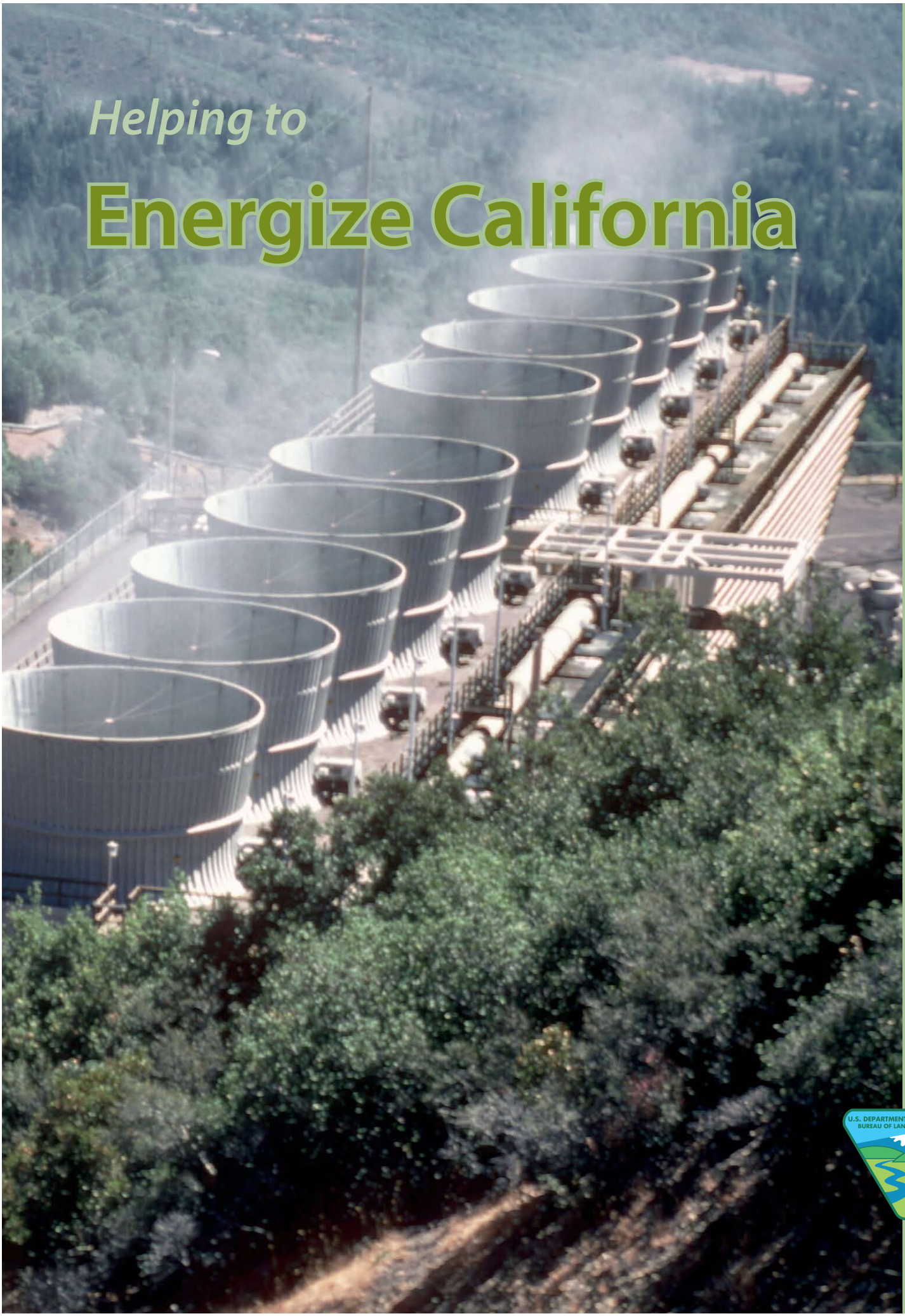


Helping to

Energize California

BLM

California 2009

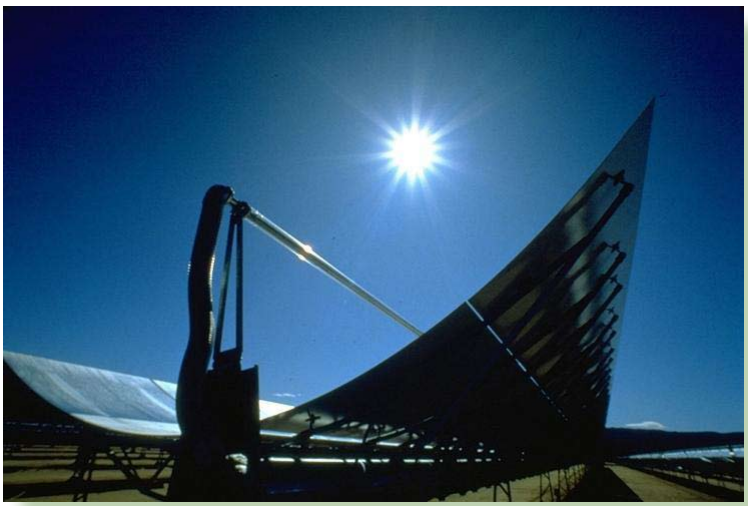
U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Energizing California

"With the population continuing to grow, more energy will be needed to drive the State's economic engines..."

California is considered to be at the "epicenter" of this nation's energy challenges and opportunities. With a population of 38 million, it consumes more energy than any other State except Texas. Conversely, although its population has doubled over the last three decades, its total electricity consumption has remained level, due to conservation policies.

With the population continuing to grow, more energy will be needed to drive the State's economic engines, the eighth largest economy in the world. The public lands administered by the U.S. Bureau of Land Management (BLM) will continue to play a critical role in that effort.



The sun's heat is concentrated to generate solar energy

Currently, California's energy mix comes from a variety of sources. According the Department of Energy, oil and gas continues to be the largest source (39%), followed by hydroelectric (20%), renewable energy (about 20%), nuclear (19%), and coal (1%). More capacity is needed to make America and California more energy self-sufficient and more renewable sources are needed to address climate change.

Both President Barack Obama and Governor Arnold Schwarzenegger have set high targets for renewable production. The President calls for doubling renewable energy production in three years. The Governor has set 33% as the target for California's utilities to generate electricity from renewable sources by 2020.

