Congressional Research Service
Informing the legislative debate since 1914

U.S. Exports of Crude Oil and Natural Gas: The Case of Alaska

(name redacted)
Specialist in Energy and Infrastructure Policy

(name redacted)
Specialist in International Trade and Finance

October 1, 2014

Congressional Research Service
7-....
www.crs.gov
R43753

CRS REPORT
Prepared for Members and
Committees of Congress

Summary

Recent growth in U.S. natural gas and crude oil production has fundamentally shifted the energy supply and demand balance in key U.S. energy markets. Many analysts and energy producers argue that there is currently an oversupply of natural gas in U.S. gas-producing regions, and that supplies of certain light sweet Western crudes (notably from the Bakken region) exceed the demand of Gulf Coast refineries. The result has been a spate of applications by the U.S. natural gas industry for federal permits to export natural gas to overseas buyers. Such exports are permitted by statute, subject to a national interest determination by the Department of Energy. Perceived oversupply of Bakken crude oil has similarly led to calls by some market stakeholders and policy makers for a relaxation of the federal restrictions on crude oil exports. Numerous legislative proposals in the 113th Congress, such as the Natural Gas Export Promotion Act of 2014 (S. 2494) and the Crude Oil Export Act (H.R. 4349), would facilitate increased exports of domestic energy resources.

Whether—or to what extent—the United States should allow overseas exports of crude oil and natural gas is the subject of ongoing Congressional debate. However, U.S. exports of both natural gas and crude oil are not new. Congress and prior presidential administrations have authorized such exports before in circumstances where they were viewed as beneficial to the United States. The case of Alaska is of particular relevance because it is a major energy producer and has a history of both crude oil and natural gas exports going back several decades. Exports of crude oil from Alaska are currently authorized by three different statutes pertaining to (1) crude transported via the Trans Alaska Pipeline System, (2) Cook Inlet crude, and (3) crude oil exported to Canada under the North American Free Trade Agreement. Export of Cook Inlet natural gas from the Kenai LNG terminal has been authorized repeatedly since 1969. Export of natural gas from Alaska's North Slope was authorized in 1988, although the applicability of this authorization to the proposed Alaska LNG Project has not been resolved.

In the context of the current export debate, a review of Alaskan crude oil and natural gas exports may offer historical perspectives of value to policy makers. Alaska's experience shows that—under a specific set of circumstances—such exports have been viewed as in the national interest both by Congress and successive presidential administrations. Regional production trends, market prices, and local commodity demand have all been important considerations in establishing export policies for Alaska. It is also instructive to note that, even with long-standing export approvals in effect, exports of crude oil and natural gas from Alaska have been relatively modest. Production economics and competitive market forces will be the ultimate determinant of export volumes where exports are permitted.

In the context of broader U.S. oil and natural gas export policy the Alaska experience may raise several key questions. To what extent does the rationale for energy exports from Alaska—which is geographically isolated—apply to other U.S. supply regions? What is the interplay between overseas exports and the maritime shipping industry? What are the expectations for capital investment by developers to support export production and how might they affect the nation's overall oil and gas supplies? What are the environmental impacts of increased production for export? How might international trade agreements influence the U.S. government's ability to tailor its oil and natural gas export policies by region? As Congress continues its oversight of the nation's energy resources, understanding these issues may be important.

Contents

Figures

Appendixes

Contacts

Introduction

The deployment of shale energy technology, including hydraulic fracturing and horizontal drilling, in the United States has created a new abundance of crude oil and natural gas in a number of energy-producing regions across the country. Since 2008, U.S. production of crude oil from the lower-48 states has more than doubled, from 3.1 million barrels per day (bbl/d) to 6.6 million bbl/d in 2014.[1] Likewise, over the last ten years, lower-48 states' natural gas production has risen from 41.1 billion cubic feet per day (bcf/d) to 69.8 bcfd.[2] These production trends are expected to continue.

The growth in domestic natural gas and crude oil production has fundamentally shifted the energy supply and demand balance in key U.S. energy markets. Many analysts and energy producers argue that there is currently an oversupply of natural gas in U.S. gas-producing regions (with some important exceptions), and that supplies of certain light sweet Western crudes (notably from the Bakken region of Montana and North Dakota) exceed the demand of Gulf Coast refineries, which are configured primarily to process heavy crudes. The result has been a spate of applications by the U.S. natural gas industry for federal permits to export natural gas to overseas buyers.[3] Such exports are permitted by statute, subject to a national interest determination by the Department of Energy.[4] Perceived oversupply of Bakken crude oil has similarly led to calls by some market stakeholders and policy makers for a relaxation of the federal restrictions on crude oil exports.[5] Numerous legislative proposals in the 113th Congress, such as the Natural Gas Export Promotion Act of 2014 (S. 2494) and the Crude Oil Export Act (H.R. 4349), would facilitate increased exports of domestic energy resources.

Whether—or to what extent—the United States should allow overseas exports of crude oil and natural gas is the subject of ongoing Congressional debate. However, it may be noted that U.S. exports of both natural gas and crude oil are not new. Congress and prior presidential administrations have authorized such exports before in circumstances where they were viewed as beneficial to the United States. The case of Alaska is of particular relevance because it is a major energy producer and has a history of both crude oil and natural gas exports going back several decades. In the context of the current export debate, a review of Alaska's experiences with crude oil and natural gas exports may offer historical perspectives of value to policy makers.

This report provides a summary overview of Alaskan crude oil and natural gas export authorizations since the late 1960s, including a review of export activity. The report does not address exports of refined products (e.g., diesel), natural gas liquids, or coal.[6] For a more general

[1] Energy Information Administration, *Short-Term Energy Outlook*, September 9, 2014, Table 4a. Figures exclude Federal Gulf of Mexico production.

[2] Ibid, Table 5a. Figures exclude Federal Gulf of Mexico production.

[3] Department of Energy, "Summary of LNG Export Applications of the Lower 48 States," web page, September 19, 2014, http://energy.gov/fe/downloads/summary-lng-export-applications-lower-48-states.

[4] For further discussion see CRS Report R43231, *Federal Permitting and Oversight of Export of Fossil Fuels*, by (name redacted), (name redacted), and (name redacted).

[5] See, for example: Charles Ebinger and Heather L. Greenley, "Changing Markets: Economic Opportunities from Lifting the U.S. Ban on Crude Oil Exports," Policy Brief 14-02, Brookings Institution, September 2014; Harold Hamm, Chairman and Chief Executive Officer, Continental Resources, testimony before the Senate Committee on Energy and Natural Resources, Hearing on U.S. Crude Oil Exports: Opportunities and Challenges, January 30, 2014.

