- Is there enough oil in the Arctic National Wildlife Refuge to bring down oil prices?
- Are the current high natural gas prices due to a lack of natural gas reserves or the result of basic market forces?
- How big an "environmental footprint" will be left by drilling in the Arctic refuge?
- Why do proponents of drilling want to explore a relatively small wildlife refuge when the other 95% of Alaska's North Slope is already open to oil companies?
- Are natural gas producers unable to access most of the U.S. oil and gas reserves due to environmental protections?
- Did environmental regulations prevent California utilities from generating enough electricity?



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America & Energy in 2001

What Government and Industry Data Really Show



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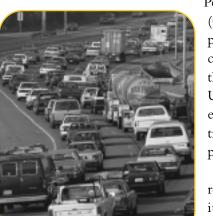
INTRODUCTION

FOLLOWING a period of some of the lowest energy prices in history, in 2000 the United States was hit with three major energy problems: a rapid escalation in gasoline prices, a record spike in natural gas prices, and a crisis in California's electricity markets that drove up rates and brought waves of brown-outs in many parts of the state. President Bush and some members of Congress have rolled the three together and declared that America has entered a new energy crisis.

In reality, the three problems are quite separate, and they will not be solved by a national energy policy based primarily on continuing fossil fuel dependence and expanded oil and natural gas exploration.

Gasoline and international oil prices.

No matter how much oil the United States works to produce, our gasoline prices — still the lowest in the world — are largely set by international oil markets. U.S. reserves are simply not large enough relative to foreign production to influence world prices. In 1997–1998, world prices fell to extremely low levels in real dollars, in part due to the rapid slowdown in Asia's economic growth. The Organization of



Petroleum Exporting Countries (OPEC) exercised its market power by making production cuts. By the spring of 2000, these cuts, continued strong U.S. economic growth, and economic recovery in Asia had tightened markets and driven prices up worldwide.

As long as the United States remains dependent on oil as its primary fuel, American consumers will remain hostage to similar world market fluctuations. Severing the link between U.S. economic growth and oil demand is essential. Real energy independence is only achievable through an energy policy that reduces our fossil fuel reliance over the long term. If America had begun making serious investments in energy efficiency and renewable, domestic resources during the 1973–74 and 1979–80 energy crises, consumers would be spending less of their



The natural gas price spike.

income on energy today.

Unlike oil prices, natural gas prices paid by residential consumers are largely determined by domestic market conditions and distribution costs. For 15 years, domestic natural gas prices have been in decline, in part because of improvements in drilling technology. This decline climaxed in September 1998 with spot market prices less than one quarter of today's levels and slowed production from existing reserves. Increasing demand, partly driven by new home construction and partly by construction of new natural gas-fired electricity generating facilities, drove prices up precipitously in 2000. The market responded, and the number of drilling rigs in operation climbed from 360 in April 1999 to 879

by January 2001. Unfortunately, the 6- to 18-month lag in bringing these new supplies to market means that they will not help consumers until later in 2001. But the problem is not that America is running out of natural gas and needs to explore for more. Rather, the industry needs to produce more from reserves it has already identified.

California's electricity crisis.

California's energy problems are complex, but most are particular to that region and cannot be resolved by a blanket, one-size-fits-all national energy policy.



When a state debate over restructuring and deregulating electric utilities began in the early 1990s, construction of new electric generating capacity went into a precipitous decline, even as the state underwent explosive economic growth. In addition, transmission facility construction did not keep pace with the state's need to import power and to move it north and south within the

state. Finally in 2000, hydropower generation in the Pacific Northwest, on which California is heavily dependent, dropped due to an extended drought.

President Bush has made energy policy a major priority. Republican Senator Frank H. Murkowski of Alaska, Chairman of the Senate Energy Committee, has introduced a massive energy bill that includes tax incentives for research and development of new oil and

natural gas reserves as well as specific provisions to allow opening the Arctic National Wildlife Refuge for oil drilling.

Unfortunately, rhetoric designed to merge America's three very different energy problems into one national crisis has obscured their real causes. Much of the rhetoric has been focused on blaming environmental standards and protection for high



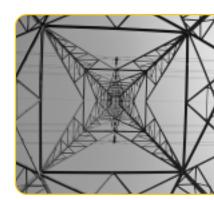
energy prices. The debate about drilling in the Alaskan wildlife refuge is a primary example. The President has suggested that new exploration will lower oil and natural gas prices and contribute to solving California's problems.

The purpose of this book is to set the facts straight. It provides factual answers to some of the most common myths, documented by U.S. government and industry sources.

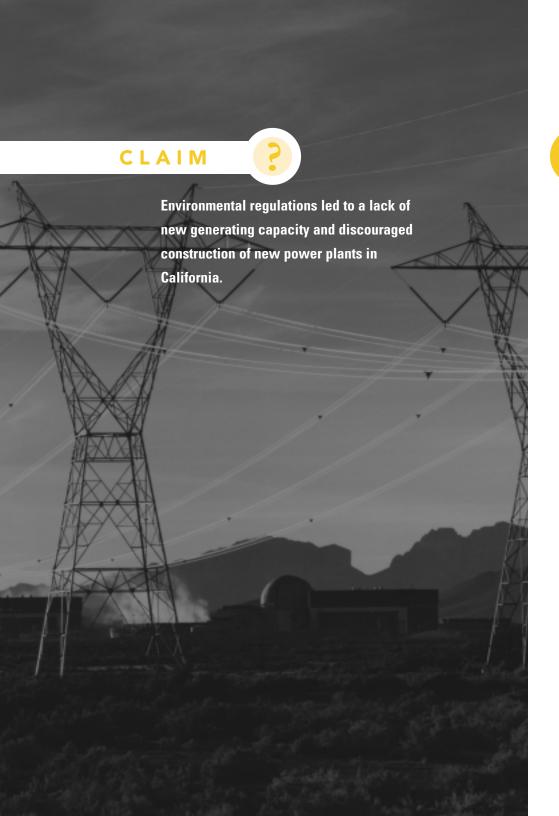


Government and industry data show that drilling in the Arctic National Wildlife Refuge or protected federal lands in the lower-48 states is not the solution to California's energy problems, not the answer to national energy security, and not an effective way to lower gasoline and natural gas prices for consumers. Further, relaxing clean air standards will do nothing to bring order to the California electricity market.

Our hope in providing this handbook is that as the debate continues, facts will replace or at least challenge much of the current rhetoric. As national policy decisions are made, we also hope that the facts presented here help to make clear that continued United States dependence on fossil fuel-intensive energy sources is dangerous. America needs a balanced energy policy. The nation invested heavily in the last century in oil and natural gas production. In fact, the U.S. produced more oil than any other nation in the world between 1900 and 2000. It is time to make a similar investment in energy efficiency and renewable domestic resources. This is the only way for the U.S. to declare true energy independence.









Construction delays of new California power plants had nothing to do with environmental regulations. Utilities postponed new plant construction due to market uncertainty in the 1990s over pending deregulation legislation.

- During the 1980s, 25 **power plants** generating 16.5 thousand megawatts (MW) of electricity were completed and brought on-line.¹
- In comparison, during the 1990s only 4.5 thousand MW of power were brought on-line. Power companies put off planning and construction of **new generating plants** because of concerns about deregulation and its effect on the energy market and profits. According to the California Energy Commission (CEC), only 9 new plants were added in the 1990s.
- No significant new federal environmental regulations affecting California power plants were enacted during the 1990s, so regulations cannot be the reason for the slowdown in **plant construction** between the 1980s and 1990s.

- When market uncertainty diminished once the **deregulation law** passed, construction began anew—still unhindered by environmental regulations. Figure 1.1 shows the deregulation timeline and the amount of new power brought on-line each year in California.
- Six power plants, with a **generating capacity** of 4,308 MW are now under construction, with 2,368 MW expected to be on-line by the end of 2001.
- In addition, another 14 electricity generating projects, totaling 6,734 MW of generation and an estimated capital investment of more than \$4.3 billion, are currently being considered for **licensing** by the Commission.²



NEW POWER GENERATING CAPACITY COMING ONLINE IN CALIFORNIA

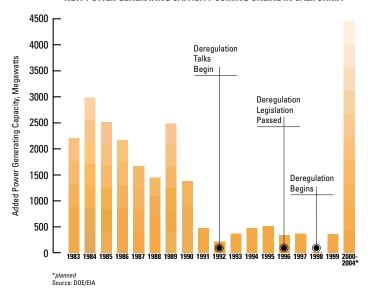


FIGURE 1.1





Environmental regulations prevented existing California power plants from producing enough electricity this winter because they reached their allowable limits for nitrogen oxide (NOx) emissions, the chief precursor of smog.



FACT | What Government & Industry Data Really Show

The Clean Air Act does not require power plants to curtail operations for exceeding pollution limits, a fact explicitly acknowledged by California power industry representatives.

