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Every Drop Counts

Rory Cox - Moderator

Energy Efficiency Agricultural/Industrial Programs and Portfolio Forecasting

CA Public Utilities Commission

Energy Division

Today's Panelists

- Moderator: Rory Cox, California Public Utilities Commission
- Lori Swanson, San Diego County Water Authority
- Scott Miller, City of Westminster
- Misty Mersich, Sonoma County Regional Climate Protection Authority
- Chris Bradt, BKI

How Bad is it?

- Snowpack: 18% of normal
- Some reservoirs as low as 30% of capacity.
- 46 Local Emergency Proclamations, 20 from counties
- Wildfires have burned 15,283 acres this year (average is 8,983 acres)
- Up to 1 million acres of agricultural land will be affected and food prices will increase

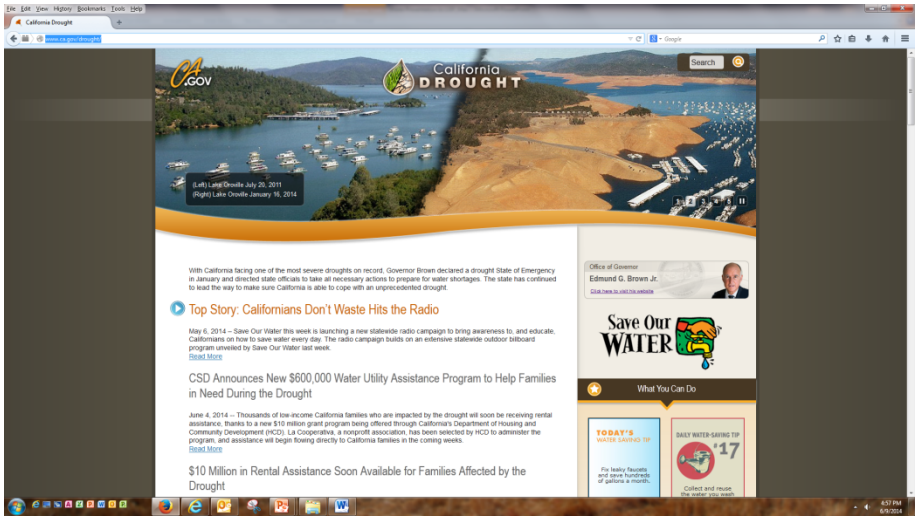
Oroville Reservoir, January 2014

State Resources

Emergency Drought Legislation: Provides $687.4 million to support drought relief for…

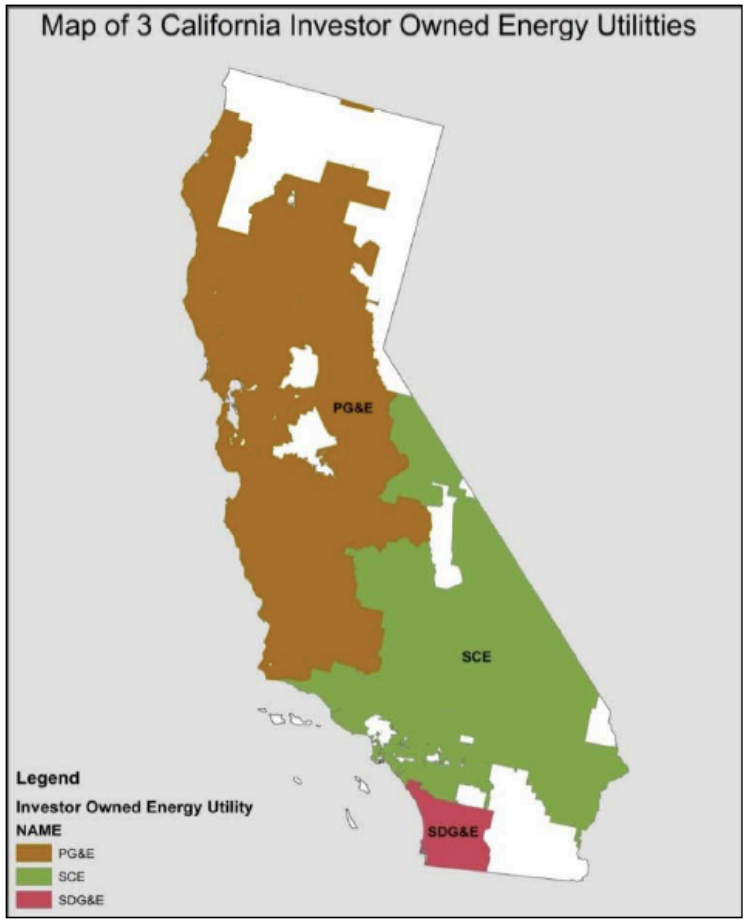
- Housing and food for impacted workers
- Bond funds to help local communities capture and manage water
- Bond funds to help secure emergency drinking water supplies in drought-impacted communities.

