



California Energy Commission

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TN 72052

OCT. 09 2013

GEOHERMAL GRANT AND LOAN (GRDA) PROGRAM

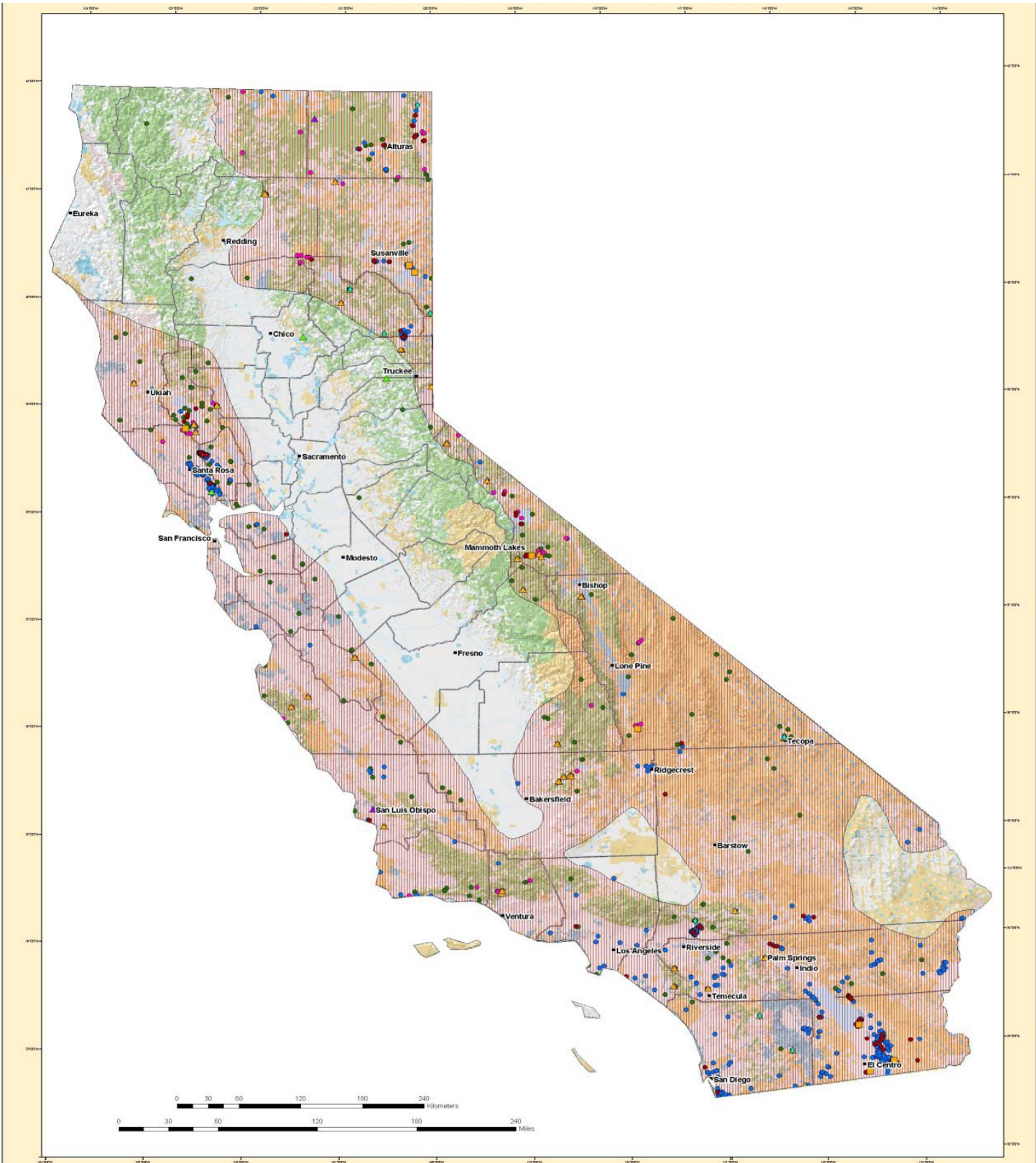
**Rulemaking Hearing for
Consideration and Possible
Adoption**

**of Amendments to Regulations
Implementing the Geothermal
Grant and Loan Program**

October 9, 2013

California Energy Commission

www.energy.ca.gov



Legend

- Cities/Towns
- County Boundaries
- Rivers/Streams
- Lakes/Reservoirs

Geothermal Categories

- Electrical Generation
- ▲ Greenhouse
- ▲ Aquaculture
- ◆ Space Heating
- ◆ Industrial
- ▲ Spas/Resorts/Recreation Sites
- Regions of Known or Potential Geothermal Resources
- Wells > 50 Degree C
- Springs > 50 Degrees C
- Wells ≥ 20 and ≤ 50 Degrees C
- Springs ≥ 20 and ≤ 50 Degrees C

Ownership

- Private Lands
- Bureau of Land Management and Other Federal Lands
- State Lands
- Native American Lands
- U.S. Forest Service Lands