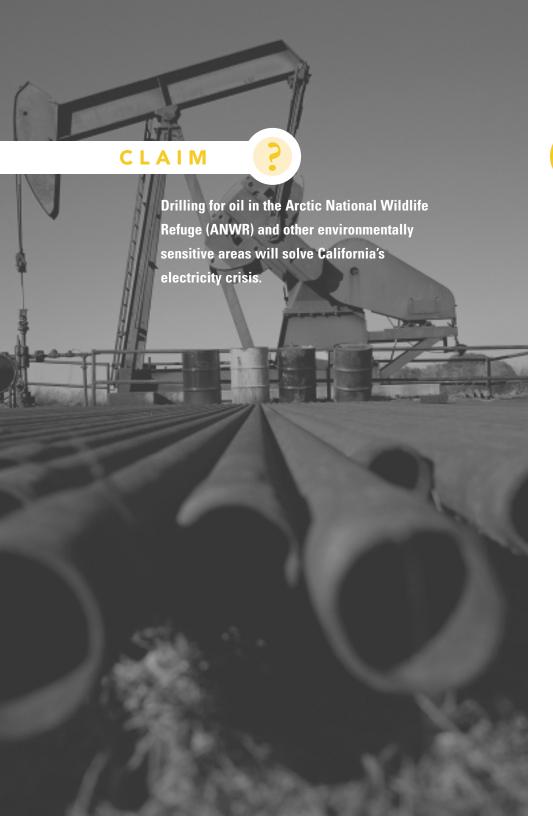
- Reliant Energy Co., which operates four Southern California power plants, told the *Los Angeles Times* in January 2001 that assertions that environmental regulations were holding back output are "absolutely false." He added, "We're making every megawatt available on request. We factor the air quality regulations into our daily operating basis, and they are not causing us to withhold power." ³
- Officials with the American Gas Association and the Edison Electric Institute both blamed "economic factors" and "an ill-conceived deregulation plan" in separate statements reported in February 2001 by the Bureau of National Affairs.⁴
- Air pollution regulations did not shut down any plant that might have led to rolling blackouts in California.⁵

- Some plants that were shut down for periods of time this winter in California were **old facilities** that were out of operation due to mechanical breakdowns.⁶
- A far greater problem in California, which is a net importer of electricity from surrounding states, is **transmission bottlenecks** that prevent power from reaching places that need it.⁷

"The California electricity crisis was created mostly by an ill-conceived deregulation plan."

— Ed Comer, General Counsel, Edison Electric Institute, BNA *Daily Environment Report*, February 15, 2001







Drilling for oil in the Arctic National Wildlife Refuge will never benefit California.

- Less than 1% of electricity in California is produced from oil.
- By comparison, this is less than one-third the generating capacity of **renewables** (2.9%) in the state.
- Hydroelectric power, nuclear power, and natural gas account for 95.5% of **electricity generation** in the state (*see Figure 1.2*).8
- There was and is no shortage of oil available for electricity generation, and any price impact from additional Alaskan oil would be negligible.
- Increasing **domestic oil production** would have no significant impact on electricity prices.

Even Senator Frank Murkowski (R-AK), chairman of the Senate Energy and Natural Resources Committee and an advocate of drilling in the Arctic National Wildlife Refuge, admits that opening up this land to oil companies would not alleviate California's electricity problems.⁹

SOURCES OF ELECTRIC POWER GENERATION IN CALIFORNIA

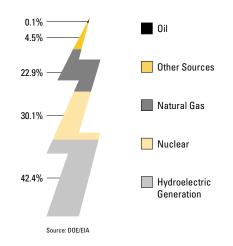
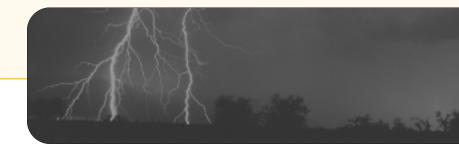


FIGURE 1.2

"You know that opening up
ANWR isn't going to solve the
California energy crisis."

 Senator Frank Murkowski, Chairman, Senate Energy and Natural Resources Committee, "Crossfire," CNN, February 9, 2001.





Environmental regulations could prevent new power plants from being built, leaving the rest of the U.S. vulnerable to electricity shortages and price increases such as those in California.





FACT | What Government & Industry Data Really Show

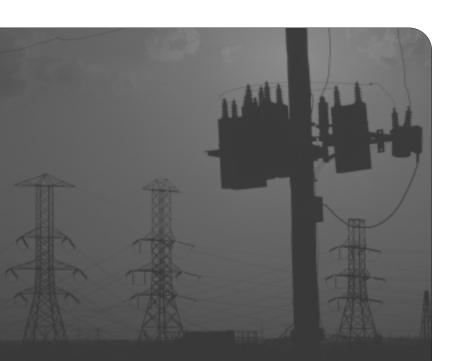
The U.S. Department of Energy's Energy Information Administration (DOE/EIA) predicts that nationwide electricity generation will be more than sufficient to meet demand with existing environmental regulations, and that prices will decline over the next 20 years, decreasing by approximately 6% for residential customers on average, as calculated in constant dollars.

- DOE/EIA projects that electricity prices will decrease for two reasons:
- The rate of growth in electricity demand over the next 20 years is expected to be less than the rate of growth in GDP.¹⁰ This trend is significantly different than in the previous three decades, when the rate of growth in electricity demand equaled or exceeded the growth in GDP.

 Electricity generation is projected to become more efficient, using less fuel to generate the same amount of power:

EIA predicts that some 1,300 power plants with 430 gigawatts of new, more efficient, generating capacity will come on-line between 2001 and 2020. At the same time, older, less efficient generators currently producing 100 gigawatts of power will be retired.

Overall, EIA expects electricity demand to rise by 393 gigawatts. Increases in generation at existing power plants remaining in service will more than make up the 63 gigawatts shortfall of power not generated by new capacity.



"I asked our people to go back and to give me the environmental clean air regulations – because it's clean air that we're talking about – that were hampering the ability of the utilities to provide power and we couldn't find any."

– EPA Administrator Christine Todd Whitman, interview, "Crossfire," CNN, February 26, 2001





California's utility companies are not responsible for the deregulation mess that led to the current energy crisis. Rather, they are victims of bad pricing policies, such as no long-term contracts and deregulated wholesale energy prices with fixed customer rates.



FACT | What Government & Industry Data Really Show

California's utility companies were integral participants in the legislative process leading to the deregulation plan.

- Utility companies agreed to a provision in the deregulation law that capped customer prices for the first two years substantially higher than the wholesale costs of electricity at that time.
- The utilities reaped billions of dollars in profits to offset so-called "stranded costs" of de-commissioned nuclear facilities and other capital investments, and for dividends to shareholders.¹¹
- From April 1998 through June 1999, Pacific Gas & Electric (PG&E) and Southern California Edison (SCE) charged residential customers at least four times what the utilities paid for power. 12 (See Figures 1.3 and 1.4.)
- From July 1999 to May 2000 the gap narrowed, although consumers were still charged far more for **electricity** than it cost PG&E and SCE.

- Beginning in June 2000, the price the utilities paid for power rose dramatically, but only met or exceeded the price residential customers paid at three points: August, November, and December 2000. These high wholesale prices are expected to continue into 2001. 13
- Utilities in the state significantly funded a successful effort to oppose a state ballot initiative to repeal California's deregulation law in 1998.

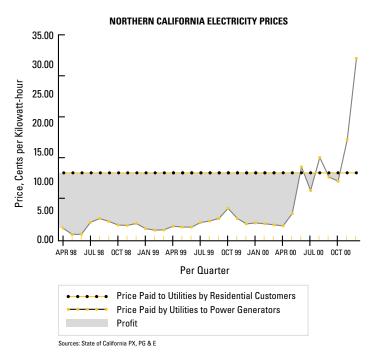


FIGURE 1.3

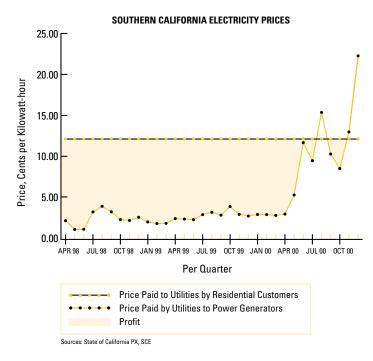


FIGURE 1.4

■ Even though consumers continue to pay high electricity bills, utility companies may get back some of the money they paid wholesalers for energy early this year. The *NewYork Times* reported on March 10, 2001, that the Federal Energy Regulatory Commission (FERC) told 13 electricity wholesalers to either justify high wholesale prices charged in January 2001 or refund up to \$69 million to California utilities.





The energy shortage in California is a harbinger of things to come not only for the West but also for the rest of the country.