Interior Secretary Ken Salazar recently signed an order making renewable energy production a top priority for the Department and BLM. The order also established an energy and climate change task force to identify specific zones on public lands for large-scale production of renewable energy.

California is poised and ready to be a national leader in this effort, through its ongoing Renewable Energy Transmission Initiative (RETI) and Competitive Renewable Energy Zones (CREZs) described later. Together, the BLM and the State of California have a strong partnership and are working cooperatively together to expedite transition to a renewable energy future, while still protecting sensitive landscapes.

Renewable Energy

Wind Energy

California possesses significant wind resources, stretching from the Oregon border to Mexico, with the largest concentration of high wind power areas in the Southern California. California is a national leader in the production of wind energy (second to Texas), producing about 20 percent of the nation's total capacity.

California produces 43 percent of the nation's wind capacity

BLM public lands play a major role in this effort. Currently, about 3,000 wind turbines on public lands produce 234 megawatts of power and $600,000 annually in royalties. This production comes from 24 rights-of-way on 4,060 acres, mostly in the San Gorgonio Pass area in Riverside County and the Tehachapi Pass area in Kern County. These figures do not include development on private lands.

Industry interest is high, mostly due to the national focus on renewable energy, as well as the State of California's Renewable Portfolio Standards described earlier. Applications for wind energy on public lands, mostly for testing at this stage, are increasing, with most of that activity in the California Desert. This testing process, which may take 2 to 3 years, involves using anemometers to judge wind strength and sustainability, and evaluate various potential development options.

