

Bioenergy Benefits & Environmental Considerations



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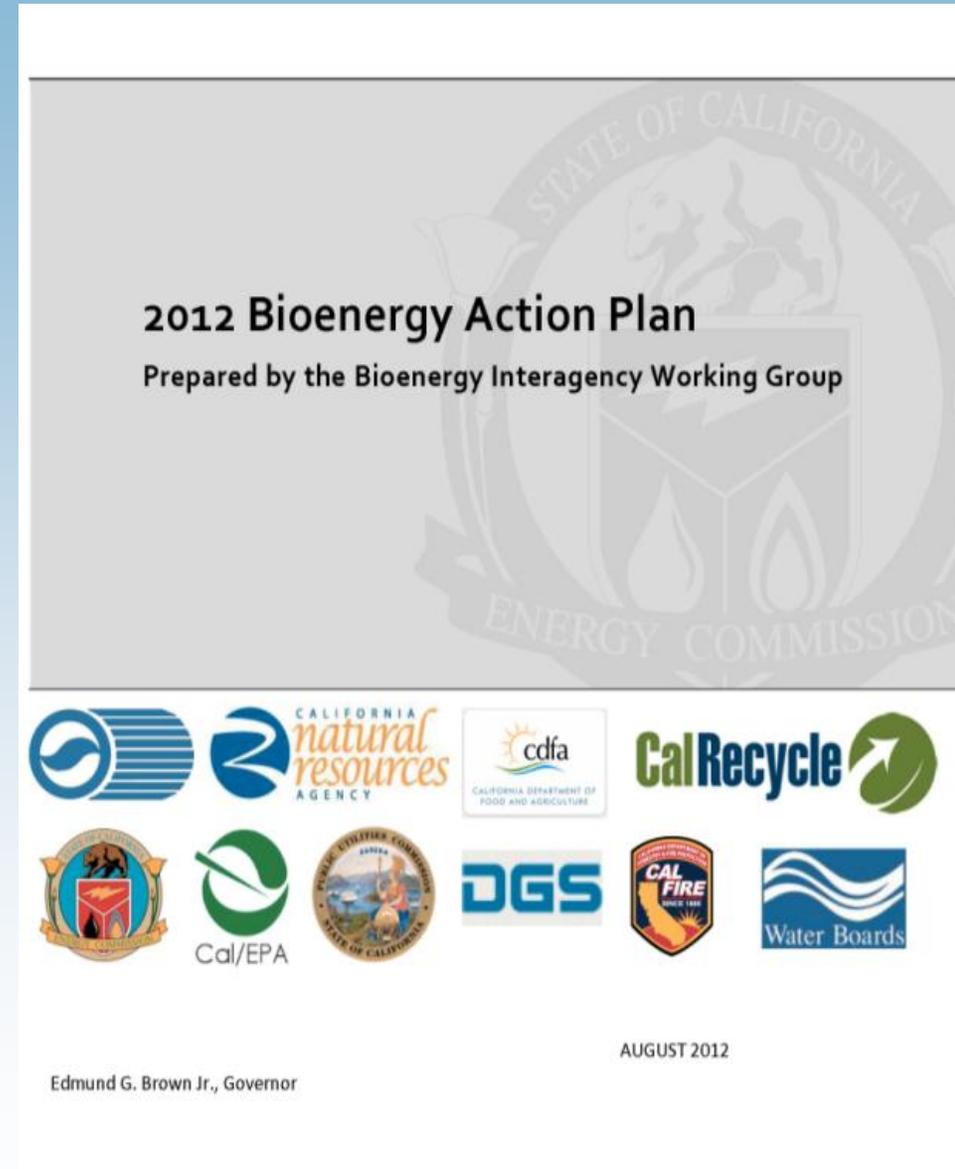
California Bioenergy Action Plan

- Plan goals:
 - Increase environmentally and economically sustainable energy production from organic waste
 - Encourage development of diverse bioenergy technologies that increase local electricity generation
 - Create jobs and stimulate economic development
 - Reduce fire danger, improve air and water quality, and reduce waste.

