

CROP

A New Woody Biomass Supply & Utilization Protocol

Presented by

Catherine M. Mater

President—Mater Engineering

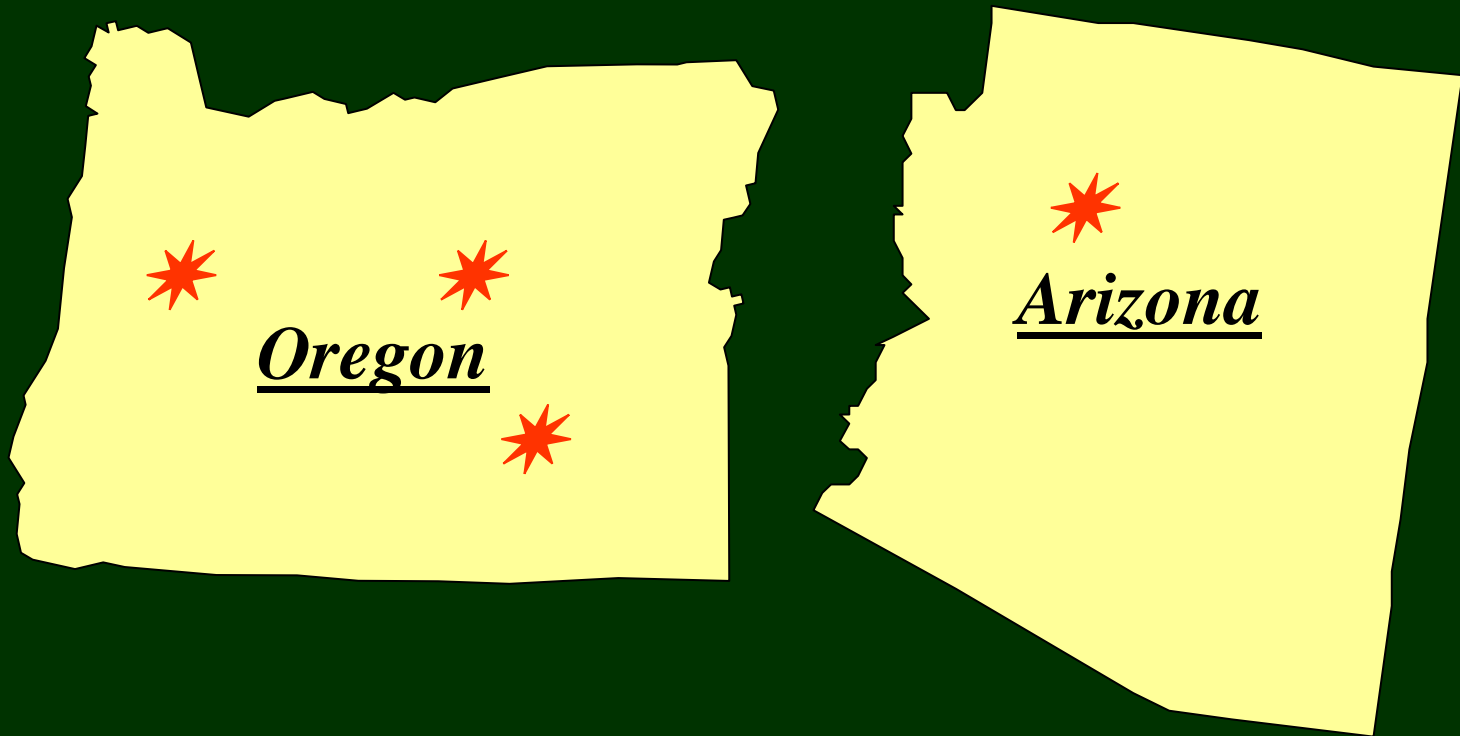
Senior Fellow – The Pinchot Institute for Conservation

Corvallis, Oregon; Washington, DC

Tel: 541-753-7335 Fx: 541-752-2952

E-mail: catherine@mater.com

It began with biomass inventorying



What we saw:

- *No coordination* between NF systems in regions
- *No coordination* between USFS ranger districts
- *No coordination* with other agencies in region with harvest activity (BLM, state, DOT, etc)

... coupled with biomass-to-energy projects proving *difficult to pencil out without introduction of value-add.*

What was clear:

- Change the dynamics of resource offering in an investor landscape (100-mile radius) .
- . . . where level supply and risk reduction are perhaps more important than increased volume.

