

Addressing Community Needs in Plumas County through Biomass Utilization

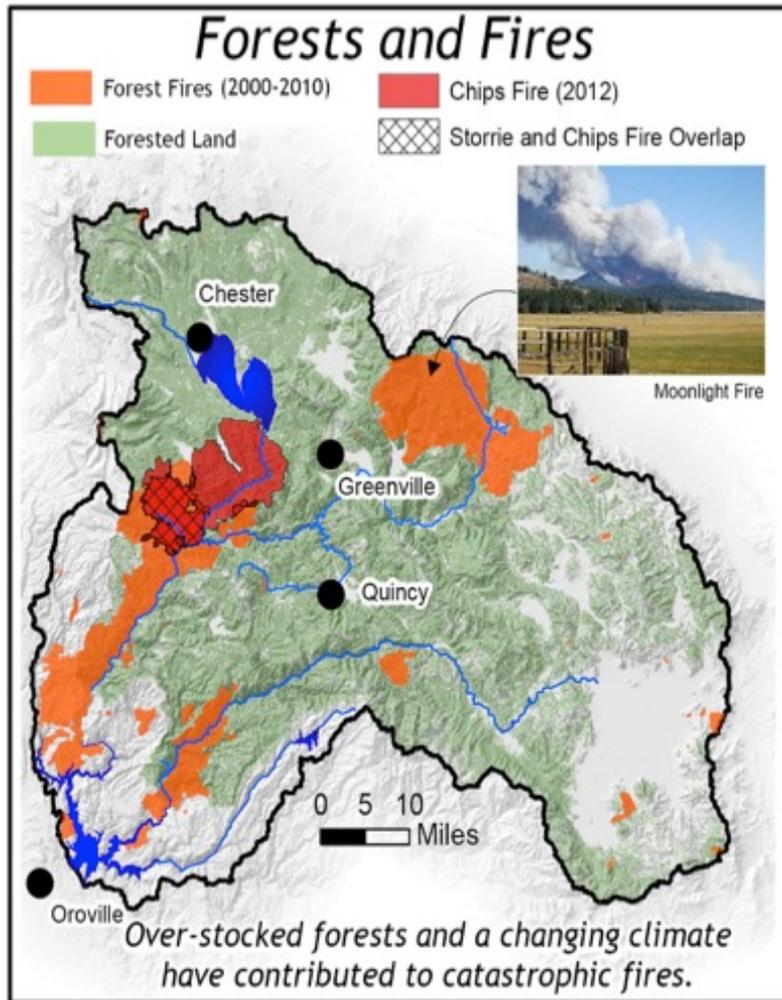


EPIC Symposium
California Energy Commission
December 3, 2015

Plumas County: Rural and Heavily Forested



Value of Increasing Biomass Utilization



- Reduce fire risk
- Improve forest health
- Improve air quality, reduce black carbon emissions
- Reduce reliance on fossil fuels
- Create local jobs
- Stabilize heating costs
- Utilize an abundant, local resource

Plumas Biomass Project Overview

Objective: to develop and implement a project to advance woody biomass utilization and create a market for small diameter trees and logging slash.

Avenues for implementation:

1. County-wide network of biomass boilers
2. 3 MW combined heat and power facility
3. Other forest waste using businesses



Grant Union Jr/Sr High School
John Day, OR



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Forest Biomass Material Potentially Available from Forest Operations on Public and Private Land within Upper Feather River Watershed

Biomass Material Source	Bone Dry Tons Year	
	Low Range	High Range
Timber Harvest Residuals	81,120	109,750
Fuels Treatment/Restoration/Timber Stand Improvement Activities	51,250	96,250
Fuels Treatment Activities - Fire Safe Council and similar	550	1,150
Total	132,920	207,150

TSS Consultants, 2012, Prepared for the Sierra Institute

Critical Facilities Identification and Assessment

Biomass Thermal Opportunities	Current Heating Costs	Fuel Type	Gallons Used	Est. Biomass Used	Est. Savings
Eastern Plumas Health Care	\$ 147,500.00	diesel fuel	37,000	400 bdt	\$97,500.00
Portola High School	\$ 79,500.00	heating oil	22,640	210 bdt	\$53,250.00
County HHS/FRC	\$ 135,000.00	electric/Prop.	17,000	800 bdt	\$45,000.00
USFS Supervisors Office	\$ 37,000.00	prop/fuel oil	11,500/3,260	100 bdt	\$24,500.00
USFS Mt. Hough RD	\$ 35,000.00	propane	14,340	115 bdt	\$20,625.00
Greenville K-12 School	\$ 112,500.00	diesel fuel	30,646	275 bdt	\$78,125.00
Plumas Co. Court House	\$ 42,500.00	diesel fuel	10,000	150 bdt	\$23,750.00
Quincy High School	\$ 106,250.00	diesel fuel	25,000	220 bdt	\$78,750.00
Chester Heating Facility					
<i>Wildwood Asst. Living Fclty</i>	\$ 60,000.00	propane	26,000	175 bdt	\$38,125.00
<i>Seneca Hospital</i>	\$ 35,000.00	diesel fuel	11,000	100 bdt	\$22,500.00

Green Tons/Acre 10 to 15
 Bone Dry Tons/Acre 8 to 12
 Avg. price of chips (raw mtrl). \$60.00
 Retail chips/bdt (thermal) \$125.00