FACT | What Government & Industry Data Really Show

The energy situation in California is unique and stems chiefly from California's lack of infrastructure. Consumers in other states may experience price increases if they deregulate utilities and should examine the California experience carefully, but the specific circumstances that have produced California's crisis are unlikely to be duplicated.

- Because of deregulation and other market uncertainties, investment in generation and transmission capacity in California has not kept pace with growth and energy demand throughout the rest of the western states over the past several years.¹⁵
- California's energy supply (and that of states in the Pacific Northwest) differs from typical electricity sources in the rest of the country because of its heavy dependence on Northwest hydropower (Figure 1.5). The availability of hydropower fluctuates according to annual snow and rainfall amounts.

37

- The northwestern states (Washington and Oregon) from which California receives a considerable amount of hydroelectric power are currently conserving water to offset the effects of an extended drought. Consequently, less hydropower is available for sale to California. 16
- The combination of a regional drought, market disruption due to deregulation, lack of capital investment, and transmission problems have combined to create the state's energy debacle. Expanded oil and natural gas exploration and relaxation of clean air standards will not solve the problem.

SOURCES OF ELECTRICITY GENERATION, CALIFORNIA AND U.S.

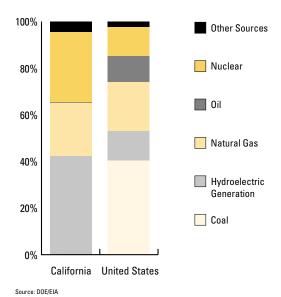


FIGURE 1.5

"While it has been widely noted that no major power plants have been built in California over the past 10 years, that is generally true throughout the region. And the reason is simple. In 1992, Congress initiated the move toward deregulation with the Energy Policy Act. Until decisions were made regarding market structure and the ownership of generation, investment was frozen."

— Frederick E. John, Senior VP-External Affairs, Sempra Energy, Senate Energy and Natural Resource Committee Hearing, January 31, 2001.

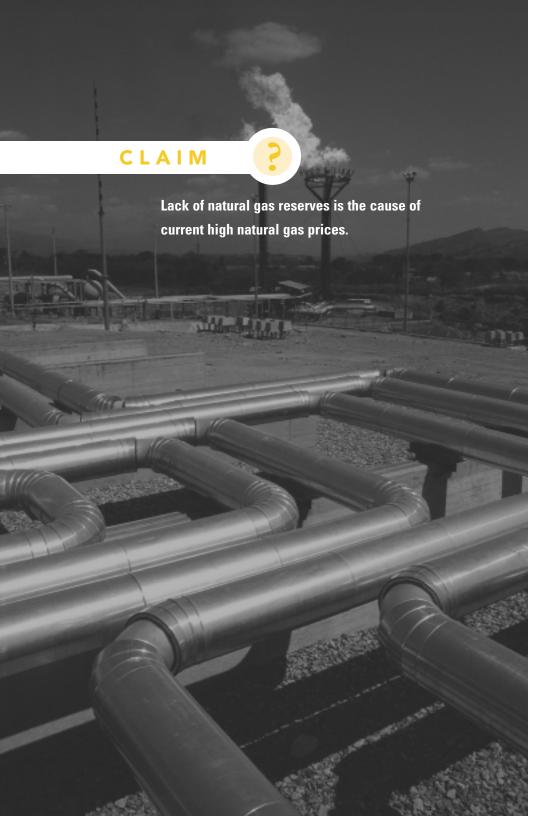
- ¹ California Energy Commission website: http://www.energy.ca.gov (January 16, 2001): "Power Projects in California Since 1979." See also "EIA Inventory of Non-utility Electric Power Plants in the U. S.," EIA/DOE. Database 860A and 860B.
- ² California Energy Commission website: http://www.energy.ca.gov. (January 25, 2001): "Update on Energy Commission's Review of California Power Projects."
- 3 "Bush Idea of Easing Smog Rules Won't Help, Experts Say," Los Angeles Times, January 25, 2001.
- 4 "Environmental Regulations Causing Some, But Not Most Energy Problems, Panel Says," BNA Daily Environment Report, February 15, 2001. Interviews with Pamela Lacey, environmental counsel for the American Gas Association and Ed Comer, general counsel for the Edison Electric Institute.
- ⁵ Interview with Christine Todd Whitman, EPA Administrator, CNN: "Crossfire," February 26, 2001.
- ⁶ Peter G. Esposito, V. P. and Regulatory Counsel, Dynergy Energy, before the House Subcommittee on Energy and Air Quality (of the Full Committee on Energy and Commerce), February 15, 2001.
- 7 "The New Energy Crunch," *Time Magazine*, January 29, 2001, pp. 37-44. See also comments of Richard Ferreira, Sacramento Municipal Utility District, testimony before the Senate Energy and Natural Resources Committee Hearing, January 31, 2001 and "Natural Gas Prices: Yesterday, Today, and Tomorrow," report released by Energy and Environmental Analysis, Inc., February 2, 2001.
- 8 Energy Information Administration, "State Electricity Profiles [California], 1998," pp. 29-30.
- ⁹ Sen. Frank Murkowski interview, "Crossfire," CNN, February 9, 2001.
- 10 U.S. Energy Information Agency. Annual Energy Outlook 2001 Market Trends, Electricity. Report # DOE/EIA-0383(2001). http://www.eia.doe.gov/oaif/aeo/electricity.html
- ¹¹ PG&E's Chief in Hot Seat," San Francisco Chronicle, April 3, 1998, p. E1. See also "Edison International: California Prop 9 Puts Dividend in Jeopardy," Federal Filings Newswire, November 3, 1998.
- ¹² www.energy.ca.gov/electricity/wepr/monthly_day_ahead_prices.html and rate schedules from PG&E and SCE.
- 13 Ibid.
- 14 "Edison International: California Proposition 9 Puts Dividend in Jeopardy," Federal Filings Newswire, November 3, 1998. Also see, "Massachusetts and California Voters Defeat Restructuring Law Repeals," *Energy Report*, November 9, 1998.

- ¹⁵ Richard Ferreira, Sacramento Municipal Utility District, Senate Energy and Natural Resource Committee Hearing, January 31, 2001.
- ¹⁶ John M. Quain, Chairman, Pennsylvania Public Utility Commission, testimony before the House Committee on Energy and Commerce Subcommittee on Energy and Air Quality, February 15, 2001. Also see: Tom Karier, Ph.D., Council Member, Northwest Power Planning Council, testimony before the Senate Committee on Energy and Natural Resources, January 3, 2001, and "The New Energy Crunch," *Time Magazine*, January 28, 2001, pp. 37-44.

NATURAL GAS

NATURAL GAS prices have spiked this winter, particularly in the West. A relatively prolonged period of low gas prices, beginning in 1986, led to reduced investments in natural gas production, leaving supplies short at the same time that demand began increasing. Production started to expand as soon as markets signaled a need for greater supply, and government agencies now predict adequate supplies from existing U. S. reserves well into this century.

Some policymakers are calling for drilling in pristine wilderness and other protected areas on federal lands to increase supplies and thereby reduce the price of natural gas, but government sources are already projecting lower prices based on current production rates. It is not necessary to open environmentally sensitive areas to drilling, since 80% to 90% of all United States oil and gas reserves are completely free of any restrictions and are already open to drilling.





There are more than enough reserves of natural gas to meet demand, and the Department of Energy's Energy Information Administration (DOE/EIA) projects that natural gas prices will moderate as the reserves come to market. (See Box on page 44)

■ The U. S. Geological Survey estimates that the U.S. has **sufficient reserves** of natural gas to meet its needs for 45 years at current demand levels and 34 years at DOE/EIA's average levels of projected future demand.¹

How the Natural Gas Price Spike Happened

AMERICA & ENERGY in 2001

SEASONAL CYCLES. During the summer, natural gas is used mainly for manufacturing, electricity generation, and household cooking and water heating. Demand increases substantially in the winter as residential customers begin using it for heating. Of the 101.5 million U.S. households, 53% use natural gas for home heating. The highest concentration of households that use natural gas for home heating is in the Midwest (17.9 million of 21.6 million Midwest households).

SUMMER STORAGE, WINTER DRAWDOWN. When natural gas reserves are tapped, the gas is injected from wells into pipelines for delivery to customers. During the summer, some gas goes to consumers and some is placed in "working storage" facilities.

U.S. NATURAL GAS IN WORKING STORAGE

3,500 3.000 2,500 Billion Cubic 2,000 1.500 1,000 500 AUG SEP OCT NOV DEC JAN FEB JUL MAR 1999-2000 Normal Range 2000-2001 Forecast

Source: DOE/EIA

During the winter, residential heating needs increase demand beyond the capacity of U.S. domestic and Canadian production. Supplies held in working storage facilities are drawn down to make up the difference.

