Why the Bush Oil (Energy) Policy Will Fail

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Following his four predecessors, President Bush has identified dependence on imported oil as a urgent energy, economic, and national security concern. The gap between consumption and domestic production is more than 50 percent of total oil consumption (Figure P-1); by 2020 it will grow to 65 percent of consumption.

To close the oil supply gap the President will promote the development of domestic resources of oil and natural gas. The argument goes that increased domestic production will reduce dependence on imported oil and reduce the ability of OPEC to control the supply of oil, and hence the price of oil as well. This would reduce the chance of oil shocks disrupting the economy, and maintain the price of gasoline and home heating oil at reasonable levels. The President, his energy and environmental advisors, and the oil and gas industry maintain that this scenario is plausible, and that it can be realized in an environmentally responsible manner.

What are the chances of success for this policy? The available evidence suggests that these policies will collide with the realities of the state of depletion of the domestic oil resource base, the economics of the international oil market, and the ecology of some the planet s most important ecosystems. The policies will fail to improve our energy security or reduce OPEC s market control, and they will damage the U.S. economy and the environment in significant ways.

The Bush oil policy is built on a foundation of myths about our energy situation.

Myth #1: Oil from ANWR will reduce our vulnerability to OPEC decisions.

The Administration correctly notes that Area 1002 of the Arctic National Wildlife Refuge (ANWR) in Alaska lies above the most promising oil prospect in the nation (Figure P-3). But how much oil is there? To answer this question we must distinguish between the amount of oil physically in place from that which can be extracted under existing technological and economic conditions (Figure P-4). The U.S. Geological Survey s (1998) estimate of the amount of oil-in-place in the 1002 area is 20.7 billion barrels. The amount recoverable with existing technology is 7.7 billion barrels. The economically recoverable amount that recoverable at $20.00 per barrel is estimated to be about 3 billion barrels. The technically recoverable oil is the equivalent of 390 days of supply at our current rates of use; the economically recoverable oil is just 152 days of supply.

To what extent can ANWR reduce our reliance on oil imports and diminish OPEC s ability to manipulate oil prices? The Energy Information Administration (EIA) projects world oil production in 2020 to be 112 million billion barrels per day (EIA, 2000). If we decide to develop ANWR today, the EIA projects that by 2020 it could supply 1.4 million barrels per day (Figure

P-5). This amounts to about 1 percent of global oil supply. Dust in the winds of the global oil market, and ultimately, a trifling influence on the price of gasoline and home heating oil. This flow of oil would be about 5 and 8 percent, respectively, of the 2020 levels of U.S. oil consumption and oil imports forecast by the EIA.

Myth #2: The footprint of development in ANWR will be small.

Disruption of the arctic ecosystem is the most contentious issue in the ANWR debate. The coastal plain of ANWR is peerless among the planet s ecosystems, providing a vast and unique array of ecosystem services that do not have a dollar values assigned to them.
The oil industry should be credited for its development of new technologies that could reduce its ecological footprint in ANWR relative to the type of development that has occurred in the last thirty years with its neighbor to the west, Prudhoe Bay. Exploration vehicles can now use balloon tires instead of tracks, offering the potential to reduce the impact on vegetation. Pipelines can now handle multi-phase materials, meaning that the oil-gas-water mixture that is lifted to the surface can be moved via pipeline to existing processing facilities to the west, potentially reducing the need to build new ones in ANWR. Drilling pads are smaller, and horizontal drilling technologies can reduce the number of new wells required to develop a given quantity of oil. The operative word here is potential. These environmental benefits hinge on the assumption that such technologies would in fact be employed rigorously and to the fullest extent possible.

New technology is not always footprint-reducing. 3-D seismic interpretation has revolutionized the oil discovery process, greatly increasing the effectiveness of exploration compared to 2-D methods. But 3-D methods requires an enormously greater amount of data collected in the field, needs that can actually *increase* the number of passes that exploratory vehicles must make over the land surface compared to 2-D (Figure P-7). These impacts hinge on the exact size and type of the geologic structure under investigation.