California Bioenergy Action Plan

SNC is to assist in **developing woody biomass bioenergy demonstration projects by:**

- Updating research on quantifying the benefits of bioenergy and identify areas of additional research
- Coordinating the Biomass Working Group
- Refining criteria for 'community-scale' projects, and identify candidate projects
- Developing screening criteria to help local agencies determine the applicability of biomass technologies to their communities
- Seeking funding for research on biomass technology and development of demonstration projects



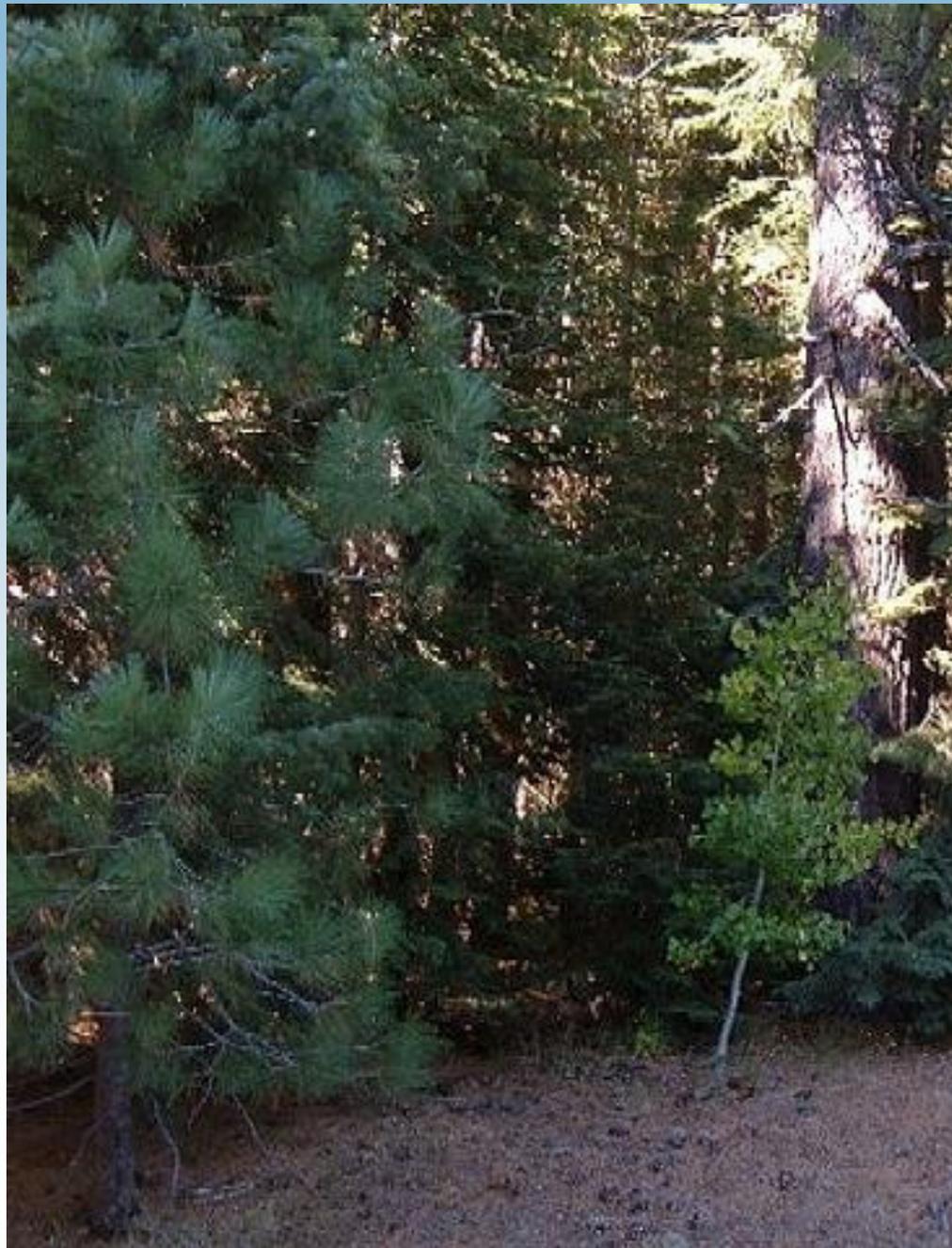
Senate Bill 1122

- Bill requires CPUC to direct electrical corporations to procure at least 250 megawatts of capacity from *new* bioenergy projects
- 50 MW of the 250 MW are required to come from byproducts of sustainable forest management. An emphasis is placed on areas that have been defined as Fire Threat Treatment Zones by CALFIRE
- Only facilities that are 3 MW or less can be counted toward the 250 MW requirement.
- Facilities will also count toward meeting the electrical corporation's renewables portfolio standard.

