing programs proposed in two other bills in the 115th Congress, H.R. 49 and S. 49. These

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

[2] 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. This report also uses the term *1002 Area* when referring to this area (see "Alaska National Interest Lands Conservation Act," below, for the origin of this term).

[3] Although the Refuge as a whole is administered by FWS, under the Mineral Leasing Act of 1920 (MLA; 30 U.S.C. §§181 et seq.), BLM manages onshore federal energy and mineral resources, not only on its own lands but also on those of other federal agencies.

[4] For more information on the ANWR provisions, see CRS In Focus IF10782, *Arctic National Wildlife Refuge (ANWR) Provisions in Tax Reform Legislation*, by Laura B. Comay. For more information on the budget reconciliation process, see CRS Report R44058, *The Budget Reconciliation Process: Stages of Consideration*, by Megan S. Lynch and James V. Saturno.

[5] Currently there is no infrastructure to transport natural gas to market from Alaska's North Slope, including ANWR. Existing plans could possibly move natural gas by pipeline to a liquefaction facility, but that project is still being developed.

bills contain various provisions related to the program that were not included in P.L. 115-97, possibly owing in part to limitations imposed by the budget reconciliation process on the matters that can be considered in reconciliation legislation.[6] In addition to conducting oversight of the oil and gas program's implementation, Congress could choose to address some of these other issues—such as issues related to environmental compliance, judicial review, and special management areas within the Coastal Plain—in future legislation, or it could decide that the provisions of P.L. 115-97 provide sufficient guidance for the program. By contrast, two other bills in the 115th Congress, H.R. 1889 and S. 820, would establish the Coastal Plain as wilderness, meaning there would be no commercial development, except to meet the minimum requirements for managing the area as wilderness.[7] Such a designation would be consistent with recommendations in the Obama Administration's Revised Comprehensive Conservation Plan and Final Environmental Impact Statement (RCCP) for ANWR, finalized in January 2015.[8]

This report discusses the Refuge's legislative history (including Native claims and congressional actions from the 109th to the 115th Congresses), energy resources (including relevant market forces and potential oil and gas resources), Native interests and subsistence uses, and biological resources, as well as issues for Congress related to development under P.L. 115-97.

Background

ANWR, established by the Alaska National Interest Lands Conservation Act of 1980 (ANILCA; P.L. 96-487, 43 U.S.C. §§1601 et seq.), consists of 19 million acres in northeast Alaska. It is administered by FWS within DOI.[9] Development proponents view its 1.57-million-acre Coastal Plain—also known as the 1002 Area—as a promising onshore oil prospect.[10] According to the U.S. Geological Survey (USGS), the mean estimate of *technically* recoverable oil[11] 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.[12] (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

[6] In particular, the Senate's "Byrd rule" limits the inclusion of provisions extraneous to achieving the goals of the reconciliation instructions, including provisions that are outside the jurisdiction of the committee submitting the reconciliation measure. For more information, see CRS Report RL30862, *The Budget Reconciliation Process: The Senate's "Byrd Rule,"* by Bill Heniff Jr.

[7] 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" (16 U.S.C. §1132(c)). Prior to enactment of P.L. 115-97, the Coastal Plain had been managed under the Minimum Management Policy (MMP), which provides for minimal human intervention.

[8] 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.

[9] However, as discussed in footnote 3, the oil and gas program is to be administered by BLM, also a DOI agency.

[10] 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).

[11] *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.

[12] 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.

economic to produce. Since January 2014, oil prices have dropped by almost 40%, going from an average of $94.60/bbl to $60.37/bbl in the beginning of January 2018.[13] For all of 2017, nominal prices ranged from a high of $60.46/bbl to a low of $42.48/bbl.[14] In 2005, in the most recent analysis available on ANWR, when oil was priced at $67.65/bbl in 2017 dollars,[15] the mean estimate of *economically* recoverable oil on the federal lands in the 1002 Area was 7.1 billion bbl,[16] and there was a small chance that the federal lands could have had more than 10.7 billion bbl of economically recoverable oil.[17] (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 and analysis indicates that any ANWR oil would be scattered among multiple smaller fields rather 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.[18]

Congress's decision in P.L. 115-97 to open the federal lands on ANWR's Coastal Plain to energy development also opens the Coastal Plain's Native lands, based on current law. (See "Alaska Native Claims Settlement Act" and "Chandler Lake Agreement of 1983.") In addition, development in the Coastal Plain may make nearby state lands along the coast (already legally open to development) more economically 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.[19] In addition, there is a small chance that the three ownership areas might contain more than 14.6 billion bbl of economically recoverable oil (as opposed to the high-end estimate of 10.7 billion bbl for federal lands alone), if oil is priced at $67.65/bbl in 2017 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 section on "Oil Resource Potential" for further discussion of prices.)

[13] U.S. Energy Information Administration, *Spot Prices for Crude Oil and Petroleum Products*, January 8, 2018, at https://www.eia.gov/dnav/pet/pet_pri_spt_s1_d.htm.

[14] Ibid.

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

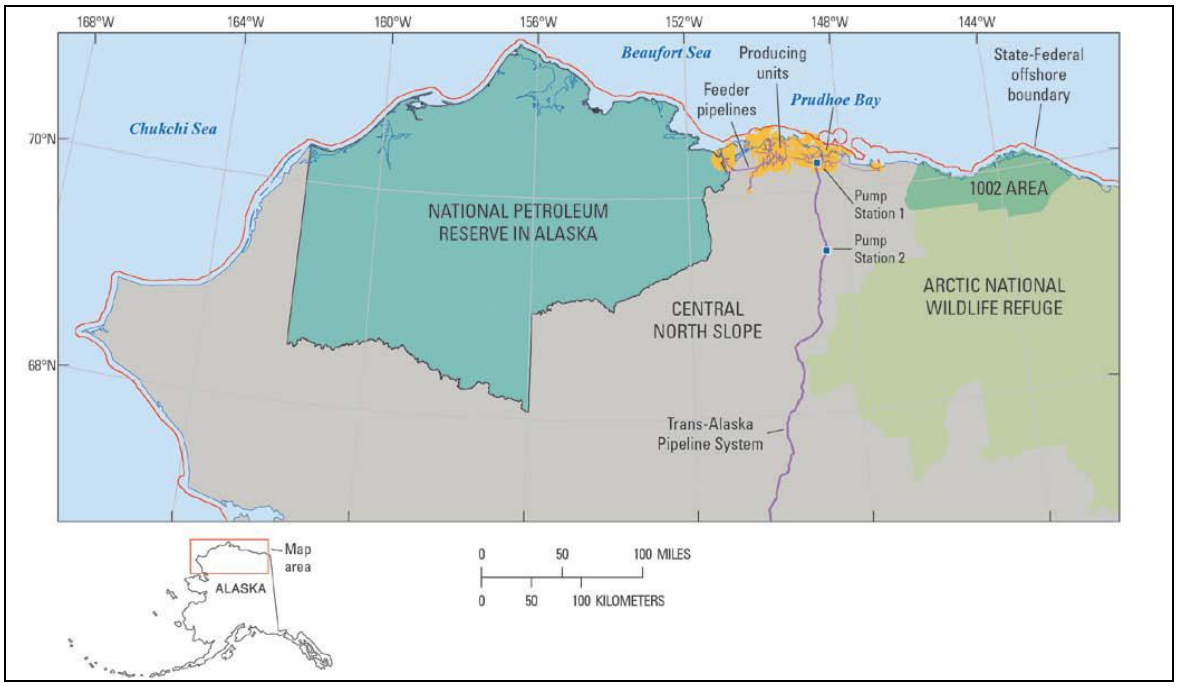
[16] *Economically recoverable* means the portion of technically recoverable resources that could be produced at a given price, accounting for costs, and including a return on capital. It is not accurate to assume that the amount of economically recoverable resources will go up in the same proportion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

