Biomass Utilization in Mendocino County

Presented By the Inland and Coast Biomass Groups

Agenda

- What is woody biomass utilization?
- Why do we care about utilizing biomass?
- Ft. Bragg Biomass Group approach
- Mendocino County Woody Biomass Working Group (WBWG) approach

Sources of Woody Biomass

- Mill Waste
- Timber Harvest Residuals
- Urban Wood Waste
- Fuel Reduction Thinning
- Dead Trees
- Landfill Diversion

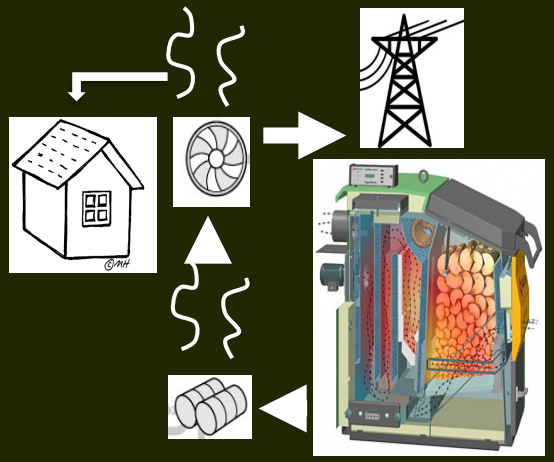
Technologically Specific Conversion

Combustion

Thermochemical

End Products

Heat
Electricity



Bio-oil
Bio-char

Why do we Care About Biomass Utilization?

"Biomass is one of the few renewable resources that actually create problems when it is not used"

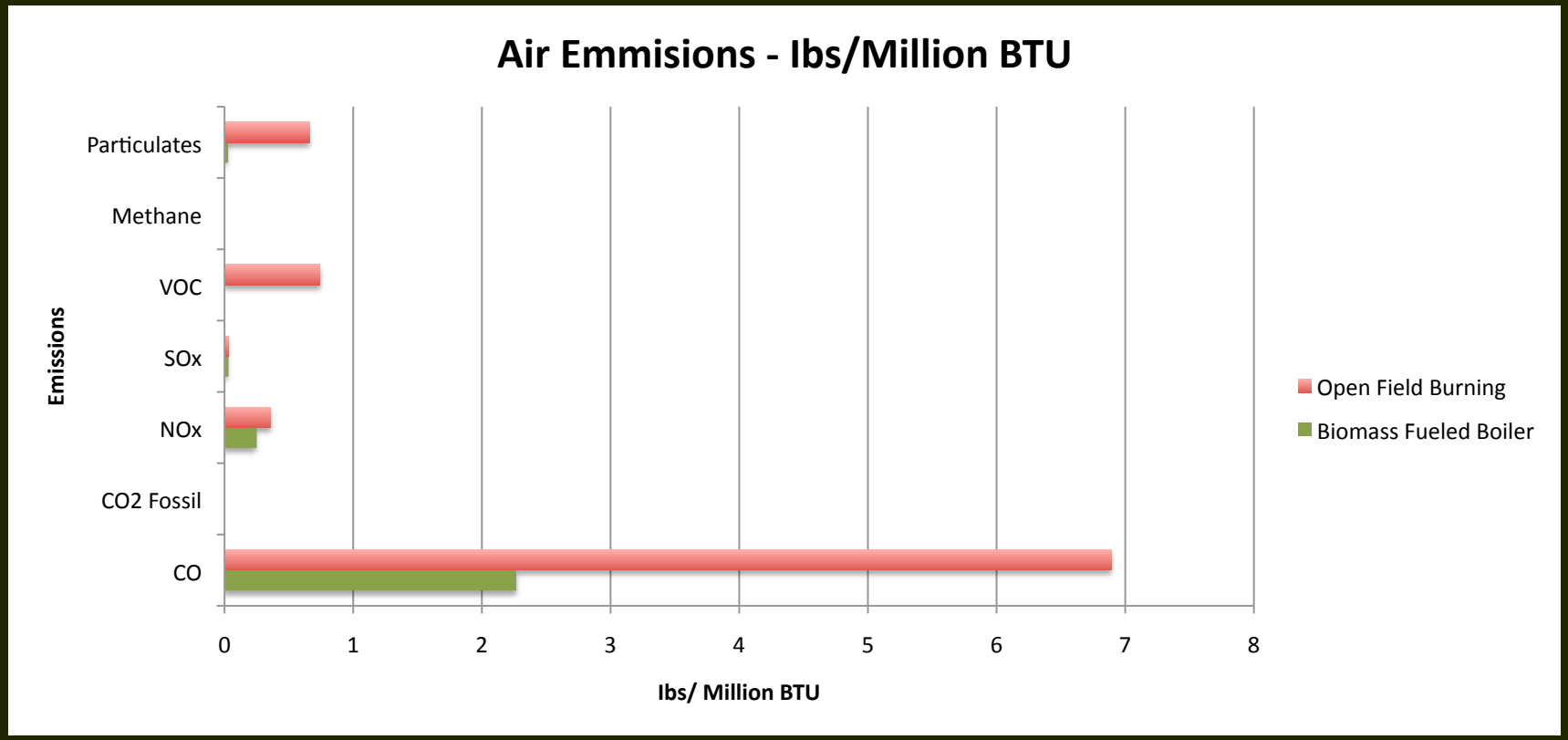
Phil Giles, North Coast Resource Conservation and Development Council