3 MW CHP

Total biomass needed 25,000 bdt
 Acres treated 2,100 - 3,200

Thermal Network

Total biomass needed 2,545 bdt
 Acres treated 210 - 320

Increased biomass utilization in Plumas Co. will have the following estimated annual results:

County wide savings:	\$490,700
Fossil fuel gallons offset:	216,000
Homes powered:	3000
Bone dry tons of biomass used:	27,500
Acres treated:	2,300 - 3,500

KEY

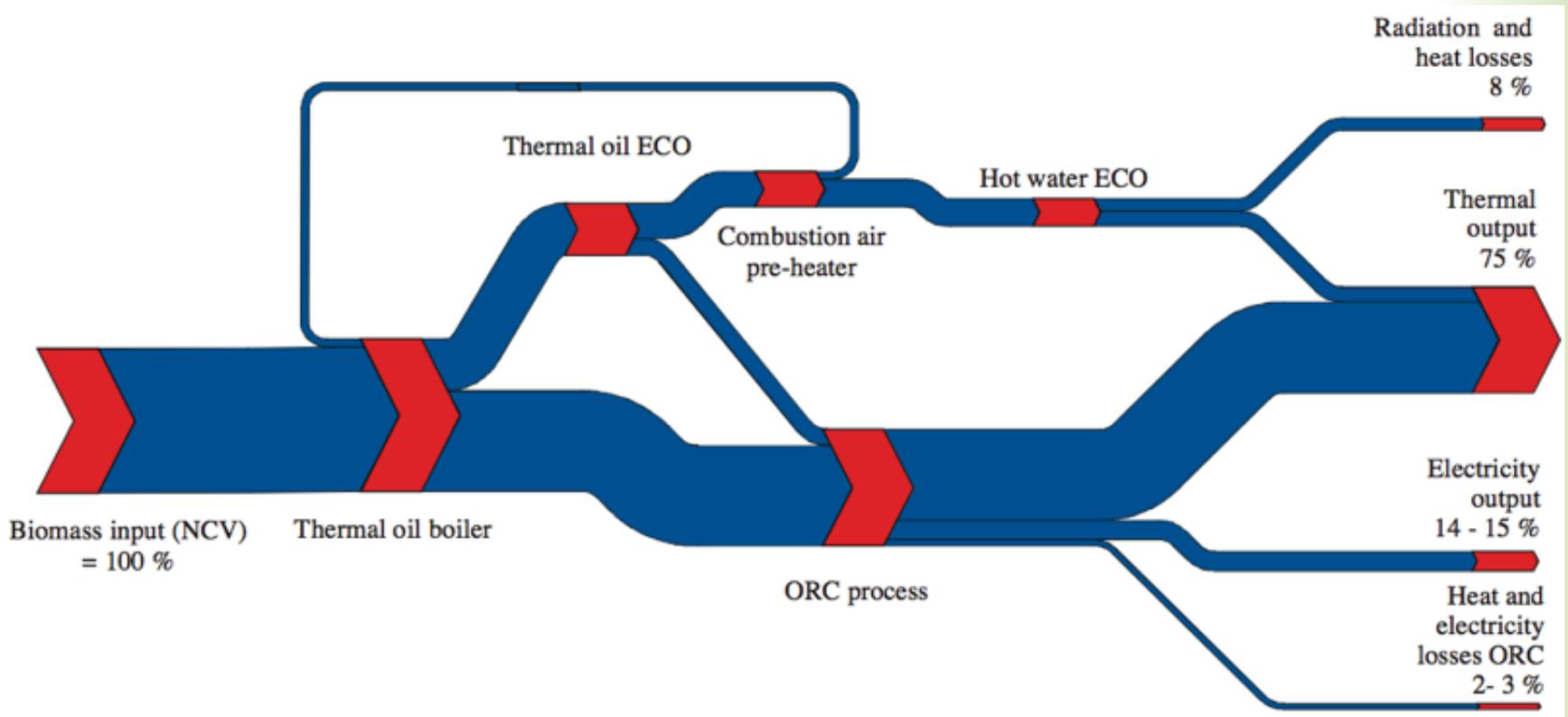
bdt: bone dry ton

Innovation: Combined Heat and Power System Plumas County and Feather River College

- Biomass-powered CHP
- Thermal energy to Plumas County Health and Human Services building and Feather River College dormitories
- 65 kw of electrical energy to HHS through Organic Rankine Cycle
- Annual energy savings >\$45,000
- 600-800 bdt per year
- Online by Winter 2017
- Funded by the California Energy Commission (\$2.6M EPIC grant)



Innovation: Biomass CHP with Organic Rankine Cycle



WISEWOOD^{INC.}

Future Project: an Integrated Wood Utilization Campus in Crescent Mills

The Vision:

1. Chip processing facility for boiler supply
2. 3 MW combined heat and power facility
 - Electricity to be sold to PG&E (SB 1122)
3. Co-located heat user



Site Details:

- former LP sawmill
- 28 acres
- zoned heavy industrial
- centrally located



Opportunities

- Rim, King, Butte fires
- Drought
- Community support
- CEC and USFS support
- EPIC funds
- USDA RD, RUS funds
- Technology proving itself
- CA Policy:
 - SB 1122 (BioMAT)
 - Gov's Emergency Declaration Oct 2015
 - SB 350



Biomass in Plumas County

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