[17] 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.

[18] 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.

[19] 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 Marc Humphries. 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 P.L. 115-97, 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.

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.

Old Geological Data, Old Prices, and New Interest

Because 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 the study completed by DOI 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.

The most recent federal government studies on economically recoverable amounts of oil were published in 2005, when oil was $67.65/bbl in 2017 dollars—higher than the January 2018 price of $60.37/bbl. Oil prices affect how much oil ultimately may be recovered economically, although the relationship is complex. (See "Advanced Technologies in Development and Production.")

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."[20] (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

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

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 prohibitions on oil exploration and development.

The analysis below discusses the legislative history of the Refuge; the economic and geological factors that have triggered interest in development; the Native interests in the area; biological and environmental quality factors; and ongoing issues for Congress.[21]

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.[22] 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.[23] Alaska was admitted to the Union in 1959. In 1960, PLO 2214 reserved the 1957 segregated area as the Arctic National Wildlife Range.[24] 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 prior to enactment of P.L. 115-97.

Alaska Native Claims Settlement Act

In 1971, Congress enacted the Alaska Native Claims Settlement Act (ANCSA)[25] to resolve Native claims against the United States. One purpose of ANCSA was to distribute land to Native

[21] 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 Pamela Baldwin. State lands on the coastal plain are shown at http://dog.dnr.alaska.gov/GIS/ActivityMaps.htm.

[22] 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.

[23] 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).

[24] DOI Public Land Order 2214, December 6, 1960, available at https://www.fws.gov/uploadedFiles/Region_7/NWRS/Zone_1/Arctic/PDF/ANWR_plo.pdf.

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

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.[26] Native *regional* corporations (for example, the Arctic Slope Regional 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) limited Native claims regarding oil development.[27]

Alaska National Interest Lands Conservation Act

In 1980, Congress enacted the Alaska National Interest Lands Conservation Act (ANILCA),[28] 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 DOI was completed in 1987 and is known as the 1002 report or the Final Legislative Environmental Impact Statement (FLEIS).[29] The 1002 report recommended full energy development.

For the future of the 1002 Area, the most significant aspect of ANILCA was Section 1003.[30] 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.[31]

---

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

[27] 43 U.S.C. §1621(g).

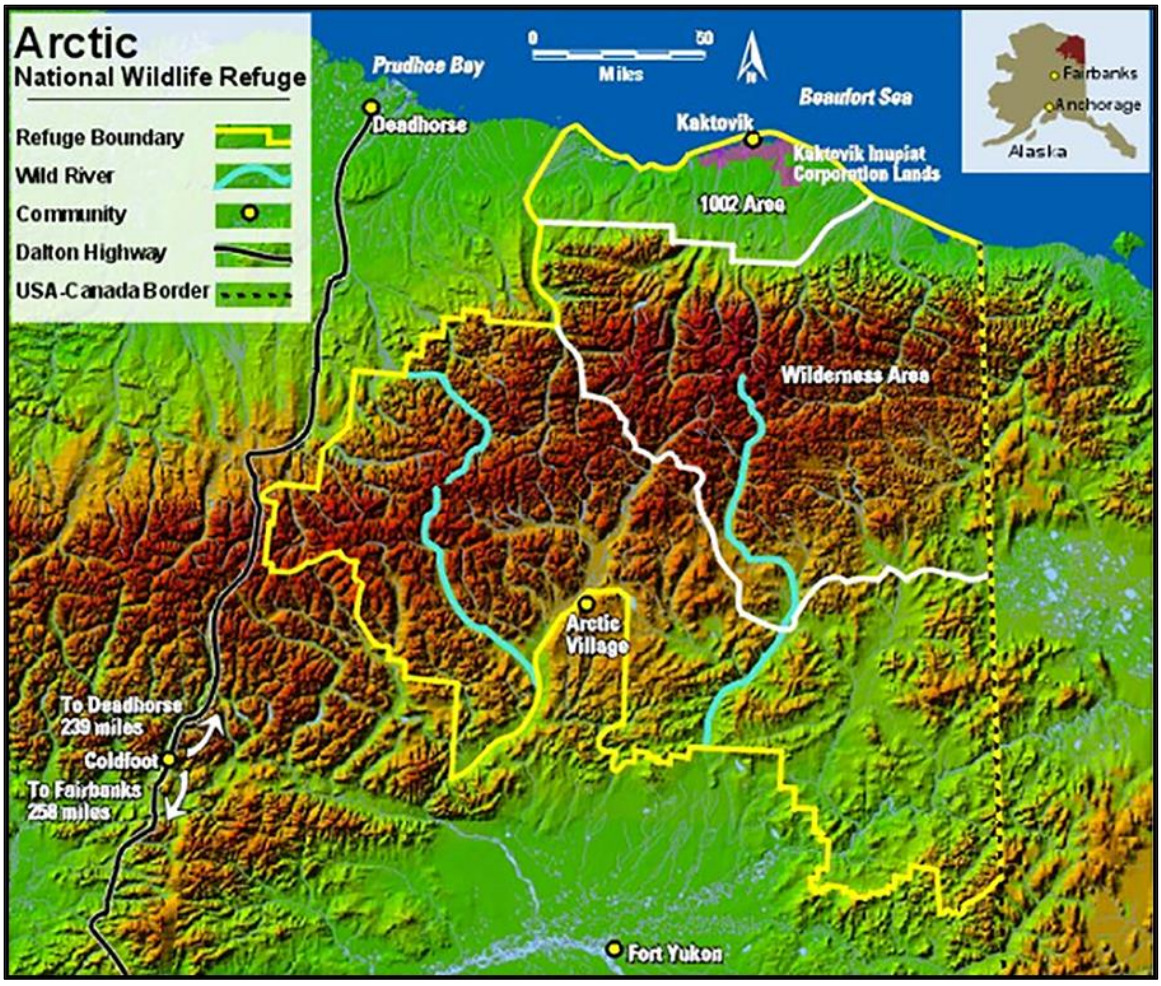
[28] P.L. 96-487, variously codified; provisions relating directly to ANWR are found at 16 U.S.C. §§3141-3144.