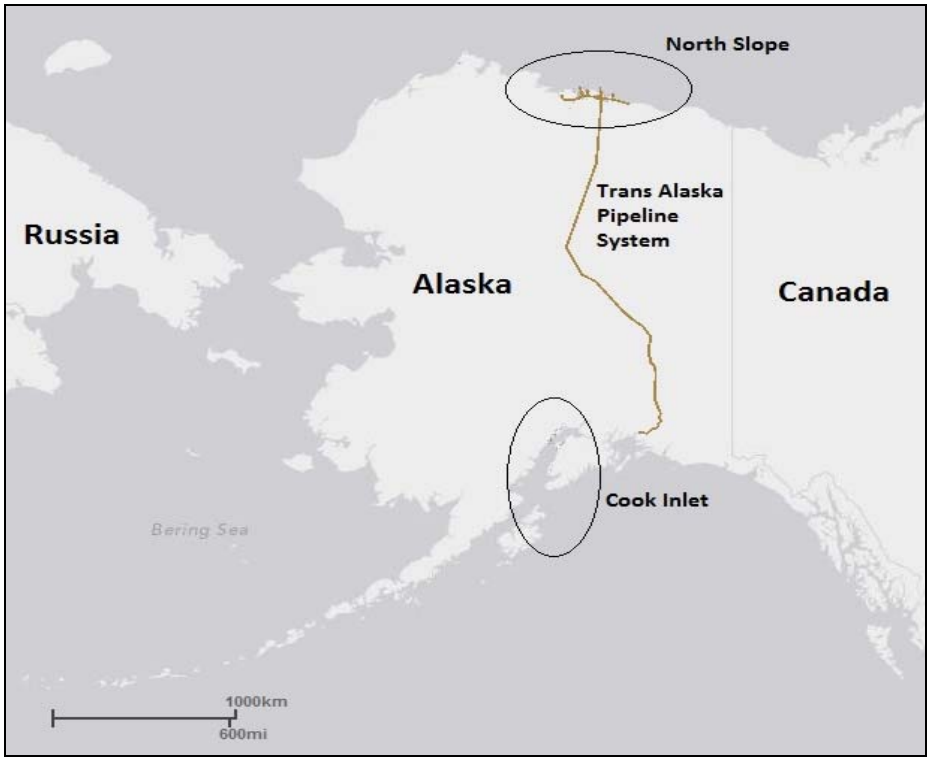
[6] In general, export of these products is not subject to the same restrictions as crude oil and natural gas.

discussion of U.S. oil export policy, see CRS Report R43442, *U.S. Crude Oil Export Policy: Background and Considerations*, by (name redacted) et al. For a more general discussion of U.S. natural gas export policy, see CRS Report R42074, *U.S. Natural Gas Exports: New Opportunities, Uncertain Outcomes*, by (name redacted) et al.

Energy Development in Alaska

Alaska's principal energy-producing basins are located on the North Slope in the Arctic and in the Cook Inlet region to the south (**Figure 1**). Development of North Slope oil began with the discovery of the Prudhoe Bay oil field in 1968 and the subsequent development of the Trans Alaska Pipeline System (TAPS) in the 1970s to deliver North Slope crude, as well as smaller quantities of natural gas liquids (NGLs), such as propane, to a marine terminal at Valdez on the state's southern coast. As discussed below, the North Slope contains significant dry natural gas resources as well, but these have not been commercially developed beyond serving local needs.

Figure 1. Alaska Oil and Natural Gas Producing Regions



Source: Adapted from Energy Information Administration, "Alaska State Profile and Energy Estimates," online mapping tool, http://www.eia.gov/state/?sid=AK, September 26, 2014.

Crude oil drilling in the Cook Inlet region has a much longer history, beginning in the early 1900s and continuing (sporadically) through World War II. However, large scale commercial development did not begin until the late 1950s after discoveries by Richfield Corporation at

Swanson River.[7] Natural gas development in Cook Inlet began in 1959 with three gas wells drilled by Union Oil Company of California and Ohio Oil Company near Kenai.[8] As does the North Slope, Cook Inlet produces commercial volumes of NGLs associated with both its oil and natural gas operations.

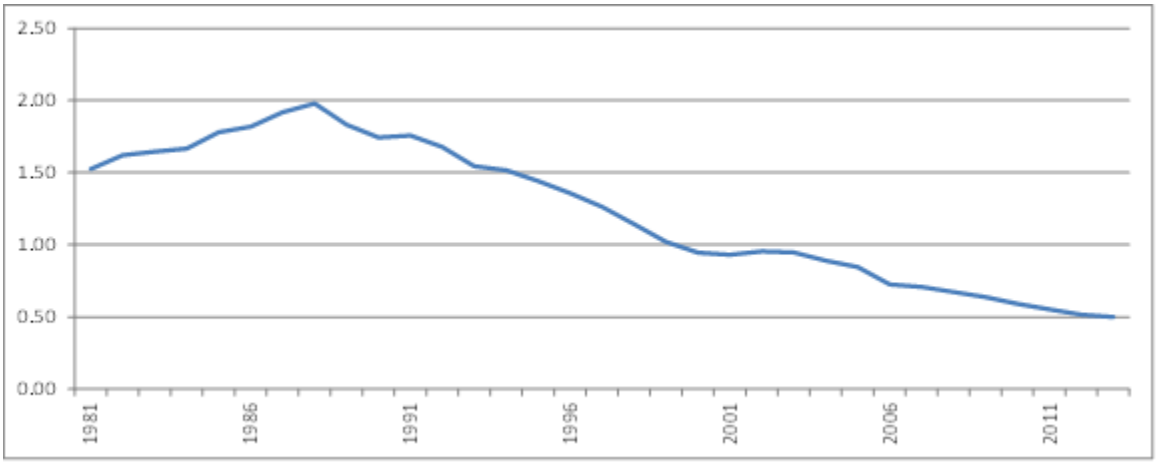
Oil Exports from TAPS

The export of crude oil from Alaska's North Slope (ANS) has been an issue for Congress since the authorization of the Trans Alaska Pipeline System in 1973. The Trans Alaska Pipeline Authorization Act[9] specified that oil shipped through the pipeline could be exported internationally, but only under restrictive conditions (detailed in **Appendix A**) including a finding by the President that such exports would be in the national interest. These conditions were reaffirmed in the Export Administration Act of 1979[10] (**Appendix A**). In effect, the conditions amounted to a ban on TAPS oil exports.

TAPS was completed in 1977; initial oil shipments were flowing by year-end. With continued oilfield development on the North Slope, production climbed steadily for 10 years, peaking at nearly 2 million barrels per day (bbl/d) in 1988 (**Figure 2**). Much of the North Slope crude was shipped to California for refining, which was the nation's third-largest oil producer at the time.

Figure 2. Alaska North Slope Crude Oil Production

Million barrels per day (bbl/d)



Source: Energy Information Administration (EIA), "Alaska North Slope Crude Oil Production," web page, September 29, 2014, http://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=MANFPAK1&f=M.

Notes: EIA does not report production prior to 1981.

[7] Alaska Department of Natural Resources, *Cook Inlet Area Wide Oil and Gas Lease Sale: Final Finding of the Director,* January 20, 2009, pp. 6-15.

[8] Ibid.

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

[10] P.L. 108-458 §7(d).

