



The Energy and Climate Impacts of Oil Drilling in the Arctic National Wildlife Refuge

[Prepared for Alaska Wilderness League]

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Cover Photo: Porcupine Caribou in the Arctic National Wildlife Refuge. Credit: [Gary Braasch](#).

INTRODUCTION

In 2017, a provision to open the Coastal Plain of the Arctic National Wildlife Refuge to oil development was attached to Trump's 2017 tax bill without legislative hearings on the consequences.¹ This procedural maneuver successfully bypassed opposition in the Senate, where previous efforts to open the Arctic's Coastal Plain to drilling had been successfully stopped for the prior 37 years.² It also left Congress and the public in the dark about the energy and climate impacts of this drilling in light of the significant changes on both fronts since Arctic drilling was last debated and analyzed.

In December 2018, the Department of Interior's Bureau of Land Management (BLM) issued a Draft Environmental Impact Statement (DEIS) for leasing the Coastal Plain for oil and gas drilling.³ Alaska Wilderness League and more than two dozen organizations submitted comments criticizing the DEIS as failing to adequately address many legal, policy, and resource issues.⁴

At the request of Arctic Wilderness League, Symons Public Affairs has prepared this analysis of the energy and climate impacts of oil drilling in the Arctic National Wildlife Refuge.

FINDINGS & ANALYSIS

1. Opening the Arctic National Wildlife Refuge to drilling will mostly benefit Asia and global oil companies by boosting energy exports.

The U.S. will be exporting far more oil (and oil products) than we import when any production comes online from drilling in the Arctic National Wildlife Refuge, according to the U.S. Energy Information Administration (EIA).⁵ Consequently, any increased production from Arctic drilling will simply boost U.S. exports of crude oil and oil products, especially to Asia, which receives more than half of all U.S. crude oil exports.⁶

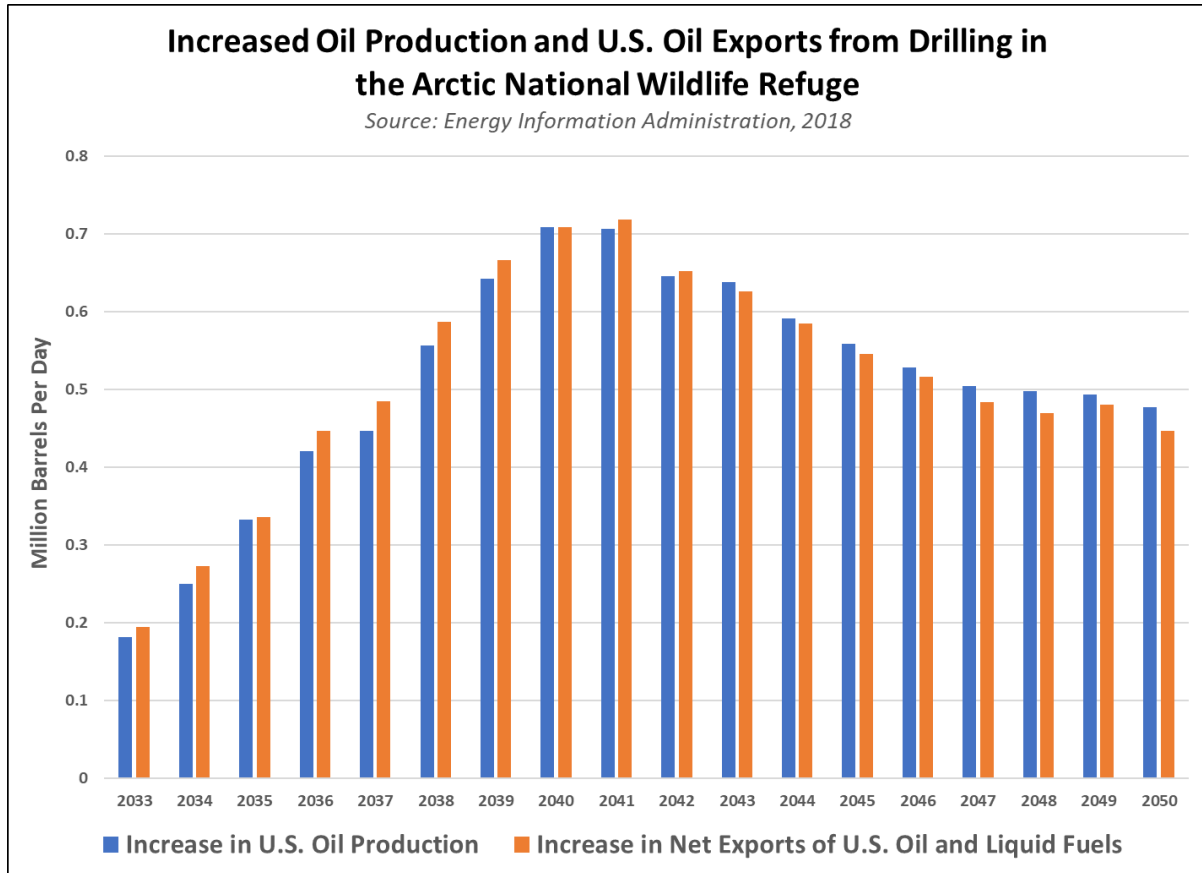
Figure 1 shows the year-after-year increase in U.S. exports under EIA's Coastal Plain drilling scenario, which tracks closely to EIA's estimate of increased oil production from the Arctic.