We must also consider entire system of exploration, extraction, processing, and transportation. Oil from NAWR could be piped to existing processing facilities to the west, transported through the Trans Alaska Pipeline to storage and processing facilities at the port of Valdez, and ultimately loaded and shipped via tanker. Taken as a whole, this is a large scale industrial complex (Figure P-8). Prudhoe Bay operations alone cover about 10,000 acres of land; the entire system covers hundreds of square miles of Alaskan wilderness. Drilling, processing, and transportation have atmospheric emissions of greenhouse gasses and other pollutants that exceed many large cities. Hundreds of small oil spills occur every year; in 1998 and 1999 alone, BPAmoco was fined nearly $6 million for spills in Alaska. The memory of the Exxon Valdez reminds of the small but potentially serious chance of a catastrophic oil spill. Even if we grant the oil industry a reduced footprint from development in ANWR relative to old technology, we are still talking about a significant addition to an already large industrial operation.

Myth #3. ANWR is not an ecological treasure because few people visit each year.

The U.S. Fish and Wildlife Service estimates that 1,000 to 1,500 people visit ANWR each year; about half of those actually visit the coastal plain in area 1002. This leads some to conclude that

the Refuge holds little value other than its oil resources (Arctic Power, 2001). However, sixty percent of Americans oppose oil development in ANWR (Gallup, 2001), even though the vast majority of them will never set foot there (Figure P-6). The inference here is that the Refuge has what economists call substantial existence value. People believe the intrinsic value of the Refuge in its wilderness state is greater than its value as a source of oil.

Myth #4: The oil industry has been a good steward of other important ecosystems.

As evidence of its environmental 'good faith' the industry points to Louisiana (New York Times, 2001). Louisiana s 3.5 million acres of coastal wetlands represent about 40 percent of all of the coastal wetlands in the continental United States. Coastal wetland habitats in Louisiana serve as the foundation for a $1 billion seafood industry, a $200 million sport hunting industry, a $14 million alligator industry, valuable fur resources, wild crawfish resources, hardwood timber and livestock rangelands that equate to thousands of jobs crucial to the economies of many coastal communities (State of Louisiana, 2001). For more than half a century, oil companies have dredged canals through the wetlands in Louisiana. Canals disturb the natural hydrologic regime in the wetlands, preventing bayous from delivering water and sediments to the wetlands (Figure P-9). Without these inputs, the wetlands lose the race against rising sea level. In the 1970s and 1980s, more than 40 square miles of wetlands were lost, converted to open water (Figure P-10). The pace has slowed to about 25 square miles year, due to a slower pace of development and to reclamation work by the oil industry. Since 1930, an area the size of Rhode Island has perished. If this loss continues, 20 towns will be underwater by 2050 and New Orleans will be an island at the hurricane-prone edge of the Gulf of Mexico.

This behavior was enabled by state regulatory agencies in Louisiana that rarely denied an application for a dredging permit, raising concern about the veracity of oversight in Alaska, a state that already has contributed millions to pro-development lobbying groups and where oil revenues finance 80 percent of the state s budget.

Myth # 5: Fostering domestic production will be good for the U.S. economy.

Isn t it always better to develop domestic resources of oil and have the economic benefits accrue to the U.S. rather than to the Saudis? Economics 101 teaches us that trade benefits importing nations when the imported good is less costly than the domestic alternative. Because domestic oil sources are more costly to produce than overseas alternatives, tax relief and other incentives to encourage exploration and development will hurt the economy in the same way they did 20 years ago when the oil prices shocks produced record rates of drilling (Kaufmann and Cleveland, 1991). Between 1973 and 1980, the total footage of wells drilled increased three fold and the fraction of new capital investment in the US economy going to the oil industry increased from 2 to 7 percent (Figure P-2). What did the nation get in return? During this same period, US production *declined* 7 percent and the oil industry s share of GDP *declined* from 4 to 2 percent. The gap between investment and production totaled more than 100 billion dollars from 1975 to 1987. Common sense economics clearly indicates that the huge diversion of income would have produced greater economic benefits had it been invested elsewhere in the economy. The reason for the poor performance of the US oil industry is simple: the domestic oil resource base is

depleted to the point that large investments in drilling cannot generate a commensurate increase in oil supply.

The reason for the mismatch between investment and return on investment is simple: the domestic oil resource base is depleted to the extent that large investments in drilling cannot generate a commensurate increase in oil supply. On net, depletion effects outweigh technology in discovery, development, and production. There is every reason to believe that the gap will re-appear should political decisions that promote domestic production through subsidies or other means.

