

Helping to Meet California's Energy Needs

California is, by far, the most populous state in the U.S. (37 million people), but it still ranks second in total energy consumption behind Texas (24 million people). That's because individual Californians consume less energy per capita than any other State in the country (U.S. Department of Energy).

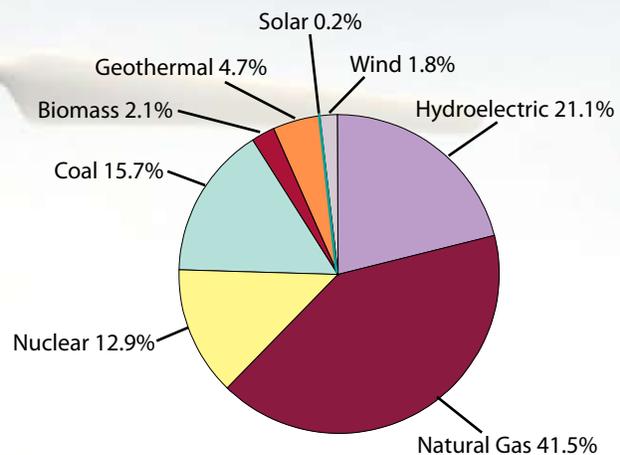
The challenge is that each year, there are about 500,000 new Californians. Even though per capita energy efficiency continues to increase, more energy is needed to drive the State's economic engines as the eighth largest economy in the world, between Italy and Spain (California Legislative Analyst's Office).

This energy comes from a variety of sources as the chart indicates (U.S. Department of Energy, EERE State Statistics). While natural gas comprises 41 percent of the generating capacity,



Geothermal field

Where does California get its energy?



geothermal and other renewable energy sources are also important and expanding.

Supplying these growing California energy demands is a never-ending challenge. The Bureau of Land Management (BLM) in California is helping to meet those needs from renewable energy (geothermal, wind, solar, biomass) and traditional energy (oil and gas) public land sources, as well as by playing an increasing role in transmission of that energy through powerlines and pipelines that cross public lands throughout the State.

Renewable Energy

Across the country, and particularly in California, renewable energy is moving to the forefront in addressing the public's interest in "green energy." National policies encourage development of renewable energy -- wind, geothermal, solar, and biomass -- on public lands. California has taken a leadership role by requiring acceleration of renewable energy production -- the "20 percent by 2010" effort under the State's Renewables Portfolio Standard. As a result, BLM is working cooperatively with California to make additional public lands available to help meet those goals.

Geothermal

Geothermal energy -- literally the "earth's heat" -- is a growing source of renewable energy from the public lands. Currently, six geothermal fields supply 31 power plants and generate 500 megawatts of electricity from 32 leases. That's enough for over 500,000 people and replaces two million barrels of oil.



A geothermal power plant at The Geysers in northern California.

Royalties total over \$12 million dollars annually, \$9 million going to the State and county where the energy originated. A recent 2007 lease sale drew \$8 million in bonus bids, with one bid the highest per acre ever paid.

The six fields include the Geysers in Lake and Sonoma counties (the largest geothermal field in the world), Coso Hot Springs in Inyo County, East Mesa and

Heber in Imperial County, Mammoth Lakes in Mono County, and Wendel-Amedee in Lassen County.

With the increased emphasis on renewable energy, new development proposals are under review and exploration interest has increased. BLM just recently completed the Truckhaven geothermal leasing Environmental Impact Statement and is working with the Navy to initiate leasing in the Superstition Mountain area, both in Imperial County. Plans are underway to begin the leasing process for two other areas -- the West Chocolate Mountains in Imperial County and West Coso in Inyo County.

Wind Energy

California is a national leader in the production of wind energy (second to Texas), producing about 20 percent of the nation's total capacity. Currently, about 3,000 wind turbines on public lands produce 258 megawatts of power and \$500,000 annually in royalties. This production comes from 24 rights-of-way on 4,060 acres, mostly in the San Geronio Pass area in Riverside County and the Tehachapi Pass area in Kern County.



California produces 43 percent of the nation's total wind capacity.

Currently, BLM is processing 89 development applications, covering 673,000 acres, mostly in the California Desert.

Demands in California are generating new interest in renewable energy leasing and development on federal lands.

"Six geothermal fields supply 31 power plants and generate 500 megawatts of electricity... enough for over 500,000 people..."

