

SIERRA NEVADA BIOENERGY FACTS

Investing in forest health and clean energy

Over the past 5 years, over 4.5 million acres of California forests have been impacted by wildfire. Due to current unhealthy forest conditions and a changing climate, many predict that the size and intensity of these fires will continue to increase unless the pace and scale of forest treatments are increased. These treatments involve removing excess biomass fuel, or the small-diameter woody material, branches, and diseased or insect infested wood that is not suitable for commercial use. Recent innovations in biomass energy technology provide an opportunity for the economically and environmentally sustainable use of biomass material to create renewable energy for California, while at the same time protecting forests and communities from large, damaging wildfires.

In addition, use of biomass materials to generate energy can maximize the greenhouse gas reduction benefits that the forest sector can provide:

- Initial estimates indicate that the Rim Fire released 11,352,608 metric tons of greenhouse gas emissions - equivalent to the annual carbon dioxide emissions of 3.2 coal fired power plants.
- Burning biomass in a controlled biomass facility instead of open burning can reduce particulate matter emissions by 98%. This can be true even when accounting for the emissions created by the transport and processing of biomass to create energy.

Development of additional biomass power generation facilities in the Sierra Nevada Region that utilize forest waste would provide a ready market for biomass removed as a byproduct of forest restoration activities.

The Sierra Nevada Conservancy is a state agency that carries out a mission of protecting the environment and economy in a complementary fashion across 25 million acres, one-quarter of the state. To learn more, please visit the Sierra Nevada Conservancy Web site.



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Biomass represents a huge untapped resource for the generation of heat and power, and it's removal will improve forest health and reduce the risk of catastrophic wildfire.

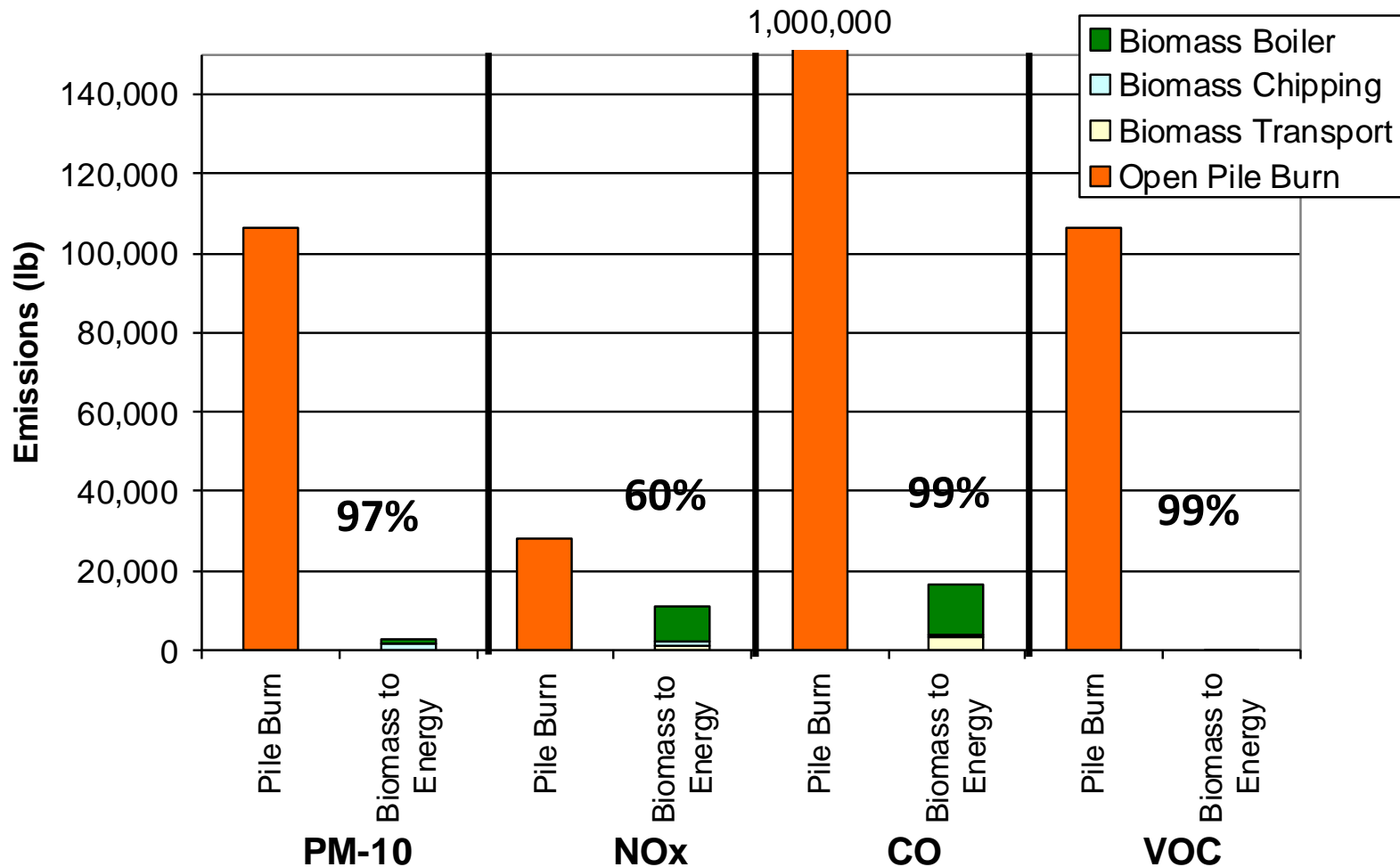
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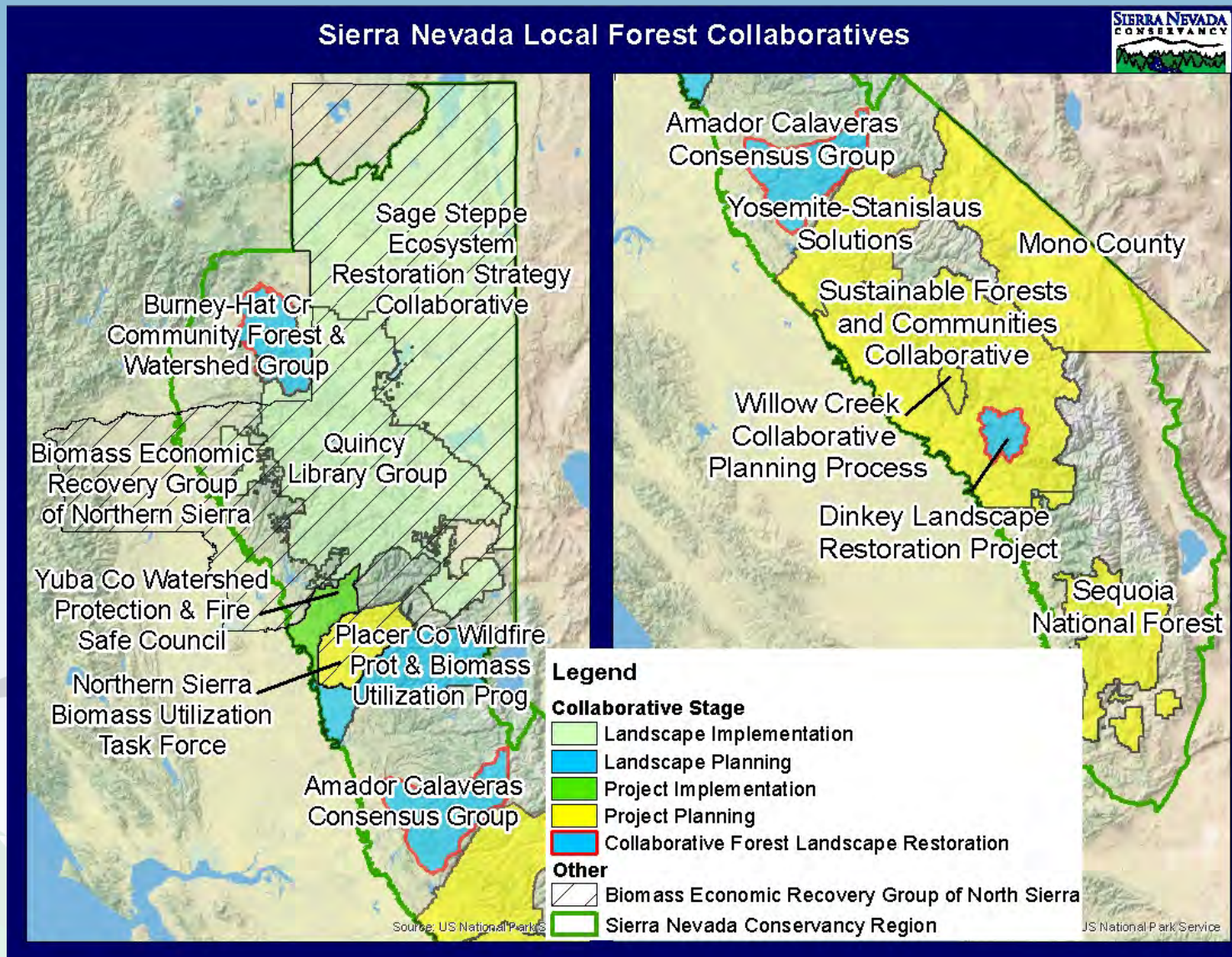
Bio-energy Conversion Initiative