The Bush energy plan calls for tax relief for an industry that already receives hefty support from taxpayers. Estimates of current government subsides to the oil industry range from $2 to $88 billion per year (EIA, 1999). These studies assess obvious subsidies such as the percentage depletion allowance for the oil and gas industry and tax deferrals on enhanced oil recovery. The upper end of this range include the cost of maintaining a military presence in the Persian Gulf to insure a secure flow of oil from the Middle East, the cost of maintaining the Strategic Petroleum Reserve here in the U.S., and environmental externalities associated with oil production and use.[1]

These massive subsidies distort market signals, producing a misallocation of investment in energy markets, and they discriminate against renewable energy technologies such as wind and photovoltaic power (OECD, 1999). Finally, subsidies corrupt the very market mechanism that President Bush and Interior Secretary Norton argue should help guide our energy and environmental policies.

The president, vice president and secretary of commerce are from the oil business. Fourteen of the 25 largest contributors to Bush political campaigns are from the energy industries. It should not surprise us that the Bush oil plan would shower the energy industry in an additional $20 billion dollars of tax breaks. But in this case what is good for big oil is not good for the nation. The Bush plan would disturb one of the last great wildernesses on the planet for a flow of oil that will not significantly reduce our import dependence, will not tilt the world oil market in favor of U.S. consumers, and in the process actually will harm the economy.

[1] For a summary and comparison of studies on energy subsidies, see Federal Financial Interventions and Subsidies in Energy Markets, Energy Information Administration, Office of Integrated Analysis and Forecasting, SR/OIAF/99-03, September 1999.

Figure P-1. Oil production and consumption in the U.S. Source: Energy Information Administration.