Every 100 barrels drilled in the Arctic will lead to a 98-barrel increase in U.S. exports, or more, according to data from EIA's 2018 analysis of drilling in the Arctic National Wildlife Refuge.

Further, EIA concludes that oil from the Arctic National Wildlife Refuge would flow directly from Alaska to Asia, bypassing Alaska's traditional West Coast markets, where oil demand is falling.⁸ In its Draft Environmental Impact Statement, however, the Department of Interior fails to disclose how

much of the oil drilled in the Arctic National Wildlife Refuge will flow to Asia and other global markets.

Figure 1



2. By opening the Arctic to drilling and weakening clean car standards, Trump’s oil policies will increase the bill paid by American families, truckers and farmers at the gas pump by \$200 million per day before a single barrel of Arctic oil is produced.

Arctic drilling and fuel economy rollbacks are a one-two punch that together will raise the price of gasoline at the pump, increase oil exports to Asia, and increase our oil dependency, making American families, truckers and farmers reaching for their wallets as global oil companies get richer.

As the Department of Transportation (DOT) explains in their analysis of the Trump Administration’s proposed fuel economy rollbacks:

“Buyers of new cars and light trucks will incur higher costs for fuel throughout those vehicles’ lifetimes because they will have lower fuel economy” after the weaker standards are put in place.⁹

DOT further determined that this would result in a wealth transfer from U.S. consumers to global oil companies:

***"The increase in global petroleum prices that results from higher U.S. demand causes a transfer of revenue to oil producers worldwide from not only buyers of new cars and light trucks, but also other consumers of petroleum products in the U.S. and throughout the world, all of whom pay the higher price that results."*¹⁰**

– U.S. Department of Transportation analysis of their proposed weakening of fuel economy standards

The Trump Administration fails to disclose the scale of money transferred from consumers to oil producers. DOT notes only in vague terms that the proposed rule "will eventually increase U.S. petroleum consumption by about 0.5 million barrels per day."¹¹

