

DOCKETED

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Project Title:	Electricity and Natural Gas Demand Forecast
TN #:	205869
Document Title:	Energy, Data, Intelligence by Aram Shumavon, Kevala Analytics
Description:	08-28-15 Joint Agency Workshop on California's Drought Response
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Organization:	California Energy Commission
Submitter Role:	Commission Staff
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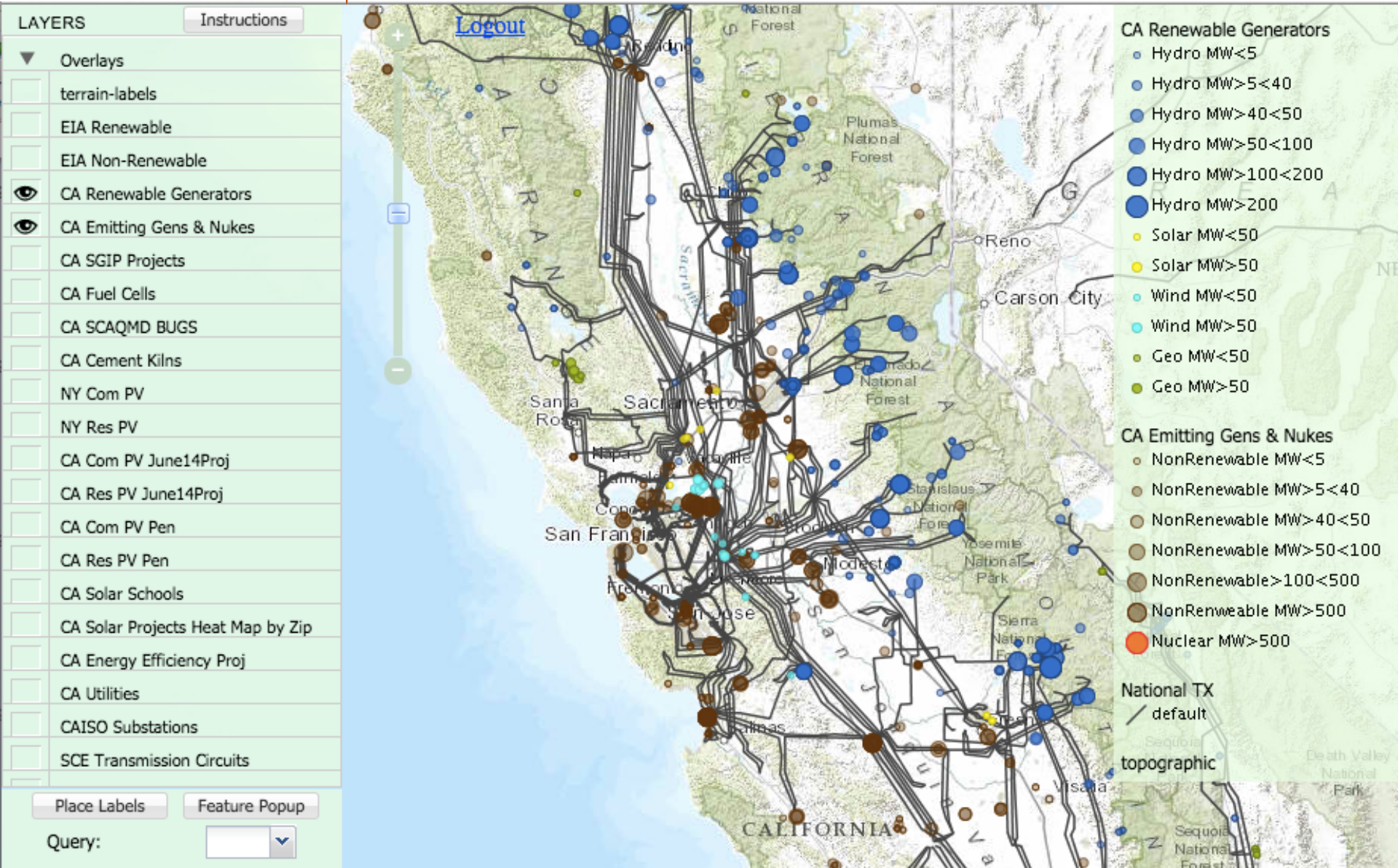


