

UNTAPPED POTENTIAL

WHY DEVELOPING ANWR STILL MAKES SENSE



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Introduction

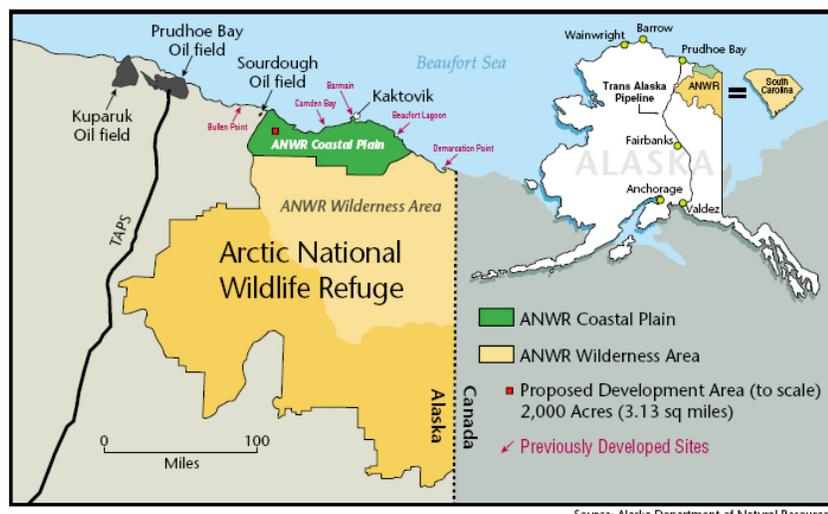
With the release of the FY 2018 federal budget, the Trump administration brought back to life the long-standing and hotly-debated issue of opening up the Arctic National Wildlife Refuge (ANWR) for oil and gas development.¹ Preserved in 1980 under the Alaska National Interest Lands Conservation Act, environmentalists and many other activists have opposed oil drilling in this vast expanse of largely untouched terrain. However, Congress in its designation of the refuge in 1980 and again in 1987 withheld a final wilderness designation dubbed “Area 1002” along the coastal plain. This area was left open to oil drilling “in recognition of the area’s potentially enormous oil and gas resources.”

Cutting across Alaska from the North Slope to the Valdez Marine terminal on the southern coast, the Trans-Alaska Pipeline System (TAPS) is an 800-mile-long crude oil pipeline with 2

pump stations. Once an iconic transporter of American crude oil, TAPS is experiencing a severe decline in throughput volume that threatens the economic viability of the pipeline which at the time of its construction was the largest privately financed project in U.S. history. If substantial oil discoveries were to occur this new oil production would bolster the economics of

TAPS and add tax revenue to local, state and federal government. The state of Alaska, which depends substantially on revenue from oil and gas operations to fund state services has suffered in recent years with declining oil prices and output.

The proposed drilling and development would occur on a very small portion of the refuge, about 2,000 of the over 19 million acres of ANWR, less than one tenth of one percent of the 1002 Area.² Some environmental groups have argued that oil and gas operations on even a small portion of the refuge represents a threat to the local caribou population and would also harm “America’s last great wilderness.”



1. Alyeska. “Pipeline Facts.” Alyeska Pipeline Service Company, 2011. Web. <http://www.alyeska-pipe.com/TAPS/PipelineFacts>

2. ANWR.org. “Political History of the Arctic Refuge.” Anwr.org, 23 Nov. 2014. Web. <http://anwr.org/2014/11/political-history-of-the-arctic-refuge>

Policy History of Crude Production and Transport in Alaska

After enduring four years of regulatory reviews, prolonged environmental impact statements, and extensive oversight to ensure safety and efficiency, the Trans-Alaska Pipeline System (TAPS) began construction in 1975³. Since its inception, TAPS has produced over \$170 billion dollars in revenue for the State of Alaska⁴ and transported 16.75% of the United States' entire crude oil production since 1981.⁵ Capitalizing on the bounty of Alaska's reserve-rich Prudhoe Bay, Kaparuk, and Alpine oil fields, TAPS is a cornerstone of both Alaska's economic stability and the United States' oil production capacity. However, as access to reserves near TAPS have been restricted, the pipeline faces severe economic headwinds from declining throughput.

TAPS now operates at one-third of its nameplate capacity, as oil production has declined from the once prolific North Slope oil fields. Throughput levels currently hover around 500,000 barrels per day, down from over 2 million in the peak year of 1988. This continued decline presents the growing risk that TAPS will eventually reach its minimum throughput level (the lowest volume a pipeline can transport without shutting down). If flows continue to decline, the aggregate temperature of the crude oil may drop below a functionable level. There is considerable disagreement over the minimum throughput to keep the pipeline in operation; estimates range between 135,000 barrels to 400,000 barrels per day.