[29] 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, hereinafter known as the *1002 report*.

[30] 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."

[31] P.L. 115-97, enacted in December 2017, explicitly provided that Section 1003 no longer applies to the Coastal Plain. (continued...)

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,[32] excluded these three townships even though, in a geographic sense, they are within the coastal plain north of the Brooks Range. ANILCA further

(...continued)

For actions prior to the 115th Congress, including key votes, see CRS Report RL32838, *Arctic National Wildlife Refuge (ANWR): Votes and Legislative Actions Since the 95th Congress*, by Laura B. Comay.

[32] The definition was based solely with reference to a map, which is now missing. For more information, see CRS Report RS22326, *Legislative Maps of ANWR*, by M. Lynne Corn.

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 Coastal Plain. (In addition, there are at least eight individually owned Native allotments within the Coastal Plain 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.[33] The 1983 Agreement prohibited development of the ASRC lands in ANWR unless Congress opened ANWR, as Congress did in December 2017 in P.L. 115-97. The opening of ANWR for energy development could affect not only subsurface but also surface Native lands, to the extent that they may be available for storage, staging, and other development activities. The Native lands are not subject to the limitation in P.L. 115-97 on the maximum number of surface acres that may be developed (see "Size of Footprints").

Other Legislative Actions Prior to the 115th Congress

This section focuses on more recent actions, beginning with the 109th Congress. The ANWR debate in the 109th Congress included reconciliation bills (S. 1932 and H.R. 4241) under the budget process, which cannot be filibustered, and 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).[34] These bills would have provided for an expedited opening of the Refuge to development to address national energy needs.[35] Two bills (H.R. 567 and S. 261) would have designated the area as wilderness. In the end, the 109th Congress did not enact any changes to ANWR.

In the 110th Congress, a concurrent resolution (S.Con.Res. 70), which was rejected by the House, would have adjusted budget levels to assume increased revenues from opening ANWR to leasing and exploration. The Senate rejected S.Amdt. 4720 to S. 2284, which would have opened the Refuge to energy development. A number of other bills to open the 1002 Area to development also were introduced. Two bills (H.R. 39 and S. 2316) would have designated the area as wilderness. In the end, the 110th Congress did not send any bill with ANWR provisions to the President.

In the 111th Congress, 17 bills concerning the Refuge were introduced, but none was reported by committees in either the House or Senate.

One bill regarding the Arctic Refuge—H.R. 3407—was reported from committee during the 112th Congress.[36] Under its provisions, the Coastal Plain would have been opened to energy leasing, with BLM as the lead agency. H.R. 3407 would have required the Secretary of the Interior to

[33] Agreement Between Arctic Slope Regional Corporation and the United States of America (August 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.

[34] For more on the budget process and budget enforcement, see CRS Report RS20368, *Overview of the Congressional Budget Process*, by Bill Heniff Jr.

[35] 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.

[36] H.Rept. 112-393.

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. The bill also would have required that this program be administered to ensure "the receipt of fair market value by the public for the mineral resources to be leased," and would have limited the surface area covered by specified facilities to 10,000 acres per 100,000 acres of leased area. Other provisions included requirements for mitigation, limits to the venue and scope of legal challenges, stipulations regarding the development of regulations, prohibitions on public access to service roads, and other transportation restrictions. The bill would have allocated 50% of revenues from bonus bids, royalties, and rents to the U.S. Treasury. Two other 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, including 13 promoting development in some form and 2 promoting wilderness designation. No bills were reported by House or Senate committees during the 113th Congress.

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."[37] Two amendments (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.[38] 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.

Actions in the 115th Congress

On December 20, 2017, President Trump signed into law P.L. 115-97, which directs the Secretary of the Interior, acting through BLM, to establish and administer a competitive program for the leasing, development, production, and transportation of oil and gas in and from ANWR's Coastal Plain.[39] The legislation amends ANILCA to provide that Section 1003, which prohibited oil and gas development in ANWR unless authorized by Congress, does not apply to the Coastal Plain. It also amends ANILCA to add, as a Refuge purpose, "to provide for an oil and gas program on the Coastal Plain."

P.L. 115-97 directs BLM to manage the oil and gas program on the Coastal Plain in a manner similar to the administration of lease sales under the Naval Petroleum Reserves Production Act of 1976 (NPRPA; 42 U.S.C. §§6501 et seq.) and associated regulations, except as otherwise provided. The NPRPA provided for competitive oil and gas leasing in the National Petroleum Reserve in Alaska (NPR-A), subject to certain conditions and restrictions. The regulatory framework for the NPR-A (43 C.F.R. §§3130, 3137, 3150, 3152, and 3160) includes requirements

[37] 16 U.S.C. §1132(c).

[38] 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.

[39] For more information on P.L. 115-97, see CRS In Focus IF10782, *Arctic National Wildlife Refuge (ANWR) Provisions in Tax Reform Legislation*, by Laura B. Comay.

for leasing terms, bonding, environmental obligations, and many other activities associated with oil and gas development.

The law requires at least two area-wide lease sales in the Coastal Plain. An initial lease sale is required within four years of the bill's enactment, and a second lease sale is required within seven years of enactment. Separately, other bill provisions require that these two lease sales be conducted within 10 years of the bill's enactment. Each ANWR lease sale must offer at least 400,000 acres and must include those areas with the highest potential for discovery of hydrocarbons.

The law sets the royalty rate for ANWR oil and gas leases at 16.67%. It directs that 50% of revenues derived from oil and gas leases on the Coastal Plain (including royalties, rents, and bonus bids) are to be distributed to the State of Alaska, with the remaining 50% deposited into the U.S. Treasury as miscellaneous receipts. This split differs from the standard revenue arrangement for Alaska established by the Mineral Leasing Act of 1920 (MLA), under which the State of Alaska typically receives 90% of the revenue from federal onshore oil and gas leases within the state, with 10% deposited in the Treasury as miscellaneous receipts.[40]

H.Rept. 115-97 authorizes up to 2,000 surface acres of federal land on the Coastal Plain to be covered by production and support facilities. For further discussion, see the section of this report on "Size of Footprints."

Other bills to promote development in the 1002 Area (H.R. 49 and S. 49) have been introduced in the 115th Congress, but have not received floor consideration. Two bills that would designate the 1002 Area as wilderness—H.R. 1889 and S. 820—have also been introduced.