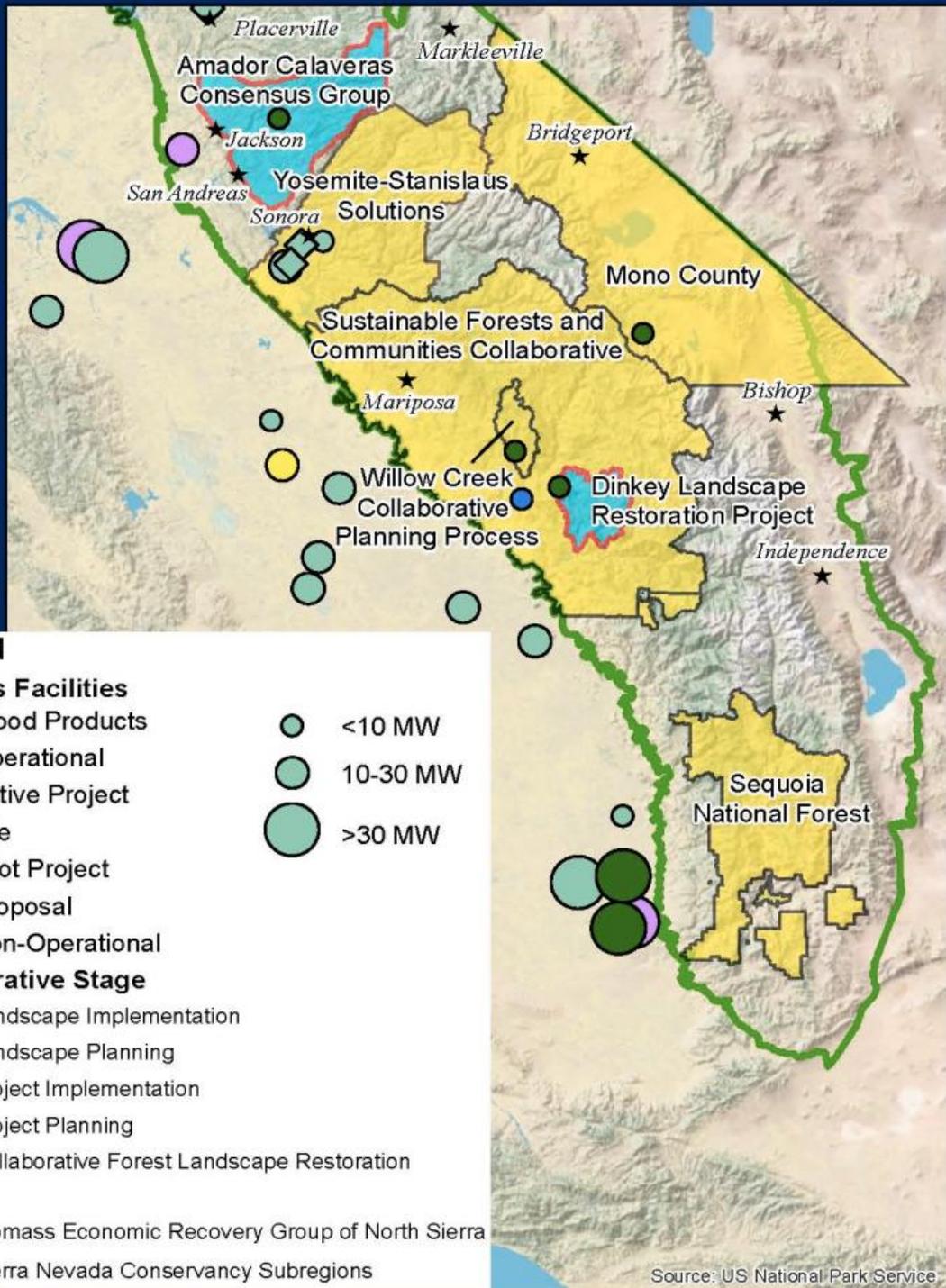