The United States-Canada Free-Trade Agreement Implementation Act of 1988 (USCFTA)[11] authorized exports of up to 50,000 bbl/d[12] of TAPS crude oil to Canada—as provided for in the agreement,[13]—subject to certain presidential findings and on condition that the oil be shipped on U.S.-flagged tankers from the lower 48 states and consumed in Canada.[14] It appears that access to TAPS oil was a Canadian request, based on the needs of Vancouver refineries. Lacking access to TAPS crude, Canadian refiners on the west coast had to source their oil feedstock from more expensive Asian or Middle Eastern suppliers. Canada sought this reciprocal access for its acquiescence to essentially guarantee a supply of oil and gas to the United States under the USCFTA energy chapter. It was noted that 50,000 bbl/d was only 2-3% of total Alaskan daily output in 1988.[15] To implement this provision of the agreement, on December 31, 1988, President Reagan issued a finding that crude oil exports under USCFTA were in the national interest.[16] According to the Alaska Department of Natural Resources (ADNR), however, there were no shipments of TAPS crude to Canada under this authorization.[17]

In the mid-1990s, high volumes of Alaskan oil could be shipped economically only to the four western states.[18] This resulted in locally falling oil prices and constrained domestic production.[19] As California prices fell below the world market, there were complaints from West Coast oil producers, industry analysts, and public officials about what they perceived to be artificially depressed prices. Some also pointed to the underutilization of tankers built to carry North Slope crude, and the resulting negative impacts on marine employment, shipbuilding and repair, and the availability of tankers for national defense.[20]

Early efforts to achieve remedial action failed until 1995, when low world oil prices, a relatively modest level of net oil imports (8.0 million bbl/d), and a supportive Department of Energy (DOE) coincided with renewed legislative efforts in both Houses of Congress. A June 1994 DOE study, *Exporting Alaskan North Slope Crude Oil—Benefits and Costs*, concluded that permitting the export of Alaska crude would be beneficial to the U.S. economy.

> First, lifting the ban would expand the markets in which ANS oil can be sold, thereby increasing its value. ANS oil producers, the States of California and Alaska, and some of their local governments all would benefit from increased revenues. Permitting exports also would generate new economic activity and employment in California and Alaska. The study

[11] P.L. 100-449 §305(a).

[12] While an explanation of the precise figure of 50,000 bbl/d may be lost to history, it appears to have been related to the refinery capacity in Vancouver where it was presumed by Alaska officials the oil would be shipped.

[13] USCFTA, Annex 902.5(3)

[14] P.L. 100-449 §305(a).

[15] "Energy: Free Trade with Canada," Hearings before the Subcommittee on Energy and Power, Committee on Energy and Commerce, March 1, 1988, Serial No. 100-179. p. 4.

[16] President Ronald Reagan, "Presidential Findings Regarding the Export of Alaskan Crude Oil to Canada," December 31, 1988.

[17] Alaska Department of Natural Resources, personal communication, September 18, 2014.

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

[19] See, for example: Samuel A. Van Vactor, "Time to End the Alaskan Oil Export Ban," Cato Policy Analysis No. 227, Cato Institute, May 18, 1995, http://www.cato.org/pubs/pas/pa-227.html.

[20] U.S. Congress, House Committee on Resources, *Exports of Alaskan North Slope Oil*, To Accompany H.R. 70, 104th Cong., 1st sess., June 15, 1995, H.Rept. 104-139 (Washington: GPO, 1995).

> concludes that these economic benefits would be achieved without increasing gasoline prices (either in California or in the nation as a whole).[21]

Increased producer revenues would be the result of access to a broader market as well as transportation savings realized by avoiding a trip through the Panama Canal to reach U.S. ports in the Gulf of Mexico. In addition, DOE predicted that higher prices at the wellhead would result in 100,000 bbl/d more output from Alaska and California than would be the case with continued export restriction. Higher North Slope production, in turn, would generate additional income to the federal government due to oil sales from federally owned reserves and royalties on federal leases. Royalty revenues to the state of Alaska would likewise increase.

Original opposition to the export of crude oil from TAPS was driven in part by representatives of the U.S. maritime industry, who viewed Alaskan oil development as an opportunity to enlarge the U.S.-flagged coastal tanker fleet under the Merchant Marine Act of 1920 (the Jones Act).[22] The Jones Act requires shipments between U.S. ports to be carried on U.S.-flagged vessels. More recent opponents of exports from TAPS argued that such exports would increase U.S. dependence upon foreign oil supplies, raise gasoline prices, and lead to job losses at West Coast refineries no longer being supplied with Alaskan oil. Some opponents also expressed concerns about potential oil spills (in light of the *Exxon Valdez* spill) or linked TAPS oil exports to potential oil exploration in Alaska's Arctic National Wildlife Refuge, an environmentally sensitive area they wished to protect from development.[23]

Notwithstanding the arguments of opponents, and with substantial projected benefits (and little administrative cost), export ban repeal bills in the 104th Congress (H.R. 70 and S. 395) passed by large margins, 324-77 and 74-25 respectively.[24] President Clinton signed the Trans-Alaska Pipeline Amendment Act (P.L. 104-58) in November 1995. The act provides that oil transported through TAPS may be exported unless the President finds, after considering specified criteria, that exports are not in the national interest (**Appendix A**).[25]

To address the economic and environmental issues associated with TAPS oil exports, the National Economic Council, the Council on Environmental Quality, and the Department of Commerce's Bureau of Export Administration coordinated an interagency review. The review—which included extensive public hearings, review of public comments, and analytical evaluation—concluded that TAPS exports would not likely pose a significant impact to the economy or the environment.[26] Subsequently, on April 28, 1996, President Clinton issued a national interest determination authorizing North Slope oil exports. The President's determination stated that such exports

---

[21] Department of Energy, *Exporting Alaskan North Slope Crude Oil—Benefits and Costs*, June 1994, p. 1.

[22] Samuel A. Van Vactor, May 18, 1995. For further discussion see CRS Report R43653, *Shipping U.S. Crude Oil by Water: Vessel Flag Requirements and Safety Issues*, by (name redacted).

[23] "Alaska Oil Export Ban Lifted," *CQ Almanac, 1995*, 51st ed., pp. 5-25-5-26, 1996.

[24] While the export ban was under debate in 1995, the United States was already exporting nearly 900,000 bbl/d of petroleum products—28% in the form of petroleum coke, which is used in making steel. Other exports were cross-border exchanges of refined products, as well as some crude, with Canada and Mexico. Trade in petroleum coke plus exports to Canada and Mexico accounted for 69% of all U.S. oil exports at the time.

[25] Trans-Alaska Pipeline Amendment Act of 1995, P.L. 104-58, 30 U.S.C. §185(s).

[26] Department of Commerce, Bureau of Export Administration, "Exports of Alaskan North Slope Crude Oil; Establishment of License Exception TAPS," 61 *Federal Register* 27255, May 31, 1996.

> will not diminish the total quantity or quality of petroleum available to the United States; and are not likely to cause sustained material oil supply shortages or sustained oil price increases significantly above world market levels that would cause sustained material adverse employment effects in the United States or that would cause substantial harm to consumers.... I have also ... concluded that exports of such crude oil will not pose significant risks to the environment if certain terms and conditions are met.[27]

The oil export authorization included several conditions related to tanker shipping routes, inspections, and ballast exchange intended to mitigate environmental risk.