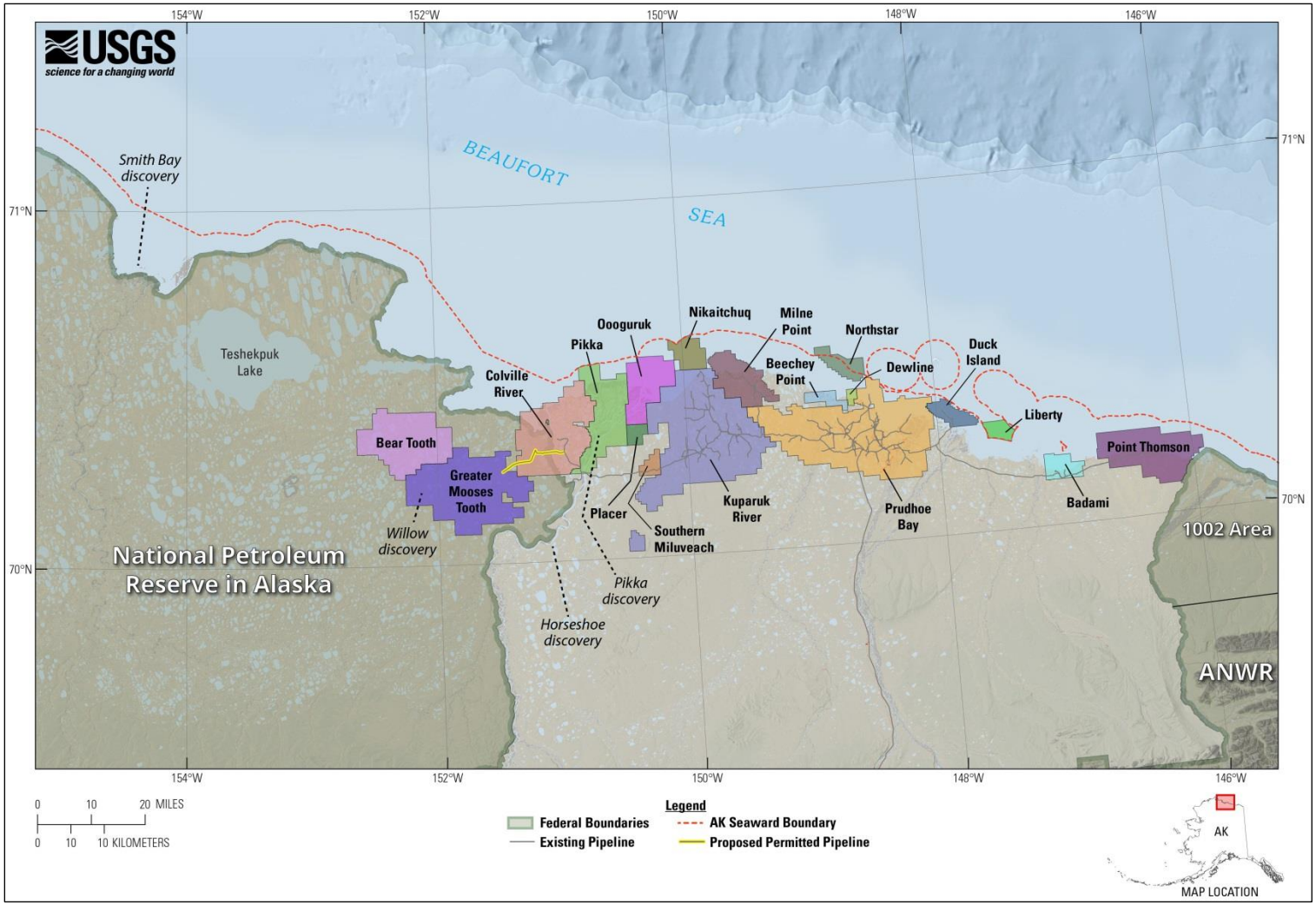
The Energy Resources

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.[41] 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.

[40] 30 U.S.C. §§181 et seq. All other states receive 50% of the revenues from leases within their states (minus a 2% cost-sharing deduction), while 40% are deposited in the Reclamation Fund (which funds certain federally owned and operated western water and power projects) and 10% are deposited in the Treasury as miscellaneous receipts.

[41] 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.

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 seaward boundary limits of Alaska state waters.

Current Market Conditions: Low Oil Prices Hinder Project Economics

The United States consumed approximately 19.8 million barrels per day (million bbl/day) of oil in the first 10 months of 2017, which includes petroleum products that may have been exported.[42] Of that, 10.6 million bbl/day came from imported sources of oil and 9.2 million bbl/day was produced domestically, with the difference being made up by the refining process. Production from Alaska accounted for about 0.49 million bbl/day, or 2.4% of U.S. consumption. Alaskan oil production, the bulk of which is from the North Slope, has been in decline since peaking in 1989.[43]

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.[44] 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.

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.[45] 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.

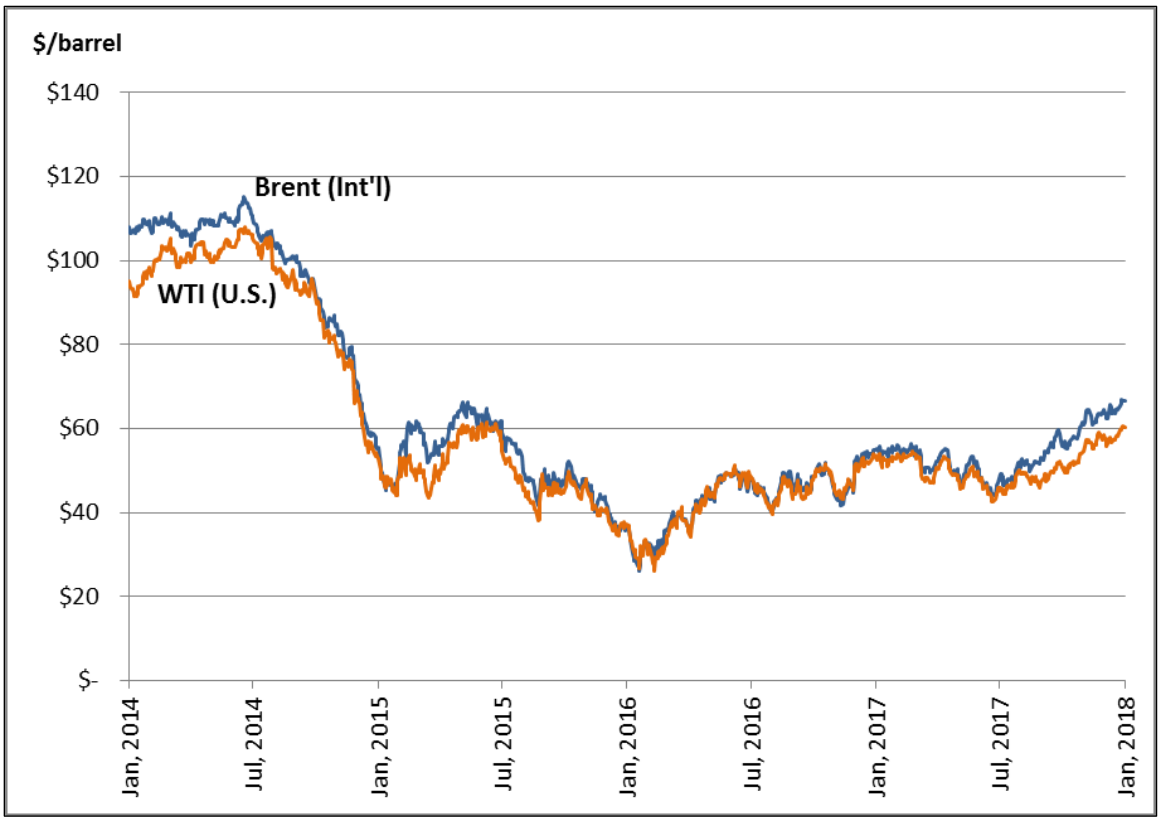
The amount that would be economically recoverable depends in part on the price of oil. In its last economic assessment in 2005, USGS estimated that, at $67.65/bbl in 2017 dollars, there is a 95% chance that 4.0 billion bbl or more could be economically recovered and a small (5%) chance that 10.9 billion bbl or more could be economically recovered on the federal lands on the Coastal Plain; the mean was 7.3 billion bbl.[46] These estimates reflected newer field development practices

