The Heritage Foundation

BACKGROUNDER

No. 2977 | NOVEMBER 18, 2014

The Trans-Alaska Pipeline: Lessons for the Keystone XL Pipeline Debate

Stephen Moore and Joel Griffith

Abstract

The Obama Administration has cited various environmental and economic objections to the construction of the Keystone XL Pipeline, a $5.2 billion project that would carry 830,000 barrels of oil per day from Alberta, Canada, through the U.S. down to the Gulf of Mexico. The pipeline is expected to support more than 42,000 direct and indirect jobs nationwide. The Keystone XL debate is almost an exact replay of a similar policy clash during the early 1970s over whether to build the multibillion-dollar Trans-Alaska Pipeline. By examining historical documents, studies, and analyses, this study shows that environmental groups opposed to the Keystone XL Pipeline are repeating, almost verbatim, nearly every discredited argument against building the Alaska Pipeline. Nevertheless, the empirical evidence from the Trans-Alaska Pipeline demonstrates that pipelines can be built and operated in ways that protect the environment and economically benefit the nation. Americans are prudent, yet not so risk averse as to refuse to meet the challenges of tomorrow with proven solutions.

Citing various environmental and economic objections, in April, the Obama Administration again delayed construction of the Keystone XL Pipeline, this time until at least early 2015. Before the latest in a six-year string of delays, the President emphasized "how Keystone impacted greenhouse gas emissions would affect our decision," lamenting "we're already seeing severe weather patterns increase."[1] In a press release, the Department of State indicated that, even after years of delay, it still has not determined whether the project is in "the national interest."[2]

Key Points

- In the Obama Administration's latest delay of the Keystone XL Pipeline, the White House has cited various environmental and economic objections to the $5.2 billion project.
- The Keystone XL Pipeline project would be able to transport 830,000 barrels of oil per day from Alberta, Canada, through the U.S. to the Gulf of Mexico, supporting an estimated 42,000 direct and indirect U.S. jobs.
- Radical environmental groups have launched a blizzard of "green" objections to the project in almost an exact replay of the discredited objections to the Trans-Alaska Pipeline.
- Some of the same environmental groups that were so spectacularly wrong 40 years ago are masterminding the propaganda campaign against the Keystone Pipeline.
- To date, the Alaska Pipeline has transported 17 billion barrels of oil, worth more than $1.7 trillion at today's prices, supporting more than 127,000 jobs in Alaska. Both families' income and state revenues have soared due to oil money.

This paper, in its entirety, can be found at **http://report.heritage.org/bg2977**

The Heritage Foundation
214 Massachusetts Avenue, NE
Washington, DC 20002
(202) 546-4400 | heritage.org

The 1,179-mile Keystone XL Pipeline (850 miles located in the U.S.) would cost $5.2 billion[3] and carry 830,000 barrels of oil each day from Alberta, Canada, through the U.S. down to the Gulf of Mexico, where the oil would be refined and sold domestically and abroad. The massive infrastructure project is expected to support more than 42,000 direct and indirect jobs nationwide[4] and would be built almost entirely with private investment, not taxpayer dollars. Polls show solid support for the energy project.

Environmental groups have launched a blizzard of "green" objections to the project. The Sierra Club claims that Keystone XL "is a threat to our water and environment," "poses a health risk to our communities," and is a "climate disaster in the making."[5] Hollywood has chimed in, too, with Robert Redford exclaiming, "Tar sands crude means a dirtier, more dangerous future for our children all so that the oil industry can reach the higher prices of overseas markets. This dirty energy project is all risk and no reward for the American people."[6]

Americans have lived through all of this debate before. The Keystone XL debate is almost an exact replay of a similar policy clash during the early 1970s over whether to build a similar multibillion-dollar project: the Trans-Alaska Pipeline. The Alaska project was eventually approved by Congress in 1973 and completed in 1978, but only after fierce debate.

Today, the Alaska Pipeline is recognized almost universally as a technological marvel, an energy policy success story that reduced American reliance on Middle Eastern oil, and one of the most economically successful infrastructure projects in American history. Over the past 40 years, it has carried 17 billion barrels of oil,[7] worth more than $1.7 trillion in today's dollars. It also helped to rebuild the Alaska economy and made Alaska the second largest oil-producing state in the nation and one of the largest producers in the world. A University of Alaska study estimates that the petroleum industry directly and indirectly supports 110,000 jobs in the state.[8] All of this has happened with very little negative environmental impact and even some environmental improvements. Few people would look back and say that the U.S. should have listened to the environmentalist extremists and not built this pipeline. Thankfully, Congress and the White House had the good sense and courage to reject the green objections to the project and choose reasonable measures of good stewardship instead.

This study examines historical documents, studies, and analyses of the project, which show that nearly every discredited argument against building the Alaska Pipeline is now being repeated almost verbatim by green groups opposed to the Keystone XL Pipeline. Furthermore, some of the same environmental groups that were so spectacularly wrong 40 years ago are masterminding the propaganda campaign against the Keystone. It would be a shame for the U.S. economy, environment, and energy security if four decades later Washington is duped by these same fatuous arguments.