Testing is also occurring in a number of areas using anemometers to judge wind strength and sustainability. In addition, BLM is working on ongoing planning efforts for wind energy in the Eagle Lake, Hollister, Eastern San Diego and Ukiah BLM field offices.

BLM also assists in development of wind energy projects on private lands by issuing access rights-of-way for roads and power lines across public lands, such as the recently approved Pine Tree development in Kern County. Finally, efforts are also underway to “repower” existing systems to improve efficiency, reduce impacts to birds, and better integrate wind energy resources into the State’s transmission system.

Solar

California is generously endowed with sunshine – a naturally occurring energy source that holds tremendous promise for helping meet the State’s growing energy needs. California is also a pioneer in this area, as demonstrated by its 2006 approval of the California Solar Initiative to provide incentives for solar development.



Solar panels used to collect solar energy.

On BLM public lands, solar development is just beginning in the State, but the future looks bright. Interest is high – currently there are 79 applications

pending for 536,000 acres of public lands for solar projects, nearly all in the California Desert.

One of these proposals, near Ivanpah in San Bernardino County, is undergoing joint environmental review by the BLM and the California Energy Commission involving three solar thermal power plants and associated infrastructure on public lands.

Biomass

Biomass is “biologically–derived renewable material” used to produce energy. California is also a leader in this emerging source of fuel. The State has set ambitious goals in its 2006 “Bioenergy Action Plan” seeking to significantly expand current production (about 2% of the State’s needs) by 2020.



Bioenergy power plants will receive biomass fuel generated from BLM juniper reduction projects.

BLM lands hold tremendous potential for this use. Currently, public lands produce 30,000 tons of biomass. However, BLM is cooperating with Modoc County and other partners on a biomass project involving 6.6 million acres of juniper stands in northeastern California and northwestern Nevada, with the potential to produce 4 million tons of biomass..

In addition, reducing the spread of juniper and thinning juniper stands will reduce wildland fire fuels, benefit rangeland health, and restore sage grouse and mule deer habitat, while potentially producing over 4 million tons of juniper biomass. Environmental studies are underway and juniper biomass produced could immediately be used at an existing biomass/cogeneration power plant on private lands at Honey Lake, California.

“Currently there are 79 applications pending for 536,000 acres of public lands for solar projects...”

Traditional Energy

Oil and Gas

California is the nation's fourth largest producer of oil and gas from federal lands, with 4,300 wells producing 17.5 million barrels of oil and 4.1 billion cubic feet of natural gas from 389 leases. These leases earned \$95.6 million in royalties last year, half of which are shared with the State of California. Most of the oil and gas leasing and development on public lands occurs in central California, on lands managed by the BLM's Bakersfield Field Office.

"California is the nation's fourth largest producer of oil and gas from federal lands.."



Producing oil well in Central California.

The Energy Policy Act of 2005 transferred management of Naval Petroleum Reserve No. 2 (Buena Vista Field) in Kern County from the Department of Energy to BLM. In 2006, BLM offered 2,500 acres of unleased federal lands for competitive sale.

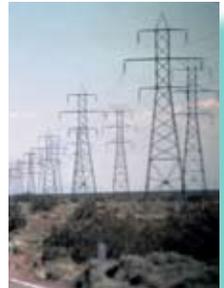
This sale was one of the most successful oil and gas lease auctions ever held by BLM on the basis of bonus bids offered per acre, reaching \$625 per acre.



The Midway-Sunset oil field near Bakersfield, California.

Transmission Systems

With 37 million people spread among almost 500 incorporated cities and thousands of rural residences scattered throughout California's 58 counties, getting power from generating facilities to the public is an incredible challenge in a State covering more than 100 million acres. BLM, responsible for 15.2 million acres, works very closely with the California Energy Commission and the California Public Utilities Commission to meet that challenge.



Getting power from generating facilities to the public is a challenge.

BLM already oversees some 8,040 rights-of-way across these public lands, but the growth of renewable energy and increased electricity production from all sources requires more efficient use of existing energy corridors and designation of new corridors to ease congestion.

A top priority is coordinating with the Department of Energy and other Federal agencies on a programmatic Environmental Impact Statement, called the "Westwide Energy Corridor Project," to identify and designate energy corridors on federal lands in the 11 Western states, including California. The State of California is a cooperating agency in this important project through the California Energy Commission. A draft was published in November 2007 and public comments are being analyzed.

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