With the crude oil export restrictions lifted, TAPS exports totaling 36,000 bbl/d began in 1996; they grew to 66,500 bbl/d in 1997, dipped to 52,900 bbl/d in 1998, and rose again to a high of 74,000 bbl/d in 1999—about 7% of North Slope production that year. According to the Energy Information Administration (EIA), Alaskan crude oil exports between 1996 and 2004 were shipped to South Korea (48%), Japan (26%), China (17%), and Taiwan (9%).[28] TAPS exports ceased temporarily in May 2000 as West Coast buyers had to pay more to compete with foreign buyers for Alaskan oil. An additional cargo was shipped to China in 2004 aboard a tanker reportedly en route to Asia for repairs.[29] In September 2014, TAPS exports resumed with the shipment of 800,000 barrels of crude oil aboard a tanker reportedly bound for a refinery in South Korea.[30]

Viewed relative to total domestic refinery input of 14.8 million bbl/d,[31] TAPS crude oil exports at their peak in 1999 amounted to the equivalent of half of one percent of U.S. refinery demand. In absolute terms, these export volumes were not viewed by market analysts as particularly significant. In a July 1999 report, the General Accounting Office (GAO)[32] concluded that lifting the North Slope oil export ban raised the relative prices of North Slope and comparable California oils between $0.98 and $1.30 per barrel above what they would have been with the ban in place, but that the price increases did not have an observable effect on North Slope or California oil production. (It is possible that production could have been lower without the incremental demand for exports.) The GAO also concluded that lifting the export ban increased costs for some refiners but had limited effects on consumers and the oil-shipping industry on the West Coast.[33]

Oil Exports from Cook Inlet

Exports of Alaskan crude oil other than those passing through TAPS are subject to restrictions under the Energy Policy and Conservation Act of 1975 (P.L. 94-163, EPCA). This act required the

[27] President William J. Clinton, Memorandum to the Secretary of Commerce and the Secretary of Energy, April 28, 1996.

[28] Energy Information Administration, "How Much Oil Is Produced in Alaska and Where Does It Go?," web page, June 26, 2014, http://www.eia.gov/tools/faqs/faq.cfm?id=35&t=6

[29] Warren Cornwall, "Where Would ANWR Oil Go?" *The Seattle Times*, April 19, 2005.

[30] Jonathan Leff, "Tanker with Alaskan Crude Bound for South Korea as U.S. Seeks New Markets," *Reuters*, September 30, 2014.

[31] Energy Information Administration, "U.S Refinery and Blender Net Input of Crude Oil," web page, September 29, 2014, http://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=MCRRIUS1&f=A.

[32] Now called the Government Accountability Office.

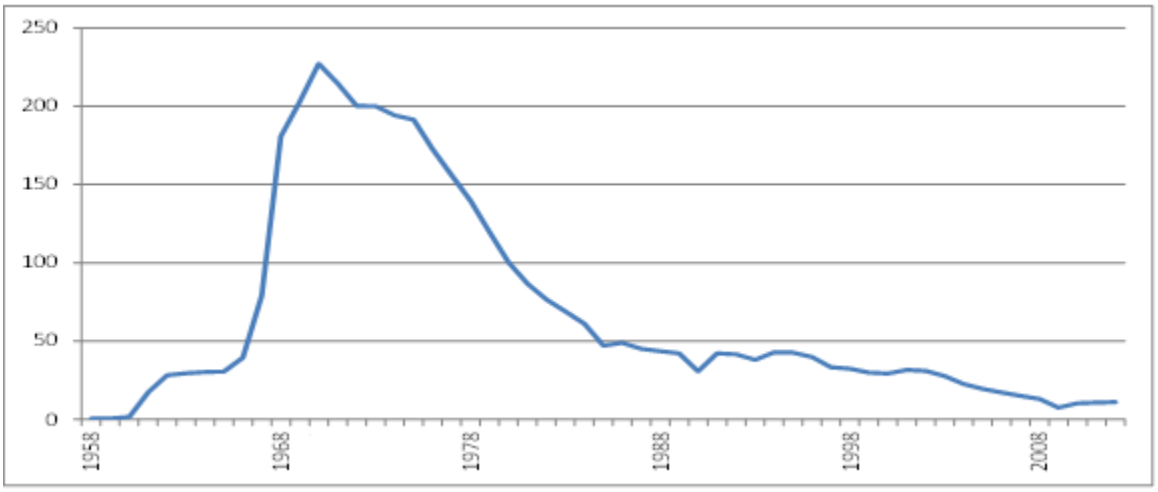
[33] General Accounting Office, *Alaskan North Slope Oil: Limited Effects of Lifting Export Ban on Oil and Shipping Industries and Consumers*, GAO/RCED-99-191, July 1999.

President to promulgate a rule prohibiting the export of domestic crude oil, generally, but allowed exemptions for exports which the President determines to be consistent with the national interest and the purposes of the act (§103(b)) as further detailed in **Appendix A**. Responsibility for implementing EPCA has been delegated by the President to the Secretary of Commerce. Therefore, crude oil export licenses under EPCA are issued by the Bureau of Industry and Security (BIS) within the Department of Commerce.

On November 6, 1985, the Secretary of Commerce determined that the export of crude oil from Alaska's Cook Inlet is consistent with the national interest and the purposes of EPCA. The exemption was granted in part due to the efforts of Alaska's congressional delegation and others to persuade the Reagan Administration that increased oil revenues would spur greater oil development in Alaska in the face of declining production.[34] Crude oil production from Cook Inlet state waters at that time was around 40,000 bbl/d, but was declining approximately 15% per year due to a lack of new investment by incumbent oil producers (**Figure 3**).[35]

Figure 3. Cook Inlet Crude Oil and NGL Production

Thousand barrels per day (bbl/d)



Source: Alaska Department of Natural Resources, *Division of Oil and Gas Annual Report 2013*, 2013, p. 27.

In his national interest determination, the Secretary of Commerce addressed Cook Inlet crude oil development.

> The benefits that will ensue from these exports include increased incentives for investment in the exploration and development of domestic crude oil, transportation efficiencies, and material enhancements to the energy security of our allies. This initiative will also encourage other countries to remove trade barriers to U.S. goods and services. It does not affect our energy security as we retain the flexibility to react to changes in the world's available oil supply.[36]

[34] Resource Development Council, Inc., "Cook Inlet Oil," *Resource Review*, newsletter, Anchorage, AK, November 1985.

[35] Department of Commerce, International Trade Administration, "Exports of Crude Oil Derived from Alaska's Cook Inlet," 51 *Federal Register* 20252, June 4, 1986.

[36] Ibid.

