

BLM LIBRARY



88063388

American Energy for America's Future

The Role of the U.S. Department of the Interior



HD
9502
.U52
A647
2004
c.3

Introduction

The way of life that we Americans take for granted every day depends upon a stable and abundant supply of affordable energy. Energy shortages can quickly affect our everyday lives and harm our national economy. No other factor, short of a terrorist attack or a major war, can affect our lives as pervasively and as quickly as an energy crisis.

We are totally dependent on energy. It keeps our homes warm in the winter and cool in the summer. Energy is critical to producing, processing, transporting, preparing, and preserving our food. It powers our communication and computing networks. Energy allows us to move people and goods safely and quickly to all corners of the

world. It is vital to our national economic and military security.

As the American economy has grown, so has our demand for energy. Our energy use increased nearly 20 percent during the economic boom of the 1990s. In 2002, Americans consumed nearly 98 quadrillion Btus of energy (about 1 million Btus every day for every man, woman, and child). Fortunately, our investments in energy efficient technologies have begun to have an effect. Although our economy has grown by 126 percent since 1972, our energy use has increased by only 30 percent. Still, energy experts predict that our energy use will increase 40 percent by 2025.

So, What Is a Btu?

A Btu or British thermal unit is a measure of energy. One Btu is the amount of energy required to raise the temperature of one pound of water (about one pint) exactly one degree Fahrenheit. So, if you heat one pint of water from 100 degrees to 200 degrees to make two cups of morning coffee, you will use 100 Btus. Every electric appliance and light bulb in our homes uses energy when it is on. For this reason, the average single-family residence in America consumes a little more than 100 million Btus of energy per year. America's average daily energy consumption is about one million Btus for every man, woman, and child in the country.

To put Btus in perspective, 1 billion Btus is the energy contained in approximately 971,000 cubic feet of natural gas or the gas used in 11 average American homes in one year. One trillion Btus is the energy contained in 7.5 million gallons of gasoline, and one quadrillion Btus is the energy contained in 40 million tons of coal. Because our national energy use is so large, we must measure it in quadrillion (10^{15}) Btus.



As our energy use has increased, so has our need to import energy resources from foreign countries. This is especially true for crude oil, from which we make the fuels for our automobiles, trucks, trains, ships, aircraft, and other products such as plastics, fertilizers, paints, and medicines. Today, we import 58 percent of the oil we use. Energy experts predict that we will import 70 percent of the oil we use in 2025. Our rapidly increasing use of natural gas to heat and cool our homes, generate electricity, and provide raw materials for chemicals and fertilizer will also require that we double our imports of this critical energy resource by 2025.

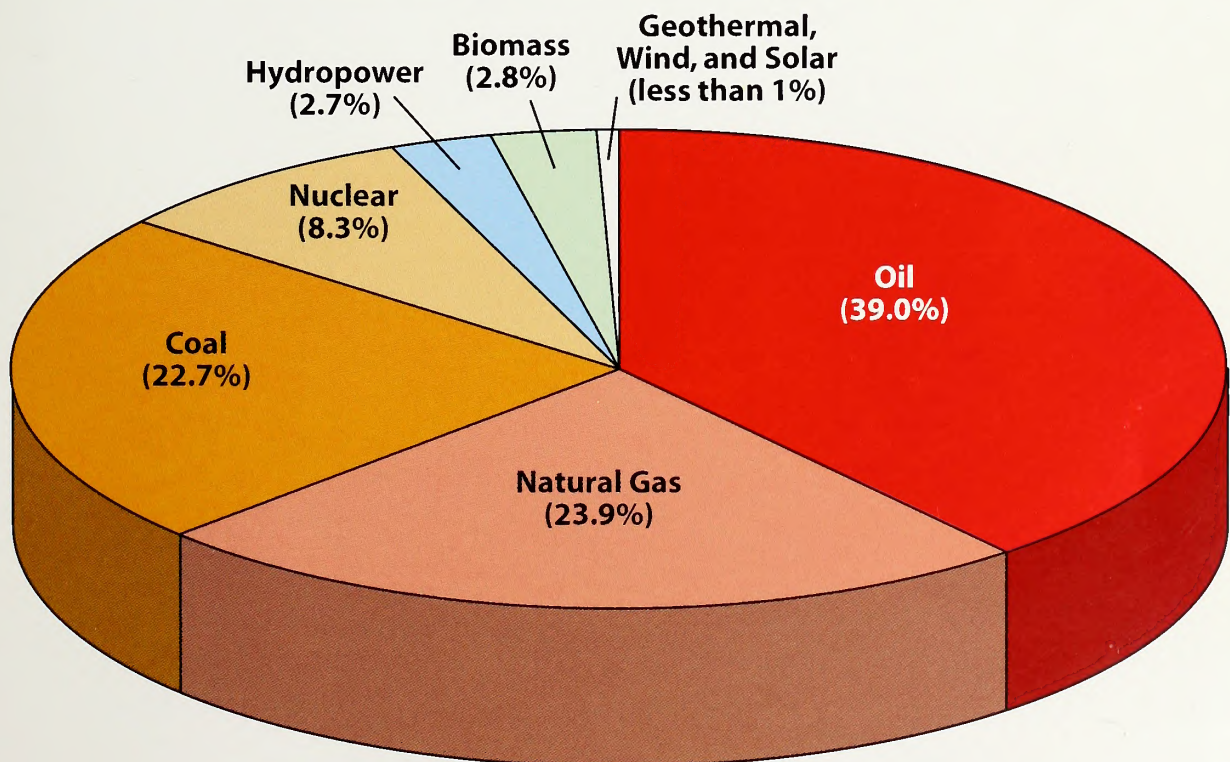
Except for oil, America has abundant energy resources. America has large reserves of natural gas and coal. We are also developing alternative energy sources such as hydropower, wind, geothermal, biomass, and solar. These energy resources can be produced to support our continued economic growth and our national security in a manner that also protects our environment. All Americans can contribute to the energy situation by using energy wisely and not wasting it.