Map prepared by Patrick Laney and Julie Erizze at the Idaho National Engineering and Environmental Laboratory for The U.S. Department of Energy Office of Energy Efficiency and Renewable Energy Geothermal Technologies Program

California Geothermal Resources Publication No. - NREL/MPRC-33-01044 Rev. 1 November 2003

Map Projection Information: Projection: Lambert Conformal Conic False Easting: 200000.00 False Northing: 500000.00 Central Meridian: -120.50 Standard Parallel 1: 37.07 Standard Parallel 2: 38.43 Latitude Of Origin: 36.58 Datum: North American 1983

Geothermal Data Provided by:



1. Geothermal Center State Geothermal Database, [Compact Disk], February 2002
2. National Geographical Data Center, National Oceanic and Atmospheric Administration, 1983, Technical Map of The Geothermal Resources of California. Prepared for the Geothermal and Hydropower Technologies Division United States Department of Energy, Map 1-750-005
3. State of California Division of Oil, Gas and Geothermal Resources, 2002, Geothermal Map of California 2002, Map 1:1,500,000

CALIFORNIA

KNOWN GEOTHERMAL RESOURCE AREAS (KGRA)



Legend

-  Known Geothermal Resource Areas
-  Counties

The Geysers



Mammoth Lakes

Coso



Salton
Sea



Geothermal Energy Uses

Uses of geothermal energy at different temperatures

Water Temperature

700°F



Flash & Dry Steam Geothermal Power Plants* & Minerals Recovery



Hydrogen Production*

400°F
204°C

350°F
177°C



Binary Geothermal Power Plants*



Refrigeration & Icemaking



Ethanol, Biofuels Production

300°F
149°C

250°F
121°C



Fabric Dyeing



Pulp & Paper Processing



Lumber Drying



Cement & Aggregate Drying



Building Heating & Cooling & Water Heating



Beet Sugar Evaporation & Pulp Drying

200°F
95°C

150°F
66°C



Fruit & Vegetable Drying



Soft Drink Carbonation



Green-housing & Soil Sterilization



Aqua-culture**



Concrete Block Curing



Food Processing



Blanching, Cooking & Pasteurization

100°F
38°C

70°F

60°F

50°F

40°F/4°C



Geo-thermal Heat Pumps



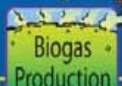
Snow Melting & De-icing



Bathing



Soil Warming



Biogas Production

Grant and Loan Program Background



- **In operation since 1981**
- during first decade provided assistance to local jurisdictions for geothermal direct use, planning and mitigation projects.
- In 1992 the program was expanded to include private entities and a wide variety of geothermal projects.
- Known as the GRDA Program from its ***Geothermal Resources Development Account*** funding source. Funds come from revenues paid to the state from geothermal leases on federal lands in California.
- **The Energy Commission has awarded close to \$68 million to co-fund approximately 180 projects, including:**
 - ✓ Geysers recharge
 - ✓ Resource assessments
 - ✓ Drilling
 - ✓ Development planning and mitigation
- While there have been changes to the program's statutory provisions, the **regulations have not been updated since their adoption in 1985.**

The proposed amendments would accomplish four objectives:

- 1) Simplify the application and review process;
- 2) Provide guidance on statutory requirements;
- 3) Update provisions to reflect statutory changes and changes in Energy Commission practice;
- 4) Provide stylistic and grammatical changes to improve clarity.





Main Changes:

- Reduce application process to a single application.
- Eliminate the Technical Advisory Committee but allow other governmental entities to assist in application review and scoring.
- Delete contingent awards.
- Delete requirement that the Energy Commission make awards in three project categories.
- Delete responsibilities assigned to the Energy Commission R&D Committee that no longer exists.
- Describe how private entity applicants may demonstrate compliance with the statutory local agency approval requirement.
- Delete the existing loan repayment term cap of six years on loans, which is in conflict with current statutory provisions.
- Delete the existing limit on loan interest rates, which is potentially in conflict with current statutory provisions.



Public Outreach and Comments

- Pre-Rulemaking Workshop - January 23, 2013.
Main comments received and addressed:
 - Leave interest rate cap at eight percent
 - Leave Technical Advisory Committee as a scoring entity
 - Local Agency approval process
- Notices for Workshop and Rulemaking sent out via Energy Commission's Geothermal Listserv.
- Articles in the California Geothermal Energy Collaborative (CGEC) and Geothermal Energy Association (GEA) e-Newsletters.
- NOPA mailed to California members of the Geothermal Resources Council (GRC).
- No public comments received during NOPA 45-day comment period.

Next Steps, if Amendments Adopted:

- Staff files a Notice of Exemption under CEQA with the Office of Planning and Research (OPR)
- Staff submits the Final Rulemaking Package to Office of Administrative Law (OAL)
- If approved by OAL, regulations effective by April 2014
- Staff releases next project solicitation immediately after amended regulations in effect.