Energy + Data + Intelligence

Joint Agency Workshop on California's Drought Response

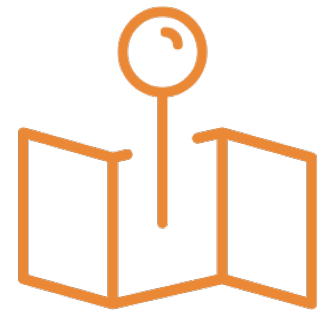
California Energy Commission, August 28, 2015

KevalaAnalytics.com



Water-Energy Nexus

Leveraging available data to quantify WEN



Kevala Water-Energy Nexus projects

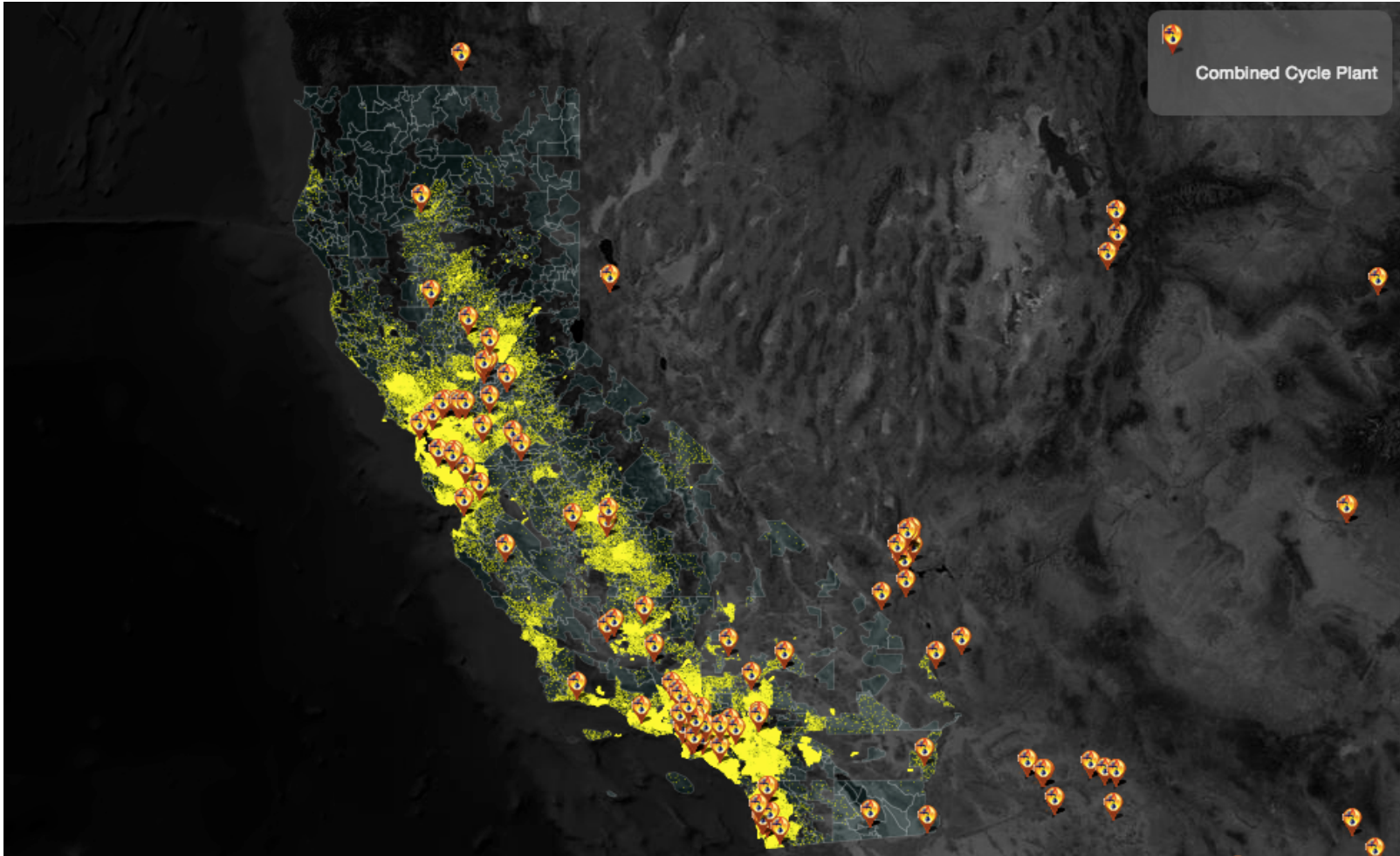
Electricity market cost impacts of bulk power system use of cooling water