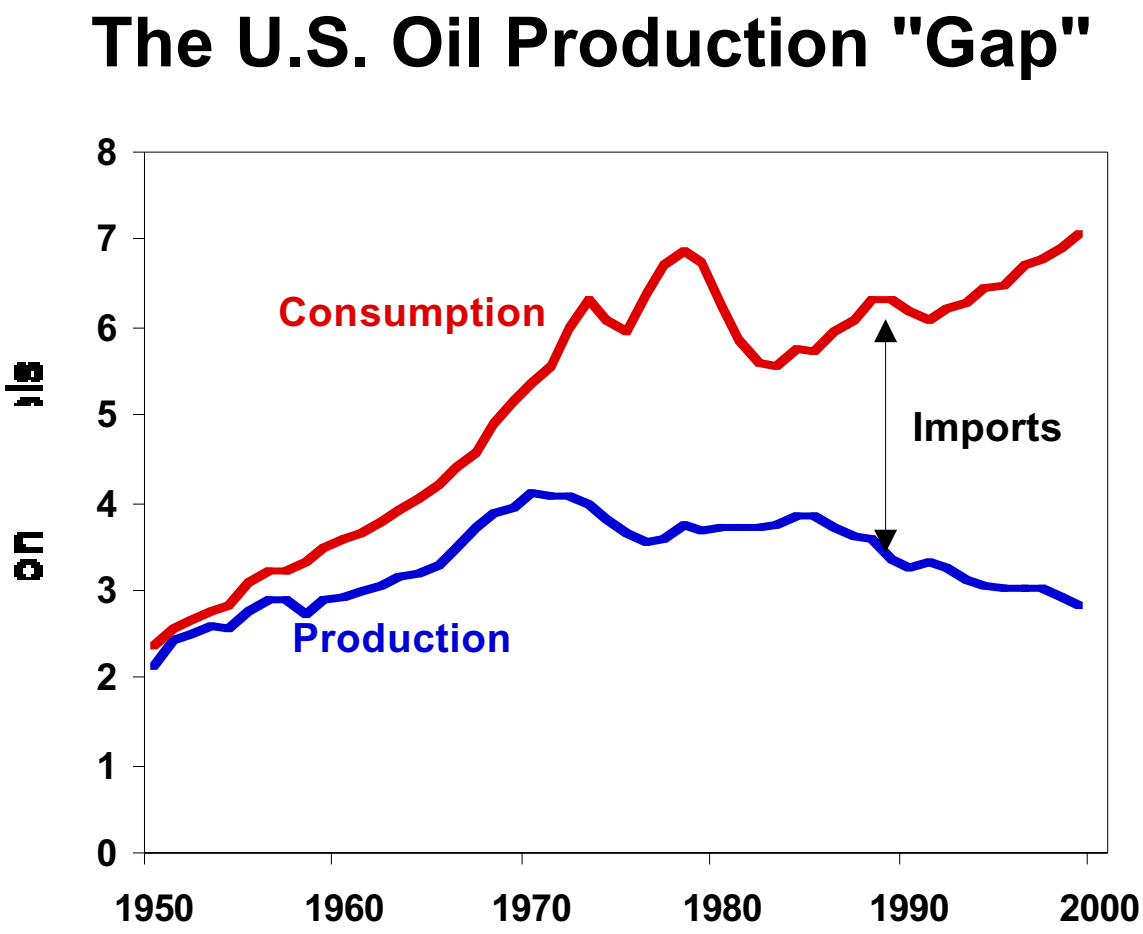

Figure P-2. The percentage of gross fixed capital formation by the oil and gas sector (solid bars), the percentage of GDP that originates in the oil and gas sector (shaded bars), and the total footage of wells drilled (solid line). Source: Kaufmann and Cleveland (1991).

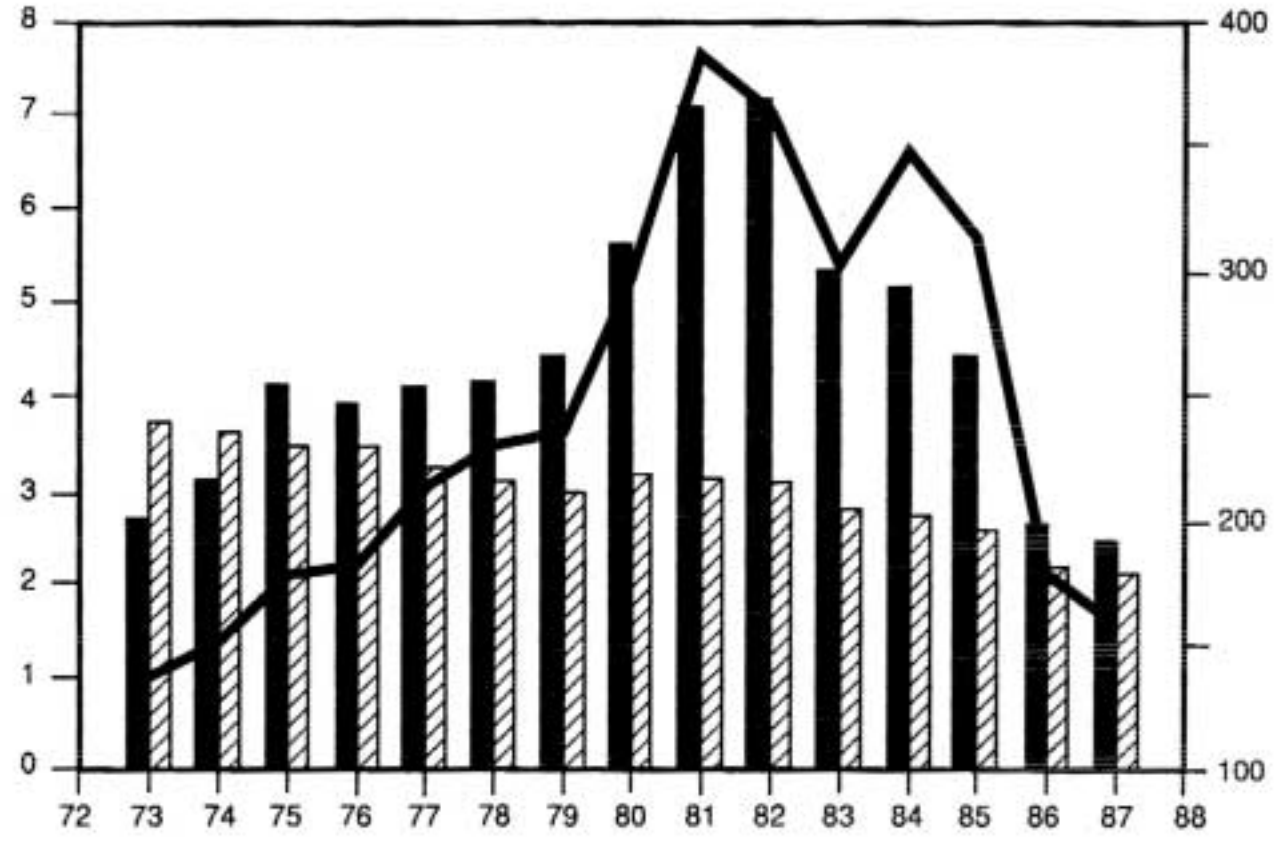

Figure P-3. The Arctic National Wildlife Refuge. Source: The U.S. Fish and Wildlife Service.

