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As seen in



News

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Calif. planning green power revolution

Strategy to meet its energy needs with clean technology could sway nation

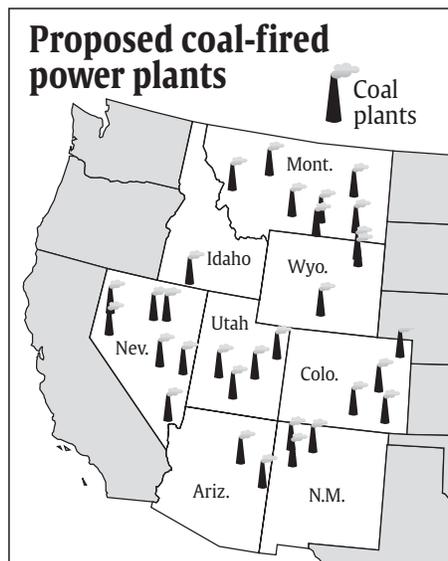
By John Ritter
USA TODAY

SAN FRANCISCO — Only four years removed from an energy crisis that cost a governor his job and plunged the state into debt, California is embarking on an environmentally friendly but risky strategy to quench its future thirst for power.

The state is encouraging energy development, including production from out of state and a 1,300-mile transmission line to deliver power that Californians will need to avoid rolling blackouts like those they experienced in 2000 and 2001. However, it is demanding that the power be produced in a way that minimizes harm to the environment.

Because of its size, market muscle and emerging crackdown on greenhouse gases, the most populous state and world's fifth-biggest economy could trigger sweeping changes in electricity production and transmission across the fast-growing West.

California led the nation during the 1960s and 1970s in forcing automakers to cut tailpipe pollution, and the state once more has forged ahead of the



By Adrienne Lewis, USA TODAY

federal government with aggressive goals to help staunch global warming.

The consequences could hasten the USA's shift to cleaner energy, including renewable sources such as solar and wind, and encourage other states to regulate greenhouse gases, the chief cause of global warming, energy experts say.

"California's policy sends a strong market signal that consumers are worried about the impacts of global warming and want cleaner energy," says John Nielsen, an economist with Western Resource Advocates in Boulder, Colo., a group that promotes sustainable energy. "Hopefully, it sends a strong message to national policymakers."

Taking global warming seriously

Among recent developments:

▶ Last month, Gov. Arnold Schwarzenegger declared the global-warming debate "over" — a step the Bush administration hasn't taken, although the president said Monday that climate change is a long-term issue — and announced a commitment to curbing greenhouse-gas emissions from homes, vehicles, industry and power plants.

▶ State regulators are writing rules that, in effect, would prohibit new out-of-state power plants from sending electricity to California if they spew large amounts of carbon dioxide, a potent greenhouse gas. The state currently imports about a fifth of its power.

▶ A "One Million Solar Roofs" bill moving through the Legislature with Schwarzenegger's support would require builders to offer solar heating and cooling systems to new homebuyers. The goal is to jump-start the solar industry and bring costs down.

▶ Schwarzenegger and the governors of Wyoming, Nevada and Utah have agreed to pursue a \$1.7 billion transmission project called the Frontier Line that would bring power generated in the interior West to California. It would carry electricity from solar and wind resources as well as from fossil fuels.

California is taking a calculated risk with its environmentally friendly policy. Its future electricity demand is expected to climb by nearly 1,000 megawatts a year, the equivalent of one large power plant. It will need reliable new sources, both from inside and outside the state.

AS SEEN IN USA TODAY'S NEWS SECTION JULY 6, 2005

Selling clean-burning coal

The state is gambling that it can cajole energy developers eyeing California markets to build non-polluting plants by insisting that new electricity imports be renewable or from traditional sources that employ clean technologies.

California's policy targets plants that would burn the West's abundant coal to produce electricity. The region has at least a 250-year supply of recoverable coal, according to federal estimates, concentrated largely in Wyoming, Montana, New Mexico and Colorado.

Conventional coal-fired plants belch tons of carbon dioxide into the atmosphere. Technologies that pulverize coal, turn it into a slurry and convert it to gas before burning it have the potential to capture and dispose of carbon dioxide. Those technologies raise the price of coal-generated power by about 10%.

However, none of the 31 new coal-fired plants planned in the West, including at least 10 that intend to sell power to California, would employ those new technologies, says Nielsen of Western Resource Advocates, who tracks new power-plant proposals.

But an "unwritten rule" of new power-plant development is "the buyers of power determine what gets built," says Doug Larson, who runs the energy arm of the Western Governors' Association. Plants aren't built without long-term contracts to sell power.

Environmentalists worry about more than California. They predict the biggest resurgence in new coal plant construction in the region's history to satisfy Phoenix, Las Vegas, Denver, Salt Lake City and other booming metro markets.