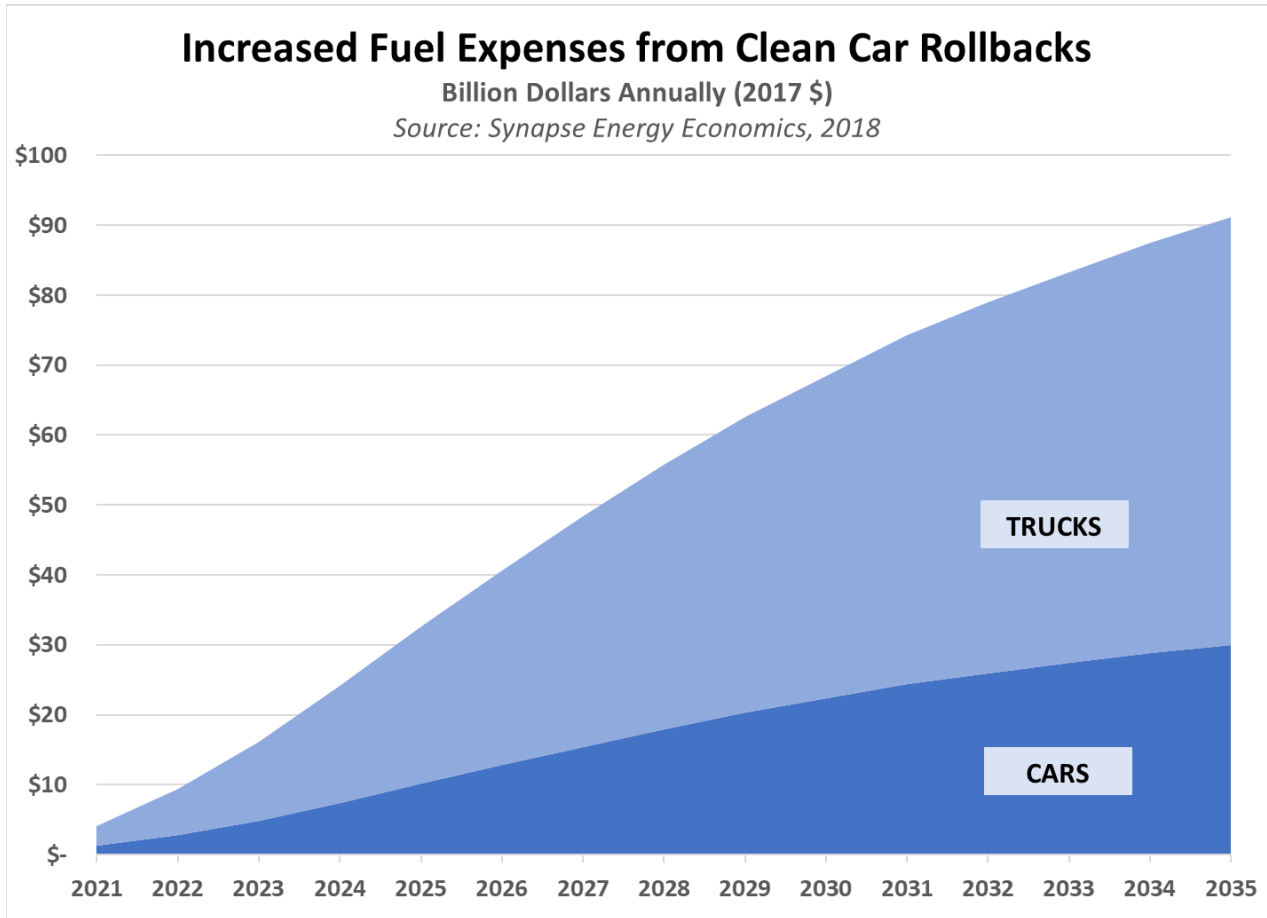
According to analysis of the proposed rule by Synapse Energy Economics Inc., U.S. consumers will pay \$200 million per day (\$74 billion annually) in extra fuel costs by 2031, the earliest possible date that the very first trickle of oil would begin according to the Trump Administration's most aggressive scenarios.¹²

Averaging this increased expenditure across the 212 million licensed drivers in the United States provides this bottom line:¹³

Drivers will be paying \$430 more at the pump by 2035, on average, as a result of Trump's plans to drill in the Arctic National Wildlife Refuge and weaken fuel economy standards.

This is a conservative estimate of the gas bill hike consumers will face. The actual bill will be higher because increased demand will also increase global oil prices. Yet again, the Trump Administration has not disclosed the scale of the global oil price increase in their publicly released regulatory analysis.