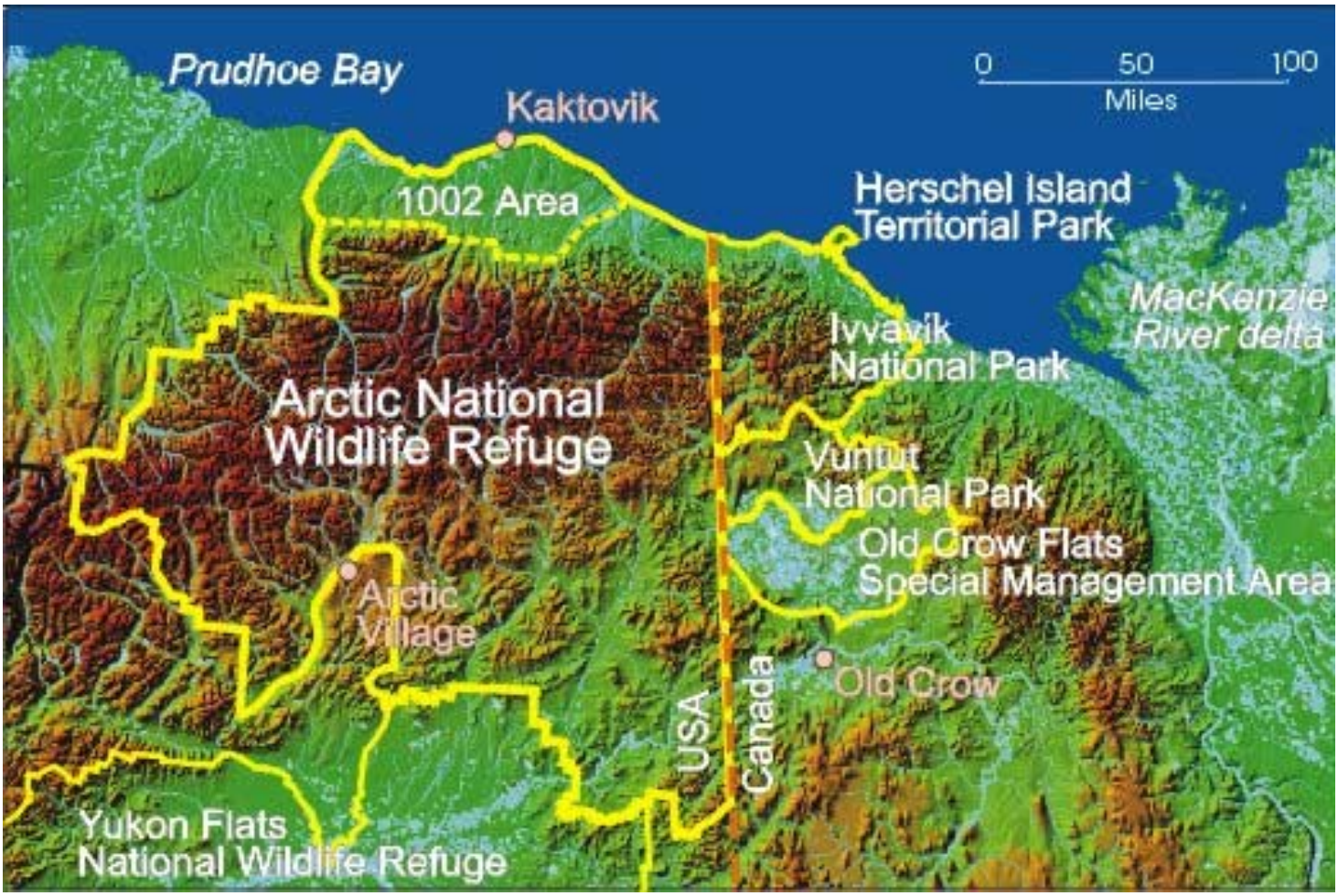

Figure P-4. The U.S. Geological Survey s (1998) estimate of oil resources in the 1002 area of ANWR.