BIS license policy for Cook Inlet crude oil exports in the *Code of Federal Regulations* states:

> **Exports from Alaska's Cook Inlet.** The licensing policy is to approve applications for exports of crude oil that was derived from the state-owned submerged lands of Alaska's Cook Inlet and has not been, or will not be, transported by a pipeline over a federal right-of-way subject to the [Mineral Leasing Act] or the Trans-Alaska Pipeline Authorization Act.[37]

The *Federal Register* notice states that BIS export licenses issued under these regulations will have a term no longer than one year and are subject to revocation "if there is serious interruption to available U.S. oil supplies."[38] According to the BIS, the agency approved a total of six licenses for the export of Cook Inlet oil in fiscal years 1986, 1987 (2), 1989 (2), and 1990.[39]

The state of Alaska receives royalties of approximately 12.5% of the oil and natural gas produced from its leases. These royalties may be taken as a share of the physical commodity—royalties "in-kind" (RIK)—or as a share of commodity value. According to the Alaska Department of Natural Resources, the state began exporting its RIK oil from the Cook Inlet to Taiwan in 1987. Exports to Taiwan continued through a series of one-year competitive auctions until 1991, when the last contracted deliveries were stopped under *force majeure* following the eruption of the Mount Redoubt volcano, which disrupted oil operations in the Cook Inlet area.[40] The total volume of RIK Cook Inlet crude oil exported to Taiwan between 1987 and 1991 was 3,587,088 barrels.[41] These exports never resumed. The exports by the state of Alaska correspond with the BIS licenses issued and appear to account for all oil exports from Cook Inlet. As **Figure 3** shows, while Cook Inlet exports may have temporarily increased crude production, they did not reverse the long-term decline of crude oil production in the region. Today, nearly all crude oil produced in Cook Inlet is supplied to a refinery near the city of Kenai, AK, which produces most of Alaska's gasoline as well as other fuels.[42]

Oil Exports to Canada under NAFTA

As discussed above, the United States-Canada Free-Trade Agreement Implementation Act of 1988 allowed up to 50,000 bbl/d of TAPS crude oil to be exported to Canada. These provisions were incorporated by reference in the North American Free Trade Agreement (NAFTA).[43] However, the regulatory record raises the question of whether the 1996 determination allowing unlimited exports from TAPS is in conflict with the earlier 1988 determination with regard to Canada. It could be argued that—as the superseding language—the 1996 determination does extend to Canada as the language is not country specific. Nonetheless, the 1988 determination capping the amount at 50,000 bbl/d is also still reflected in the BIS export regulations. Because

[37] 15 C.F.R 754.2 (d).

[38] Department of Commerce, "Exports of Crude Oil Derived from Alaska's Cook Inlet," 50 *Federal Register* 52798, December 26, 1985.

[39] Bureau of Industry and Security, personal communication, September 8, 2014.

[40] Alaska Department of Natural Resources, *Division of Oil and Gas 2009 Annual Report*, May 2010, p. 36, http://dog.dnr.alaska.gov/Publications/Documents/AnnualReports/Section2_2009.pdf.

[41] Ibid., Table II.8.

[42] Tim Bradner, "Cook Inlet Oil Production Increases 25% in Last Year," Alaska Journal of Commerce, August 28, 2014.

[43] NAFTA, Annex 608.2

Canada has apparently never imported U.S. crude oil under these specific provisions it is unclear whether the two seemingly different allowances represent an oversight in regulatory codification or the current licensing policy.

Liquefied Natural Gas Exports from Kenai LNG

The Kenai Liquefied Natural Gas Plant (LNG), located in Nikiski, AK, began operation in 1969 as the United States' first and, to date, only commercial LNG export facility. The plant was developed jointly by Phillips Petroleum (70%) and Marathon Oil (30%),[44] which supplied it with natural gas from their respective holdings in the North Cook Inlet gas field. In 1967 the Federal Power Commission[45] authorized the initial export of natural gas from Kenai LNG to Tokyo Electric and Tokyo Gas for a 15-year period (beginning in March 1969). This export authority has been extended a number of times since 1967, most recently by the DOE, which approved the export of 40 billion cubic feet of natural gas on April 14, 2014. Since its construction, Kenai LNG has exported over 2.2 trillion cubic feet of natural gas, nearly all of it to the two Japanese utilities.[46]

Although the Kenai LNG Plant continues to operate, ConocoPhillips announced plans to close it in 2011. At the time ConocoPhillips stated that "due to current market conditions ConocoPhillips has been unable to negotiate the commercial arrangements that would be necessary to allow for continued operation."[47] More specifically, the company cited its inability to secure long-term gas supplies from Cook Inlet (while facing declining local gas production and rising local demand) as the primary reason for Kenai LNG's closure.[48] The plant was closed over the winter in 2011; however it resumed shipments in May 2012 due to increased demand for Alaskan LNG in Japan after that country's earthquake, tsunami, and nuclear power plant closures (most notably in Fukushima). The plant suspended operations again in 2012 due to shortages of natural gas to meet local market demand in Alaska.[49] Kenai LNG's export authorization for these shipments expired in March 2013 and was not immediately renewed.

In April 2014, ConocoPhillips announced that it would reopen the Kenai LNG Plant because local gas utilities in Alaska had secured gas supply through the first quarter of 2018 and because the Cook Inlet area gas supply forecast had increased, providing a renewed opportunity to export Cook Inlet production in excess of local demand.[50] State officials had also asked the company to reopen the plant, reportedly to provide an incentive for gas producers to invest in continued Cook

[44] ConocoPhillips, a successor to Phillips Petroleum, bought out Marathon's 30% share in 2011 and is now the sole owner.

[45] The Federal Power Commission's regulatory authority over natural gas exports was transferred to the Secretary of Energy in 1977 by the Department of Energy Organization Act, 42 U.S.C. §§7151, 7172.

[46] Energy Information Administration, "Liquefied U.S. Natural Gas Exports to Japan, web page, August 29, 2014, http://www.eia.gov/dnav/ng/hist/n9133ja2a.htm; ConocoPhillips Alaska, "Kenai LNG Exports," web page, September 2, 2014, http://alaska.conocophillips.com/what-we-do/natural-gas/lng/Pages/kenai-lng-exports.aspx. In 2011, Kenai LNG shipped one cargo to China.

[47] ConocoPhillips Alaska, "Kenai LNG Plant," press release, February 2011.

[48] ConocoPhillips Alaska, "Additional Cargoes Extend Kenai LNG Facility Operations," press release, April 19, 2011.

[49] Yereth Rosen, "ConocoPhillips Restarts LNG Exports from Alaska," Reuters, June 14, 2012.

[50] ConocoPhillips Alaska, "ConocoPhillips Announces Resumption of Exports from the Kenai LNG Facility," press release, April 14, 2014.