1. Barack Obama, Enrique Peña Nieto, and Stephen Harper, "Press Conference by President Obama, President Peña Nieto, and Prime Minister Harper," The White House, February 19, 2014, http://www.whitehouse.gov/the-press-office/2014/02/19/press-conference-president-obama-president-pe-nieto-and-prime-minister-h (accessed October 6, 2014).
2. Press release, "Keystone XL Pipeline Project Review Process: Provision of More Time for Submission of Agency Views," U.S. Department of State, April 18, 2014, http://www.state.gov/r/pa/prs/ps/2014/04/224982.htm (accessed October 6, 2014).
3. TransCanada, "About the Project: A Proposed Oil Pipeline from Alberta to Nebraska," 2014, http://keystone-xl.com/about/the-keystone-xl-oil-pipeline-project/ (accessed September 25, 2014).
4. U.S. Department of State, Bureau of Oceans and International Environmental and Scientific Affairs, "Final Supplemental Environmental Impact Statement for the Keystone XL Project: Executive Summary," January 2014, p. ES-19, http://keystone-xl.com/wp-content/uploads/2014/01/Keystone-XL-Project-Final-SEIS-01-31-2014.pdf (accessed September 25, 2014).
5. Sierra Club, "Keystone XL Pipeline," 2013, http://vault.sierraclub.org/dirtyfuels/tar-sands/KeystoneXL-101.pdf (accessed September 25, 2014).
6. Robert Redford, "New Environmental Report Lays Ground for Keystone XL Deal," Reader Supported News, February 4, 2014, http://readersupportednews.org/opinion2/271-38/21872-focus-new-environmental-report-lays-ground-for-keystone-xl-denial (accessed September 25, 2014).
7. Alyeska Pipeline Service Company, "Trans Alaska Pipeline System: The Facts," May 1, 2013, http://www.alyeska-pipe.com/assets/uploads/pagestructure/NewsCenter_MediaResources_FactSheets_Entries/635078372894251917_2013AlyeskaTAPSFactBook.pdf (accessed September 25, 2014).
8. Scott Goldsmith, "What Drives the Alaska Economy?" University of Alaska Anchorage, Institute of Social and Economic Research *UA Research Summary* No. 13, December 2008, http://www.iser.uaa.alaska.edu/Publications/researchsumm/UA_RS_13.pdf (accessed September 25, 2014).

Opposition to the Trans-Alaska Pipeline

The story of the Alaska Pipeline begins in 1968 when ARCO announced the discovery of an oil field in Prudhoe Bay in northern Alaska. This proved to be North America's largest oil field, more bountiful than even any field in Texas. Early estimates indicated that Prudhoe Bay contained 10 billion barrels of oil,[9] although today we know the bay actually held closer to 25 billion barrels.[10] Engineers from leading energy companies worked to determine the best means to transport this oil bonanza from the North Slope for distribution to the lower 48 states. By February 1969, the Trans-Alaska Pipeline System announced plans to construct an 800-mile pipeline stretching from Prudhoe Bay in the Arctic Circle to Valdez on Alaska's south coast.

Almost from day one, environmental groups campaigned to block, delay, and eventually kill the project. Environmental groups and academics began inventing a series of doomsday scenarios against the pipeline. They argued then, as now, that it would be better to stop using oil and stop obsessing about economic growth in order to save the planet. This was an era when Malthusian concerns about dwindling finite resources were widespread and environmentalists claimed, as some still do today, that the earth was running out of oil and other fossil fuels.[11] The arguments against the pipeline included constant oil spills due to earthquakes and other acts of nature, disruption to the lives of native populations in Alaska, endangerment of fish, and threats to wildlife, such as elk, polar bears, and moose.

Only after Congress passed and the President signed legislation that removed these legal impediments in November 1973, which in part declared that the project had met the requirements of National Environmental Policy Act, did construction of the pipeline finally begin.

In a 1969 hearing on whether to build the pipeline, Dr. Robert Weedin of the Alaska Conservation Society told Congress:

> No one has or can deny the hazard earthquakes pose to the Trans-Alaska pipeline. The Trans-Alaska pipeline system has weighed these risks of pipeline breakage against profits and it has decided to take the risk.... I am not convinced the public, which lacks the lure of profits, can or should accept this same hazard.[12]

The final environmental impact statement by the Department of the Interior repeated this argument, cautioning that "the probability that one or more large magnitude earthquakes would occur in the vicinity of the pipeline is extremely high, in fact, almost a certainty."[13] Large earthquakes, the department warned, could lead to "a potentially serious hazard to the integrity of the proposed pipeline. Seismic shaking or surface faulting accompanying a large shock could rupture the pipeline directly or cause failure in the foundation material that could lead to rupture."[14]

Sounding much like the global warming alarmists of today, David Bower, president of Friends of the Earth, claimed:

> [T]he annual cost that will accrue to people unborn, and the threat to endangered species, are price tags we cannot fail to consider if we are to be responsible human beings.... Delay, even if it is costly delay, is the price we must be prepared to pay to make sure that we do not destroy the