STORED GAS AT RECORD LOWS PUSHED PRICES UP RAPIDLY.

Over the past two years, natural gas prices reached extremely low levels. Wellhead prices fell as low as \$1.69 per thousand cubic feet in September 1998, seriously discouraging production. As a result, summer additions to storage fell. At the same time, the construction boom in new houses — which trend heavily toward natural gas for heating — and newly built gas-fired electric generating capacity began to increase demand. The U.S. began the 2000-2001 winter heating season with nearly 20% less natural gas in working storage than normal. With temperatures significantly below those of the last three years, winter heating demand has left natural gas storage supplies at the lowest levels in the 30 years the government has kept records. (See Figure 2.1.)

MARKET RESPONSE: MORE PRODUCTION. In response, natural gas prices soared to over \$8.40 per thoursand cubic feet, spurring a boom in natural gas production. New natural gas supplies typically begin reaching market six to 18 months after drilling begins. The Energy Information Administration projects current drilling activity to begin moderating gas prices in the latter half of 2001.

■ As more natural gas makes it to market, prices will fall. **DOE/EIA projections** indicate that 2001 natural gas prices are the highest predicted to occur for at least 10 years² (See Figure 2.2).

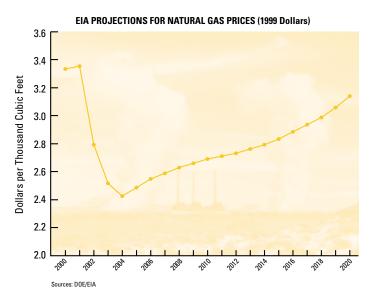


FIGURE 2.2

■ In 1999, the U.S. imported 15.6% of its total **natural gas consumption**, and imports will increase slightly to 16.7% by 2020.³

- The U.S. imports 15.35% of its annual consumption of natural gas from Canada. The remainder of imports is liquified natural gas from a variety of countries.
- The U.S. and Mexico are discussing imports of natural gas to the U.S.
 - The Texas Railroad Commission and the Mexican Energy Regulatory Commission met in September 2000 to discuss ways to promote construction of a U.S.-Mexico gas infrastructure.
 - A consortium of two California energy companies,
 Sempra and Pacific Gas & Electric, along with
 Mexico's Proxima Gas, are planning to construct
 a \$230 million, 212-mile pipeline that will carry approximately 146 billion cubic feet per year and connect natural gas grids from Tijuana to southern
 California and Arizona. This pipeline could be in use as early as 2003.4

- There are **three principal reasons** for recent supply shortages and escalating prices:
 - (1) In 1986, U.S. gas demand hit a low point resulting in the lowest production since 1966⁵ and prices began to drop sharply. At the same time, new technology emerged to make recovery of some natural gas even cheaper. This helped to sustain low prices through the 1990s. In 1999, natural gas prices were 42% lower than 1985 prices (expressed in 1999 dollars).⁶
 - (2) According to Energy and Environmental Analysis, Inc. (EEA), an energy industry consulting firm, low gas prices were a financial disincentive to develop known new gas resources. Recovery costs were higher than the market value, resulting in **low production** and limited investment.⁷ As existing conventional gas formations became depleted, new, proven natural gas resources were not developed.
 - (3) Low oil prices during the 1990s also contributed to lower natural gas production. Approximately 14% of United States natural gas is recovered from oil wells, making the recovery of such natural gas vulnerable to fluctuations in oil prices.

■ During this period of low proven resource development, demand steadily increased, driven by a booming economy and growth of gas-fired boilers and power plants. By the spring of 2000, growth in demand met a tightening of supply and resulted in a jump in prices.8

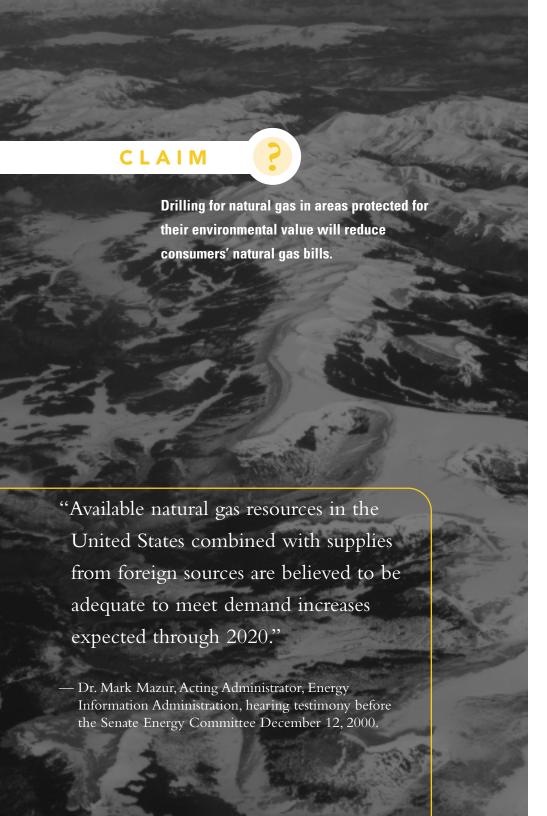
AMERICA & ENERGY in 2001

■ According to EEA, natural gas suppliers have now responded to the higher prices by increasing production. Producers are utilizing virtually all available rigs and crews to recover natural gas, and there are a number of proposals for expanding pipeline capacities. According to Baker Hughes, a petroleum equipment manufacturer, the number of active natural gas drilling rigs increased 41% from January 2000 to January 2001.9

"Last year when prices were lower, producers cut their production.

That production cut has led to the current shortage with corresponding higher prices."

 Rep. Henry Hyde (R-Ill.), October 10, 2000, letter to Federal Trade Commission Chariman Robert Pitofshy.





Natural gas producers already have access to 89% of all U.S. gas reserves, equal to a 40-year supply.

■ According to the Minerals Management Service (MMS) of the Department of the Interior (DOI) and the National Petroleum Council (NPC), an industry trade group, 89% of proven oil and gas reserves in the U.S. (onshore and offshore) are in areas with no restrictions on natural gas drilling (See Figure 2.3).

PERCENT OF ONSHORE & OFFSHORE NATURAL GAS RESERVES UNDER DRILLING RESTRICTIONS

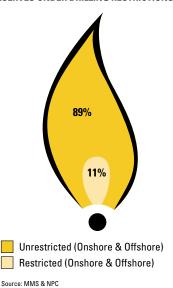


FIGURE 2.3

• According to MMS, which administers access to Outer Continental Shelf (OCS) areas, 84% of the estimated gas reserves there (both conventionally available and economically recoverable) are under no drilling restrictions whatsoever (see Figure 2.4).¹⁰

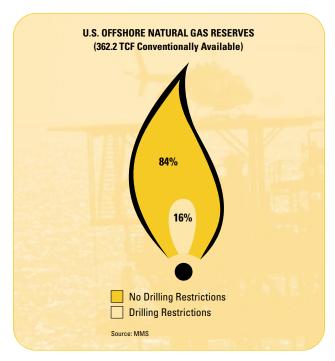


FIGURE 2.4

- The National Petroleum Council estimates that 286.2 trillion cubic feet, or 79% of OCS reserves, are completely unrestricted.¹¹
- The National Petroleum Council also estimates that **onshore natural gas** resources in the Lower 48 states, both proven and "assessed," total 1,466 trillion cubic feet. Only 137 trillion cubic feet are subject to any restriction (for example, the Rocky Mountains areas that are off-limits to gas production). This leaves 90.7% of onshore natural gas supplies completely open to unrestricted drilling (see Figure 2.5).¹²



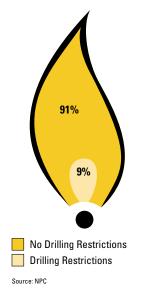


FIGURE 2.5

 According to the U.S. Bureau of Land Management, only 9% of U.S. Public Lands are under any resource access restriction (see Figures 2.6 and 2.7).¹³

OIL & GAS DRILLING ACCESS ON U.S. PUBLIC LANDS (264 Million Acres Total)

