



Third Millennium Global Energy Solutions, LLC

新千纪全球能源优化公司

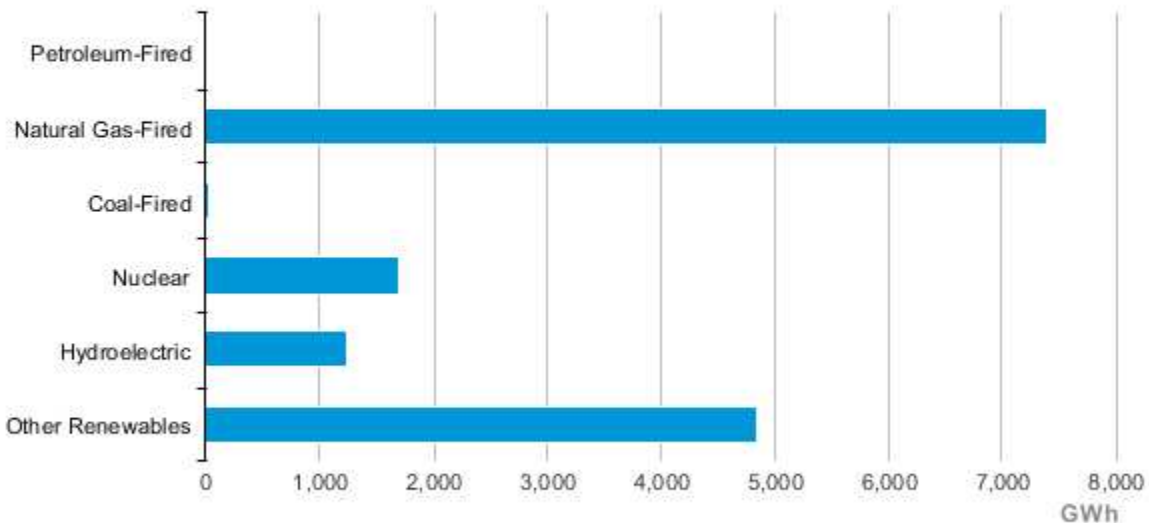
Energy Solutions for the Third Millennium

California - Analysis



With the largest economy in the nation, California runs on energy. It is the most populous state and its total energy demand is second only to Texas. California state policy promotes energy efficiency.

California Net Electricity Generation by Source, May. 2015



 Source: Energy Information Administration, Electric Power Monthly

Air Pollution



09/10/2015

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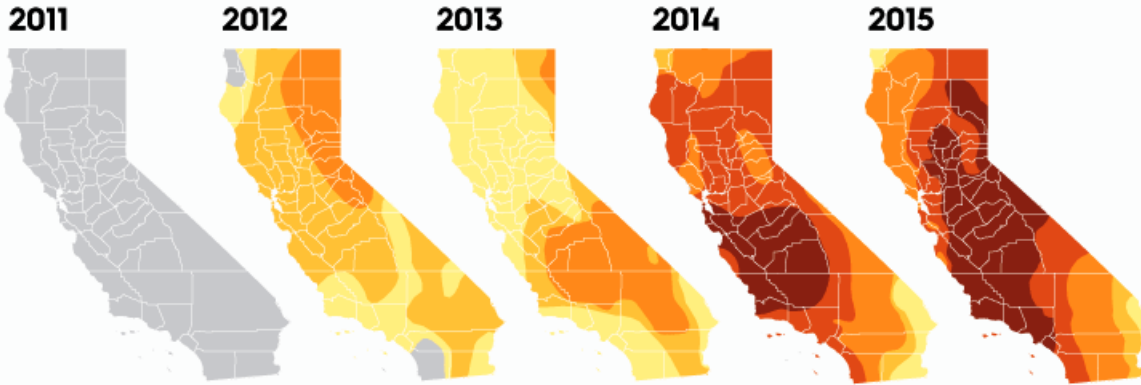
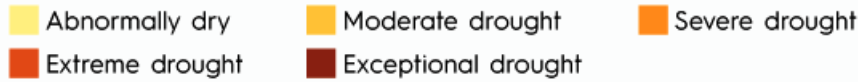
<http://www.3mges.com>

Water Resources

California is in a record breaking drought condition with minimal resources.

A Record-Breaking Drought

41% of the state is facing “exceptional drought” (the most severe kind).