[42] U.S. Energy Information Administration, *Product Supplied*, December 21, 2017, at https://www.eia.gov/dnav/pet/pet_cons_psup_dc_nus_mbblpd_a.htm.
[43] 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.
[44] CRS Report R41683, *Middle East and North Africa Unrest: Implications for Oil and Natural Gas Markets*, by Michael Ratner and Neelesh Nerurkar.
[45] Arathy S. Nair, "Factbox: U.S. Oil Companies Cut 2016 CAPEX by $54 Billion or 40 Percent," *Reuters*, December 1, 2016, http://www.reuters.com/article/us-oilprice-capex-usa-factbox-idUSKBN13Q5KE, United States edition.
[46] 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 (continued...)

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.

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

(January 2014 through January 2018)



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.

Assessments Evolve as Technology and Information Change

A 2017 reassessment report by the U.S. Geological Survey (USGS) on the National Petroleum Reserve-Alaska (NPR-A) highlights the uncertainty of energy resources and the risks involved on the North Slope.[47] In its report, USGS revised its 2010 figures for undiscovered conventional technically recoverable oil and natural gas in the NPR-A. The 2010 assessment mean values showed 0.9 billion bbl of oil and 52.8 trillion cubic feet of natural gas. The 2017 assessment shows 8.7 billion bbl of oil and 25.0 trillion cubic feet of natural gas, a large increase in the oil estimate and

(...continued)

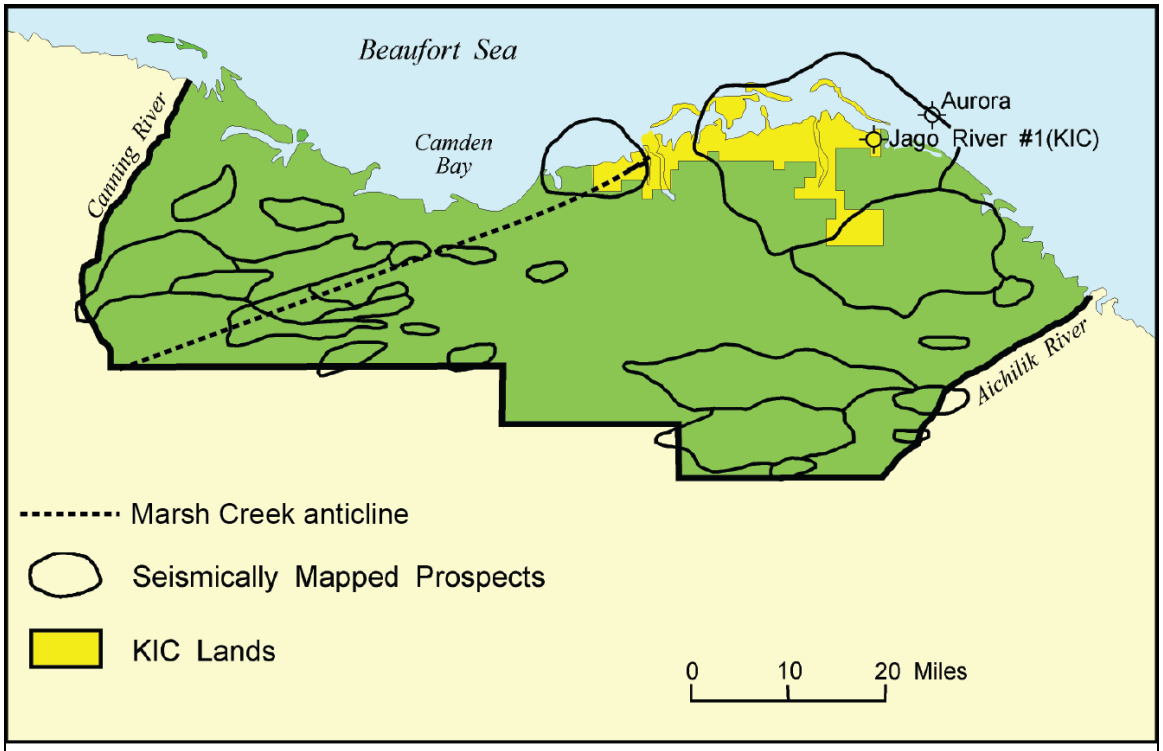
natural gas liquids, which would be produced along with any oil.

[47] D.W. Houseknecht, R.O. Lease, and C.J. Schenk, et al., Assessment of Undiscovered Oil and Gas Resources in the Cretaceious Nanushuk and Torok Formations, Alaska North Slope, and Summary of Resource Potential of the National Petroleum Reserve in Alaska, 2017, U.S. Geological Survey, Reston, VA, December 22, 2017, https://pubs.er.usgs.gov/publication/fs20173088.

a significant decrease in the natural gas estimate. 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 2017 assessment estimated that the prospective resources have a much higher ratio of oil: 65% oil to 35% natural gas.

About one-third more oil may be under adjacent state waters and Native lands than is available in the 1002 Area alone.[48] 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. To the extent that onshore development occurs under P.L. 115-97, 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 lifts the ban on Native lands but also may make smaller fields on Native lands more attractive, if they are able to share facilities with nearby development or if they become preferred locations for support facilities due to fewer restrictions on surface development.