- Combining EIA and CEC data to quantify electricity market cost impact and localize water impacts on exported power

Web-based geospatial enabling of CPUC WEN cost calculator

- Addition of a Graphical User Interface (GUI)
- Automation of many user inputs based on geospatial data
- Increased performance/speed of model results

Electricity market cost impacts of bulk power system use of cooling water



Electricity market impacts tool (cont.)

Done:

Leverage EIA and CEC unit and plant specific data

Incorporate average annual acre feet as reported to CEC

Assumed peak price per acre foot of \$2000 for initial pass

To be done:

Expand water use estimates beyond CEC's reported 100 facilities

Add user input for variable price per acre foot

Model system cost impacts when water resources are not the marginal unit

Electricity market impacts tool (cont.)

Live Demo

Web-based geospatial enabling of CPUC WEN cost calculator

Developed by Navigant on behalf of the CPUC

Housed in CPUC proceeding R.13-12-011 (Sandoval)

For details see:

<http://www.cpuc.ca.gov/PUC/energy/Energy+Efficiency/Water-Energy+Nexus+Programs.htm>

Web-based geospatial enabling of CPUC WEN cost calculator

We are replacing Excel interface...

1 Water-Energy System Inputs

Select your IOU:
Electric:
Gas:
Water Utility:
[Click here to enter water commodity costs.](#)

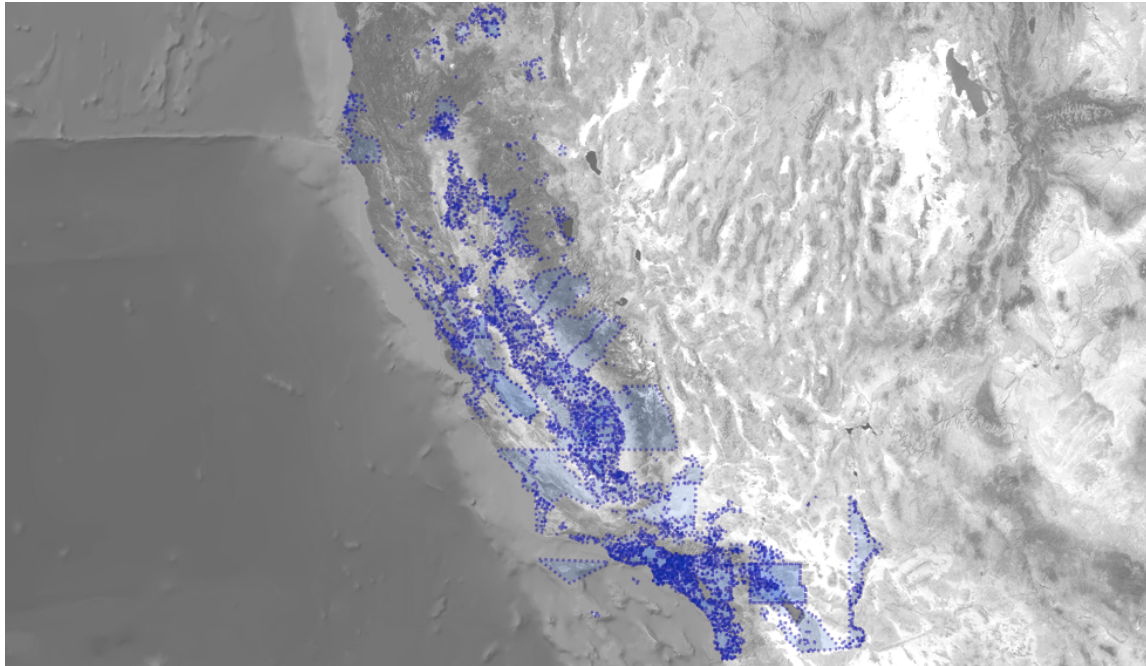
2 Measure-Specific Inputs

Note: all metrics are on a per unit basis (Example: per low-flow shower head)