Wind turbines

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 to support such projects, 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, with recent examples in the Palm Springs area.

Wind Energy Applications on Public Lands in California (as of March 2009)	
Total Applications (mostly for testing)	92
Total Acres	976,931
Applications in Desert Acres in Desert	63 442,666
Applications in Central CA Acres in Central CA	4 17,308
Applications in Northern CA Acres in Northern CA	25 516,957

"Applications for wind energy on public lands, mostly for testing at this stage, are increasing ..."

Renewable Energy

"Currently there are 71 applications pending for solar projects on 638,000 acres of public lands."

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. The Southern California Desert region holds some of the highest concentrations of solar energy in the U.S.

California has also been and continues to be a pioneer in this area, as demonstrated by its 2006 approval of the California Solar Initiative to provide incentives for small-scale solar development, building on a decade of public utilities offering similar incentives.

Remote Dish-Stirling system technology is used to capture solar energy

On BLM public lands, solar development for large-scale electricity projects is just beginning in the State, but the future looks bright. Interest is high – as the chart shows, nearly all applications received so far are in the California Desert.

These companies propose to use a variety of solar technologies. Most plan to use the photovoltaic technology, with some proposing to use the concentrating solar power technologies (CSP). These can be generally described as follows:

- Photovoltaic technology uses solar cells packaged together in large, mirror-like arrays to convert sunlight directly into electricity. They are made of semiconductors, such as crystalline silicon or various thin-film materials.
- CSP technologies use reflective materials to concentrate the sun's heat energy, which ultimately drives a generator to produce electricity. These technologies include dish/engine systems, parabolic troughs, and central power towers.

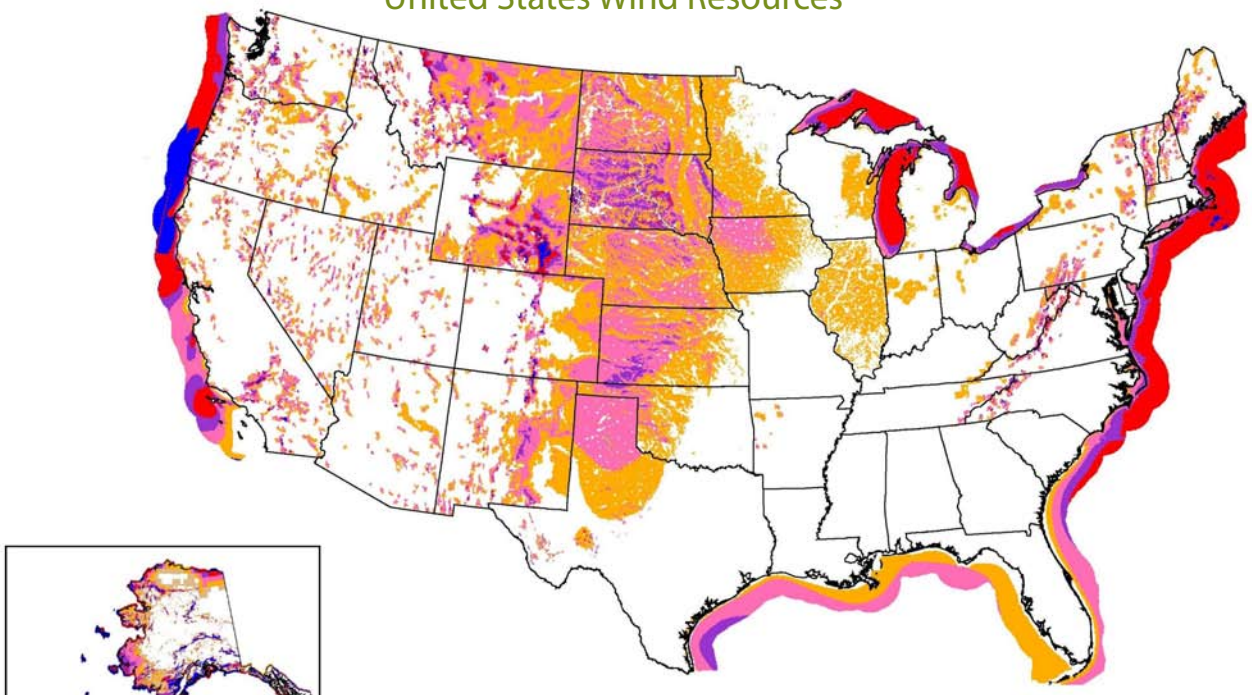
Two of these proposals (one near Ivanpah and another near El Centro) have begun the required joint environmental review by the BLM and the California Energy Commission. Public participation is a key part of this process.