The U.S. Department of the Interior is a significant contributor to America's energy supplies. About one-third of all energy produced in America

originates from lands managed by the Department of the Interior. Development of our domestic energy resources provides America many benefits: energy to support our economy and national security, high-paying jobs, and contributions to our national treasury.

The Department's contribution to domestic energy production is made principally through five of its Bureaus. The Bureau of Land Management administers more than 261 million surface acres of public lands and 700 million acres of subsurface mineral estate (Federal land beneath surface lands owned or managed by other parties, such as the USDA Forest Service). The Minerals Management Service manages the development of energy and mineral resources on the outer continental shelf (OCS) lands beneath the oceans along our coasts. The Bureau of Reclamation produces electricity from many of the dams under its supervision. The Office of Surface Mining Reclamation and Enforcement works with States and Indian Tribes to regulate coal mining. The Bureau of Indian Affairs assists Indian Tribes in developing their energy and mineral resources. In addition to these five Bureaus, the U.S. Geological Survey studies, inventories, and maps onshore energy resources.

American Energy Consumption by Fuel in 2002



Oil

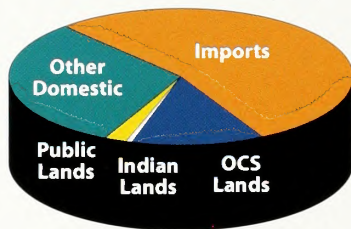
Americans currently use about 830 million gallons of oil every day, but only produce about 387 million gallons a day from domestic resources. To make up the difference between domestic production and demand, we must import crude oil at an average rate of 384 million gallons every day and refined products, such as gasoline, at an average rate of 59 million gallons every day.

Nearly 230 million cars, buses, and trucks are registered in America. Americans traveled nearly 2.9 trillion miles in these vehicles in 2002 and used an average of more than 370 million gallons of gasoline every day.

About 5 percent of our domestic oil is produced from onshore public and Indian lands. Our public lands are believed to overlie 328 billion gallons of crude oil.

About 30 percent of our domestic oil is produced from the outer continental shelf along our coasts. Our outer continental shelf is believed to overlie more than 3 trillion gallons of crude oil.

Contributions of Public, Indian, and OCS Lands to America's Oil Supply



Natural Gas

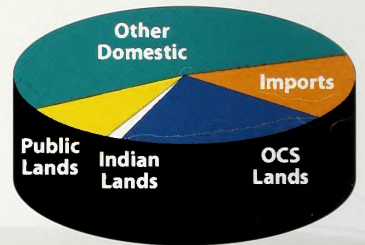
Natural gas is the cleanest burning of all fossil fuels. Americans currently use about 23 trillion cubic feet of natural gas, but produce only 19 trillion cubic feet from domestic resources. To make up the difference between domestic production and demand, we import about 4 trillion cubic feet of gas. Canada is our largest foreign natural gas supplier.

Nearly 60 percent of all American homes use natural gas. In a single year, the average American home uses about 84,000 cubic feet of natural gas for heating and cooling, heating water, cooking, and other purposes.