*Solution . . . Seed the **CROP***
*(**C**oordinated **R**esource **O**ffering **P**rotocol)*

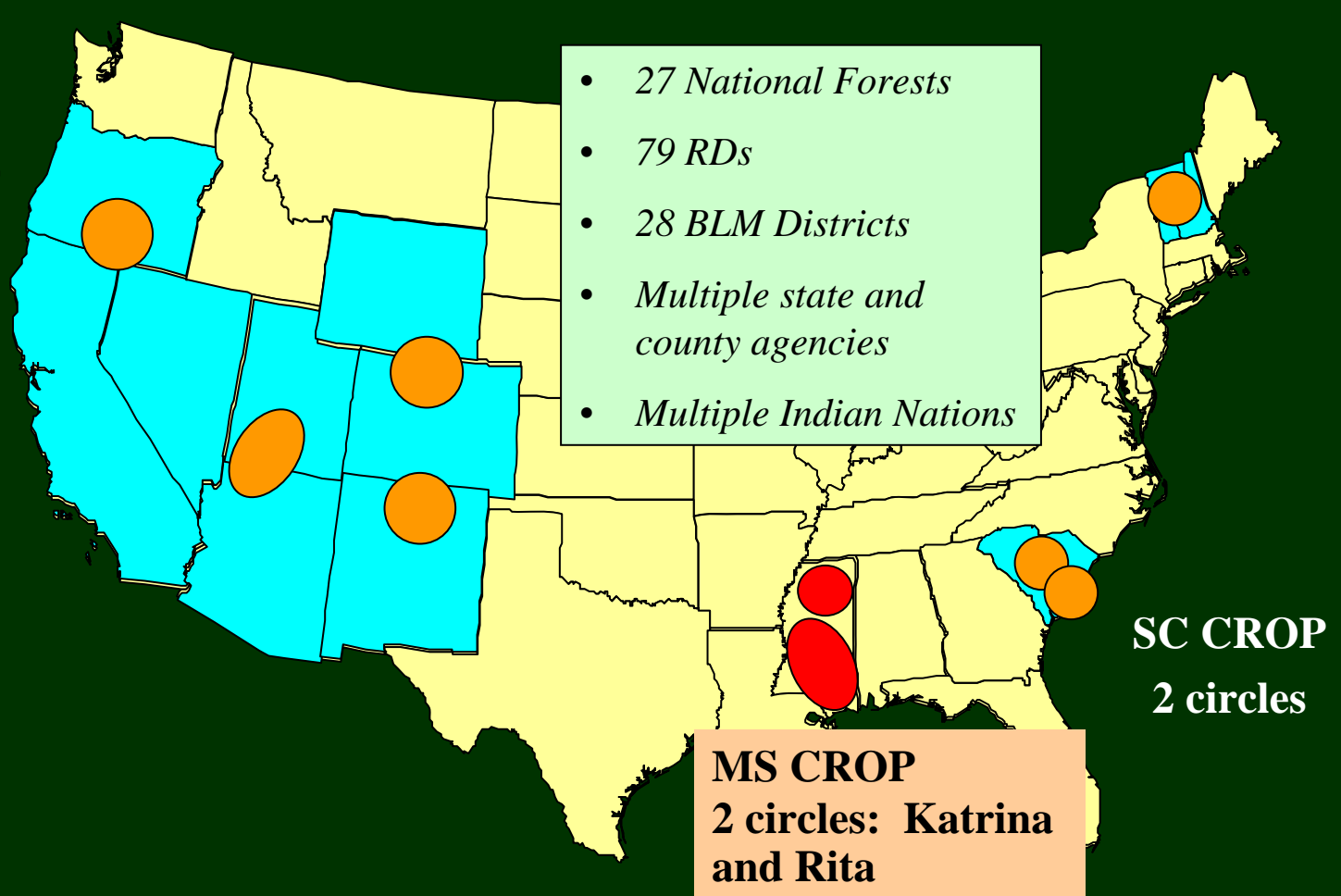
CROP:

- ✓ Nation's first benchmark projects in investor landscape **coordination and levelization** of projected resource offering:
 - ***Within agencies*** (ie RD's within NF system)
 - ***Between agencies*** (USFS, BLM, state, Counties, Indian nations, etc.)