Measure ID#	Measure Name	Annual Water Savings (gallons)	Measure Life (years)	Installation Year	Savings Profile	Hydrologic Region	Sector	Water Use	Energy Utility				Water + Wastewater Utility			
									Rebate (\$)	Installation Cost (\$)	Incremental Equipment Cost (\$)	Program Administration Cost (\$)	Rebate (\$)	Installation Cost (\$)	Incremental Equipment Cost (\$)	Program Administration Cost (\$)
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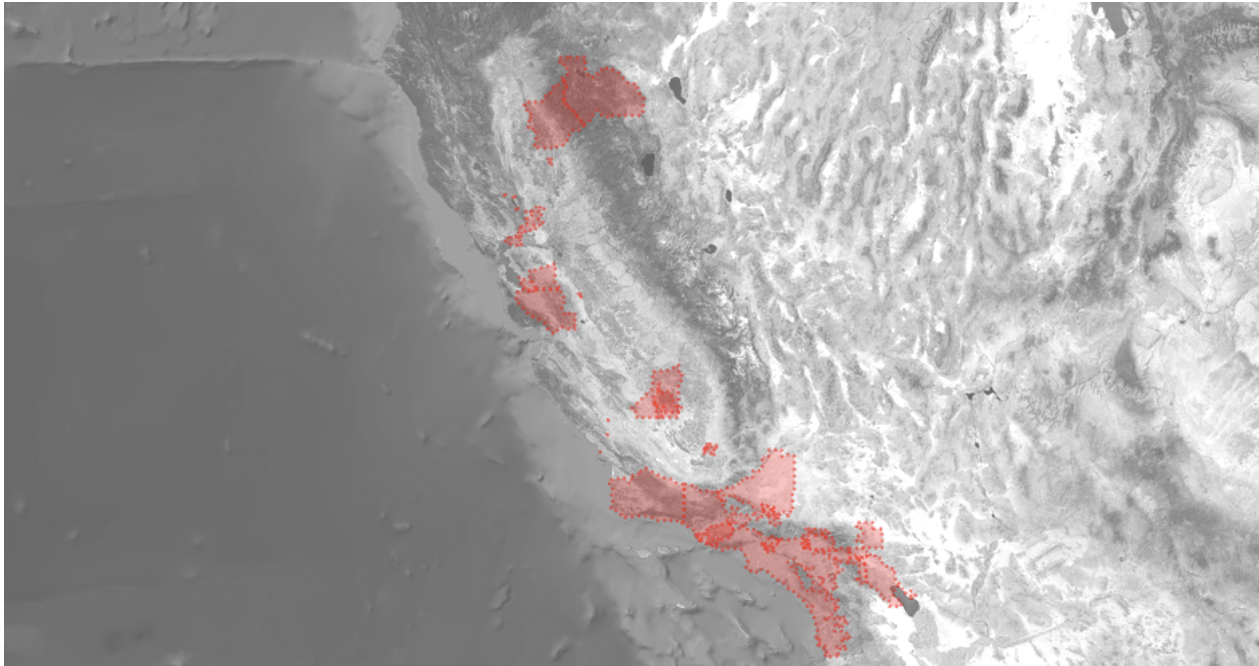
CPUC WEN (cont.)

...with geospatial data.
(e.g. water utility information)



CPUC WEN (cont.)

... (water energy intensity information)



CPUC WEN (cont.)

...(and hydrologic data)



kevala

open data for the energy economy

To halt the decline of an
ecosystem it is necessary to
think like an ecosystem.

– Douglas P. Wheeler