Inlet gas operations and to develop new discoveries. Kenai LNG resumed shipments in May 2014.[51]

As noted above, the DOE granted Kenai LNG export authority on April 14, 2014, including a blanket authorization to export LNG to non-free trade agreement (FTA) countries. The order authorizes approximately 40 billion cubic feet of cumulative exports for a two-year period.[52] In its application for the export authorization, ConocoPhillips argued that the natural gas to be exported was not needed to meet local demand and that exports would be a source of demand for Cook Inlet production during summer months when local demand is low. The company argued that this demand would help sustain the existing gas fields and provide an incentive for additional natural gas development in the region.[53] According to the DOE, no party to the authorization proceedings "submitted evidence to rebut the statutory presumption that the requested authorization is consistent with the public interest."[54]

ConocoPhillip's application for LNG export approval to non-FTA countries was filed on December 11, 2013. Ordinarily, the DOE would have placed this application in its administrative queue (Order of Precedence) behind nearly two dozen others pending before the agency, many for months or years.[55] However, the DOE expedited its consideration of additional exports from Kenai LNG at the request of ConocoPhillips. Reportedly, the agency viewed Kenai LNG as a fundamentally different project from the others due to its location, the relatively short term it was seeking (two years vs. twenty, for example), and the small volumes of gas involved compared to other projects in DOE's queue.[56]

Alaska LNG Project

Arctic Alaska has substantial natural gas resources. The U.S. Geological Survey (USGS) has estimated that conventional natural gas reserves on Alaska's North Slope potentially exceed 200 trillion cubic feet (Tcf), over eight times the total annual gas consumption of the United States.[57] The agency has also estimated up to 80 Tcf of undiscovered, technically recoverable onshore resources of shale gas on the North Slope.[58] Further, the USGS has estimated that the North Slope may contain up to 158 Tcf of technically recoverable natural gas in the form of methane

[51] Tim Bradner, "State Asks ConocoPhillips to Reopen Idle Kenai LNG Plant," *Alaska Journal of Commerce*, September 12, 2013.

[52] Department of Energy, Office of Fossil Energy, Order Granting Blanket Authorization to Export Liquefied Natural Gas by Vessel from the Kenai LNG Facility near Kenai, Alaska to Non-Free Trade Agreement Nations, DOE/FE Order 3418, April 14, 2014, p. 1, http://www.fossil.energy.gov/programs/gasregulation/authorizations/Orders_Issued_2014/ord3418.pdf.

[53] Ibid., pp. 9-10.

[54] Ibid., p. 18.

[55] See Department of Energy, Office of Fossil Energy, "Order of Precedence—Non-FTA LNG Export Applications," web page, March 24, 2014, http://energy.gov/fe/downloads/order-precedence-non-fta-lng-export-applications.

[56] Brian Scheid, "US DOE to Consider ConocoPhillips Alaska LNG Project Separately: Source," *Platts*, January 3, 2014.

[57] U.S. Geological Survey, *Circum-Arctic Resource Appraisal: Estimates of Undiscovered Oil and Gas North of the Arctic Circle,* Fact Sheet 2008-304, 2008, Table 1, http://pubs.usgs.gov/fs/2008/3049/fs2008-3049.pdf; U.S. Energy Information Administration, *Annual Energy Outlook 2013*, DOE/EIA-0383(2013), April 2011, p. 147.

[58] U.S. Geological Survey*, Assessment of Potential Oil and Gas Resources in Source Rocks of the Alaska North Slope*, 2012, Fact Sheet 2012–3013, February 2012, http://pubs.usgs.gov/fs/2012/3013/pdf/fs2012-3013_2-28-2012.pdf.

hydrates.[59] Although methane hydrate resources cannot yet be developed because there are no commercially viable methods to do so, future technologies may make such production economically viable. Taken together, these vast natural gas resources—both proven and potential—on the North Slope have motivated the development of infrastructure projects to supply North Slope natural gas to southern Alaska and the lower-48 states via pipeline or to export markets in the form of LNG.

Ever since the first large natural gas reserves were discovered at Prudhoe Bay over forty years ago, Congress has been encouraging the development of these natural gas resources. The principal plan has been to construct a natural gas pipeline from the North Slope to the lower-48 states. Beginning with the Alaska Natural Gas Transportation Act of 1976 (ANGTA)[60] and continuing through the Alaska Natural Gas Pipeline Act of 2004, Congress has repeatedly affirmed a national need for an Alaska natural gas pipeline.[61] The presidential administrations of Jimmy Carter, Ronald Reagan, and George W. Bush also supported an Alaska gas pipeline project. President Obama voiced support for such a pipeline during his first month in office, when he described an Alaska gas pipeline as "a project of great potential ... as part of a comprehensive energy strategy."[62]

An Alaska gas pipeline from the North Slope to the lower-48 states would be, by some measures, the largest civilian construction project in the history of North America. When proposals were announced in the mid-2000s, developers estimated total project costs of $27 billion[63] to $30 billion.[64] At that time, lower-48 natural gas prices were at all-time highs, peaking above $10/MMBtu. However, with the recent growth of shale gas supplies in the lower-48 states, and the corresponding drop in North American natural gas prices below $4/MMBtu, an Alaska gas pipeline to the lower-48 states is not currently competitive. At the same time, prices for LNG in the international market have risen, for example, peaking above $16/MMBtu in Japan in 2012. These high international prices offer a potentially attractive export market for Alaskan LNG.

As an alternative to a lower-48 pipeline, Alaskan officials and North Slope producers have been pursuing a proposal to construct a pipeline from the North Slope to Nikiski, on the Kenai Peninsula, where a new LNG terminal would be constructed for LNG export. The project—Alaska LNG Project L.L.C. (Alaska LNG)—would consist of a gas treatment plant on the North Slope, an 800-mile pipeline, and a new LNG liquefaction plant and marine terminal at a total project cost estimated between $45 billion and $65 billion.[65] The pipeline would also provide several spurs along the route to supply natural gas to local Alaskan markets for heating, power generation, and other uses. Alaska LNG is being jointly developed by ExxonMobil, ConocoPhillips, and BP (the North Slope natural gas producers) as well as pipeline company TransCanada. The state of Alaska would also be an equity partner in the project under the

[59] U.S. Geological Survey, *Gas Hydrate Resource Assessment: North Slope, Alaska*, Fact Sheet, October 2008.

[60] 15 U.S.C. §719 et seq.

[61] For example, see P.L. 108-324 §103(b)(2)(A) "a public need exists to construct and operate the proposed Alaska natural gas transportation project."

[62] Erika Bolstad, "Obama Calls Alaska Gas Pipeline Promising," *Anchorage Daily News*, February 11, 2009.

[63] TransCanada Corp., *Application for License: Alaska Gasline Inducement Act*, November 30, 2007, p. 2.5-2. 2007 dollars.

[64] Wesley Loy, "BP, Conoco Join Forces to Pursue Gas Pipeline," *Anchorage Daily News*, April 9, 2008. 2008 dollars.