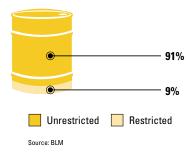


FIGURE 2.6

Public Land Use Restrictions in Rocky Mountain States

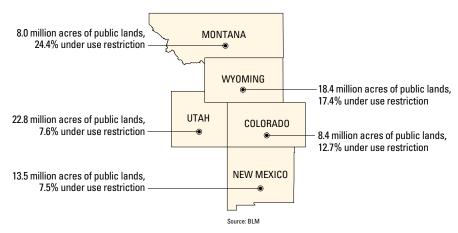


FIGURE 2.7

- ¹ USGS estimate of natural gas reserves = 984 trillion cubic feet (tcf). DOE/EIA current average demand = 22 tcf/year; projected average demand through 2020 = 28 tcf/yr. Source: USGS website: http://www.usgs.gov and DOE/EIA "Annual Energy Outlook, 2001," p. 84.
- ² DOE/EIA Annual Energy Outlook 2001. Website: http://www.eia.doe.gov/oiaf/aeo/aeotab_15.htm.
- ³ Comparison of data from the EIA, "Annual Energy Outlook, 2001," p. 83 and British Petroleum website: World Energy: 1999 in Review. "Statistical Review of World Energy: Natural Gas Proved Reserves." http://www.bp.com/worldenergy/.
- ⁴ EIA Country Brief: Mexico," EIA/DOE, February 2001. Website: http://www.eia.doe.gov. See also "Sempra to Build in Mexico, Export Power to California," *Energy Daily*, March 5, 2001, p. 3.
- ⁵ DOE/EIA website: www.eia.doe.gov/pub/pdf/multi.fuel/aer1999sec6-7.pdf
- ⁶ DOE/EIA website: www.eia.doe.gov/pub/pdf/multi.fuel/aer1999/sec6-19.pdf.
- ⁷ "What's Up With Gas?" Energy and Environmental Analysis, Inc., November 7, 2000.
- 8 Ibid.
- ⁹ Baker Hughes website: www.bakerhughes.com/investor/rig/rig-na.html.
- ¹⁰ Total conventionally available reserves = 362.2 trillion cubic feet (tcf), of which 303.1 tcf is completely available. For economically feasible reserves, total is 116.8 tcf; total completely available = 95.7 tcf. Source: Personal communication with George Dellagiarino, MMS. See also MMS's Outer Continental Shelf Petroleum Assessment, 2000. Website: http://www.mms.gov/realdiv/pdf_file/brochure7.pdf
- National Petroleum Council, "Meeting the Challenge of the Nation's Growing Natural Gas Demand, 2000," p. 42. Website: http://www.npc.org
- 12 Ibid., pp. 37 and 42.
- ¹³ According to Bureau of Land Management, some 22.9 million acres of public lands are "reserved" out of 264 million acres total. "Table 1-4: Public Lands Under Exclusive Jurisdiction of the Bureau of Land Management, Fiscal Year 1999." Bureau of Land Management, Department of Interior website: http://www.blm.gov.



U.S. OIL SUPPLIES AND PRICES

OVER the past year, gasoline and home heating oil prices have risen sharply. The spike has hit American consumers particularly hard because it comes on the heels of a period of the lowest oil prices in recent U.S. history: In 1998, oil prices in inflation-adjusted dollars reached levels not seen since 1972. The U.S. Senate Energy Committee and the U.S. House of Representatives Subcommittee on Energy and Power held hearings in 1999 to explore ways to affect prices because of the depressed state of the U.S. oil industry. In fact, since 1981, when President Reagan lifted the last of price controls on domestically produced oil, prices in the U.S. have been determined largely by the members of the Organization of Petroleum Exporting Countries (OPEC).





There is less than a six-month supply of oil in the Arctic National Wildlife Refuge.

■ The U.S. Geological Survey (USGS) estimates that the Arctic refuge contains between 3.2 billion and 16 billion barrels of oil.

■ The USGS calculates that even at today's high oil prices, only 2.6 billion barrels of oil — equal to 140 days of U.S. oil consumption — in the refuge are "economically recoverable." If prices drop, even this amount may be too expensive to exploit.



Oil from the refuge could not be brought to market in the Lower 48 states for 7–12 years.

■ It would take 7–12 years to drill, build production facilities, and construct a **new pipeline** to bring oil south from the isolated area of northeast Alaska where the refuge is located.³



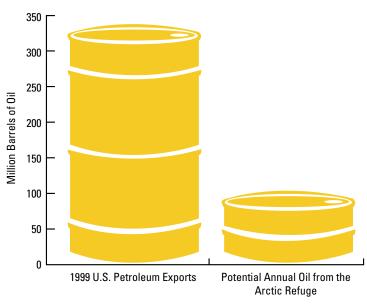




"We must be concerned in this country about energy. We must be concerned about shortages and at the same time, obviously, concerned about conservation. I understand the responsibility of the executive branch is to lay out an energy strategy, what's good for everybody in this country, and that's exactly what we're going to do."

- George W. Bush, quoted in the *Los Angeles Times*, December 19, 2000

1999 U.S. PETROLEUM EXPORTS COMPARED TO THE POTENTIAL ANNUAL OIL AVAILABLE FROM THE ARCTIC REFUGE



Source: DOE/EIA, USGS

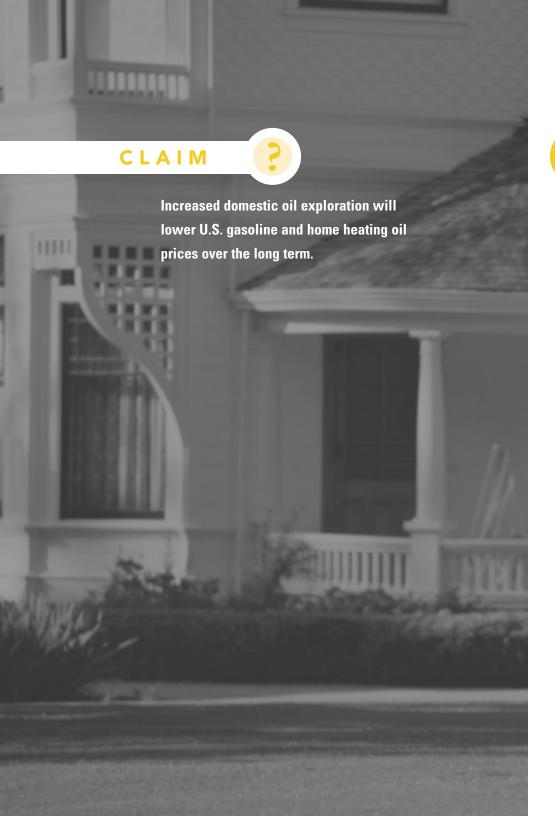
FIGURE 3.1



FACT | What Government & Industry Data Really Show

Because Congress lifted the ban on oil exports in 1995, oil companies could export much of whatever oil was produced from the refuge.

- According to the U.S. Department of Energy's Energy Information Administration (DOE/EIA), the U.S. **exported** the equivalent of 339 million barrels of oil in 1999, ⁴ far more than the 104 million barrels per year that might be produced from the wilderness refuge. ⁵ (See Figure 3.1.)
- Congress could bring more oil to U.S. markets faster by reimposing the ban on exports of domestically produced oil.





U.S. oil resources—both proven reserves and government estimates of undiscovered fields—are too small to have an impact on world oil prices, which largely determine domestic gasoline and home heating oil prices.

- The United States contains only 2.8% of total proven world oil reserves, an amount that includes both technologically recoverable and unrecoverable oil, according to 1999 estimates by both the USGS and British Petroleum America, Inc. OPEC countries control 78% of the world's oil reserves.⁶
- The United States has only 10.4% of the world's undiscovered oil reserves, according to 1999 USGS estimates. Experts disagree over how much of this oil is actually recoverable.



U.S. oil prices are already projected to decline over the next 10 years because of reserves being brought to market in other parts of the world.

■ The most recent forecast by the DOE/EIA projects that oil prices in the U.S. in 2008–2011 will be 16% lower than prices in 2000–2001 because of additional production in the Persian Gulf, Nigeria, and Venezuela. (See Figure 3.2)

EIA PROJECTIONS FOR OIL PRICES (1999 Dollars)

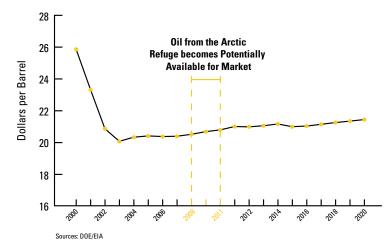
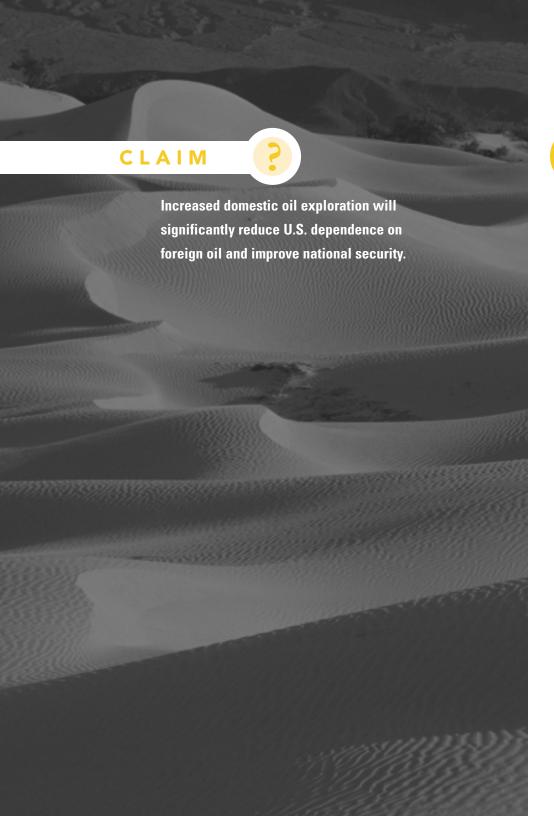


FIGURE 3.2

"I will encourage more energy exploration and production here at home, while protecting the environment.... [A]s we promote electricity and renewable energy, we will work to make our air cleaner. I believe that we can develop our natural resources and protect our environment. I have proposed increased funding for energy conservation. I believe in the promise of renewable energy."