9. Robert Klein et al., "Estimated Speculative Recoverable Resources of Oil and Natural Gas in Alaska," Alaska Department of Natural Resources, Division of Geological and Geophysical Surveys, January 1974, http://137.229.113.30/webpubs/dggs/aof/text/aof044.pdf (accessed September 25, 2014).
10. Alaska Department of Administration, Alaska Oil and Gas Conservation Commission, "AOGCC Pool Statistics: Prudhoe Bay Unit, Prudhoe Oil Pool," 2013, http://doa.alaska.gov/ogc/annual/current/18_Oil_Pools/Prudhoe%20Bay%20-%20Oil/Prudhoe%20Bay,%20Prudhoe%20Bay/1_Oil_1.htm (accessed September 25, 2014).
11. Julian Simon, *The Ultimate Resource* (Princeton, NJ: Princeton University Press, 1981).
12. Robert Weedin, in hearing, *Trans-Alaska Pipeline*, Committee on Interior and Insular Affairs, U.S. Senate, 91st Cong., 1st Sess., October 16, 1969, p. 174.
13. U.S. Department of the Interior, *Final Environmental Impact Statement Proposed Trans-Alaska Pipeline*, Vol. 2, Environmental Setting of the Proposed Trans-Alaska Pipeline, U.S. Department of the Interior, 1972, p. 518, http://books.google.com/books?id=RH3xAAAAMAAJ (accessed September 25, 2014).
14. Ibid.

> environment upon which we and other life forms down into the future will depend for survival.[15]

He further testified, "It is a public responsibility to decelerate, not accelerate, demands upon the earth's finite resources."[16] Sounding like the Obama Administration, he lectured:

> If, as many scientists fear, we are approaching the point of no return in a race to oblivion, then we urge that all the checks and balances of Government be used, not superficially, to ensure a tenable future for us all. None of us will live well, nor will any industries sell much, on a dead planet.[17]

One persistent complaint was the predicted impact on wildlife in Alaska. Robert C. Krumm, Assistant Resources Director of the Bureau of Land Management in Fairbanks, warned "a pipeline break in the wrong place at the wrong time could be devastating to a broad spectrum of the ecology of a significant area."[18] Bower assured Congress: "We have plenty of reason to suspect there will be many breaks [in the pipeline]."[19] He further warned that the Arctic Wildlife Range "is in enormous peril in the rush to discover and use up the oil reserves in the North Slope."[20]

David Brew of the U.S. Geological Survey explained in the impact analysis that "the principal unavoidable effects [include] disturbances of terrain, fish and wildlife habitat, and human environs during construction, operation, and maintenance of the oil pipeline." Brew added,

> The main disturbances during operation would be (1) thawing in permafrost leading to possible foundation instability and differential settlement, (2) some barrier effects of aboveground oil-pipeline sections on large mammal (especially caribou) migrations ... and similar effects of any aboveground sections of gas pipeline that would eventually be built, and (3) adverse but unquantifiable effects on the marine ecosystem.... These last effects would in turn affect the fishing industry to some unquantifiable extent.[21]

Proponents touted the jobs associated with the pipeline, but then as now, these jobs were discarded as "temporary." As Brew noted in the environmental impact analysis, "At the end of construction, unemployment would probably increase."[22]

Some of the more radical green groups, such as Friends of the Earth, argued that such a construction project would forever disrupt the entire way of life and magnificence of Alaska's natural beauty. Harvey Manning, a researcher at Friends of the Earth, said in 1974 as the project was getting started: "Those who care about wilderness would have lost the big one; their efforts for Alaska would become less spirited, their minor victories would taste of defeat. It is the difference between defending a virgin and a whore." Brock Evans, representing the Sierra Club, bemoaned that, if the pipeline goes forward, "the wilderness is forever broken."[23]

The Wilderness Society issued a resolution warning that "oil extraction on Alaska's North Slope, the proposed trans-Alaska oil pipeline, road construction, and other development threaten imminent, grave and irreparable damage to the ecology, wilderness values, natural resources, recreational potential, and total environment of Alaska."[24]

After the 1969 congressional hearings, the Wilderness Society, Friends of the Earth, and the Environmental Defense Fund filed a lawsuit to enjoin the

15. David Bower, in hearing, *Trans-Alaska Pipeline*, p. 191.
16. Ibid.
17. Ibid., p. 192.
18. Robert C. Krumm, in hearing, *Trans-Alaska Pipeline*.
19. Bower, in hearing, *Trans-Alaska Pipeline*, p. 193.
20. Ibid., p. 196.
21. David A. Brew, "Environmental Impact Analysis: The Example of the Proposed Trans-Alaska Pipeline," U.S. Geological Survey *Circular* No. 695, 1974, p. 12, http://pubs.usgs.gov/circ/1974/0695/report.pdf (accessed September 25, 2014).
22. Brew, "Environmental Impact Analysis," p. 12.
23. Brock Evans, in hearing, *Trans-Alaska Pipeline*.
24. Hearing, *Alaska Native Land Claims*, Committee on Interior and Insular Affairs, U.S. Senate, 92nd Cong., 1st Session, February 18 and March 16, 1971, p. 342.