Excess Biomass

Impacts of Excess Biomass

Current Biomass Removal

Open Field Burning vs. Biomass Fueled Boiler Emissions



Source: University of California, College of Natural Resources; http://ucanr.org/WoodyBiomass

Cost of Restoration

$

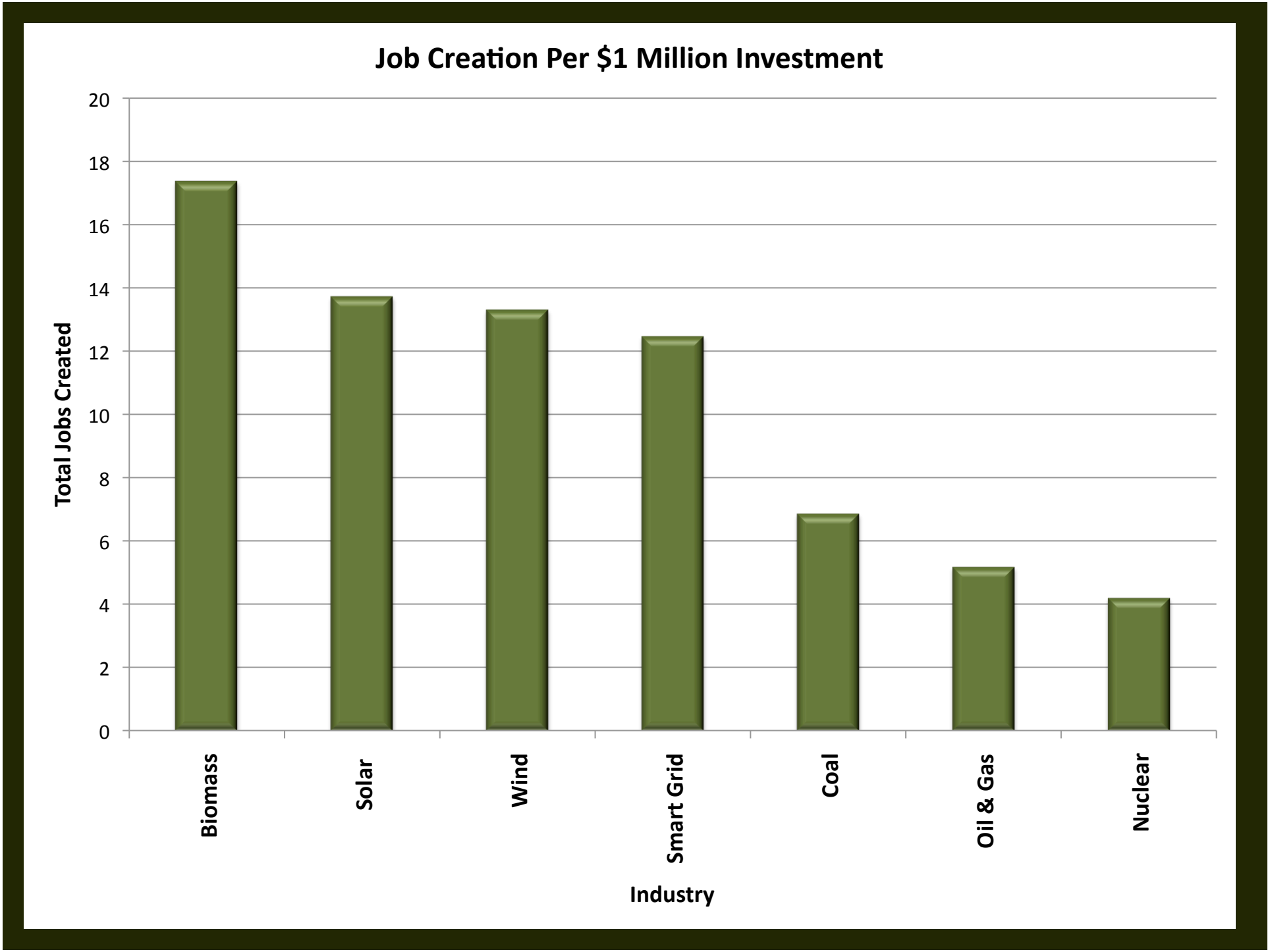
$

Job Creation per $1 Million Investment

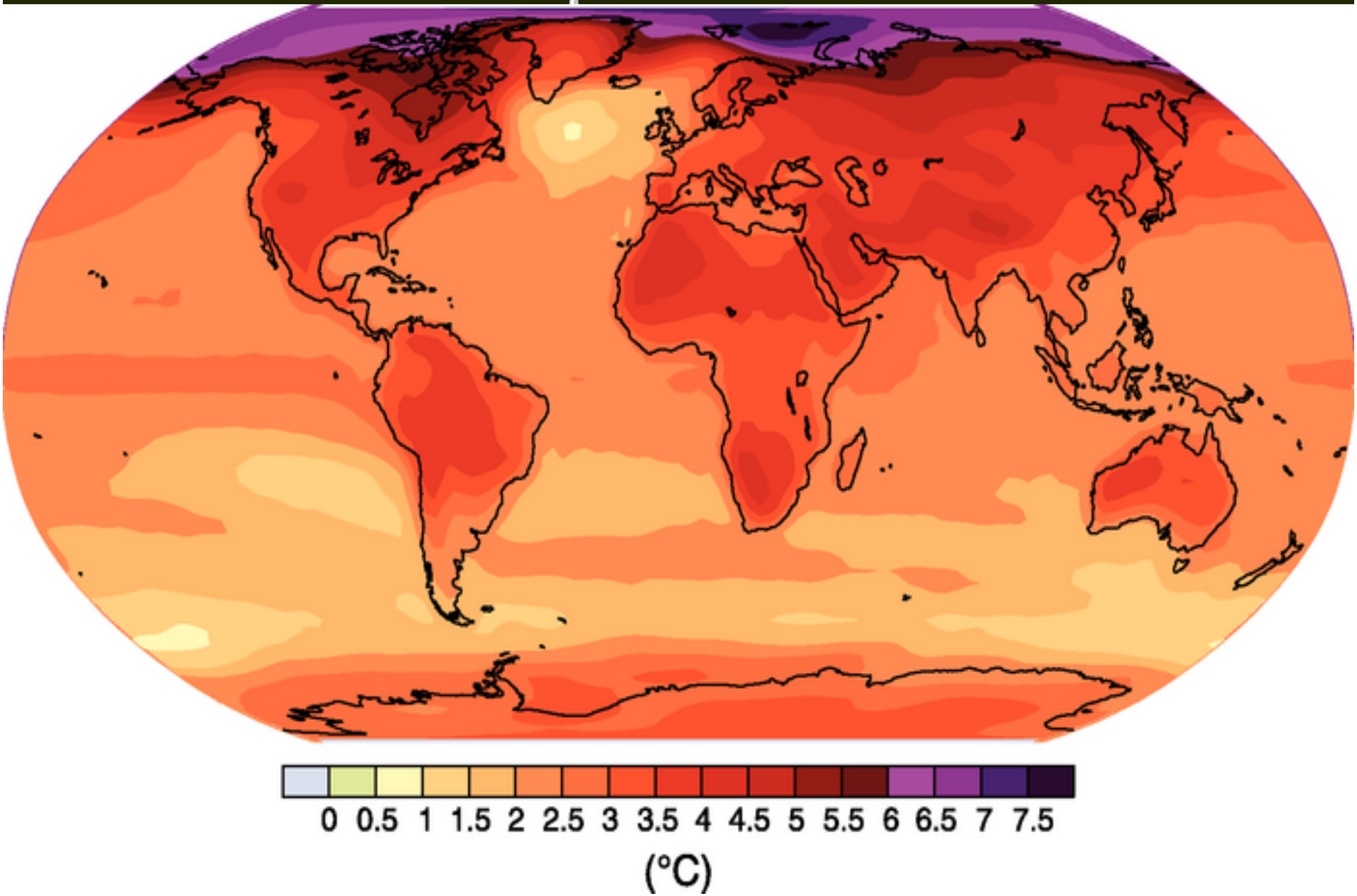
INDUSTRY	DIRECT	INDIRECT	INDUCED	TOTAL
Reforestation, Land and Watershed Restoration, and Sustainable Forest Management	17.55	12.95	9.2	**39.7**
Crop Agriculture	9.8	6.5	6.5	**22.8**
Livestock	6.4	9.1	6.2	**21.7**
Gas (heavy and civil construction for pipelines - 50% new and 50% repair)	12.05	3.93	5.912	**21.888**
Mass transit and freight rail construction	13	3.70	5.038	**21.738**
Roads and bridges: repair	11.1	3.69	5.527	**20.317**
Conservation (Parks and Land and Water Conservation Fund)	11.45	4.15	4.7	**20.3**
Water infrastructure	9.96	4.38	5.427	**19.764**
Aviation	9.7	4.30	5.264	**19.266**
School buildings	8.65	5.38	5.233	**19.262**
Building retrofits	7.7	4.70	4.96	**17.36**
Roads and bridges: new	8.7	3.94	4.834	**14.474**
Solar	5.4	4.40	3.92	**13.72**
Biomass	7.4	5.00	4.96	**17.36**
Smart grid	4.3	4.60	3.56	**12.46**
Wind	4.6	4.90	3.8	**13.3**
Electricity generation, transmission, distribution	5.32	4.50	4.696	**14.512**
Coal	1.9	3.00	1.96	**6.86**
Financial Industry	3.22	2.34	1.668	**7.228**
Oil and gas	0.8	2.90	1.48	**5.18**
Nuclear	1.2	1.80	1.2	**4.2**