- George W. Bush, InsideEPA Extra, October 16, 2000.





U.S. oil demand has grown so large that the United States imports 56% of the oil it uses every year. Increased domestic oil exploration could reduce that by a small percentage at best, which would have virtually no impact on national security.

- The U.S. consumes 18.5 million barrels of oil a day. On an annual basis, this amount exceeds the **yearly oil consumption** for all of Europe, all of Africa, or all the states of the former Soviet Union.
- The U.S. produces 7.8 million barrels of oil a day and imports 10.7 million barrels.

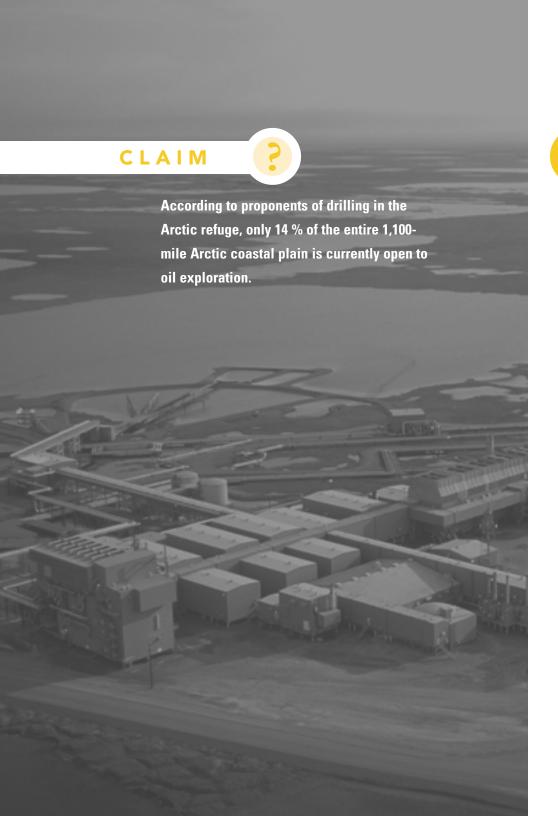
- Even leading **advocates of drilling** in sensitive environmental areas believe U.S. oil imports can be decreased only slightly, and have set a target of reducing U.S. oil imports from 56% to 50% of annual consumption by 2010.
- This small reduction in imports does little for national security. For example, if substantial oil exports from the Persian Gulf were threatened, the U.S. would once again be compelled to take military action to protect oil imports from the region.



- ¹ Patrick Crow, "Grappling with Downturn Tops '99 Energy Agenda of U. S. Congress," *The Oil and Gas Journal*, March 29, 1999. See also, hearing transcript of the Subcommittee on Energy and Power of the Committee on Commerce, U. S. House of Representatives, March 26, 1999.
- ² USGS Arctic National Wildlife Refuge, 1002 Area, Petroleum Assessment, 1998. Website: http://energy.usgs.gov/factsheets/ANWR/results.html.
- ³ Personal communication, Ken Bird, USGS, February 27, 2001. See also USGS, "Arctic National Wildlife Refuge, 1002 Area, Petroleum Assessment 1998." USGS website: http://energy.usgs.gov/factsheets/ANWR.results.html.
- ⁴ DOE/EIA, "Annual Energy Review, 1999," Table 1.4 "Energy Imports, Exports, and Net Imports, 1949-1999." DOE/EIA website: http://www.eia.doe.gov. This assumes a conversion factor of 172 million barrels of oil per quadrillion Btu.
- ⁵ USGS, Arctic National Wildlife Refuge, 1002 Area, Petroleum Assessment 1998. USGS website: http://energy.usgs.gov/factsheets/ANWR.results.html. Figure of 2.6 billion barrels of oil averaged over 25 years.
- 6 "Monthly Oil Monitoring Report," Organization of Petroleum Exporting Countries (OPEC), January 2001, p. 14.

OIL SUPPLIES & ENVIRONMENTAL IMPACTS

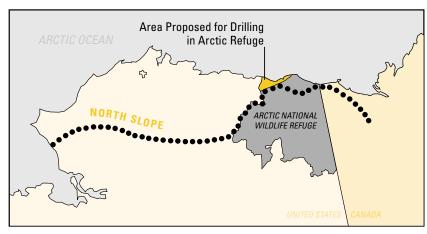
PRESIDENT BUSH, U.S. Senate Energy Committee Chairman Frank Murkowski (R-AK), and others who are seeking to drill in the Arctic National Wildlife Refuge play down the impact that this would have on one of the last completely undisturbed wilderness areas in North America. Citing 'tiny industrial footprints' and minimal or no impact on wildlife, they extol the so-called benefits of drilling. But their assertions are hollow. The Arctic National Wildlife Refuge was recognized 40 years ago as a special place and set aside for protection by President Eisenhower. Oil drilling is an industrial process, with industrial equipment and industrial-size footprints. The wilderness and its wildlife would sustain incalculable losses if drilling were allowed; only major oil companies would win. The increase in U.S. oil supplies from drilling in the Arctic refuge would be negligible, as would the impact on consumers, prices, and national security.





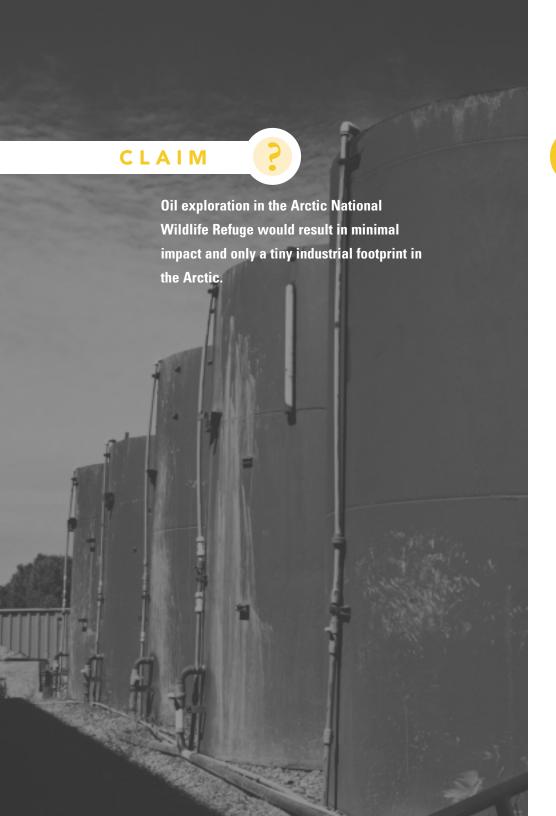
Ninety-five percent of Alaska's vast North Slope and Arctic coastline is already open to oil and gas exploration and development.

■ The **Arctic refuge** is the only protected area on the 1,100-mile-long North Slope. (*Figure 4.1*).



Source: USGS

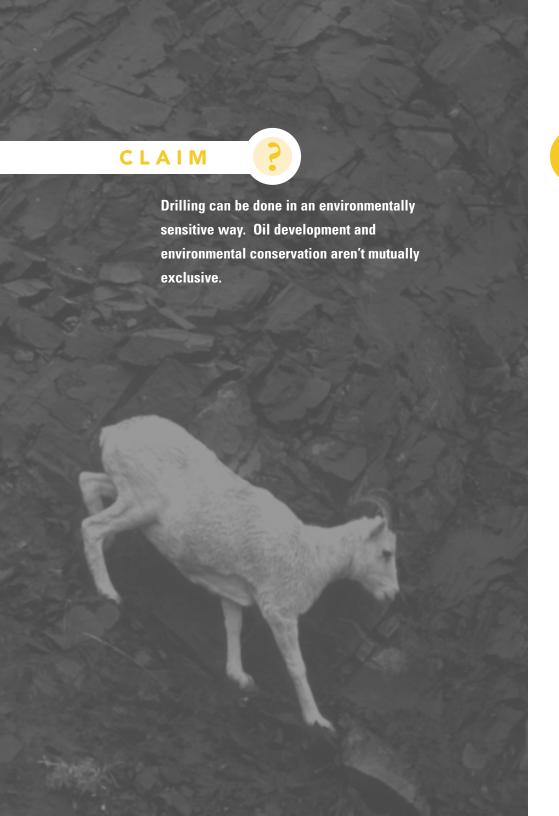
FIGURE 4.1





Drilling for oil in the Arctic refuge will require a staggering infrastructure: hundreds of miles of roads and pipelines, millions of cubic yards of gravel and water taken from the region's lakes, ponds, rivers and streambeds, and sizable production facilities, including ports, housing, power plants, processing facilities, loading docks, airstrips, landfills, and services for thousands of workers.¹

- In **Prudhoe Bay** on the North Slope where oil is currently being drilled, environmental impacts are occurring:
 - Thousands of tons of nitrogen oxide pollute the air each year,²
- Spills of tens of thousands of gallons of crude oil and other petroleum products routinely occur,³
- Dozens of contaminated sites and waste pits remain to be cleaned up,⁴
- About 10,000 acres are covered by oil facilities and roads,
- The industrial complex sprawls over 800 square miles.