About 11 percent of our domestic natural gas is produced from onshore public and Indian lands. Our onshore public lands are believed to overlie 201 trillion cubic feet of gas that we can produce with current technology.

About 25 percent of our domestic natural gas is produced from the outer continental shelf. Our outer continental shelf is believed to overlie 362 trillion cubic feet of natural gas.

Contributions of Public, Indian, and OCS Lands to America's Natural Gas Supply



Coal

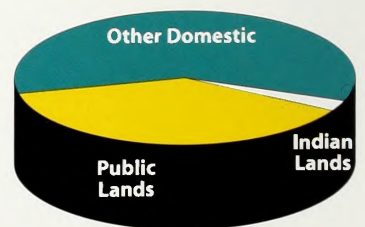
Coal is America's most abundant fossil fuel. At our current rate of use, we have a 250-year supply.

America produces and uses about 1 billion tons of coal every year. The electric power industry uses about 90 percent of the coal to produce about 51 percent of all the electricity generated in America.

About 41 percent of America's coal is produced from public and Indian lands. The remainder is produced from State and private lands.

The coal mining industry has reclaimed more than 2 million acres of mined land during the past 20 years—an area about the size of Yellowstone National Park.

Contributions of Public and Indian Lands to America's Coal Supply



Renewable Energy

Renewable energy resources (hydropower, wind, geothermal, biomass, and solar) are used to generate nearly 9 percent of all electricity in America.

Energy experts expect American renewable energy production to increase by 55 percent between 2002 and 2025.

Hydropower

Hydropower resources provide about 2.7 percent of America's total energy supply and generate nearly 7 percent of America's electricity. Hydropower generates 76 percent of all electricity produced from renewable resources.

The Department of the Interior's Bureau of Reclamation is the second largest producer of hydroelectricity in America.

The Bureau manages 58 hydroelectric power plants, which annually generate more than 42 billion kilowatt-hours of electricity, enough electricity to satisfy the needs of 9 million people, or the energy equivalent of 70 million barrels of oil.

The Bureau's 6.8 million kilowatt power plant at Grand Coulee Dam is the largest hydroelectric power plant in America.

Hydropower plants typically operate at 85 to 90 percent efficiency, more than twice the efficiency of fossil fuel plants, and do not emit significant amounts of greenhouse gases.

Contribution of the U.S. Department of the Interior to America's Hydropower Supply



Wind

Wind resources provide 0.1 percent of America's total energy supply and generate about 0.3 percent

of America's electricity. Wind generates about 3 percent of all electricity produced from renewable resources.

About 18 percent of Federal lands, principally in the western United States, have high potential for the development of wind energy.

About 10 percent of America's installed wind capacity is on Federal lands.

In California, 2,960 wind turbines on public land near Palm Springs generate 315 megawatt hours of electricity, enough electricity to supply 300,000 people.

About 46 percent of the 261 million acres managed by the Bureau of Land Management has commercial wind-energy development potential.

Several wind farms have been proposed on America's outer continental shelf. Experts believe that offshore wind energy has enormous growth potential.

Geothermal

Geothermal energy in the form of naturally occurring steam or hot water is used to generate electricity or to provide heat.

Americans consume more than 300 trillion Btus of energy generated from geothermal resources.

Geothermal resources provide 0.3 percent of America's total energy supply and generate about 0.3 percent of America's electricity. Geothermal generates nearly 4 percent of all electricity produced from renewable resources.

Almost half of American geothermal energy production occurs on Federal lands, primarily in the western United States.

The Bureau of Land Management administers 34 geothermal power plants with a total capacity of 1,275 megawatts, enough capacity to supply the electricity needs of over 1.2 million homes.

Biomass

Biomass energy is the energy released through the burning of wood, other plant material, products made from plant material (such as ethanol), and organic wastes. Nearly 75 percent of biomass energy is produced from the burning of wood and other plant materials.

Biomass resources provide nearly 3 percent of America's total energy supply and generate about 1.5 percent of America's electricity. Biomass generates 17 percent of all electricity produced from renewable resources.

About 24 percent of Federal lands, principally in the western United States, have high biomass resource potential.

The Departments of the Interior, Energy, and Agriculture have entered into an agreement to jointly promote the development of biomass energy production from public lands.

The National Fire Plan estimates that about 100 million acres of forest and rangeland managed by the Department of the Interior contain large quantities of flammable brush and small trees that provide fuel for wildfires. Experts estimate that thinning of this material could provide enough electricity to supply 400,000 households for a year.

Solar

Solar energy is energy captured from sunlight as heat or through conversion of light to electricity through photovoltaic cells.