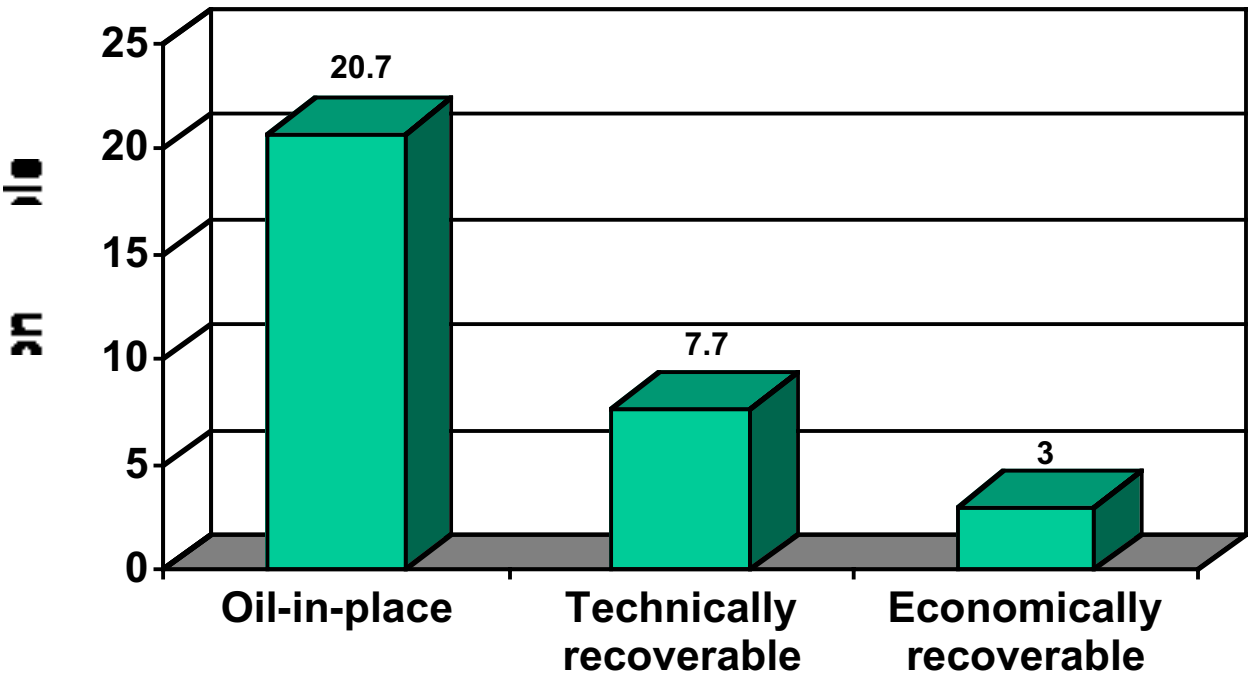

Figure P-5. Forecasts of production from ANWR based on 10.3 billion barrels of technically recoverable oil. Source: Energy Information Administration.