Solar Energy Applications on Public Lands in California
(as of March 2009)

Total Applications	71
Total Acres	638,452
Applications in Desert Acres in Desert	69 635,812
Applications in other parts of CA Acres in other parts of CA	2 2,640

Where are the Resources?

United States Wind Resources

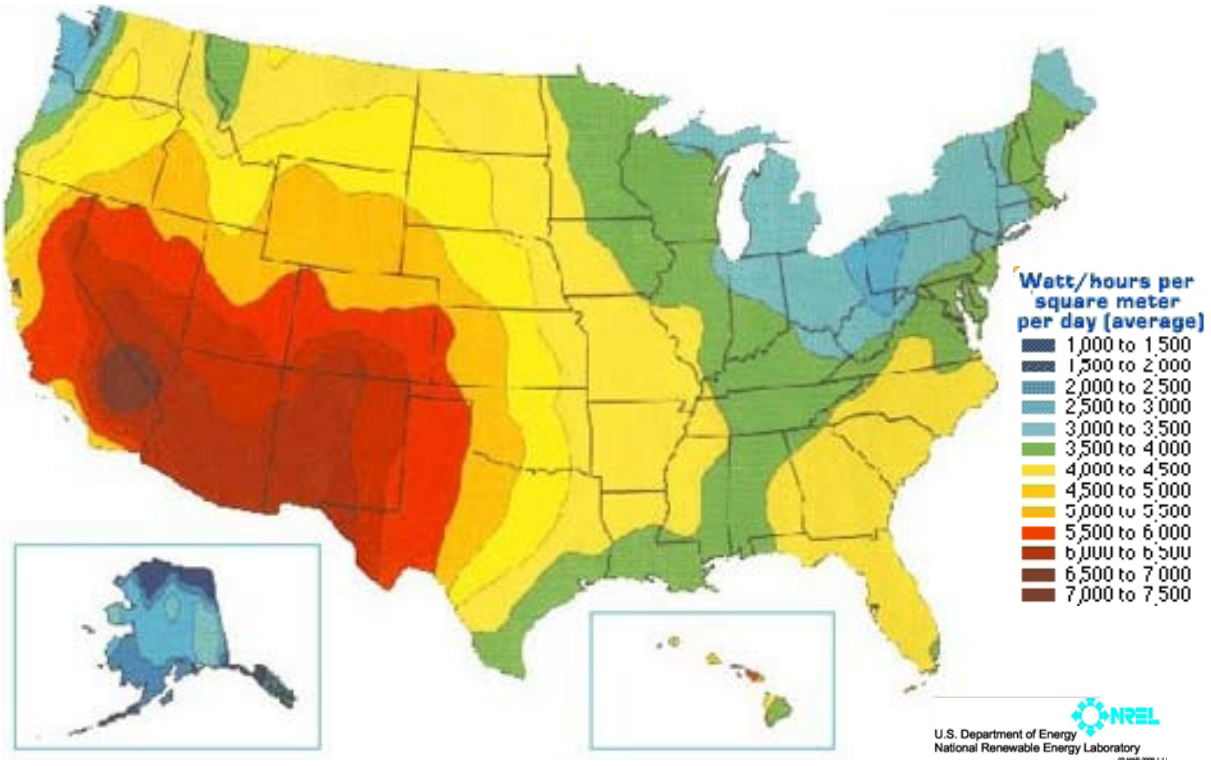


Wind Power Classification

Wind Power Class	Resource Potential	Wind Power Density at 50 m W/m^2	Wind Speed [a] at 50 m m/s	Wind Speed [a] at 50 m mph
1	Poor	0 - 200	0.0 - 5.6	0.0 - 12.5
2	Marginal	200 - 300	5.6 - 6.4	12.5 - 14.3
3	Fair	300 - 400	6.4 - 7.0	14.3 - 15.7
4	Good	400 - 500	7.0 - 7.5	15.7 - 16.8
5	Excellent	500 - 600	7.5 - 8.0	16.8 - 17.9
6	Outstanding	600 - 800	8.0 - 8.8	17.9 - 19.7
7	Superb	> 800	> 8.8	> 19.7

[a] Wind speeds are based on a Weibull k value of 2.0

U.S. Department of Energy
National Renewable Energy Laboratory