Solar resources provide less than 0.1 percent of America's total energy supply and generate less than 0.1 percent of America's electricity. Solar generates about 0.1 percent of all electricity produced from renewable resources.

About 67 percent of Federal lands in the lower 48 States, principally in the western United States, have a high potential for concentrated solar thermal energy production. About 74 percent of Federal lands in the lower 48 States, principally in the western United States, have a high potential for photovoltaic solar energy production.

The Department of the Interior operates more than 400 solar-powered facilities and 40 solar hot-water systems.

Energy Conservation

Energy conservation is one way all Americans can help reduce our energy demand.

The Department of the Interior spent \$26 million for facility energy improvements in 2003.

The Department's energy consumption in 2003 was about 3.2 percent less than its consumption in 1985.

The Department purchased 923 million watts of electricity generated from renewable resources in 2003.

Environmental Considerations

The Department of the Interior is committed to the environmentally responsible development of domestic energy resources. In providing energy for America, the Department is guided by numerous laws to ensure protection of people and the environment and the participation of affected people in its decisionmaking process. Some of these laws include the following:

- National Environmental Policy Act
- Federal Land Policy and Management Act
- Outer Continental Shelf Lands Act
- Surface Mining Control and Reclamation Act
- Clean Water Act
- Clean Air Act
- Endangered Species Act and other wildlife protection acts
- Marine Mammal Protection Act
- Coastal Zone Management Act
- Marine Protection, Research, and Sanctuaries Act
- National Historic Preservation Act
- Native American Grave Protection and Repatriation Act
- American Indian Religious Freedom Act
- Administrative Procedure Act

The ice pad under this oil-drilling operation protects the frozen tundra in the Alaskan Arctic.

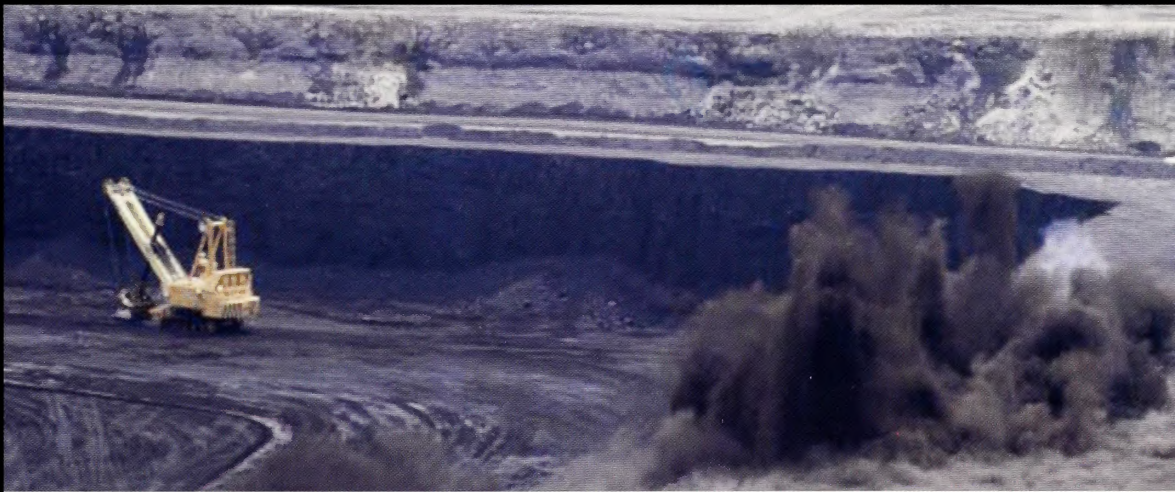


In summer, all that remains of the drilling operation at the site above is this solitary well head.



Modern Energy Production Minimizes Its Footprint and Restores Landscapes

Surface coal mining is a temporary use of the land.



Surface coal mines are reclaimed for other uses.



Want to Know More?

Would you like to learn more about how the Department of the Interior is providing energy for America's future? Visit the following websites or call the following telephone number.

Department of the Interior www.doi.gov

Bureau of Land Management www.blm.gov

Minerals Management Service www.mms.gov

Office of Surface Mining,
Reclamation and
Enforcement www.osmre.gov

Bureau of Reclamation www.usbr.gov

U.S. Geological Survey www.usgs.gov

Bureau of Indian Affairs 202-208-7163

For information from the U.S. Department of Energy,
visit the Energy Information Administration at
www.eia.doe.gov.

BLM/WO/GI-04/004+3100

BLM-NSTC-2004