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.

[48] 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.

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 Coastal Plain, as in other areas on the North Slope. Unlike oil, the United States imports very little natural gas (about 12% of consumption in 2016, 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.[49]

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 40%, making additional U.S. exports of liquefied natural gas (LNG) less economically attractive. Low prices present an economic 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.[50] 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.[51] 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 cost of operating oil and natural gas facilities 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. 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.[52] 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 especially costly to pursue. Environmental concerns also have prompted companies to reduce their footprint in the region, which has resulted in smaller production sites, among other changes.

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.

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

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

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

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

The Alpine Development Example

Because it is held by industry as an example of modern oil and gas development, the history of the Alpine field, located along the border of the National Petroleum Reserve-Alaska (NPR-A) 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 NPR-A 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 is thought by some to illustrate the difficulty in keeping development to the smallest possible footprint as additional discoveries are made.

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 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.

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 of ice

[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, Sections 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 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

(continued...)

roads earlier in the winter, using different kinds of vehicles. 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 shorter drilling season, or difficult terrain. Companies have taken steps to adapt 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 development of ANWR would need to adapt to a shorter development and maintenance season.

Better development and operating technologies compared to older technologies could reduce or mitigate some environmental impacts of petroleum operations, although they would not eliminate them entirely. Advocates of wilderness protection maintain that facilities of any size will still be industrial sites and will change the character of the Coastal Plain, in part because the sites will be spread out in the 1002 Area and connected by pipelines and probably roads.

Native Interests and Subsistence Uses

The Native community, both between and within its villages and organizations, is 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 calving season, these groups have opposed 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]

(...continued)

> 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.

[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.[61]

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 [ESA] as threatened in 2008),[64] 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 the 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]

Research

The Biological Resources Division of USGS published an assessment of the array of biological resources in the coastal plain in 2002.[67] The report analyzed information about caribou, musk oxen, snow geese, and other species in the Refuge, and it concluded that development impacts on wildlife would be significant.[68] A subsequent memorandum[69] 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

[61] 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.

[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 Pervaze A. Sheikh and Alexandra M. Wyatt.

[65] 16 U.S.C. §1361-1423h.

[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 Ronald O'Rourke, and discussion of "Polar Bears" in this report.

[67] USGS, *Arctic Refuge Coastal Plain Terrestrial Wildlife Research Summaries*, Biological Science Report: USGS/BRD/BSR-2002-0001, 2002.

[68] Ibid. 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.

[69] 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).

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.[70]

A 2017 update of the 2002 report analyzed new research on caribou, polar bears, musk oxen, and environmental conditions, among other topics.[71] Research in the last 15 years has shown a continued warming trend with associated effects on wildlife, though no significant changes in vegetation quality and quantity. Research on specific species has shown that polar bears have become more dependent on onshore habitat for denning purposes and that the number of musk oxen has decreased in the 1002 Area. Caribou herds, including the Porcupine and Central Arctic herds, have continued to be documented to use the calving grounds in the 1002 Area, but this use has been variable between years.

Separately, a 2003 report by the National Research Council (NRC) highlighted impacts of existing development at Prudhoe Bay on Arctic ecosystems.[72] 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, although it also said that some social and economic impacts have been harmful.[73] The NRC report specifically avoided determining whether beneficial effects were outweighed by harmful effects.

Industry supporters contend 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.[74] Supporters also contend that improvements in production technology will result in significantly reduced environmental impacts, helping to minimize the footprint of oil and gas production activities.[75] Under P.L. 115-97, oil and gas activity in the 1002 Area will still be subject to environmental regulations, including NEPA.

[70] The memorandum did not discuss impacts that might occur when the herd subsequently moved into the area.

[71] John M. Pearce, *An Update of "Arctic Refuge Coastal Plain Terrestrial Wildlife Research Summaries" by Douglas and others (2002)*, U.S. Geological Survey, prepared for the Congressional Research Service by the U.S. Geological Survey, July 17, 2017. This report contained a review of literature published in the intervening 15 years since the report's publication.

[72] 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.

[73] 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, pp. 214-240.

[74] 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.

[75] For example, see testimony provided during U.S. Congress, Senate Committee on Energy and Natural Resources, *Full Committee Hearing to Receive Testimony on the Potential for Oil and Gas Exploration in the 1002 Area*, 115th Cong., 1st sess., November 2, 2017.

Polar Bears

In 2008, FWS listed polar bears as threatened under the ESA.[76] The primary factors in listing the species were the effect of accelerated polar climate change on polar bears and their prey (primarily seals) and the effects of oil and natural gas development. The ESA prohibits activities that harass or harm listed species.[77] 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.

In 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.[78] The designation could provide a stronger role for the ESA in shaping any federal agency activities, such as energy development, that may take 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.[79] 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.[80] Scientists also cite research on the risk to polar bears from changing sea ice conditions off the coast of Alaska: 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.[81] This shift could increase the

[76] 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).

[77] 16 U.S.C. §1532(19); 16 U.S.C. §1538(A)(1); and 50 C.F.R. 17.3.

[78] Fish and Wildlife Service, "Designation of Critical Habitat for the Polar Bear (*Ursus maritimus*) in the United States; Final Rule," 75 *Federal Register* 76086, December 7, 2010. This designation was later set aside as a result of legal action but was then reinstated through a subsequent reversal. The relevant onshore area designated as critical habitat includes onshore lands within 32 km of the northern coast of Alaska between the Canadian border and the Kavik River. For more information on the polar bear ESA listing and critical habitat designation, see U.S. Fish and Wildlife Environmental Conservation Online System, at https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=A0IJ.