Criteria Air Pollutants

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



Existing Collaborative Groups in the Sierra Nevada Interested in Bioenergy Opportunities



Existing and Proposed Forest Bioenergy Facilities within SNC Region

Legend

Forest Bioenergy Facilities within SNC Region

MW	Status
○ 1-8	● Proposed Forest Bioenergy Facilities
○ 9-16	● Non-Operational
○ 16-24	● Operational
○ 24-32	● Operational

Data Source: UC Berkeley Forestry Extension
Date: March 2013

Name	PlantType	MW	CogenStatus	MapStatus
Big Valley Pw r	Biomass pow er plant	7.5	not cogen	Non-Operational
Burney Mtn Pw r	Biomass pow er plant	11	cogen	Non-Operational
Burney Forest Products	Biomass pow er plant	31	Cogen	Operational
SP- Burney	Biomass pow er plant	20	cogen	Operational
SP- Susanville	Biomass pow er plant	12.5	not cogen	Non-Operational
HL Pw er Co.	Biomass pow er plant	32	not cogen	Operational
Collins PIne Co. Project	Biomass pow er plant	12	cogen	Operational
M. Lassen Pw r	Biomass pow er plant	11.5	not cogen	Non-Operational
SP- Quincy	Biomass pow er plant	25	cogen	Operational
SP- Loyaltan	Biomass pow er plant	20	not cogen	Non-Operational
Buena Vista Biomass Pw r	Co-fire or conversion	18.5	not cogen	Operational
SP- Sonora	Biomass pow er plant	8	cogen	Operational
Pacific Ultrapow er Chinese Sta.	Biomass pow er plant	22	not cogen	Operational
Sierra Biomass (Auberry)	Biomass pow er plant	7.5	not cogen	Non-Operational
Sierra Forest Products	Biomass pow er plant	9.5	cogen	Operational

Esri, DeLorme, NAVTEQ, UNEP-WC
SEBCO, NOAA, IPC
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