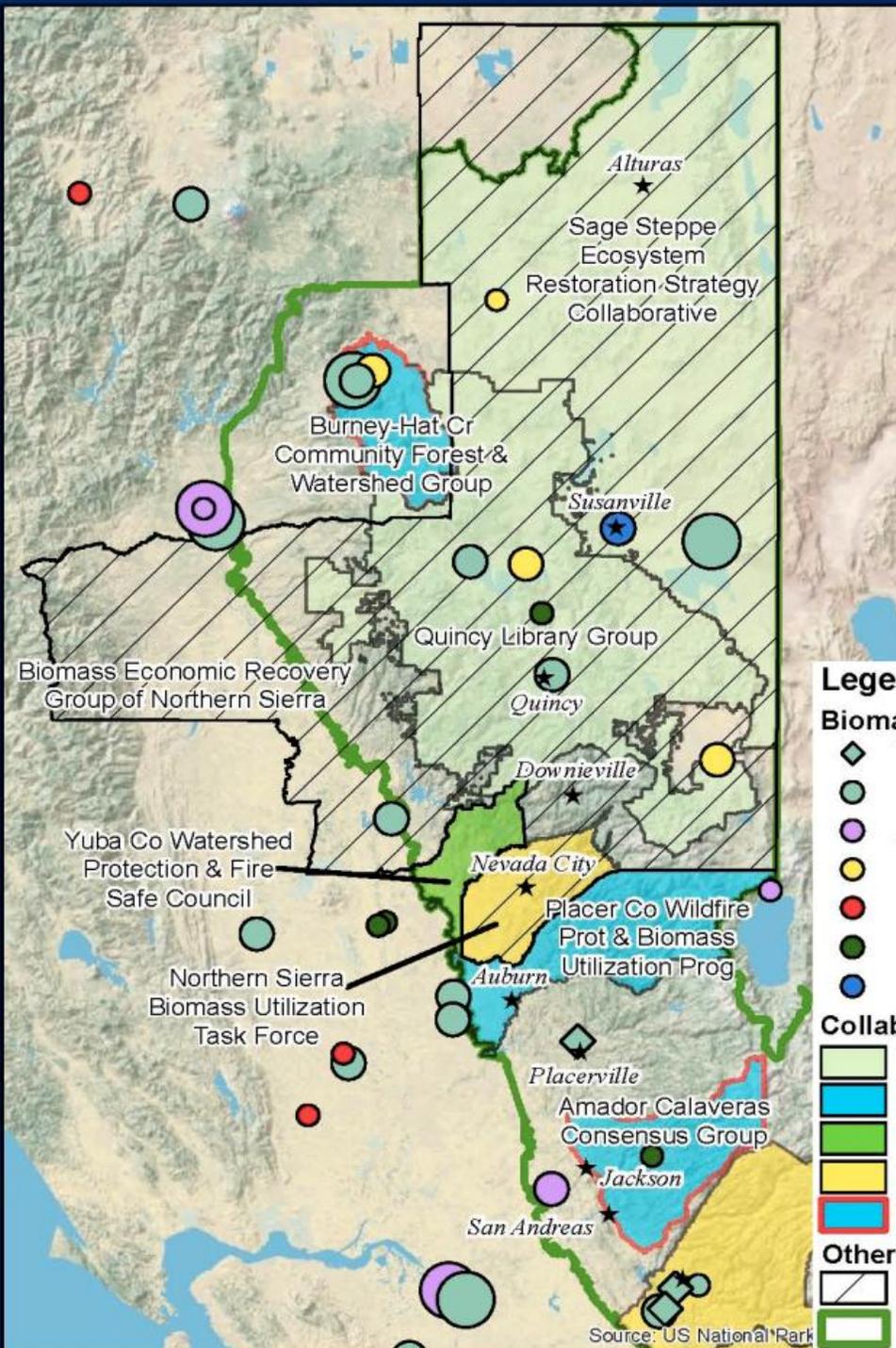
The Importance of SB 1122