Secretary of the Interior from issuing a right-of-way for construction of the Trans-Alaska Pipeline. The lawsuit alleged that the Department of the Interior was failing to abide by the newly minted National Environmental Policy Act of 1969 (NEPA),[25] which requires agencies in the executive branch to follow particular procedural guidelines before approving projects that could impact the environment.

The lawsuit repeated past warnings that "the pipeline traverses a high-risk earthquake terrain." In fact, the suit argued that "there is no other line of similar extent in the United States which is subject to greater earthquake hazards."[26] The environmentalist groups also drew attention to the "varying processes of erosion, subsidence, and slippage" related to permafrost melting. According to the plaintiffs:

> A major characteristic of the Alaska wilderness is the unusual fragility of the ecosystem and vulnerability to man's developments. Any disturbance of the plant cover triggers permafrost melt and erosion. The process is essentially irreversible and results in permanent environmental degradation.[27]

Further enunciating the threat, the suit claimed:

> [F]ull scale construction and operation of the Trans-Alaska pipeline and appurtenant facilities pursuant to the permits will cause serious, permanent, and irreparable damage to the area traversed.... Erosion in certain areas along the route can potentially unstabilize large areas of soil and result in the situation of adjacent drainages destroying fish breeding habitat.[28]

Gravel mining threatened to "destroy areas of important fish breeding habitat and riparian wintering areas for moose, other mammals and birds." In addition, above-ground pipeline "will interfere with the natural and migratory movements of wildlife, primarily caribou and moose," the suit warned. Although the pipeline was only to occupy fewer than 9 square miles, plaintiffs argued that the Trans-Alaska Pipeline System (TAPS) "will have a substantial adverse environmental impact on a significant portion of the Alaska wilderness."[29]

Apparently discounting the effectiveness of safeguards, the lawsuit prophesied "oil spills will cover terrain with dark oil, which will absorb energy and begin melting.... Oil spills will endanger invaluable and irreplaceable shoreline and offshore birds and mammals of the Arctic Ocean. Indeed, the diversity of species endangered by oil spills is staggering."[30]

John P. Milton, a deputy director at The Conservation Foundation, cautioned that "once an accident occurs, the oil will be around to cause environmental damage for a very, very long time."[31]

Concern for larger animal life was also raised in the lawsuit. Zoology professor Thomas J. Cade stated that arctic wildlife, including barren ground grizzlies, wolves, wolverines, foxes, lemmings, and snowy owls, "will dwindle to pathetic remnants or become extinct within a few years' time" if their habitats are disturbed by "major intrusions such as haul roads and pipelines."[32] Lest this warning were not clear enough, Cade continued, stating that "the routes of the pipeline and roads will disturb the nesting sites and breeding grounds of several rare or endangered species of birds and mammals."[33]

A much younger Representative John Dingell (D–MI) warned that "the proposed pipeline ... would be subject to many great natural hazards, particularly earthquakes." Dingell continued, "[N]ot only is the Arctic environment up there in grave hazard, but ... also the wildlife ... are in extreme state of hazard."[34]

25. *Wilderness Society v. Hickel et al.*, 325 F Supp. 422 (1970).
26. W*ilderness Society v. Hickel et al.*, Memorandum of Law in Support of Motion for Preliminary Injunction, April 28, 1970, p. 5.
27. *Wilderness Society v. Hickel et al.*, pp. 8–9.
28. Ibid., p. 10.
29. Ibid., p. 11.
30. *Wilderness Society v. Hickel et al.*, Memorandum of Law in Support of Motion for Preliminary Injunction, p . 9.
31. *Wilderness Society v. Hickel et al.*, Affidavit of John P. Milton, March 3, 1970, p. 5.
32. *Wilderness Society v. Hickel et al.*, Affidavit of Thomas J. Cade, p. 2.
33. Ibid., p. 3.
34. U.S. Department of the Interior, *In the Matter of Proposed Trans-Alaska Pipeline*, February 16, 1971, Part 1, p. 51.

Despite the promise of an economic boon to native Alaskans, he also insisted, "there can be no doubt that the pipeline will represent an enormous threat to the way of life of these Alaskan natives."[35]

Not to be outdone in predictions of gloom, Sigurd F. Olson, president of the Wilderness Society, admonished that the pipeline project was "environmentally unacceptable" and "could decimate fish and wildlife populations." Discounting modern construction design, Olson insisted that the project was "spectacularly vulnerable [not only] to natural catastrophe but also to military attack and sabotage."[36]

James Moorman, counsel to the Environmental Defense Fund, claimed "inevitable" consequences from the project, promising that "we can look forward to disastrous massive oil spills along literally thousands of miles of the Pacific Coast of both the United States and Canada and in Washington's priceless Puget Sound. In addition, we can look forward to a great scar through America's Alps, the north Cascades of Washington, and across the great wilderness areas of Idaho and the Montana Rockies. These immensely important environmental impacts will be the inevitable results of a Trans-Alaska pipeline."[37]

The Environmental Impact

What can now be said of the doom and gloom environmental predictions of building the Alaska Pipeline? Ample time has passed to determine whether the risks and harm associated with the project have been outweighed by the economic benefits of this source of energy.