Source: Heidi Garrett-Peltier and Robert Pollin, University of Massachusetts Political Economy and Research Institute.

Note: Multipliers derived using IMPLAN 2.0 with 2007 data. Infrastructure multipliers and assumptions are presented in "How Infrastructure Investments Support the U.S. Economy: Employment, Productivity and Growth," Political Economy Research Institute, January 2009, http://www.peri.umass.edu/236/hash/efc9f7456a/publication/333/


Job Creation Per $1 Million Investment
Total Jobs Created
20
18
16
14
12
10
8
6
4
2
0
Biomass
Solar
Wind
Smart Grid
Coal
Oil & Gas
Nuclear
Industry

Global Impacts of Biomass



Benefits of Biomass Utilization

Environmental

- Promotes healthy forests
- Reduces catastrophic forest fire hazards
- Increases water availability
- Produces a relatively clean renewable energy source (addresses global climate change)
- Movement towards energy independence

Economic

- Increases the value of forest products
- Supports existing timber based infrastructure
- Makes restoration work more economically viable
- Increases County tax revenues

Social Equity

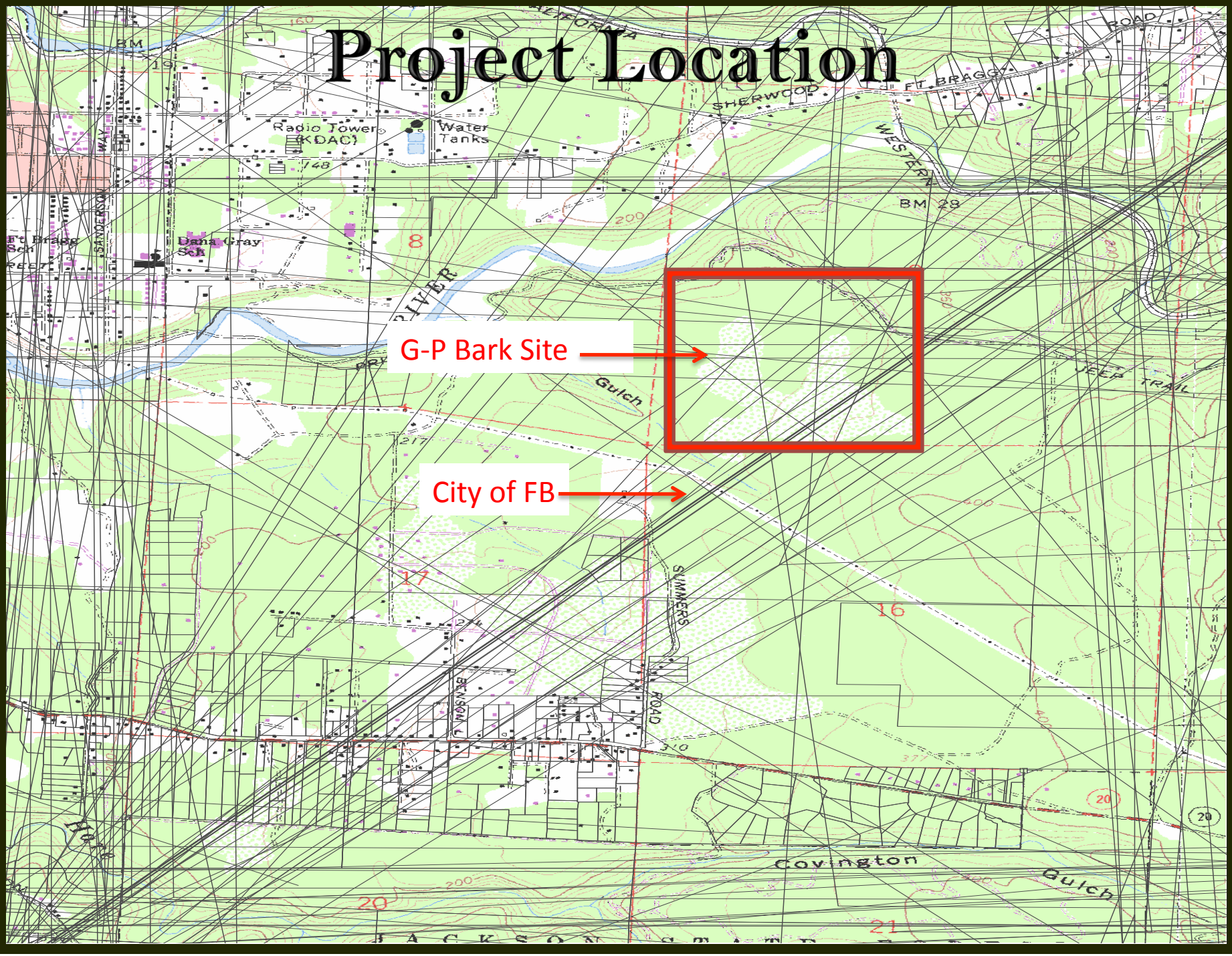
- Creates Jobs
- Community input into process creates empowerment
- Part of the localization movement – energy created here

Coastal Group Approach

Coastal Group Project Summary

- Sponsored by the City of Ft. Bragg
- 10-25 people involved
- Conducted a feasibility study for a 15MW plant near the city of Ft. Bragg
- Conducted a Community Workshop in April of 2009
- Have heard from several potential investors and operators
- Currently collecting environmental data about the site