- Supports multiple policy and strategic plans
 - Community based distributed energy
 - Creation of markets for woody biomass from hazardous fuels reduction
 - 50 Mw of distributed energy will utilize approximately 400,000 (BDT) of forest biomass
 - Support treatment of approximately 30,750 acres per year
 - Locating facilities where power generation is needed and in Fire Threat Treatment Areas

Untreated and Treated



Sierra Nevada Local Forest Collaboratives and Biomass Energy Facilities



Legend

Biomass Facilities

- ◆ Wood Products
- Operational
- Active Project
- Idle
- Pilot Project
- Proposal
- Non-Operational

Collaborative Stage

- Landscape Implementation
- Landscape Planning
- Project Implementation
- Project Planning
- Collaborative Forest Landscape Restoration

Other

- ▨ Biomass Economic Recovery Group of North Sierra
- Sierra Nevada Conservancy Subregions

Capacity Legend:

- <10 MW
- 10-30 MW
- >30 MW

Source: US National Park

Source: US National Park Service



Advantages of Biomass Power Generation

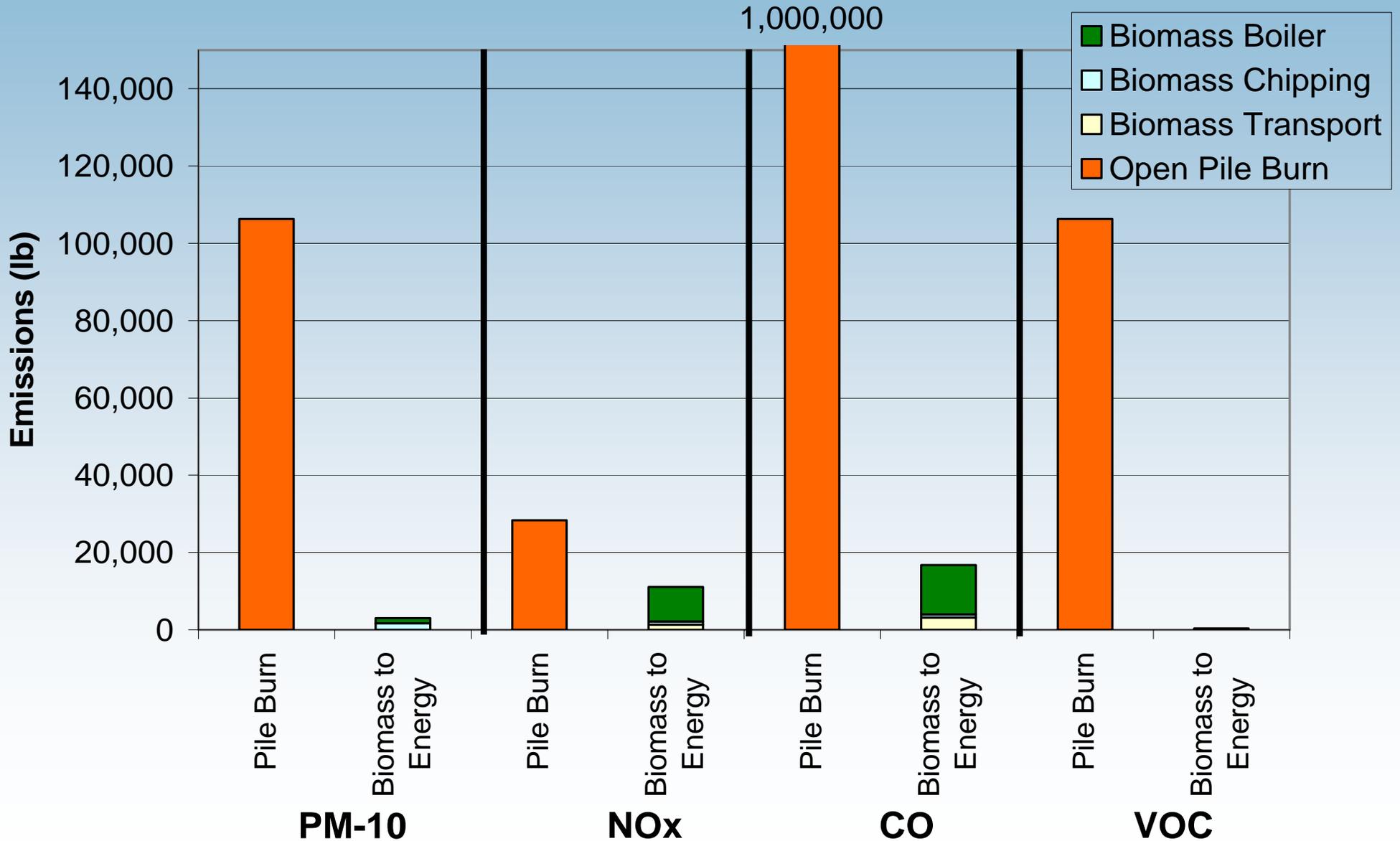
- Provides baseload renewable energy (24/7) on a cost effective basis.
- Numerous societal benefits:
 - Supports hazardous fuels reduction, healthy forests &
 - Provides employment (4.9 jobs/MW)
 - Greenhouse gas reduction displacing fossil fuels
 - Reduces waste material destined for landfills
 - Net improvement in air quality

Merced, CA – 0.5 MW



Air Quality Benefits

Results from biomass energy project that processed 6,800 BDT biomass from thinning project on USFS Tahoe National Forest American River District



Biomass Working Group

State

- California Energy Commission
- California Public Utility Commission
- Natural Resources Agency
- Department of Forestry and Fire Protection
- Sierra Nevada Conservancy
- Placer County
- UC Berkeley