Even people within the energy industry admit that oil drilling and environmental stewardship of sensitive areas such the Arctic National Wildlife Refuge are incompatible goals.

- Russell Kirlin, regional manager for Ouestar, a natural gas company, said in a New York Times article on the debate over drilling in another protected area, Wyoming's Jack Morrow Hills, "You can't have Wyoming be a pristine, untouched area and still be a major natural gas producer. You have to decide what you want."5
- In Alaska's Copper River Delta to the south of the Arctic National Wildlife Refuge, the Chugach Alaska Corporation has applied to drill in a 700,000—acre area. Riki Ott, a marine biologist in nearby Cordova, says this is the most important wetlands system on the Pacific Coast; a primary migratory habitat for 16 million birds and, more importantly, the annual spawning grounds for an estimated 2 million of the legendary Copper River salmon. Fishermen in Cordova, who rely on the salmon for their livelihoods, vehemently oppose oil development. ⁶





Neither development of large portions of Canada and Alaska nor oil exploration and drilling have interfered with the migration or survival of wildlife such as caribou.



FACT | What Government & Industry Data Really Show

The Arctic National Wildlife Refuge is the Porcupine caribou's only habitat from late spring to early fall when calves are born and nurtured until they are strong enough for the migratory trek inland during the harsh Arctic winters.

- **Caribou** are extremely sensitive to disruptions in their habitat during calving season. They must have adequate foraging area and proper food supply for calving.
- The Porcupine caribou have nowhere else but the coastal plain in the refuge to birth offspring. From the edge of the sea to the Brooks Range mountains, this plain forms a thin band 20 to 40 miles wide of precious habitat for this animal.⁷
- **Caribou** are commonly known to move away from human disturbances, as has been documented around the oil fields of Alaska's North Slope.⁸

"We'll use a range of arguments
[to open ANWR for drilling].
National security, dependence on
unreliable sources in the Middle
East, cost of energy. The best way
of winning is to make people
concerned about the cost of filling
up their tank. It will all be over by
September."

- Roger Herrera, British Petroleum lobbyist, *Time Magazine*, February 19, 2001.

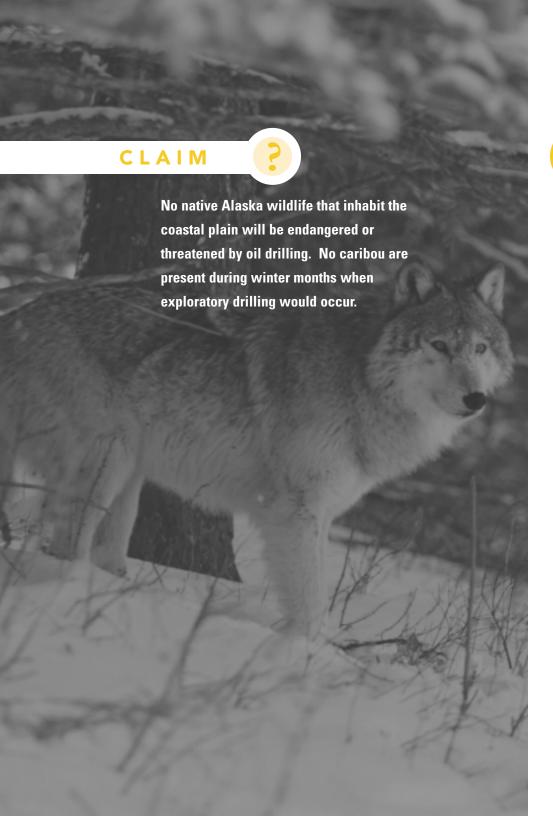




FACT | What Government & Industry Data Really Show

Since 1988, when then-President George H. W. Bush first sought congressional approval to drill in the Arctic refuge, Canada has been on record as opposing drilling in the coastal plain.⁹

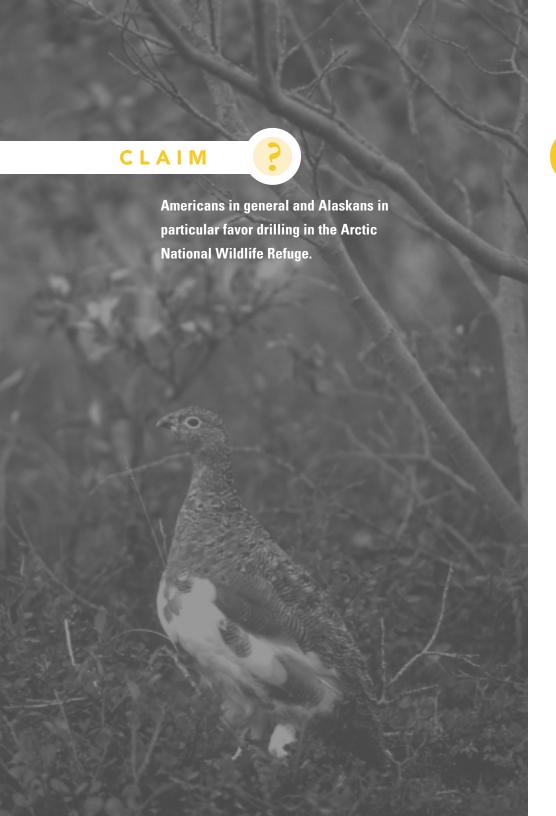
- Canada has done its part to protect the Porcupine herd's critical habitat by creating two national parks where oil exploration and development are prohibited.
- Canada opposes drilling in the Arctic wilderness refuge: Environment Minister David Anderson said in a January 2001 interview, "The Arctic Refuge was originally put in place for calving by a caribou herd that crosses the boundary between our two countries." ¹⁰





Oil drilling on the coastal plain of the refuge could threaten up to 40% of the Porcupine caribou herd, and drive it from local Gwich'in hunters and others who depend on caribou for food.¹¹

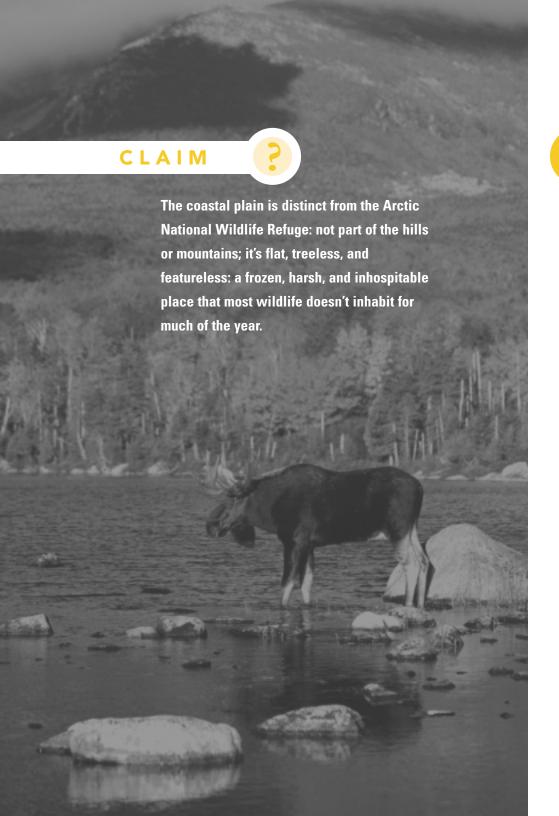
- **Biological consequences** anticipated from oil and gas development in the Arctic Refuge include:
 - Deflected or disturbed wildlife populations;
 - Increased predation on nesting birds due to the introduction of garbage as a consistent food source;
 - Alteration of natural drainage patterns, causing changes in vegetation;
 - Higher emissions of methane from natural gas burn-off and particulate matter released by dieselpowered vehicles and drilling equipment; and
 - Contamination of soils and water from fuel and oil spills.¹²
- Winter drilling may limit the threat to some wildlife, but many others like musk oxen, polar bears, wolverine, and arctic fox remain in, and depend upon, the coastal plain throughout the winter.