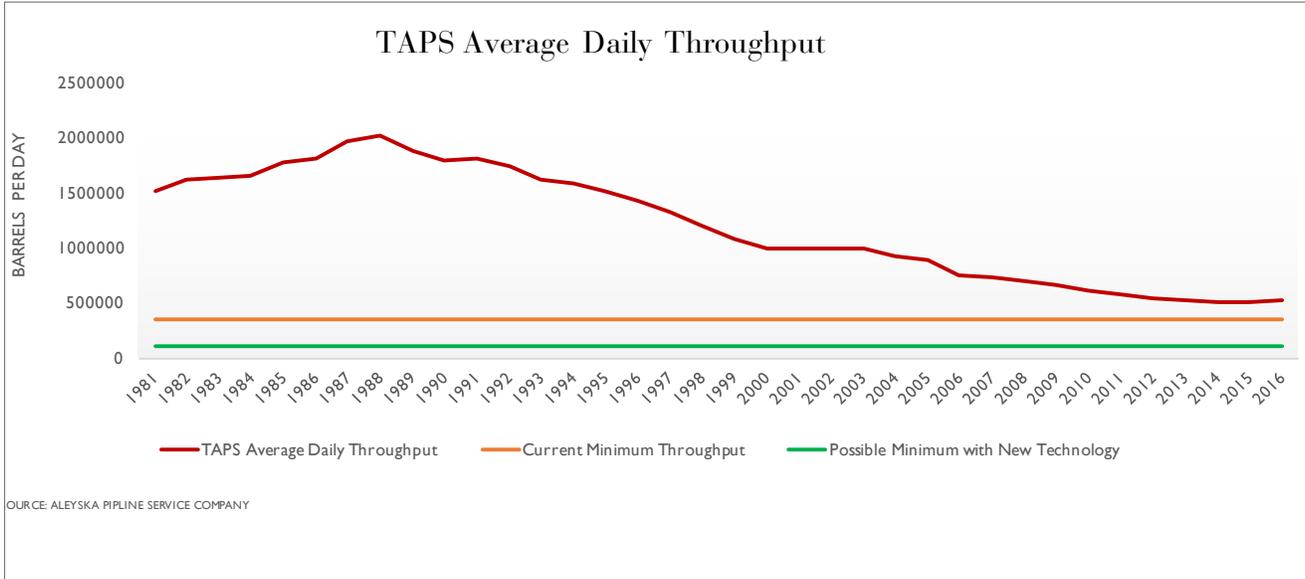


3. ANWR.org. "ANWR Caribou Information Brief." Anwr.org, 2013 Web. <http://www.anwr.org/features/pdfs/caribou-facts.pdf>

4. EIA. "Analysis of Crude Oil Production in the Arctic National Wildlife Refuge." U.S. Energy Information Administration, May 2008. Web. <https://www.eia.gov/analysis/requests/2008/anwr/results.html>

5. McDevitt, Pat. "Low Flow Impact Study." Alyeska Pipeline Service Company, 15 June 2011. PDF.

Any level below 400,000 threatens permafrost development, wax deposition, and corrosion.⁶ As TAPS' oil volume approaches this limit, the options narrow considerably to keep the line in operation.



While the demand to open new fields for drilling would provide a swift solution to the imminent throughput problem, strong environmental and political opposition currently obstruct this option. Alyeska is investing hundreds of millions of dollars into new technologies, including heating stations and cleaning pigs, that would delay shutdown as the decline in throughput accelerates.⁷ This solution presents high capital outlay, confers low returns on investment, and is predicated on the risky assumption that the declining flow of oil in TAPS can still mitigate the costs of operation. In the absence of new reserves to lift throughput, cost-effective operation of TAPS remains problematic.

6. EIA. "Analysis of Crude Oil Production in the Arctic National Wildlife Refuge." U.S. Energy Information Administration, May 2008. Web. <https://www.eia.gov/analysis/requests/2008/anwr/results.html>

7. McDevitt, Pat. "Low Flow Impact Study." Alyeska Pipeline Service Company, 15 June 2011. PDF. http://www.alyeska-pipe.com/assets/uploads/pagestructure/TAPS_Operations_LowFlow/editor_uploads/LoFIS_Summary_Report_P6%2027_FullReport.pdf

Economic Value

An initial review of the potential oil production from ANWR demonstrates that it provides substantial net economic value. Using the mid case of the expected discovery volumes, we estimate the present value of the revenue stream from the production profile is approximately \$205 billion using the EIA reference case as the likely price of oil over the life of the project.

980,000 b/d: ANWR Production (USGS mean estimate)	\$14.3 Billion: Potential Annual Revenue
\$15/bbl: Production Cost per Barrel	\$37.5 Billion: Project's Present Value

Estimating the cost structure of the project presents some challenges, but using data from the Alaskan Department of Natural Resources, an all-in cost of \$30/bbl is a reasonable estimate. This number excludes some transfer payments, such as royalties and taxes; however, the purpose of the calculation is to understand the net present value of the project with regard to the allocation of real resources (new capital and labor). Our first set of estimates indicates that the project generates a net present economic value of \$32 billion, which will manifest itself in higher revenues to the State of Alaska, Federal Government, and return of capital investment. This value is an estimate of the (net) economic stakes in commencing the project. Opponents of the proposal must make the case that the loss of economic value is compensated by environmental or other benefits from non-development.

Conclusion

Rising costs, environmental challenges, public opposition, technical risks, and long development time horizons have substantially reduced investor interest in oil and gas development in many prospective arctic provinces.⁸ ANWR, with an established petroleum infrastructure of experienced operators, local drilling equipment and excess evacuation capacity (TAPS) represents a unique opportunity to expand U.S. oil production and capture substantial economic value for both the State of Alaska and federal government. These net benefits, in excess of \$37 billion, will yield economic rents that will show up in new revenues for the State of Alaska and the federal government. Some policy makers and other groups may argue that the project should not go forward. However, giving up on ANWR is not free as the real cost of not developing the resource is not just the reduction in energy security from lower domestic production, but the substantial loss of revenues for local, state, and federal governments.

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8. Orians, Gordan. "Cumulative Environmental Effects of Oil and Gas Activities on Alaska's North Slope." National Research Council, 2003. Web. http://dels.nas.edu/resources/static-assets/materials-based-on-reports/reports-in-brief/north_slope_final.pdf

ABOUT EPRINC

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