The New York Times

U.S. WORLD

California Imposes First Mandatory Water Restrictions to Deal With Drought

By ADAM L. GOULDNEY APRIL 1, 2015

Houseboats float in California's drought-torned Doreville Lake. Credit: Rich Pedroncelli/Associated Press

PHILLIPS, Calif. — Gov. Jerry Brown on Wednesday ordered mandatory water use reductions for the first time in California's history, saying the state's four-year drought had reached near-crisis proportions after a winter of record-low snowfalls.

Mr. Brown, in an executive order, directed the State Water Resources Control Board to impose a 25 percent reduction on the state's 400 local water supply agencies, which serve 80 percent of California residents, over the coming year. The agencies will be responsible for coming up with restrictions to cut back on water use and for monitoring compliance. State officials said the order would impose varying degrees of cutbacks on water use across the board — affecting homeowners, farms and other businesses, as well as the maintenance of cemeteries and golf courses.

While the specifics of how this will be accomplished are being left to the water agencies, it is certain that Californians across the state will have to cut back on watering gardens and lawns — which soak up a vast amount of the water this state uses every day — as well as washing cars and even taking showers.

Short of water, California tries to drink the ocean

By Michael Levenson BOSTON June 26, 2015, 12:00 PM EDT

A seawater intake plant for the Carlsbad Desalination plant, which will eventually produce 50 million gallons a day of freshwater.

California's drought, now in its fourth year, has persuaded the state to try what was once unimaginable. To increase its water supply, the state is turning to seawater.

Israeli Prime Minister David Ben Gurion, in a speech some 60 years ago, implored his nation's scientists to find a cheap way to turn the Mediterranean into potable water. Today that small, rain-deprived country gets more than one-quarter of its H₂O supply from treated salt water.

California, now in its fourth year of a devastating drought, may follow a similar trajectory. In April, Gov. Jerry Brown made a Ben Gurion-like plea, ordering state agencies to accelerate the use of cutting-edge technologies to bolster the water supply. That call turned into a back-biting for efforts like the Carlsbad Desalination Project, just north of San Diego, the largest desalination facility in the Western Hemisphere. The plant has been in the works for nearly two decades, with construction costs of \$1 billion so far. After years of permit purgatory and lawsuits, it will finally go live this fall. By 2020 it is expected to provide upwards of 50 million gallons of fresh water daily, meeting about 10% of San Diego County's water demand.

The state's impact and cost will be closely watched. The drought has wreaked havoc on the state's enormous agriculture industry. It's expected to cost the state's economy \$2.7 billion this year alone, and it's contributing to rising food prices nationwide. And the Golden State has 800 miles of coastline—abutting a seemingly endless supply of potentially potable water.

Los Angeles Daily News

Gov. Jerry Brown imposes first ever mandatory water restrictions for California

FILE - In this Feb. 14, 2014, file photo, morning traffic makes its way toward downtown Los Angeles along the Hollywood Freeway past an electronic sign warning of severe drought. Action to pump 50 billion of water opening the drought-stricken California opened the Legislature on Thursday March 26, 2015, and was sent to Gov. Jerry Brown, who is expected to sign the legislation. (AP Photo/Ronald Hopwood)

By Steve Schaefer, San Gabriel Valley Tribune
Posted: 04/01/15, 11:26 AM PDT | Updated on: 04/01/2015

Amid the dry peaks of the Eastern Sierra Nevada, Gov. Jerry Brown on Wednesday watched the engineers of the State Department of Water Resources test the snowpack and then declared a mandatory 25 percent curtailment in California's urban water use.

If the mandatory conservation targets are not met, California cities, counties and water companies face up to \$100,000 in fines for each day they are out of compliance.

"We're in a new era," Brown said. "The idea of your nice little green grass getting water every day, that's going to be a thing of the past."

He asked for tiered rates, appliance rebates and incentives for removing lawns.

"We're in a historic drought and that demands unprecedented action," Brown said. "We have to put together and save water in every way we can."

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Summary

California water resources are limited as a result of multi-year drought condition.

Solution

California's requires large quantities of electrical power. **PPG** offers a cost effective solution to replace existing fossil fueled and nuclear generating plants. This would provide clean efficient low cost electric power generation and reduce air pollution.

Water generation provided by PPG plants could supplement current water resources and reduce water shortages. Dedicated PPG plants could be modified for predominately water production.

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