Federal

- US Forest Service

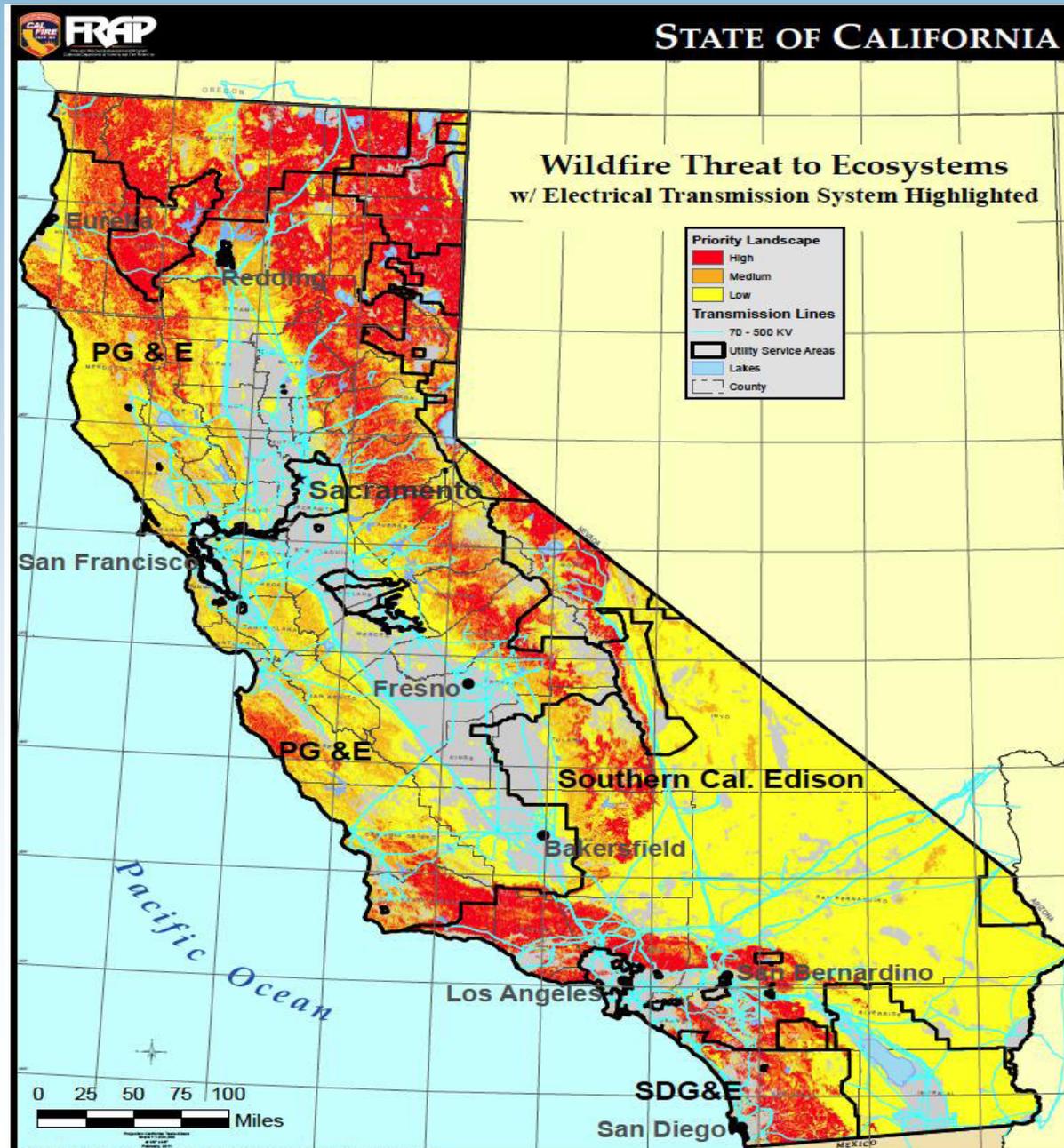
Technical Expertise/Industry

- TSS Consultants
- Miramar Environmental (PG&E representative)
- The Collins Company
- California Forestry Association

Non-Governmental

- Sierra Institute
- The Nature Conservancy
- Sierra Forest Legacy
- Northern Sierra Partnership
- Hayfork Watershed Center
- Pacific Forest Trust
- National Forest Foundation
- Sierra Business Council

Wildfire Threat & Transmission System



CPUC Approved Rate Increases

- Nearly \$285 million of rate increases approved for wildfire costs and bark beetle fire prevention from 2005 – 2011 (Catastrophic Event Management Accounts (CEMA))

Sustainable Forest Biomass

- **Bioenergy Action Plan Goal 1.2**-*Establish Sustainability Standards for Forest Based Biomass Feedstock Sourcing, Emerging Markets and Ecosystem Health.*
- **AB 1504** –*assurance of Forest Practice regulations that support “sustainable management practices” in support of AB32 Scoping Plan*
- **SB 1122**- *energy from “sustainable” sources*

Placer County – Cabin Creek

- 2 MW facility near Truckee
- Project appeal was withdrawn and project permitted in May
- received \$2.5 in grants for project development, environmental review, and construction
- operational date: 2015