In the past three decades, there has been one major oil spill in Alaska: the 1989 *Exxon Valdez* oil spill, which severely damaged the ecosystem of Prince William Sound for many years. The economic damage from recreational spending and tourism has been estimated at $2.8 billion.[38] In addition, Exxon spent more than $2.5 billion in cleanup costs.[39] That spill, as horrific as it was, was not a result of the Alaska Pipeline. The pipeline itself has an exemplary environmental record. However, it would be remiss not to discuss the impact of this spill on the surrounding region.

In contrast to the dire predictions of TAPS opponents, the ecosystem of Prince William Sound has largely recovered since the disaster. According to the National Oceanic and Atmospheric Association's 25th anniversary report on the *Valdez* spill:

> The latest federal and state assessments of recovery from the Exxon Valdez spill indicate that, as expected, measurable impacts have diminished over the last two decades. In 2013, even two vertebrate species that had shown consistent and lengthy signs of exposure and effects—harlequin ducks and sea otters—appeared to have recovered.[40]

Even so, residual effects of the spill "may lead to extinction in one orca subpopulation."[41] The orca population at risk of extinction numbered just over 20 before the accident. The same report also stated:

> [B]y 1997, the monitoring provided strong inferential evidence that intertidal populations within Prince William Sound experience a substantial amount of recovery from the effects of the 1989 oil spill and cleanup. The onset of recovery ... began less than three years after the spill. Recolonization required about one to two years and populations stabilized for most taxa by 1993.[42]

35. Ibid., p. 59.
36. Ibid., p. 185.
37. Ibid., p. 216.
38. Richard T. Carson et al., *A Contingent Valuation Study of Lost Passive Use Values Resulting from the Exxon Valdez Oil Spill*, November 10, 1992, p. 11, http://mpra.ub.uni-muenchen.de/6984/1/MPRA_paper_6984.pdf (accessed September 25, 2014).
39. *U.S. v. Exxon Corporation et al.*, Governments' Memorandum in Support of Agreement and Consent Decree (D. Alaska), October 8, 1991, p. 3, http://www.arlis.org/docs/vol1/A/294858686.pdf (accessed October 3, 2014).
40. Gary Shigenka, "Twenty-Five Years After the Exxon Valdez Oil Spill: NOAA's Scientific Support, Monitoring, and Research," U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Office of Response and Restoration, Emergency Response Division, pp. 9 and 78, March 2014, http://response.restoration.noaa.gov/sites/default/files/Exxon_Valdez_25YearsAfter_508_0.pdf (accessed September 25, 2014).
41. Ibid., p. 7.
42. Ibid., p. 21.

High-pressure hot water was used to remove oil from the rocky shoreline—a process that also cleared away life forms. Some expected a slow return to natural levels. However, rockweed "quickly recovered to levels of abundance observed in control plots within two years," while mussels "took several years to recover to levels of abundance observed in control plots." Barnacles, periwinkles, and limpets "recovered quickly and returned to pre-disturbance levels within a year after clearing."[43]

As noted earlier, a major objection to the Alaska Pipeline during the debate was the potential of earthquakes to damage the structural soundness of the project. This was tested on November 3, 2002, when a magnitude 7.9 earthquake struck along the Denali Fault. The pipeline, built to withstand a magnitude 8.5 earthquake, did not buckle although the structures holding the pipeline above the ground were damaged. The fears of ecological disaster promulgated by the "greens" proved unwarranted.

As far as the pipeline's harmful effects on the ecosystem, those fears were never realized. A study presented in 2002 at the American Society of Civil Engineers 11th International Conference on Cold Regions Engineering found:

> [T]he ecosystems affected by the operation of TAPS and associated activity for almost 25 years are healthy. With the exception of very limited local impacts, the vegetation, fish, and wildlife along TAPS have not been impacted at the resource population level. TAPS, as it exists today, is simply another feature on the landscape, to which the flora and fauna have habituated. Even Alaska's North Slope, with extensive oil fields, has a healthy community of flora and fauna. Populations of large and small mammals, birds, and fish are healthy despite development of the oil field.[44]

That same study also found that "with respect to soils and permafrost, the impacts of continued TAPS operation are minimal. Most of the thermal impacts have already occurred or are significantly slowing."[45]

The prognostications of widespread disasters from spills proved far off the mark. Total oil spilled averaged less than 8,083 barrels (340,000 gallons) per year, including the *Exxon Valdez* spill, since the pipeline opened, while production has averaged nearly 20 billion gallons annually. Not counting the *Valdez* spill, which was not a result of problems with the pipeline, total oil spilled averaged 1,151 barrels per year throughout TAPS, including all other Alyeska spills, shipper vessel spills, and contractor spills. Including the *Valdez* spill, which was approximately 150,000 barrels, just over 291,000 barrels was spilled from 1977 to 2012 (8,083 barrels per year)[46] out of around 400 million barrels produced annually. Many of the spills were small and easily contained and cleaned up, posing no environmental threat.