U.S. Department of Energy
National Renewable Energy Laboratory

"Demands in California are generating new interest in renewable energy."

Renewable Energy

Geothermal

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

In regard to geothermal energy – California is "hot." This energy source, which literally means the "earth's heat," is found throughout California on public lands. Currently, six geothermal fields on public lands 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 needed every year.

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

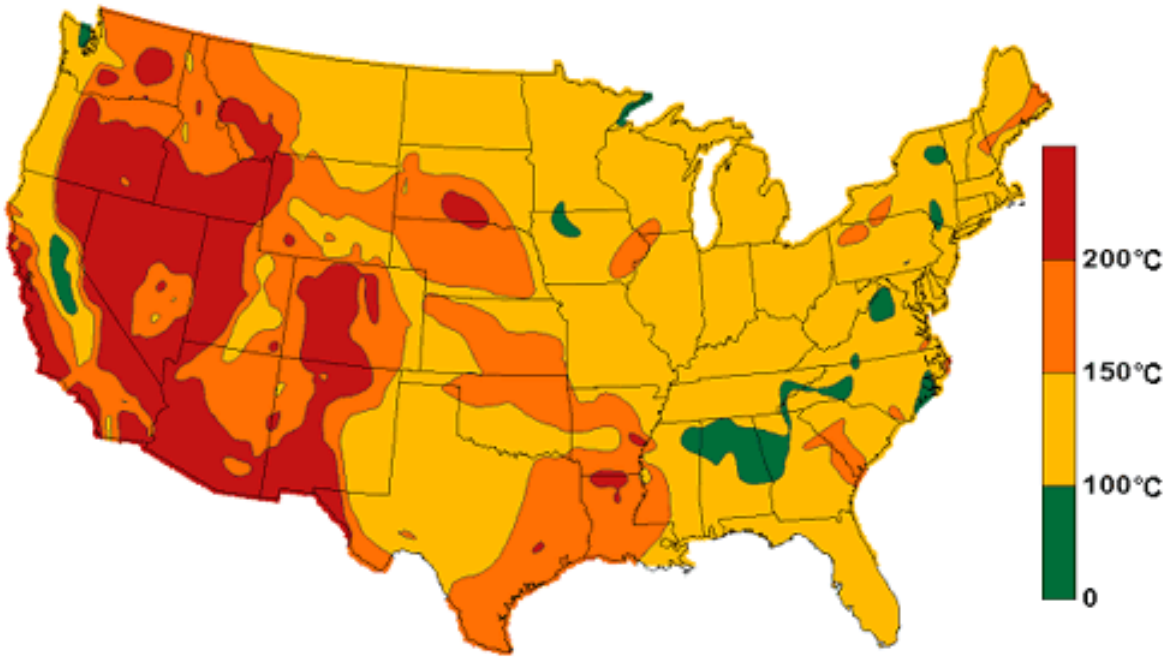
The six fields on public lands include The Geysers in Lake and Sonoma counties (the largest geothermal field in the world), Coso Hot Springs in Inyo County, East Mesa and Heber in Imperial County, Mammoth Lakes in Mono County, and Wendel-Amedee in Lassen County.