For information on these and other resources: www.ca.gov/drought/

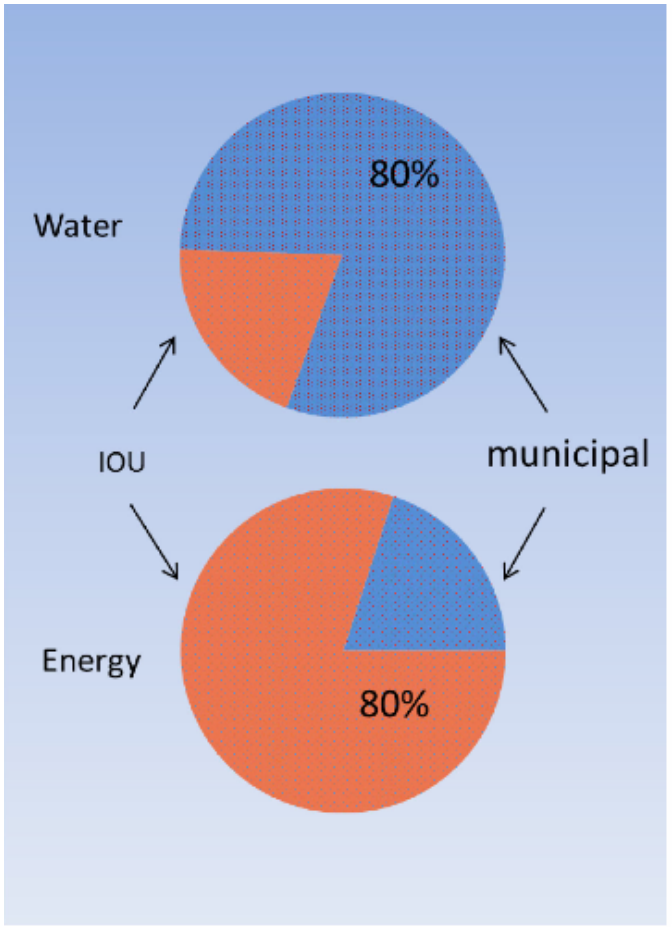


CPUC's Role in Water and Energy

Wide jurisdiction in Energy…



… but less so in Water



What is the Water Energy Nexus?

- Water and Energy (both electricity & natural gas) are tightly linked
- There are two distinctly different types of water impacts on the energy sector:
  - ***Energy Use by the Water Sector*** - the amount, timing, and location of energy needed to support water sector operations.
  - ***Energy Use by Water Customers*** - the amount of energy used by water customers during the consumption of water, whether for pumping, heating, or other purposes.
- The energy IOUs are currently piloting projects to reduce embedded energy in water.
- Water usage is a critical input for certain types of electricity production

What is Embedded Energy in Water?

The amount of energy (in kWh or Therms) needed to supply, convey, and treat water (in million gallons (MG) or acre/ft.) delivered to a user, and to collect and transport used water for treatment prior to safe discharge.

Current CPUC Directives

'13-'14 Energy Efficiency Guidance Decision

1. Increase targeting of agricultural and industrial customers
2. Develop programs with water agencies for leak-loss detection and remediation and pressure management services for water entities
3. Develop cost-effectiveness calculator to evaluate the costs and benefits of joint water energy savings projects: staff launched this effort in March 2013 and will have a staff proposal in October 2014

What About the Drought and W-E Nexus?

- The drought is causing more energy intensive sources of water to be used (groundwater) especially for Agriculture
- From CPUC perspective, conservation is cheapest and easiest source of “new” water
- As we look for new sources of water, we recognize that some are incrementally more energy intensive:
  - Desalination
  - New groundwater pumping
- Other sources we have identified as being incrementally less energy intensive, such as water re-use and recycling
- Our work on the embedded energy calculator will provide additional metrics to evaluate the energy implications of new sources of water.

Big Picture Questions:

- What is the potential for saving energy through the water sector in CA?
- When water efficiency programs save energy, how do we account for these savings?
  - What is the value to energy and water ratepayers?
  - What is the value to California from a societal perspective?

Critical Water Energy Nexus Stats

Critical facts about the Water Energy Nexus:

1. Water related electricity use consumes about 19% of the electricity used in the state (CEC, 2005).
2. Supply and conveyance of water makes up 6.6% of statewide electricity use (15.8 TWh annually) (CPUC Study 1). The state water project uses about 4% of total statewide electricity.
3. Certain water supply types are much more energy intensive than others
4. Electricity used on these conveyance systems is primarily supplied from the wholesale energy markets, not IOUs
5. Electrical IOUs usually supply energy used for other parts of the water sector: groundwater pumping, treatment, distribution

Utility Programs

PG&E®

- Clotheswasher rebates
- Installing Showerheads and Aerators in Santa Clara County
- Commercial, Industrial and Ag Processes

Southern California Gas Company

- Rebates on water heaters, dishwashers, low-flow showerheads and clothes washers.
- Offering kits with aerators and low flow showerheads.
- Incentives for boilers, steam traps, pool covers, cooking and cleaning equipment

SOUTHERN CALIFORNIA EDISON
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- Water, wastewater and agriculture pump program
- Education campaign (during “Water Smart Month)”

Thank You

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More information on the Water Energy Nexus:
http://www.cpuc.ca.gov/PUC/energy/Energy+Efficiency/Water-Energy+Nexus+Programs.htm