[65] ExxonMobil, "Alaska LNG Project Selects Lead Terminal Location," press release, October 7, 2013.

provisions of a new state law enacted in April 2014 authorizing Alaska's participation in the project.[66]

On July 18, 2014, Alaska LNG's sponsors applied to the DOE for authorization to export approximately 929 billion cubic feet of LNG annually to both FTA and non-FTA countries over a 30-year term (beginning no later than 12 years after authorization is granted).[67] In submitting its application, Alaska LNG requested expedited review and exemption from new procedures under DOE's current Order of Precedence administrative queue on the grounds that the project's gas reserves were "more than sufficient" to serve local demand as well as exports and were "geographically isolated from the lower-48 states."[68] Energy Secretary Moniz reportedly agreed to "treat Alaska differently" from the other export applications because export of natural gas from Alaska would not affect markets in the lower-48 states and, therefore, the "public interest is not an issue" for the DOE.[69] Completion of an environmental review under the National Environmental Policy Act would still be required for final DOE authorization, as well as authorization from the Federal Energy Regulatory Commission (FERC) for the associated facilities. On September 5, 2014, Alaska LNG submitted a request to FERC to commence the commission's pre-filing process in preparation for filing an application for the facility authorization.

One complication for Alaska LNG is a requirement under ANGTA that

> before any Alaska natural gas in excess of 1,000 Mcf per day may be exported to any nation other than Canada or Mexico, the President must make and publish an express finding that such exports will not diminish the total quantity or quality nor increase the total price of energy available to the United States.[70]

In 1988, President Reagan issued such a finding, stating "the effects of exports of Alaska natural gas on American consumers would comply with the market criteria of [ANGTA] in the context of current and projected future energy markets and that such exports would be consistent with our comprehensive energy policy."[71] Although this finding was issued in the context of an earlier project (Yukon Pacific) to commercially develop North Slope natural gas, Alaska LNG's export application argues that it still applies to the current project and that a new finding under ANGTA is not required for Alaska LNG.[72] Whether President Reagan's finding applies to Alaska LNG is open to debate and will be an issue for consideration in DOE's review of the export application.

Although Alaska LNG's developers have identified a proposed terminal site and pipeline route, this project is still largely conceptual with a number of unresolved engineering, technical, regulatory, environmental, economic, and permitting issues. Prior experience with the construction and operation of the Trans Alaska Pipeline System and the Kenai LNG terminal

[66] Alaska Senate Bill 138, April 2014, http://www.legis.state.ak.us/PDF/28/Bills/SB0138G.PDF.

[67] Alaska LNG Project LLC, *Application of Alaska LNG Project LLC for Long-Term Authorization to Export Liquefied Natural Gas*, Department of Energy, Office of Fossil Energy Docket No. 14-96-LNG, July 18, 2014, p. 1.

[68] Ibid.

[69] Tim Bradner, "DOE to Streamline Export License for Alaska LNG Project," *Alaska Journal of Commerce*, August 19, 2014.

[70] 15 U.S. C. §719j.

[71] President Ronald Reagan, *Presidential Finding Concerning Alaska Natural Gas*, 53 Fed. Reg. 999, Jan. 15, 1988.

[72] Alaska LNG Project LLC, July 18, 2014, pp. 26-30.

suggest that such a project would be technically feasible, although development time for the pipeline, in particular, could be long.[73] The North Slope is also a habitat for polar bears, whales, and other species listed under the Endangered Species Act; therefore further oil and gas development on Alaska's North Slope is a contentious political issue.

Considerations for Congress

As stated in the introduction, to what extent the United States should allow overseas exports of crude oil and natural gas is the subject of ongoing Congressional debate. Alaska's experience shows that—under a specific set of circumstances—such exports have been viewed as in the national interest both by Congress and successive presidential administrations.[74] Regional production trends, market prices, and local commodity demand have all been important considerations in establishing export policies for Alaska. It is also instructive to note that, even with long-standing export approvals in effect, exports of crude oil and natural gas from Alaska have been relatively modest. Ten years between crude oil export cargoes from TAPS, for example, suggests that production economics and competitive market forces will be the ultimate determinant of export volumes where exports are permitted.

In the context of broader U.S. oil and natural gas export policy the Alaska experience may raise several key questions. To what extent does the rationale for energy exports from Alaska—which is geographically isolated—apply to other U.S. supply regions? What is the interplay between overseas exports and the maritime shipping industry? What are the expectations for capital investment by developers to support export production and how might they affect the nation's overall oil and gas supplies? What are the environmental impacts of increased production for export? How might international trade agreements influence the U.S. government's ability to tailor its oil and natural gas export policies by region? As Congress continues its oversight of the nation's energy resources, understanding these issues may be important.

[73] For details see Dan Sullivan, Alaska Dept. of Natural Resources, "Commercializing North Slope Gas," Presented to the Senate In-State Energy Committee, March 21, 2013, http://dnr.alaska.gov/commis/testimony/Senate_Instate_Energy_3_21_13.pdf.

[74] Note that Alaska is not the only state where crude exports are allowed. For example, limited exports of heavy crude oil from California are also federally authorized. This and other exceptions to federal crude oil export restrictions are found at (15 C.F.R. §754.2(b)). They are outside the scope of this report.

Appendix A. Statutory Limits on TAPS Oil Exports

Trans Alaska Pipeline Authorization Act of 1973 (P.L. 93-153 §101)

Limitations on Export

(u) Any domestically produced crude oil transported by pipeline over rights-of-way granted pursuant to section 28 of the Mineral Leasing Act of 1920, except such crude oil which is either exchanged in similar quantity for convenience or increased efficiency of transportation with persons or the government of an adjacent foreign state, or which is temporarily exported for convenience or increased efficiency of transportation across parts of an adjacent foreign state and reenters the United States, shall be subject to all of the limitations and licensing requirements of the Export Administration Act of 1969 (Act of December 30, 1969; 83 Stat. 841) and, in addition, before any crude oil subject to this section may be exported under the limitations and licensing requirements and penalty and enforcement provisions of the Export Administration Act of 1969 the President must make and publish an express finding that such exports will not diminish the total quantity or quality of petroleum available to the United States, and are in the national interest and are in accord with the provisions of the Export Administration Act of 1969: *Provided*, That the President shall submit reports to the Congress containing findings made under this section, and after the date of receipt of such report Congress shall have a period of sixty calendar days, thirty days of which Congress must have been in session, to consider whether exports under the terms of this section are in the national interest. If the Congress within this time period passes a concurrent resolution of disapproval stating disagreement with the President's finding concerning the national interest, further exports made pursuant to the aforementioned Presidential findings shall cease. (P.L. 93-153 § 101)

Export Administration Act of 1979 (P.L. 108-458 §7(d))

(d) DOMESTICALLY PRODUCED CRUDE OIL.—(1) Notwithstanding any other provision of this Act and notwithstanding subsection (u) of section 28 of the Mineral Leasing Act of 1920 (30 U.S.C. 185), no domestically produced crude oil transported by pipeline over right-of-way granted pursuant to section 203 of the Trans-Alaska Pipeline Authorization Act (43 U.S.C. 1652) (except any such crude oil which (A) is exported to an adjacent foreign country to be refined and consumed therein in exchange for the same quantity of crude oil being exported from that country to the United States; such exchange must result through convenience or increased efficiency of transportation in lower prices for consumers of petroleum products in the United States as described in paragraph (2)(A)(ii) of this subsection, (B) is temporarily exported for convenience or increased efficiency of transportation across parts of an adjacent foreign country and reenters the United States, or (C) is transported to Canada, to be consumed therein, in amounts not to exceed an annual average of 50,000 barrels per day, in addition to exports under subparagraphs (A) and (B), except that any ocean transportation of such oil shall be by vessels documented under section 12106 of title 46, United States Code) may be exported from the United States, or any of its territories and possessions, subject to paragraph (2) of this subsection.