"The citizens of the interior West will bear a significant health burden from heavy reliance on these high-polluting coal plants," says Vickie Patton, a lawyer for Environmental Defense in Boulder.

California policy is designed to promote more alternatives to fossil fuels. Not counting hydroelectric power, the state already produces nearly four times more renewable energy than the No. 2 state, Georgia, according to federal data.

Questions, skepticism

A significant selling point for the Frontier Line, which is little more than a proposal at this point, is that it would tap abundant wind resources in Wyoming and Montana and solar energy in Utah and Nevada.

"This project is the single largest enabler of renewable energy technologies ever proposed in the U.S.," says Joseph Desmond,



United Solar/handout

Sun power: A Habitat for Humanity home being refurbished in an affordable-housing area of Sacramento taps the power of the sun with a solar energy roof. California Gov. Arnold Schwarzenegger is pushing a "One Million Solar Roofs" bill.

chairman of the California Energy Commission and a Schwarzenegger adviser.

But Dan Kammen, an energy professor at the University of California-Berkeley, estimates that the line would boost solar and wind no more than 1% to 2%. "The real big winner here is coal," he says.

And there's no assurance the clean energy — renewable or fossil fuel — California wants will be available as electricity demand soars in the next 20 years.

Technologies that convert coal to gas — gasification — are untried on a large commercial scale. Two small gasification plants operate in Florida and Indiana with federal subsidies. The means to separate carbon dioxide in the coal-burning process, capture it and inject it into the Earth to keep it out of the atmosphere is still experimental.

Power-plant developers are reluctant to abandon conventional coal generation and the fuel's long and dependable history.

Gasification "is certainly a viable technology for the future," says Art Larson, spokesman for Sempra Energy, developer of a 1,450-megawatt conventional coal plant in northern Nevada. "But there are issues with reliability and cost."

Michael Peevey, president of the California Public Utilities Commission, says the state, from the governor on down, has drawn a line.

"This is kind of a Kabuki dance, a great strategic play, and we're just going to have to see what the outcome is," he says. "If coal can meet the test, fine. But we don't want to further exacerbate global warming."

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APPLICATIONS: *environment, science, cause & effect, analysis*

DISCUSSION: What environmentally friendly but risky strategy is California embarking on to meet its future power needs? In what other areas has California led the way in changing energy and environmental policies? What recent developments indicate consumers are concerned about the effects of global warming?

ACTIVITY: California's "One Million Solar Roofs" bill is a plan to require builders to offer solar heating and cooling systems to homebuyers. Solar energy works by converting sunlight into electricity using machines called solar photovoltaic cells. (If you've ever used a solar-powered calculator, you've used photovoltaic technology!) Through research, explain how wind and water energy are generated. Then, create a diagram that illustrates how solar, wind and water energy each work.

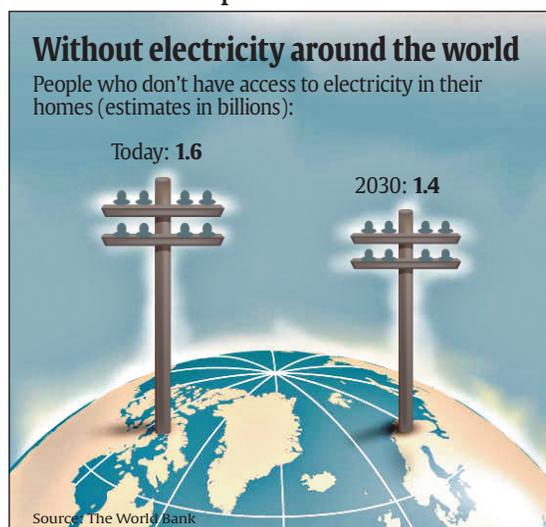


VOCABULARY

1. rolling blackouts
2. greenhouse gases
3. sustainable energy
4. Frontier Line
5. cajole
6. slurry
7. gasification

Focus on: Energy

USA TODAY Snapshots®



By Shannon Reilly and Robert W. Ahrens, USA TODAY

APPLICATIONS: *science, technology, environment, global issues, analysis*

What role does electricity play in your daily life? Identify 10 activities that you could not do without electricity. Are any of them vital to your well-being? Now, consider the staggering statistic in the Snapshot: 1.6 billion people around the world don't have access to electricity in their homes. Why is this fact disturbing?

The World Bank states: "The use of modern energy (electricity, natural gas, petroleum products and coal) is strongly correlated with economic growth and with human development – in health,

education, and life expectancy. Countries that do not use modern forms of energy efficiently cannot realize their potential for creating wealth nor lift their populations out of poverty."* What time-consuming, domestic tasks does electricity eliminate or make easier? Do people who are burdened with these daily chores have the time to get an education or earn money? How else is electricity essential to learning and thus, employability? What other basic services (e.g., water and sewer) can empower impoverished nations?

*Source: worldbank.org