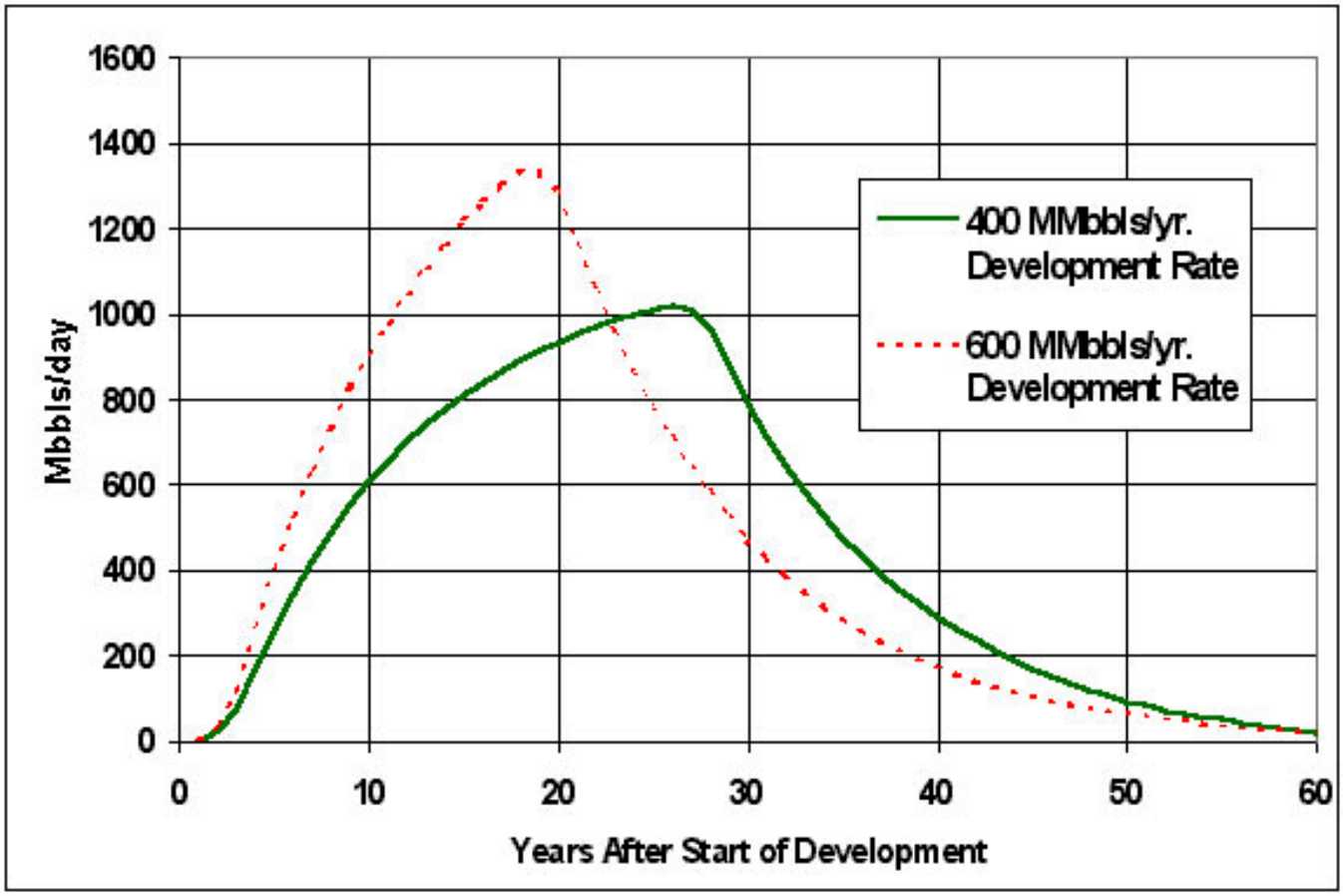

Figure P-6. Results of opinion poll that asked Americans what should we do about our energy situtation? Source: Gallup Poll, March 2001.