To put this in perspective, in 1972, the Environmental Impact Study conducted by the Bureau of Land Management estimated that marine spills *alone* would average 140,000 barrels per year.[47] As such, the estimates of marine spills exceeded the total of all leaks by more than a factor of 17.

Of course, the threat of environmental contamination from even these smaller-than-expected spill

43. Ibid., p. 39. Even so, residual effects of the spill "may lead to extinction in one orca subpopulation." Ibid., p. 7. The orca population referenced as at risk of extinction numbered just over 20 before the accident. The same NOAA report also stated that "by 1997, the monitoring provided strong inferential evidence that intertidal populations within Prince William Sound experience a substantial amount of recovery from the effects of the 1989 oil spill and cleanup. The onset of recovery … began less than three years after the spill. Recolonization required about one to two years and populations stabilized for most taxa by 1993." Ibid., p. 21. High-pressure hot water was used to remove oil from the rocky shoreline—a process which also cleared away life forms. Some expected a slow return to natural levels. However, rockweed "quickly recovered to levels of abundance observed in control plots within two years," while mussels "took several years to recover to levels of abundance observed in control plots." Barnacles, periwinkles, and limpets "recovered quickly and returned to pre-disturbance levels within a year after clearing." Ibid., p. 39.
44. J. David Norton et al., "Environmental Impact of 25 Years of Trans-Alaska Pipeline Operation," in Kelly S. Merrill, ed., *Cold Regions Engineering: Cold Regions Impacts on Transportation and Infrastructure* (Reston, VA: American Society of Engineers, 2002), pp. 134–135, http://cedb.asce.org/cgi/WWWdisplay.cgi?131164 (accessed September 25, 2014).
45. Ibid.
46. Alyeska Pipeline Service Company, "Trans Alaska Pipeline System."
47. U.S. Department of Interior, *Final Environmental Impact Statement Proposed Trans-Alaska Pipeline*. The bureau did not provide an individualized estimate for pipeline spills.

Economic Impact of the Alaska Pipeline

- 20 percent of all U.S. domestic energy production from 1980 to 2000
- Petroleum worth $1.7 trillion in today's prices extracted
- 500,000 barrels of oil (worth $50 million) still transported per day
- 21,000 contractors employed at peak of production
- 127,000 oil-related jobs in Alaska
- 60,000 additional jobs from oil industry activities and state spending of oil revenues
- $53 billion in the Alaska Permanent Fund from oil revenues
- $71,000 per Alaska resident in Alaska Permanent Fund
- Dividend payouts from the Alaska Permanent Fund of more than $35,000 per resident from 1982 to 2013.
- $22,000 per family in 2010 dividends, tax relief, and public services from oil revenue
- $142 billion since 1979 in 2010 dollars from North Slope oil revenues
- Half of all jobs in Alaska related to oil and gas industry

totals should not be ignored. However, it is also important to note that oil is naturally present in a variety of environments in Alaska. As David Page and Edward Gilfillan explain:

> The many oil seep streams in Alaska are productive natural areas where lingering effects from petroleum exposure would be readily observed if such things really happened. The presence of petroleum in the environment does not automatically means that injury to biota is occurring.[48]

While oil spills can affect the environment, empirical evidence does not support the premise that occasional, contained spills permanently destroy the ability of wildlife to thrive.

Caribou

The most recent census of the Western Arctic caribou herd (WAH), Alaska's largest herd, was released in 2011. The report states that the WAH had declined to about 75,000 animals by 1976. After the pipeline was built, "[f]rom 1976 to 1990 the herd grew 13% annually, and from 1990 to 2003 it grew 1–3% annually. In 2003 the WAH numbered ≥490,000 caribou but by 2011 it had declined to 325,000 caribou." As a side note, the Alaska Department of Fish and Game downplayed concern over this recent minor decline, stating that "considering that the WAH has numbered more than 300,000 caribou since about 1988, a slow decline is probably preferable to continued growth that could lead to an eventual abrupt decline as occurred during the early 1970s."[49] The bottom line is that the caribou population is about four times larger than it was when oil began to flow.

The environmental report for renewing the pipeline's right-of way noted, "Most spills have been contained on workpads. Localized areas of tundra have been killed and required remediation. No major spills on tundra have occurred. Major spill possible

48. David S. Page and Edward S. Gilfillan, "Shoreline Conditions in the Exxon Valdez, Prince William Sound Alaska 1989–2003," ValdezScience, http://www.valdezsciences.com/dspArticle.cfm?catID=14&artID=1168&artSecID=1165 (accessed September 25, 2014).
49. Patricia Harper, ed., *Caribou Management Report of Survey-Inventory Activities, 1 July, 2008–30 June 2010*, Alaska Department of Fish and Game, Division of Wildlife Conservation, 2011, pp. 187 and 197, http://www.adfg.alaska.gov/static/home/library/pdfs/wildlife/mgt_rpts/11_caribou.pdf (accessed September 25, 2014).

but unlikely." Regarding wildlife habitat, the same report states that "[b]irds use oil field structures for nesting, perching, and foraging" and that the early vegetation green-up nearby facilities has "[p]ositive impacts," allowing birds to "feed and replenish fat reserves before nesting." Overall, the evaluation seems to note that while some effects may be noted within very close proximity to facilities, no "population-level impacts" are occurring.[50]

Lawsuits by environmental groups dragged on for more than four years. The numerous congressional hearings were rancorous and contentious. In 1973, the U.S. economy was thrown into recession by the Arab Oil Embargo, and the price of gasoline began rising week after week, eventually tripling.