Figure 2



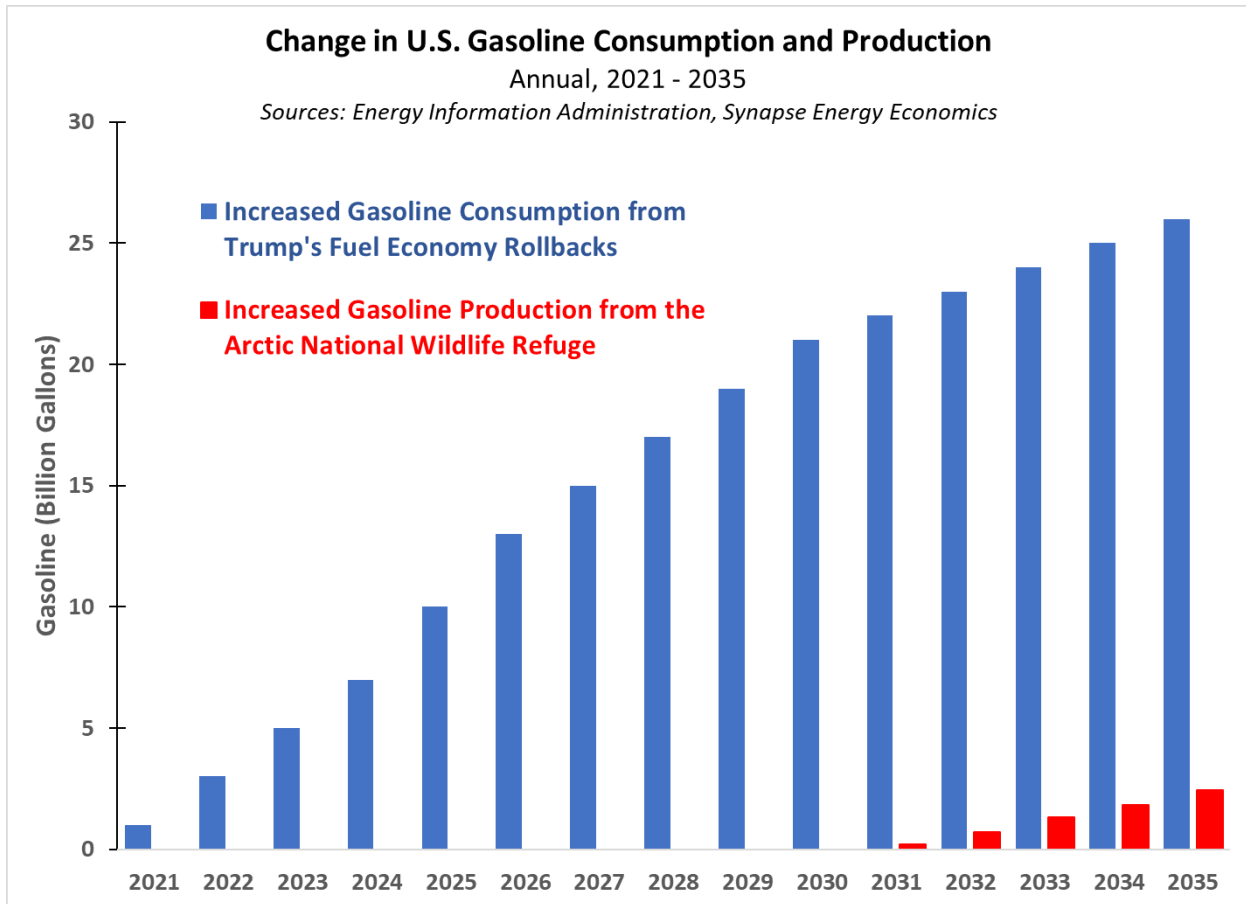
3. By opening the Arctic to drilling and weakening clean car standards, Trump’s oil policies will increase America’s oil dependency and weaken our energy security.

Any oil drilled in the Arctic National Wildlife Refuge will be a drop in the bucket compared to the increased oil consumption and higher gas bills resulting from Trump’s fuel economy rollbacks.

For every gallon of gasoline produced from the Arctic National Wildlife Refuge between now and 2035, America’s gasoline consumption will increase by 36 gallons due to Trump’s rollback of fuel economy standards.

As shown in Figure 3, the increased gasoline consumption from Trump’s fuel economy rollbacks starts far earlier than Arctic production, weakening America’s energy security and increasing the wealth transfer from American consumers to global oil companies. The U.S. Energy Information Administration forecasts that Arctic oil production will reach 333,000 barrels per day by 2035. Even this ambitious level of production would do little to supply the increased gasoline consumption from weaker fuel economy standards.

Figure 3



As noted previously, much of the oil and oil products from Arctic drilling will actually go overseas, further underscoring that Trump’s oil policies serve global oil companies at the expense of American consumers.

In assessing energy security impacts, it is important to note as well the different risk profiles of Arctic drilling and fuel economy standards. Strong clean car standards would deliver guaranteed savings to consumers at the pump here in America from cleaner, more fuel-efficient cars that get more mileage out of every barrel of oil. Drilling in the Arctic National Wildlife Refuge, on the other hand, is a risky gambit. Estimates of oil production are highly speculative and assume world oil prices will consistently be higher than they are today.