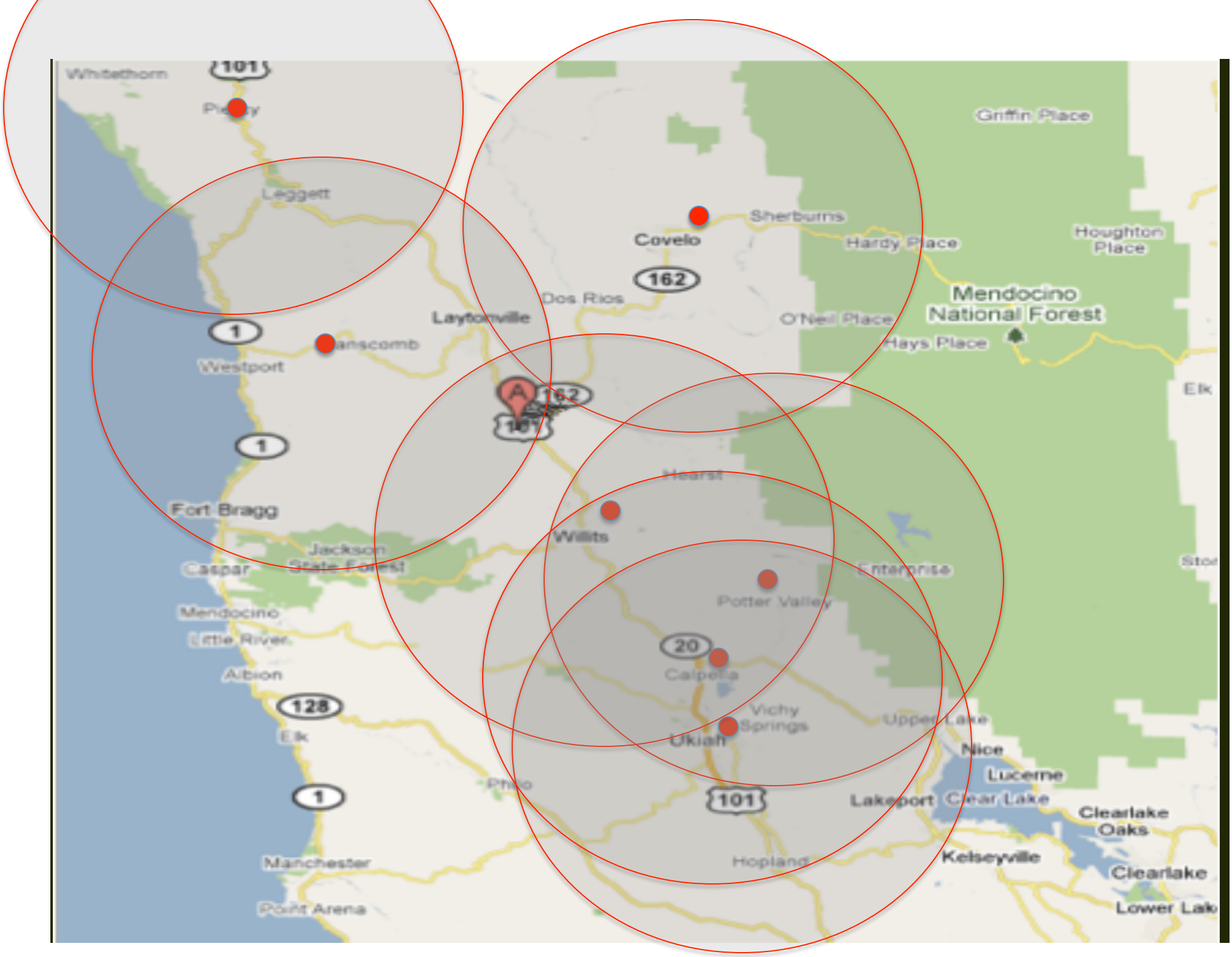
Project Location



Inland Group Approach (Mendocino County Woody Biomass Working Group (WBWG))

WBWG Project Summary

- Conduct a feasibility study that looks at multiple locations throughout the County
- Understand the environmental, economic and social "limiting factors" for a biomass facility in each location
- Only promote facilities to investors that are within these parameters


Whitethorn
101
Leggett
Covelo
Sherburns
Hardy Place
Houghton Place
Griffin Place
162
Dos Rios
Laytonville
O'Neil Place
Mendocino National Forest
Hays Place
1
Westport
162
Elk
1
Hearst
Fort Bragg
Willits
Jackson State Forest
Caspar
Enterprise
Potter Valley
Mendocino
Little River
20
Calpella
Albion
128
Vichy Springs
Upper Lake
Elk
Ukiah
Nice
Lucerne
Philo
1
101
Lakeport
Clear Lake
Clearlake Oaks
Kelseyville
Manchester
Hopland
Clearlake
Point Arena
Lower Lake

Fuel Availability

Environmental Characteristics
-Water Availability
-Air Quality Standards

Economic Characteristics
-Distance From Wood Source
-Distance from Hwy 101

Social Characteristics
-Distance to Residential Areas

Feasibility Matrix

	Site 1	Site 2	Site 3	Site 4	Site 5
Annual Fuel Availability					
Delivered Price of Fuel					
Air Quality Requirements					
Sustainable Water Flow					
Transmission Line Capacity					

	Site 1	Site 2	Site 3	Site 4	Site 5
Maximum Scale	100,000 BDT/ yr	5,000 BDT/yr	10 MW		
Recommended Technology	Pellet Plant	Pyrolysis Unit	Power Plant		

WBWG Current Status

- Applying for grants to conduct the feasibility study
- Narrowing down the locations that we want to study
- Conducting community meetings with environmentalists, business people and political activists

Questions?