The energy crisis helped to spur Congress into action. On July 17, 1973, the Senate narrowly adopted an amendment by a vote of 49–48 to effectively end the lawsuits by declaring that the pipeline project had met all NEPA requirements. Only 20 of 55 Democratic Senators[51] supported the provision, compared with 28 of 42 Republican Senators. A vote to reconsider this vote in favor of adoption failed, as Vice President Agnew cast the tie-breaking vote in favor of the amendment. The House followed suit with a bipartisan vote of 356–60 on August 2, 1973.[52] These votes served as a precursor to legislation that granted final approval to the project. In November, the Trans-Alaska Authorization Act passed with broad bipartisan support: 185 Democratic votes and 175 Republican votes in the House[53] and 43 Democratic votes and 36 Republican votes in the Senate.[54] With the President's signature, the industry finally received the green light from Washington to begin construction of the pipeline. Construction of the $8 billion privately funded pipeline began in March of 1975; oil began flowing in June of 1977. The results for the economy and America's energy security have been spectacularly and indisputably positive:

- **The pipeline has transported nearly 17 billion barrels of oil over the past 37 years.** Today, TAPS transports more than 500,000 barrels of oil per day. Although the volume continues to decline gradually from the peak of 2.1 million barrels per day, the original estimate of 10 billion barrels of total production was exceeded in 1994. Every barrel flowing through the TAPS is another barrel of economic benefit exceeding expectations.

- **Alaska has become an energy production powerhouse.** The 17 billion barrels of oil accounted for nearly 20 percent of U.S. domestic energy production for 1980–2000. Even now, Alaska accounts for 10 percent of U.S. domestic energy production, although volume is falling, in part because of federal prohibitions against drilling in certain areas, such as the Arctic National Wildlife Refuge (ANWR).[55] The economic value of this oil is more than $1.7 trillion at today's prices.

- **Construction employment was significant.** More than 21,000 contractors were employed at the peak of the construction project in addition to more than 6,300 other workers. Throughout 1969–1977, more than 70,000 individuals were employed at some point in the construction.[56] While some decry the temporary nature of some of these construction jobs, it is important to note

50. Trans-Alaska Pipeline System Owners, *Environmental Report for Trans-Alaska Pipeline System Renewal*, February 15, 2001, Vol. 1, p. 4.5-29, Table 4.5-11, http://www.tapseis.anl.gov/documents/report.cfm (accessed October 8, 2014).
51. "To Reconsider Gravel Amendment to S. 1081," Senate Vote No. 287, 93rd Cong., 1st Sess., July 17, 1973, https://www.govtrack.us/congress/votes/93-1973/s287 (accessed September 25, 2014).
52. "Major Actions: Trans-Alaskan Pipeline Authorization Act, H.R. 9130," 93rd Cong., 1st Sess., https://beta.congress.gov/bill/93rd-congress/house-bill/9130/actions (accessed September 25, 2014).
53. "To Pass S.1081, A Bill Authorizing a Trans-Alaskan Pipeline," U.S. House of Representatives Vote No. 421, 93rd Cong., 1st Sess., November 12, 1973, https://www.govtrack.us/congress/votes/93-1973/h421 (accessed September 25, 2014).
54. "To Agree to the Conference Report on S.1081, to Establish a Federal Policy on Granting Rights of Way Across Federal Lands (The Alaska Pipeline Bill)," Senate Vote No. 463, 93rd Cong., 1st Sess., November 13, 1973, https://www.govtrack.us/congress/votes/93-1973/s463 (accessed September 25, 2014).
55. Resource Development Council for Alaska, "Alaska's Oil and Gas Industry," http://www.akrdc.org/issues/oilgas/overview.html (accessed September 25, 2014).
56. Alyeska Pipeline Service Company, "Trans Alaska Pipeline System."

that this line of work is by nature temporary—at some point the project is finished. Real families prospered and built wealth because of these jobs.

- **Oil and gas employment in Alaska has surged.** Today, 127,000 jobs in Alaska (one-third) are oil related—either in production or in state oil revenue.[57] Another 60,000 jobs have resulted from the "broad economic benefits created by oil industry activities and by state spending of its huge oil revenues."[58] The Alaska state constitution established the Alaska Permanent Fund, which states, "At least 25 percent of all mineral lease rentals, royalties, royalty sales proceeds, federal mineral revenue-sharing payments and bonuses received by the state be placed in a permanent fund, the principal of which may only be used for income-producing investments."[59] The current value of the fund is more than $53 billion—more than $71,000 for each of Alaska's 731,000 residents. Annual dividend payouts have ranged from $845 in 2005 to $2,069 in 2008. From 1982 through 2013, dividends totaled more than $35,000 per eligible resident. Over just the past 10 years, each eligible resident has received more than $12,000.[60]

- **Family incomes increased substantially.** "A family of four enjoyed on average an estimated value of about $22,000 in 2010—in tax relief, Permanent Fund dividends, and enhanced public services."[61] Alaska is one of only two states without an income tax or sales tax.