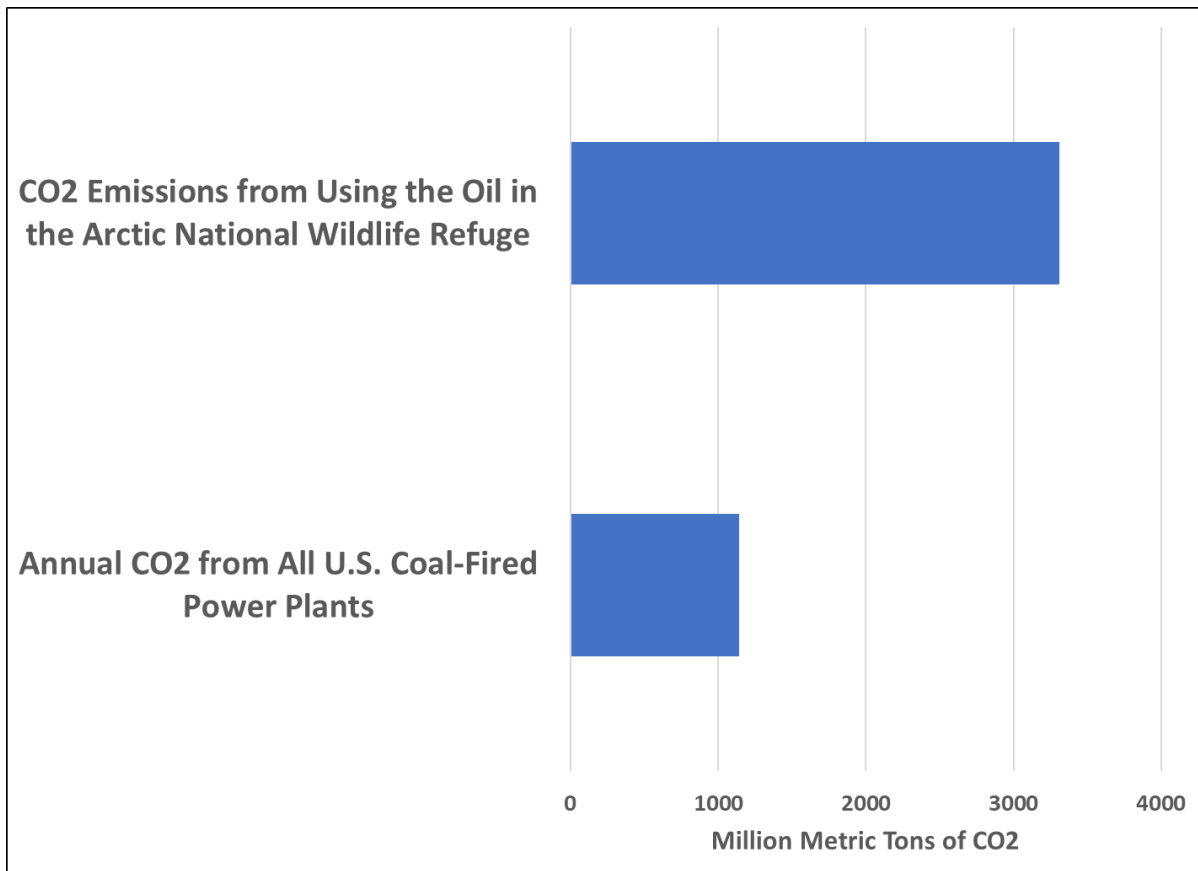
According to EIA's 2019 Annual Energy Outlook: "ANWR projections are highly uncertain because of several factors that affect the timing and cost of development, little direct knowledge of the resource size and quality that exists in ANWR, and inherent uncertainty about market dynamics."¹⁴

4. Locking in new oil infrastructure in the Arctic National Wildlife Refuge creates a slow-fuse time bomb that will increase carbon emission in developing nations for decades.

By locking in long-term commitments to new fossil fuel infrastructure, the decision to drill in the Arctic Refuge undermines climate science and global commitments to significantly slash emissions in the same time frame.

The carbon pollution from burning all the oil in the Arctic National Wildlife Refuge would be like doubling the pollution from every coal-fired power plant in the nation for three years.¹⁵

Figure 4



Even under the most aggressive scenarios, it will be more than a decade before leases are granted, leases are explored, and the infrastructure is in place to deliver any oil.¹⁶ Full production won't be achieved until 2040.