(2) Crude oil subject to the prohibition contained in paragraph (1) may be exported only if—

(A) the President so recommends to the Congress after making and publishing express findings that exports of such crude oil, including exchanges—

(i) will not diminish the total quantity or quality of petroleum refined within, stored within, or legally committed to be transported to and sold within the United States;

(ii) will, within 3 months following the initiation of such exports or exchanges, result in (I) acquisition costs to the refiners which purchase the imported crude oil being lower than the acquisition costs such refiners would have to pay for the domestically produced oil in the absence of such an export or exchange, and (II) not less than 75 percent of such savings in costs being reflected in wholesale and retail prices of products refined from such imported crude oil;

(iii) will be made only pursuant to contracts which may be terminated if the crude oil suppliers of the United States are interrupted, threatened, or diminished;

(iv) are clearly necessary to protect the national interest; and

(v) are in accordance with the provisions of this Act; and

(B) the President includes such findings in his recommendation to the Congress and the Congress, within 60 days after receiving that recommendation, agrees to a joint resolution which approves such exports on the basis of those findings, and which is thereafter enacted into law.

(3) Notwithstanding any other provision of this section or any other provision of law, including subsection (u) of section 28 of the Mineral Leasing Act of 1920, the President may export oil to any country pursuant to a bilateral international oil supply agreement entered into by the United States with such nation before June 25, 1979, or to any country pursuant to the International Emergency Oil Sharing Plan of the International Energy Agency.

Trans-Alaska Pipeline Amendment Act of 1995 (P.L. 104-58 §202)

(f) Exports of Alaskan North Slope Oil—

(1) Subject to paragraphs (2) through (6), of this subsection and notwithstanding any other provision of law (including any regulation), any oil transported by pipeline over right-of-way granted pursuant to this section may be exported after October 31, 1995 unless the President finds that exportation of this oil is not in the national interest. In evaluating whether the proposed exportation is in the national interest, the President—

(A) shall determine whether the proposed exportation would diminish the total quantity or quality of petroleum available to the United States;

(B) shall conduct and complete an appropriate environmental review of the proposed exportation, including consideration of appropriate measures to mitigate any potential adverse effect on the environment, within four months after the date of enactment of this subsection; and

(C) shall consider, after consultation with the Attorney General and Secretary of Commerce, whether anticompetitive activity by a person exporting crude oil under authority of this subsection is likely to cause sustained material crude oil supply shortages or sustained crude oil prices significantly above world market levels for independent refiners that would cause sustained material adverse employment effects in the United States.

The President shall make his national interest determination within five months after the date of enactment of this subsection or 30 days after completion of the environmental review, whichever is earlier. The President may make his determination subject to such terms and conditions (other than a volume limitation) as are necessary or appropriate to ensure that the exportation is consistent with the national interest.

(2) Except in the case of oil exported to a country pursuant to a bilateral international oil supply agreement entered into by the United States with the country before June 25, 1979, or to a country pursuant to the International Emergency Oil Sharing Plan of the International Energy Agency, any oil transported by pipeline over right-of-way granted pursuant to this section, shall, when exported, be transported by a vessel documented under the laws of the United States and owned by a citizen of the United States (as determined in accordance with section 2 of the Shipping Act, 1916 (46 U.S.C. App. 802)).

(3) Nothing in this subsection shall restrict the authority of the President under the Constitution, the International Emergency Economic Powers Act (50 U.S.C. 1701 et seq.), or the National Emergencies Act (50 U.S.C. 1601 et seq.) to prohibit exportation of the oil.

(4) The Secretary of Commerce shall issue any rules necessary for implementation, including any licensing requirements and conditions, of the President's national interest determination within 30 days of the date of such determination by the President. The Secretary of Commerce shall consult with the Secretary of Energy in administering the provisions of this subsection.

(5) If the Secretary of Commerce finds that anticompetitive activity by a person exporting crude oil under authority of this subsection has caused sustained material crude oil supply shortages or sustained crude oil prices significantly above world market levels and further finds that these supply shortages or price increases have caused sustained material adverse employment effects in the United States, the Secretary of Commerce may recommend to the President who may take appropriate action against such person, which may include modification or revocation of the authorization to export crude oil.

(6) Administrative action with respect to an authorization under this subsection is not subject to sections 551 and 553 through 559 of title 5, United States Code.

Appendix B. Statutory Limits on Cook Inlet Exports

Energy Policy and Conservation Act of 1975 (P.L. 94-163 §103)

DOMESTIC USE OF ENERGY SUPPLIES AND RELATED MATERIALS AND EQUIPMENT

SEC. 103. (a) The President may, by rule, under such terms and conditions as he determines to be appropriate and necessary to carry out the purposes of this Act, restrict exports of—

(1) coal, petroleum products, natural gas, or petrochemical feedstocks, and

(2) supplies of materials or equipment which he determines to be necessary (A) to maintain or further exploration, production, refining, or transportation of energy supplies, or (B) for the construction or maintenance of energy facilities within the United States.

(b) (1) The President shall exercise the authority provided for in Exemption, subsection (a) to promulgate a rule prohibiting the export of crude oil and natural gas produced in the United States, except that the President may, pursuant to paragraph (2), exempt from such prohibition such crude oil or natural gas exports which he determines to be consistent with the national interest and the purposes of this Act.

(2) Exemptions from any rule prohibiting crude oil or natural gas exports shall be included in such rule or provided for in an amendment thereto and may be based on the purpose for export, class of seller or purchaser, country of destination, or any other reasonable classification or basis as the President determines to be appropriate and consistent with the national interest and the purposes of this Act.

(c) In order to implement any rule promulgated under subsection (a) of this section, the President may request and, if so, the Secretary of Commerce shall, pursuant to the procedures established by the Export Administration Act of 1969 (but without regard to the phrase "and to reduce the serious inflationary impact of foreign demand" in section 3(2)(A) of such Act), impose such restrictions as specified in any rule under subsection (a) on exports of coal, petroleum products, natural gas, or petrochemical feedstocks, and such supplies of materials and equipment.

(d) Any finding by the President pursuant to subsection (a) or (b) and any action taken by the Secretary of Commerce pursuant thereto shall take into account the national interest as related to the need to leave uninterrupted or unimpaired—

(1) exchanges in similar quantity for convenience or increased efficiency of transportation with persons or the government of a foreign state,

(2) temporary exports for convenience or increased efficiency of transportation across parts of an adjacent foreign state which exports reenter the United States, and

(3) the historical trading relations of the United States with Canada and Mexico....

Author Contact Information

(name redacted)
Specialist in Energy and Infrastructure Policy
[redacted]@crs.loc.gov, 7-....

(name redacted)
Specialist in International Trade and Finance
[redacted]@crs.loc.gov, 7-....