A poll by the Associated Press in January 2001 found that 53% of Americans oppose opening the Arctic refuge ecosystem to oil exploration.¹³

- Exploitation of the area's non-renewable natural resources for short-term economic gains will not create a sustainable economy for residents and could cause unforeseen problems for native populations, affecting their way of life and traditional livelihoods.
- Alaskans have an economic incentive for drilling rather than preserving public lands. All residents receive almost \$2,000 annually in payments from oil companies for mineral leases, royalties, and sale proceeds from oil drilled on Alaska's public lands.¹⁴
- In spite of these payments, **Gwich'in Indians** (Alaska Natives) are opposed to opening the Arctic refuge to oil development because they depend on the wildlife and believe that development will have negative impacts. In the Yukon village of Old Crow, for example, the caribou herd is a vital food source for natives. 16





The U.S. Fish and Wildlife Service (USFWS) indicates that "the Arctic National Wildlife Refuge is the largest unit in the National Wildlife Refuge System. The Refuge is America's finest example of an intact, naturally functioning community of arctic/subarctic ecosystems." 17

- The USFWS describes the Arctic National Wildlife Refuge as "a broad spectrum of diverse habitats occurring within a single protected unit [that] is unparalleled in North America, and perhaps in the entire circumpolar north [emphasis added]." ¹⁸
- In winter, according to the USFWS, "the Arctic Refuge's coastal tundra provides the most important land denning habitat for the **Beaufort Sea polar bear** population."¹⁹
- The plain is also home to musk oxen, wolves, grizzlies, millions of migratory birds (at least 135 species), and the Porcupine River caribou herd that migrates annually to the coastal plain for calving.

CLAIM



The U. S. must drill for oil and gas reserves in protected areas of national forests in order to provide adequate supplies to meet America's energy needs and reduce dependence on foreign oil.

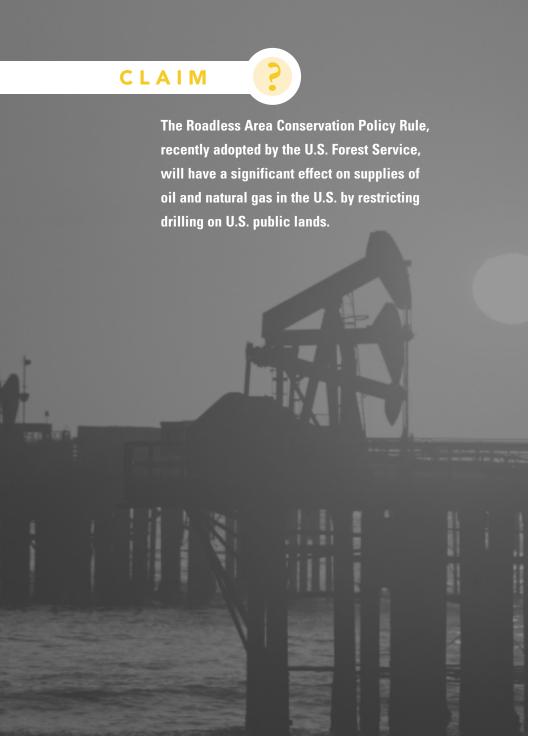
- "Sen. [Bob] Smith just doesn't believe it's worth destroying a pristine wilderness to recover the relatively small amount of oil that's economically recoverable."
- Eryn Witcher, Spokeswoman for Senator Bob Smith (R-NH and Chairman, Senate Environmental and Public Works Committee), Boston Globe, February 18, 2001



FACT | What Government & Industry Data Really Show

Minimal oil and gas resources exist under protected portions of America's wild forests.

- A recent Department of Energy (DOE) study found that best estimates of the amount of natural gas that can be **recovered from protected areas** feasible for drilling would equal only two months of U. S. consumption.²⁰
- Even if **appreciable deposits** of oil and natural gas existed in protected areas (although there is no evidence this is the case) these resources would not relieve any short-term national needs because discovering, developing and producing these resources will take up to 10 years.
- Simple energy conservation measures will save more oil and gas than could be produced by drilling in protected areas on public lands. Energy conservation will produce faster, more permanent results and will save consumers money.





The Roadless Area Conservation Policy will have no measurable impact on U.S. supplies of oil and natural gas.

- Production of oil and natural gas in National Forests currently yields only 0.4% of our country's domestic output.21
- Most of the **energy reserves** located in areas now protected by the Forest Service's recent conservation policy have already been leased for exploration, and these leases are unaffected by the new rule.²²







"I am confident the new administration will recognize the need to protect sensitive natural resources located both offshore and along Florida's coastline, for the benefit of the entire nation."

- Gov. Jeb Bush (R-FL), letter dated Jan. 23, 2001, to Tom Slonaker, acting secretary of the U.S. Department of the Interior

- ⁵ "Gas-Rich Desert Will Test Bush's Environmental Resolve," New York Times, February 4, 2001.
- 6 "Hunt for Oil Only Starts at Refuge," Los Angeles Times, February 6, 2001.
- ⁷ U.S. Fish & Wildlife Service 2001. "Potential Impacts of Proposed Oil and Gas Development on the Arctic Refuge's Coastal Plain: Historical Overview and Issues of Concern." Website: www.r7.fws.gov/nwr/arctic/issues1.html.
- 8 Ibid.
- ⁹ "Canada Ready to Fight Oil Drilling," Seattle Post-Intelligencer, January 22, 2001. 10 Ibid.
- 11 U. S. Department of the Interior, "Arctic National Wildlife Refuge, Alaska, Coastal Plain Resource Assessment." Report and recommendation to the Congress of the United States and legislative environmental impact statement, November 1986, p. 112: "A major change in distribution as an adverse result of displacement of ... the entire PCH [Porcupine caribou herd] could occur if the 1002 area [targeted for oil drilling] were fully developed These changes in habitat availability and value, combined with increased harvest, could result in a major population decline and change in distribution of 20-40 percent, based on the amount of calving and insect-relief habitats to be adversely affected."
- 12 U.S. Fish & Wildlife Service 2001. Potential Impacts of Proposed Oil and Gas Development on the Arctic Refuge's Coastal Plain: Historical Overview and Issues of Concern. www.r7.fws.gov/nwr/arctic/issues1.html
- 13 "Poll Shows Concern About Energy," Associated Press, February 1, 2001.
- ¹⁴ Alaskans who were eligible for and received a dividend check each year from 1982 through 1998 received a total of \$14,777.55 or nearly \$60,000 for a family of four. In 2000, payments totaled \$1,963.86 per person. Source: Alaska State website: http://www.pdf.state.ak.us/OVERVIEW.htm.
- 15 "Development Advocates in Alaska Getting Ally in White House," Seattle Post-Intelligencer, December 12, 2000.
- 16 "Canada Ready to Fight Oil Drilling," Seattle Post-Intelligencer, January 22,
- 17 U.S. Fish & Wildlife Service 2001. "Potential Impacts of Proposed Oil and Gas Development on the Arctic Refuge's Coastal Plain: Historical Overview and Issues of Concern." Website: www.r7.fws.gov/nwr/arctic/issues1.html.
- 18 Ibid.
- 19 Ibid.
- ²⁰ U.S. Department of Energy study conducted by Advanced Resources International, Inc. http://www.fe.doe.gov/oil_gas/reports/roadless/index.html.
- ²¹ U. S. Forest Service website: http://roadless.fs.fed.us/documents/rule/
- 22 Ibid.

¹ U.S. Fish & Wildlife Service 2001. "Potential Impacts of Proposed Oil and Gas Development on the Arctic Refuge's Coastal Plain: Historical Overview and Issues of Concern." www.r7.fws.gov/nwr/arctic/issues1.html

² "Final Environmental Impact Statement, Beaufort Sea Oil and Gas Development/ Northstar Project." Vol. III, Table 5.4-7, data from ARCO and BPXA, 1994, as reported to Alaska Department of Environmental Conservation. U.S. Army Corps of Engineers, 1999.

³ Alaska Department of Environmental Conservation spill database 1996-1999. "Statewide Oil Spill Database for North Slope Region." Spills in villages not attributable to companies were removed from the analysis. Data for the year 2000 is not yet available from ADEC.

⁴ Contaminated Sites Remediation Program database, Division of Spill Prevention & Response, Alaska Department of Environmental Conservation. www.state.ak.us/local/akpages/ENV.CONSERVE/ dspar/dec_dspr.htm.

The following sources were indispensable in preparing this book.

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http://www.blm.gov

U.S. Department of the Interior, Fish and Wildlife Service

http://www.fws.gov

State of California Energy Commission

http://www.energy.ca.gov

For additional information on U. S. energy issues in the 21st century, please log onto: http://www.environet.org.

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