- **State revenue soared.** About $157 billion (2010 dollars) in state revenue from 1959 to 2010 came from oil revenues[62]—mostly from the North Slope.

- **Employment has soared.** By some estimates, about half the jobs in Alaska are related to the oil and gas industry. the same study estimates that without oil the state would have had only 187,000 jobs in 2007, rather than 374,000.[63]

Conclusion

Nearly four decades later, America is replaying the debate over the Alaska Pipeline in a different context. Among other objections, opponents of the Keystone XL Pipeline argue that the construction jobs would be only temporary, water supplies would be endangered, the pipeline would be a target for terrorists, some of the oil would be exported, the oil and gas would contribute to global warming, and the pipeline would threaten the lesser prairie-chicken. Environmentalists even make the absurd claim that the new pipeline would kill jobs and undermine U.S. energy security.[64] The Conservation Law Foundation even claims that the Keystone Pipeline would increase gas prices.[65]

Some of the best scientific estimates tell an opposite story. The Keystone XL construction project is expected to support more than 42,000 "direct, indi-

57. Goldsmith, "What Drives the Alaska Economy."
58. Scott Goldsmith, "Oil Pumps Alaska's Economy to Twice the Size—But What's Ahead?" University of Alaska Anchorage, Institute of Social and Economic Research *UA Research Summary* No. 17, February 2011, http://iser.uaa.alaska.edu/Publications/oiltransformfinal.pdf (accessed September 25, 2014).
59. Alaska Constitution, art. 9, § 15.
60. Alaska Permanent Fund Corporation, "Annual Dividend Payouts," http://www.apfc.org/home/Content/dividend/dividendamounts.cfm (accessed September 25, 2014).
61. Goldsmith, "Oil Pumps Alaska's Economy to Twice the Size."
62. Ibid.
63. Ibid.
64. Natural Resources Defense Council, "Stopping the Keystone XL Pipeline," http://www.nrdc.org/energy/keystone-pipeline/ (accessed October 6, 2014), and Brenda Smith, "5 Reasons Why the Keystone Pipeline Is Bad for the Economy," Labor Network for Sustainability, http://www.labor4sustainability.org/articles/5-reasons-why-the-keystone-pipeline-is-bad-for-the-economy/ (accessed October 6, 2014).
65. Conservation Law Foundation, "New Pipeline Bad for Environment and Will Raise Gas Prices," September 4, 2013, http://www.clf.org/blog/clean-energy-climate-change/deal-new-pipelines-tar-sands-oil-bad-environment-will-raise-gas-prices/ (accessed October 6, 2014).

rect, and induced" jobs.[66] Construction of Keystone XL and the related Gulf Coast Pipeline are expected to have $20 billion in economic impact.[67] By 2035, the Canadian Energy Research Institute predicts the pipeline will generate $172 billion in gross domestic product.[68] The American Petroleum Institute estimates:

> Employment in the United States (direct, indirect, induced) as a result of new oil sands investments is expected to grow from 21,000 jobs in 2010 to 465,000 jobs in 2035. This type of employment includes new and preserved jobs and also consists of full-time and part-time jobs.[69]

The Trans-Alaska Pipeline has demonstrated that pipelines can be built and operated in ways that protect the environment and economically benefit the nation. The naysayers were wrong 40 years ago, and they are still wrong today. In the 1970s, Congress and the White House had the good sense to ignore the dire claims by the green movement. Sadly, with what should be 20-20 hindsight, today's policymakers are giving credence to the same discredited arguments. By doing so they are putting jobs and North American energy security at risk.

Americans are prudent, yet not so risk averse as to refuse to meet the challenges of tomorrow with proven solutions available today. The President may continue to treat Keystone XL as a political football, but Congress should refuse to play this game. A crisis should not be a prerequisite to action. Congress and the President should approve the pipeline as the economically and environmentally sound project that it is.

*—**Stephen Moore** is Chief Economist and **Joel Griffith** is Research Associate in the Institute for Economic Freedom and Opportunity at The Heritage Foundation.*

66. U.S. Department of State, Bureau of Oceans and International Scientific Affairs, *Final Supplemental Environmental Impact Statement for the Keystone XL Project*, January 2014, http://keystonepipeline-xl.state.gov/documents/organization/221135.pdf (accessed September 25, 2014).
67. TransCanada, "Jobs & Economic Benefits," 2014, http://keystone-xl.com/about/jobs-and-economic-benefits/ (accessed September 25, 2014).
68. Afshin Honarvar et al., "Economic Impacts of Staged Development of Oil Sands Projects in Alberta (2010–2035)," Canadian Energy Research Institute, June 2011, http://www.energyanswered.com/~/media/Files/Oil-and-Natural-Gas/Oil_Sands/Economic_Impacts_of_Staged_Development.pdf (accessed September 25, 2014).
69. Ibid.