Oil produced from the Coastal Plain will be exported to Asia and other developing nations, increasing their carbon emissions at a time when America expects deep emission cuts from these same countries in order to stabilize the climate.

As this oil comes online, the world needs to be significantly slashing oil consumption to address climate change. Transportation accounts for one-quarter of global CO₂ emissions, and emissions in the transportation sector increased globally by 71 percent between 1990 and 2016, according to the International Energy Agency.¹⁷

Global CO₂ emissions must be cut by about 45% from 2010 levels by 2030 in order to avoid overshooting a 1.5°C increase, the aggressive goal set out in the Paris Climate Agreement, according to a report by the Intergovernmental Panel on Climate Change.¹⁸ Further, emissions must reach net zero by 2050.

5. Turning the Arctic National Wildlife Refuge into a petroleum zone will likely be a costly “White Elephant” on the losing end of long-term global energy trends.

The long lead time required before the Coastal Plain produces oil and the comparatively high cost of retrieving oil from the Arctic make infrastructure investments exceptionally risky, particularly in light of regional and global goals for reducing oil consumption.¹⁹

Regionally, California has historically been a significant market for Alaskan oil. California, however, has its eye on cutting oil use in cars and trucks in half by 2030 as it aims to cut its overall greenhouse gas emissions by 40 percent below 1990 levels in 2030 and by 80 percent by 2050.²⁰

Meanwhile, recent major oil discoveries in the National Petroleum Reserve- Alaska and on state lands promise to provide new regional oil supplies to the Trans-Alaska Pipeline System.²¹

Globally, analysts warn that trillions of fossil fuel assets could be devalued and “stranded” if energy markets trend over time to reduce carbon emissions in line with global objectives.²² In such a scenario, developing the unspoiled Arctic National Wildlife Refuge seems especially short-sighted, trading its ecological value (which will only increase in a warming world) for fossil fuel assets that may have little value by the time they could be put into production.

The development of the Coastal Plain is a short-sighted bet that we will fail to improve fuel efficiency of vehicles, fail to shift to alternative fuels, fail to expand oil-free transportation alternatives, and fail to slash carbon emissions from oil in the coming decades, despite the imperative of climate change. That is a bet that America cannot afford to win.

ENDNOTES

¹ Title II of [Public Law 115-97](#), signed into law in December 2017.

² U.S. Senate Committee on Energy and Natural Resources, "[Congress Approves Legislation to Open Alaska's 1002 Area](#)," Dec. 20, 2017.

³ U.S. Department of Interior, "[Coastal Plain Oil and Gas Leasing Program Draft Environmental Impact Statement](#)," December 2018.

⁴ Alaska Wilderness League et al, "[Comments re: Notice of Availability of the Draft Environmental Impact Statement for the Coastal Plain Oil and Gas Leasing Program and Announcement of Public Subsistence Related Hearings, 83 Fed. Reg. 67,337 \(Dec. 28, 2018\)](#)", March 13, 2019, p. 106-7.

⁵ U.S. Energy Information Administration, "[Analysis of Projected Crude Oil Production in the Arctic National Wildlife Refuge](#)," May 2018.

⁶ CME Group, "[Asia is a Key Destination for U.S. Oil Exports](#)," April 2019.

⁷ Calculations by Symons Public Affairs based on comparing U.S. crude oil production estimates (Figure 2) and net crude oil and liquid fuels imports estimates (Figure 3) from [EIA, 2018](#). For example, in

⁸ [EIA, 2018](#). "Demand for gasoline declines on the West Coast through most of the projection period, which could mean tepid demand for additional crude oil to be processed to meet end-use consumption in the traditional market for Alaskan crude oil production. The availability of Jones Act-compliant vessels and constraints through high-traffic waterways on the West Coast could also limit the amount Alaskan crude oil that gets processed in domestic refineries. Given these factors, some additional volumes of Alaskan oil production would likely be exported to Asia."

⁹ U.S. Department of Transportation (DOT) National Highway Traffic Safety Administration and U.S. Environmental Protection Agency, "[Preliminary Regulatory Impact Analysis The Safer Affordable Fuel-Efficient \(SAFE\) Vehicles Rule for Model Year 2021 – 2026 Passenger Cars and Light Trucks](#)," July 2018, p. 1061.