New development proposals are under review and exploration interest has increased.

A geothermal power plant in northern California

BLM has 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 consider leasing in two other public land areas – one in Imperial County and the other in Inyo County.



Transmission and Renewable Energy Zones

The tremendous promise of this new renewable energy presents two major challenges:

- Where to site these power facilities while protecting sensitive lands and resources
- How to connect this new power to the transmission system, or "power grid" to bring it into Californians' homes and businesses.

BLM public lands will play a key role in addressing both challenges.

Already, the State of California, Western Governors, and Congress are working on these issues. The State of California, through the California Energy Commission, is furthest along, with its Renewable Energy Transmission Initiative (RETI).

Getting power from generating facilities to the public is a challenge

RETI, made up of agencies, stakeholders, interest groups, and companies, is identifying key linkages throughout the state to tie the existing and potential new transmission lines to the most promising energy sites with the least environmental impacts.

The goal is to identify Competitive Renewable Energy Zones or CREZs. These CREZs also are aimed at avoiding the most sensitive lands, focusing to the extent possible on already disturbed or less sensitive lands close to existing or planned transmission systems. This effort is in its draft stage and the public is invited to participate. More information is available at www.energy.ca.gov/reti/

At the Federal level, Interior Secretary Salazar's Order No. 3285, signed March 11, 2009, also calls for establishing renewable energy zones and transmission infrastructure to facilitate renewable energy development. As described earlier, these efforts will be closely coordinated to ensure all levels of government work together on this important effort.

All this means the current transmission system in California, which already involves some 8,040 rights-of-way across public lands, is poised to expand and move forward into a brighter renewable energy future for California.

Balancing this new and promising energy development with protection and conservation is part of BLM's mission to ensure public lands serve public needs.

BLM assists in development of wind energy project by issuing access rights-of-ways for roads and powerlines

"Balancing this new and promising energy development with protection and conservation is part of BLM's mission to ensure public lands serve public needs."

Renewable Energy

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.

"Currently public lands produce 30,000 tons of biomass."

BLM lands hold tremendous potential for this use. Currently, public lands produce 30,000 tons of biomass.

This effort was given a big boost in the recent "Stimulus" legislation, with a number of BLM-California projects selected to receive funding. In addition, 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.

As a side benefit, thinning juniper stands will reduce wildland fire fuels, benefit rangeland health, and restore sage grouse and mule deer habitat. Environmental studies are underway.

Bioenergy power plants will receive biomass fuel generated from public lands

Conventional Energy

Oil and Gas

Currently, oil and gas continues to be the mainstay of California's energy production. The state is the nation's third largest onshore producer of oil and gas from federal lands, with 4,500 wells producing 17.5 million barrels of oil and 4.1 billion cubic feet of natural gas from 302 leases. These leases earned $95.8 million in royalties last year, half going to the State. Most development on public lands occurs in central California.

The Midway-Sunset oil field near Bakersfield, California, one of the most productive in the world

In 2005, Naval Petroleum Reserve No. 2 (Buena Vista Field) in Kern County was transferred from the Department of Energy to BLM. In 2006, BLM offered 2,500 acres for competitive sale. This sale was one of the most successful oil and gas auctions ever held by BLM, with bonus bids reaching $625 per acre. Other areas where oil and gas development is appropriate are offered about four times a year.

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