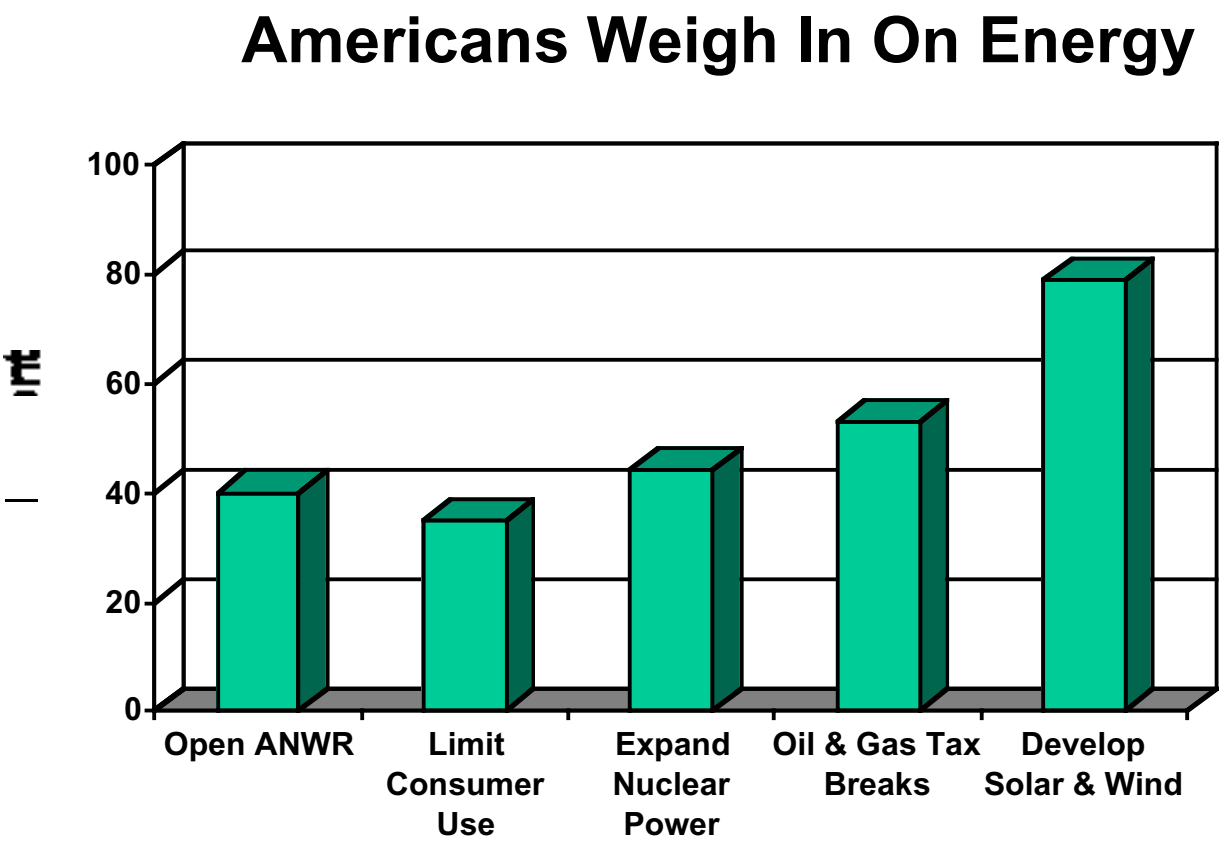

Figure P-7. Possible effects of 3-D versus 2-D exploration in the ANWR. Source: U.S. Fish and Wildlife Service.

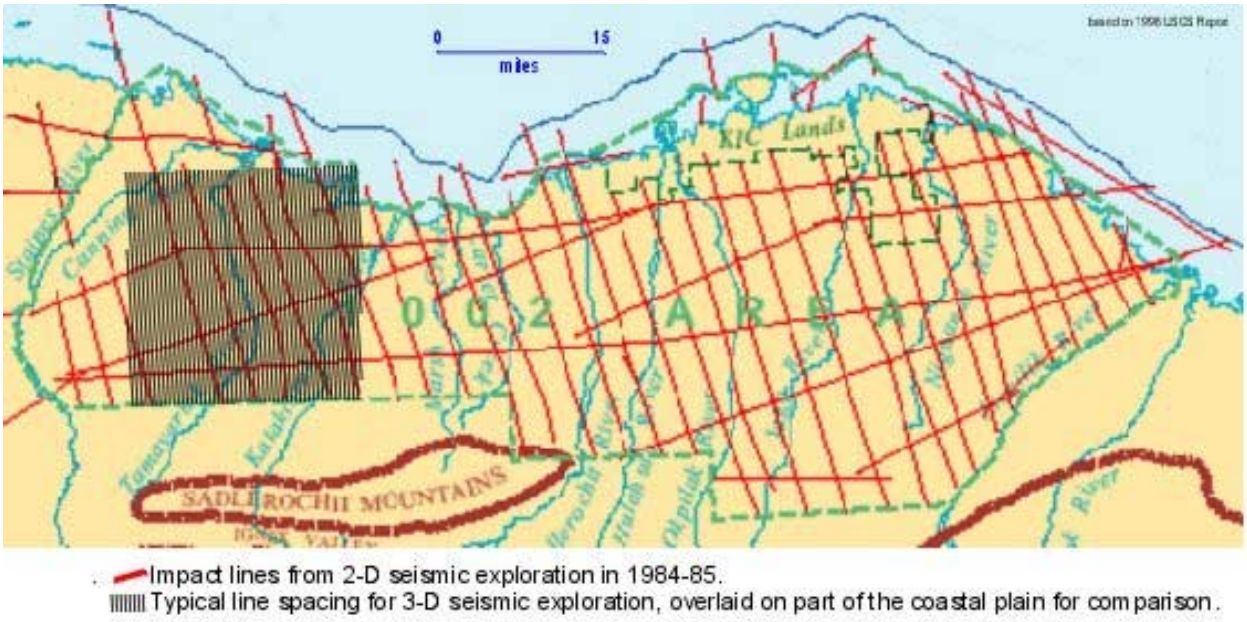

Figure P-8. A typical oil processing facility on the north slope of Alaska.

Figure P-9. Coastal wetlands in Louisiana. Canals dredged for oil and gas development appear as straight lines; natural bayous are sinuous. Areas impounded by canals are cut off from sediment and water from the bayous. As a result, the wetlands sink and are converted to open water.

Figure P-10. The loss of wetlands in Terrebonne basin, Louisiana, from 1958 to 1990. Source: Louisiana Coastal Restoration Web Site (http://www.lacoast.gov/).