¹⁰ [DOT, 2018](#), p. 1066.

¹¹ [DOT, 2018](#), p. 104. Also: Department of Transportation National Highway Traffic Safety Administration and Environmental Protection Agency, "[Notice of Proposed Rulemaking on the Safer Affordable Fuel-Efficient \(SAFE\) Vehicles Rule for Model Years 2021–2026 Passenger Cars and Light Trucks](#)," Federal Register, Vol. 83, No. 165, August 24, 2018, p. 42986.

¹² Synapse Energy Economics, "[Assessment of Macroeconomic Impacts from Federal SAFE Proposal](#)," October 2018.

¹³ Source for number of licensed drivers: [Bureau of Transportation Statistics](#) (2013).

¹⁴ Energy Information Administration, "[Annual Energy Outlook 2019](#)," p. 46.

¹⁵ Calculated based on the mean estimate of technically recoverable oil on the Coastal Plain of the Arctic National Wildlife Refuge. According to USGS, "Technically recoverable oil within the ANWR 1002 area (excluding State and Native areas) is estimated to be between 4.3 and 11.8 billion barrels (95- and 5-percent probability range), with a mean value of 7.7 billion barrels." According to EPA, consuming a barrel of oil leads to 0.43 metric tons of CO₂, on average. Calculation: (7.7 billion barrels of oil) x (0.43 metric tons of CO₂ per barrel) = 3.31 billion tons of CO₂. According to the U.S. Environmental Protection

Agency (EPA), “In 2016, a total of 293 power plants used coal to generate at least 95% of their electricity (EPA 2018). These plants emitted 1,140,649,958.9 metric tons of CO₂ in 2016.” Sources: USGS, “[Arctic National Wildlife Refuge, 1002 Area, Petroleum Assessment, 1998, Including Economic Analysis.](#)” EPA, “[Greenhouse Gases Equivalencies Calculator - Calculations and References.](#)”

¹⁶ According to [EIA \(2018\)](#), Arctic production won’t begin until 2031 at the earliest, and that is only a trickle of production compared to peak production around 2040. This is confirmed by the Department of Interior’s draft Environmental Impact Statement, which predicts that Arctic coastal plain oil production won’t begin until seven years after leases are sold. Source: U.S. Department of Interior, “Coastal Plain Oil and Gas Leasing Program Draft Environmental Impact Statement,” [Volume II: Appendices](#), Appendix B, December 2018, p. B-11 and B-18.

¹⁷ International Energy Agency, “[CO₂ Emissions Statistics.](#)”

¹⁸ IPCC, “[Global Warming of 1.5 Degrees C,](#)” 2018. The aim of the 2015 Paris Agreement is to keep a global temperature rise this century well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius. The IPCC also concluded that, to limit global warming to below 2°C, CO₂ emissions must decline by about 25% by 2030 and reach net zero around 2070.

¹⁹ “Rystad Energy estimates that oil sands and the Arctic continue to be the most expensive resources, with an average breakeven price of 75-80 \$/boe. The attractiveness of the resources has declined over the past years, mainly as a result of the introduction of North American shale. The break-even price of NA shale is estimated at an average of 60-70 \$/boe.” (Source: Rystad Energy, “[Global Liquids Cost Curve: Shale is Pushing Out Oil Sands and Arctic, Offshore is Still in the Race,](#)” June 12, 2014). Further, current oil company interest in oil leases in other parts of the Arctic is low, and lease bids are scattered and priced far lower than DOI predicts. For more: David J. Murphy, St. Lawrence University, “[Oil Production in the Arctic National Wildlife Refuge: Impacts on Deficit and National Energy Security,](#)” November 1, 2017, p.2.

²⁰ California Air Resources Board, “[California’s 2030 Climate Commitments: Cutting Petroleum Use in Half by 2030.](#)” And, California Air Resources Board, “[Frequently Asked Questions about Executive Order B-30-15: 2030 Carbon Target and Adaptation.](#)”

²¹ See <https://www.blm.gov/programs/planning-and-nepa/plans-development/alaska/willoweis> and <http://www.nanushukeis.com/>.

²² See for example Mercure, Pollitt, et al. “[Macroeconomic impact of stranded fossil fuel assets,](#)” Nature Climate Change 8, 588–593 (2018), June 2018.