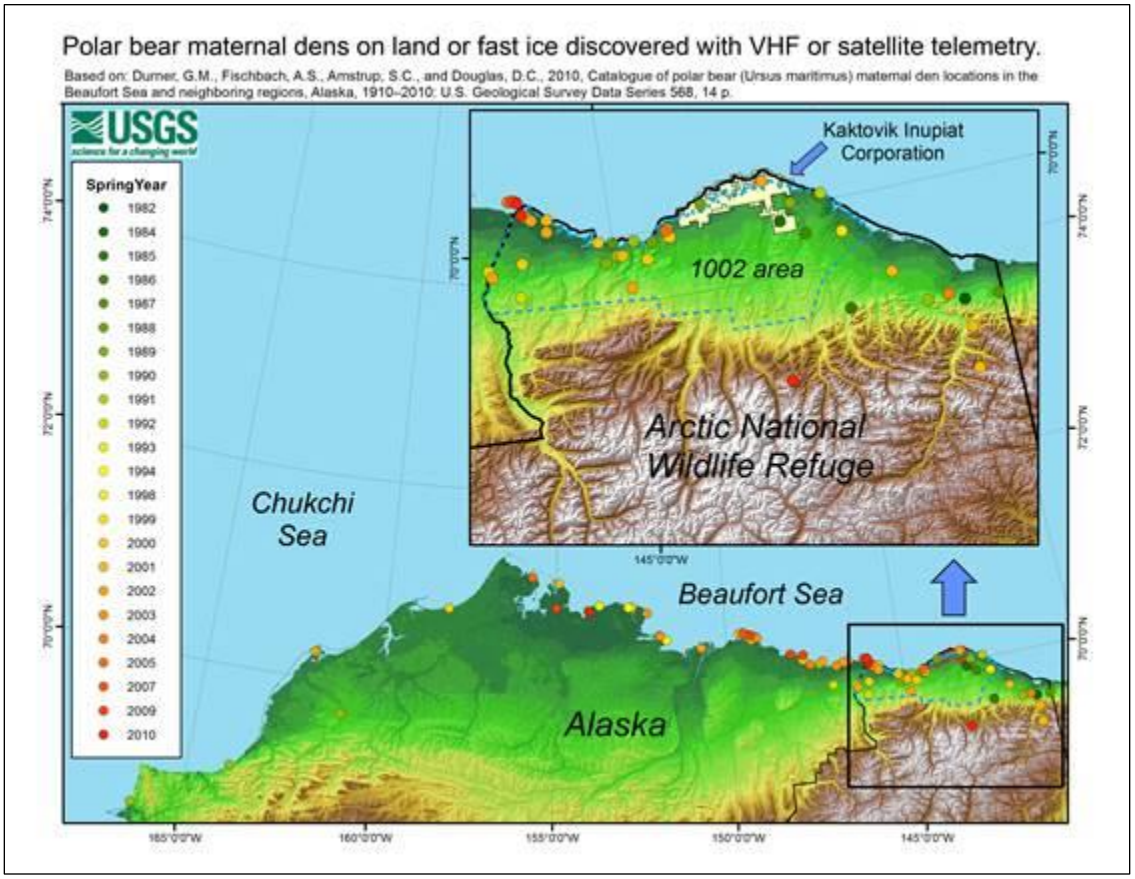
[79] 16 U.S.C. §1536.

[80] For a more detailed discussion of consultation under ESA §7, see CRS Report RL31654, *The Endangered Species Act: A Primer*, by Pervaze A. Sheikh and Alexandra M. Wyatt.

[81] 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. A more recent study found that of the denning events recorded, "[l]and denning constituted 34.4% (21 of 61) of dens in 1985-1995, 54.6% (24 of 44) in 1996-2006, and 55.2% (16 of 29) in 2007-2013." See J. W. Olson, K. D. Rode, and D. Eggett, et al., "Collar temperature sensor data reveal long-term patterns in southern Beaufort Sea polar bear den distribution on pack ice and land," *Marine Ecology Progress Series*, vol. 564 (2017), pp. 211-224.

importance of the Refuge's coastal plain to the polar bear population and add to the significance of consultation under ESA in any federal action related to exploration.

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.

Issues for Congress

The basic and most contentious ANWR question for Congress has been whether to permit energy development in the Coastal Plain. P.L. 115-97 addressed the question by establishing an oil and gas program for this area (see "Actions in the 115th Congress"). Earlier legislative proposals had ranged from those to designate the Coastal Plain as wilderness or a national monument to those to allow partial or full development.

In the context of oversight of the implementation of the ANWR provisions in P.L. 115-97, or in the context of debate over other bills that would address ANWR, Congress may continue to be interested in key aspects of the ANWR debate that have been raised previously. These could include issues related to limits on the footprint of development, other environmental protections, compliance with the National Environmental Policy Act (NEPA),[82] judicial review of legal

[82] 42 U.S.C. §§4321-4347.

challenges, and treatment of special areas within the Coastal Plain, among other matters. P.L. 115-97 addressed some of these issues and not others, possibly owing in part to limitations imposed by the budget reconciliation process on the matters that can be considered in reconciliation legislation.[83] Congress could choose to address some of these issues in future legislation and oversight or could decide that the provisions of P.L. 115-97 already provide sufficient guidance for the program.

Size of Footprints

Newer technologies permit greater consolidation of leasing operations, which tends to reduce the size and 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. For over a decade, development bills for ANWR have proposed a 2,000-acre limit on the acreage of surface disturbance. Development proponents contend that the limited footprint will preserve the Coastal Plain's environment and wildlife, while opponents express concern that even with the limitation, drilling infrastructure and associated human activity will have adverse wildlife impacts, such as deterring caribou cows from calving in the area.

Similar to earlier bills, P.L. 115-97 directs the Secretary to authorize up to 2,000 surface acres of federal land on the Coastal Plain to be covered by production and support facilities.[84] (This 2,000-acre limit does not appear to apply to Native surface lands on the Coastal Plain owned by the Kaktovik Inupiat Corporation or through individual Native allotments.) Bill provisions specify that "airstrips and any area covered by gravel berms or piers in support of pipelines" are included in the 2,000-acre limit. It is unclear whether other potential disturbances—for instance, temporary roads or areas under a pipeline that might be temporarily disturbed during construction—would be included within the limit.

The law does not require the development facilities to be concentrated in a single 2,000-acre area. Development facilities likely would 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. However, the location and dispersal of any potential oil and natural gas in ANWR is unknown.

Although the cost of lateral drilling has declined somewhat, it remains more expensive than simpler methods. As a result, adherence to the 2,000-acre limit could make some marginal fields uneconomic or inaccessible. If so, a future policy choice could be between not developing such fields and expanding the allowed limit on the footprint of development.

Other Environmental Protections

Both H.R. 49 and S. 49 in the 115th Congress would provide environmental protections in addition to the 2,000-acre surface development limitation. These include, among others,

[83] In particular, the Senate's "Byrd rule" limits the inclusion of provisions extraneous to achieving the goals of the reconciliation instructions, including provisions that are outside the jurisdiction of the committee submitting the reconciliation measure. For more information, see CRS Report RL30862, *The Budget Reconciliation Process: The Senate's "Byrd Rule,"* by Bill Heniff Jr.

[84] 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 () 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 commonH.Amdt. 297 feature of ANWR development bills since that date.

requirements to ensure, to the maximum extent practicable, that oil and gas exploration, development, and production activities on the Coastal Plain will result in no significant adverse effect on fish and wildlife, their habitat, subsistence resources, and the environment; requirements for site-specific analyses of the probable environmental effects of individual drilling proposals and for mitigation plans to avoid significant adverse effects; and requirements to apply the best commercially available technology for all new exploration, development, and production operations. These provisions were not part of P.L. 115-97.[85]

NEPA Compliance and Compatibility Determinations

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, including H.R. 49 in the 115th Congress, have stipulated that the 1002 report of 1987 would be considered as satisfying NEPA requirements. Other bills, including S. 49 in the 115th Congress, have provided that prelease and initial leasing activities would not be considered as major federal actions requiring NEPA review, or have made other provisions to expedite NEPA review for all or part of the program. P.L. 115-97 did not contain provisions explicitly addressing NEPA review.

P.L. 115-97 did address a separate issue—that of the compatibility of oil and gas activities with refuge purposes. Under authorities for the management of national wildlife refuges in general and 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.[86] Some past bills have stated 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. P.L. 115-97 does not contain such language but amends ANILCA to add, as a purpose of the Refuge, "to provide for an oil and gas program on the Coastal Plain."[87]

Judicial Review

The expediting, curtailing, or prohibiting of judicial review could help to achieve the goal of putting an ANWR leasing program in place promptly. The counterargument raised in such discussions is that the prospect of judicial review leads to better decisionmaking by the agency and that judicial review provides the opportunity to correct any errors. H.R. 49 and S. 49 in the 115th Congress would expedite judicial review by reducing the time limits within which suits must be filed and limiting the venue and scope of the review. P.L. 115-97 does not contain provisions concerning judicial review.

---

[85] However, as discussed below, the requirements of NEPA apply to activities under P.L. 115-97. For information on NEPA requirements, see CRS Report RL33152, *The National Environmental Policy Act (NEPA): Background and Implementation*, by Linda Luther.

[86] Relevant authorities include the National Wildlife Refuge System Administration Act of 1966, as amended (16 U.S.C. §668dd), Section 304 of ANILCA, and regulations at 43 C.F.R. Section 3101.5-3 for Alaskan refuges.

[87] P.L. 115-97, Section 20001(b)(2)(B). ANILCA stated four purposes for which ANWR was established and is to be managed, including (1) conservation of fish and wildlife populations and habitats, (2) fulfillment of U.S. international fish and wildlife treaty obligations, (3) providing the opportunity for continued subsistence use by local residents, and (4) ensuring water quality and quantity within the Refuge.

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,[88] 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.[89] 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 Mineral Leasing Act 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.[90] 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.[91] The first crude export cargo from the North Slope in a decade left Alaska in September 2014 destined for South Korea.[92] 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.

In the 115th Congress, H.R. 49 would prohibit the export of oil and gas produced under ANWR leases. No such provision was included in P.L. 115-97.

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). Both H.R. 49 and S. 49 in the 115th Congress would authorize the Secretary to designate up to 45,000 acres of the Coastal Plain as special areas that could be excluded from leasing. P.L. 115-97 does not contain such provisions.

Other Protection Options

While P.L. 115-97 authorizes an oil and gas program for the 1002 Area, other bills in the 115th Congress—H.R. 1889 and S. 820—would take a contrasting approach by designating the area as wilderness. FWS's Revised Comprehensive Conservation Plan (RCCP), approved in January 2015, recommended this protection.[93] Wilderness designation generally prohibits commercial activities, including energy development.[94] In the past, some groups also have sought to preserve

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

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

[90] P.L. 104-58, 30 U.S.C. §185(s).

[91] For additional information on U.S. crude oil export policy, see CRS Report R43442, *U.S. Crude Oil Export Policy: Background and Considerations*, by Phillip Brown et al.

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

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

[94] For more information, see CRS Report RL31447, *Wilderness: Overview, Management, and Statistics*, by Katie (continued...)

the 1002 Area as a national monument, using the President's power under the Antiquities Act.[95] (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.[96]) Congressional opponents of ANWR development have indicated that they will continue to advocate for protective designations for the Coastal Plain that would prohibit exploitation of oil and gas resources in the Refuge, aiming to reverse the policy enacted in P.L. 115-97.[97]

Conclusion

Enactment of P.L. 115-97 in December 2017 culminated a decades-long debate over whether to allow oil and gas development in ANWR in northeastern Alaska. The law established an oil and gas program for the Refuge's Coastal Plain, with at least two oil and gas lease sales required in the next 10 years. Development proponents contend that the sales will generate economic activity, contribute to U.S. energy security, and result in royalty revenues for both the federal government and the State of Alaska, while opponents express concern that development will detrimentally impact the unique biological resources of the Refuge.

P.L. 115-97 requires the first ANWR lease sale within four years of the law's enactment. Activities preparatory to the lease sale include identifying lands to be leased, conducting sale-specific environmental reviews, issuing notices of sales, and other "prelease" activities. Activities could also include new geological and geophysical (G&G) surveys to determine the extent and location of hydrocarbon resources.

Congress could potentially take additional action related to ANWR oil and gas leasing, including through further legislation or through oversight of DOI's implementation of the provisions of P.L. 115-97. A number of development issues addressed in earlier ANWR bills were not addressed in P.L. 115-97, possibly owing in part to limitations imposed by the budget reconciliation process. Congress could choose to address some of these issues in future legislation amending the oil and gas program or could decide that the provisions of P.L. 115-97 already provide sufficient guidance for the program. Alternatively, Congress could decide to end the program, for example by designating the Refuge's Coastal Plain as wilderness, as is proposed in some 115th Congress bills.

The Congressional Budget Office estimated the state and federal revenue from the first two lease sales in ANWR at approximately $2.2 billion over 10 years. Actual bids will depend on many factors, including market conditions at the time of the lease sales. Development and transportation of oil in the Refuge, as elsewhere in the Arctic, is a difficult and expensive prospect, and a key factor in industry bids will be the price of oil.

(...continued)

Hoover.

[95] 16 U.S.C. §431. See, for example, Sierra Club Press Release of December 6, 2010, "Arctic 50th Anniversary: Make It a Monument, Citizens Say," at http://action.sierraclub.org/site/PageNavigator/E-Newsletters/Pressroom.

[96] For a description of the protection options afforded by national monument designation, see CRS Report R41330, *National Monuments and the Antiquities Act*, by Carol Hardy Vincent.

[97] See, for example, statements by Senators Cantwell and Markey quoted in Henry Fountain and Lisa Friedman, "Drilling in Arctic Refuge Gets a Green Light. What's Next?" *New York Times*, December 20, 2017, at https://www.nytimes.com/2017/12/20/climate/drilling-arctic-anwr.html.

Author Contact Information

Laura B. Comay
Analyst in Natural Resources Policy
lcomay@crs.loc.gov, 7-6036

R. Eliot Crafton
Analyst in Natural Resources Policy
rcrafton@crs.loc.gov, 7-7229

Michael Ratner
Specialist in Energy Policy
mratner@crs.loc.gov, 7-9529

Acknowledgments

Lynne Corn, Specialist in Natural Resources Policy (retired), was a coauthor of this report. Kristina Alexander, former Legislative Attorney, and Bernard A. Gelb, Specialist in Industry Economics (retired), contributed to earlier versions of the report.