Late 2005:

- *National Strategy Plan* for Woody Biomass Utilization
- *USDA, DOI, DOE* partners
- **CROP** identified as *benchmark tool* to implement plan
- *Seven CROP pilots initiated* across US
- *Oregon highlighted . . .*

2006 National CROP Pilots



Oregon CROP: Lakeview, OR (centerpoint)



- *3 States*
- *4 National Forests*
- *14 Ranger Districts*
- *8 BLM Districts*
- *9 Counties*
- *State Lands*
- *Indian Lands*

What was asked for (5-yr. Period):

- *Volume* (by mmbf; green/dry tons; ccf)w/ conversions
- *Diameter sizes* <4” 4”-7” 7”-9” 9”-12” >12”
- *Species* (10 species evaluated for resource flow)
- *Harvest “type”*: fuel load reduction, timber sales, PCT, post and pole
- *Location* of resource offering
- *NEPA phase* for each resource offering
- *Road accessibility* for each resource offering

**So, let's take a peek at
preliminary results . . .**


Overall:

<i>Year</i>	<i>Total Volume (770.74 mmbf)</i>	<i>% of 5-yr volume</i>	<i>% change</i>
<i>2006</i>	<i>181.56</i>	<i>24%</i>	<i>–</i>
<i>2007</i>	<i>147.81</i>	<i>19%</i>	<i>-23%</i>
<i>2008</i>	<i>169.51</i>	<i>22%</i>	<i>13%</i>
<i>2009</i>	<i>146.20</i>	<i>19%</i>	<i>-16%</i>
<i>2010</i>	<i>125.65</i>	<i>16%</i>	<i>-16%</i>

By diameter (all species):

	<i>diameter (mmbf)</i>	<i>% of total</i>
<4"	76.99	10%
>4"-7"	69.84	22%
>7"-9"	82.07	11%
>9"-12"	199.04	26%
>12"	242.78	32%

55% - small log processing



By species:

<i>Species</i>	<i>5-yr total (mmbf)</i>	<i>% of 5-yr total</i>
Ponderosa Pine	407.16	53%
White Fir	171.41	22%
Lodgepole Pine	107.42	14%
Juniper	40.81	5%
Other Conifers	14.9	2%
Jeffrey Pine	11.8	2%
Douglas Fir	7.1	1%
Knobcone Pine	4.75	<1%
Incense Cedar	3.75	<1%
Sugar Pine	1.5	<1%
<i>Total</i>	770.74	

... a closer look

The top 3 species

Klamath Falls Biomass Conference

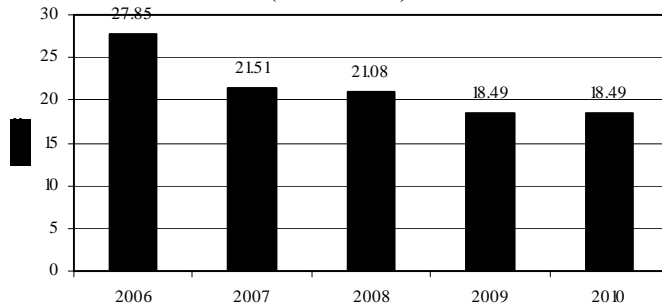
Oregon **Lodgepole Pine** CROP offering '06 - '10
(107.42 mmbf)

ROM # LP.1

Fremont-Winema NF: 4 RDs - 60%
(65.42 mmbf)

Shasta-Trinity NF: 1 RD - 40%
(42 mmbf)

All Agencies: Lodgepole Pine
Total 5-yr Volume by Specie
(107.42 mmbf)



By diameter:

- 10% = <4" (11 mmbf)
- 22% = >4" - 7" (24mmbf)
- 12% = >7" - 9" (13 mmbf)
- 23% = >9" - 12" (25mmbf)
- 32% = >12" (35 mmbf)

Klamath Falls Biomass Conference

Oregon: **White Fir** CROI offering '06 - '10
(171.40 mmbf)

ROM # WF.1

Fremont-Winema NF: 4 RDs - 37%
(62.87 mmbf)

Klamath NF: 1 RD - 14%
(23.76 mmbf)

CA-BLM: 1 district - <1%
(1.73 mmbf)

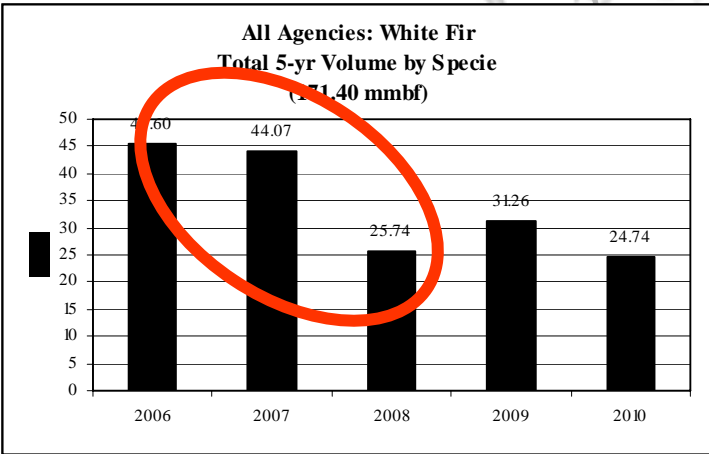
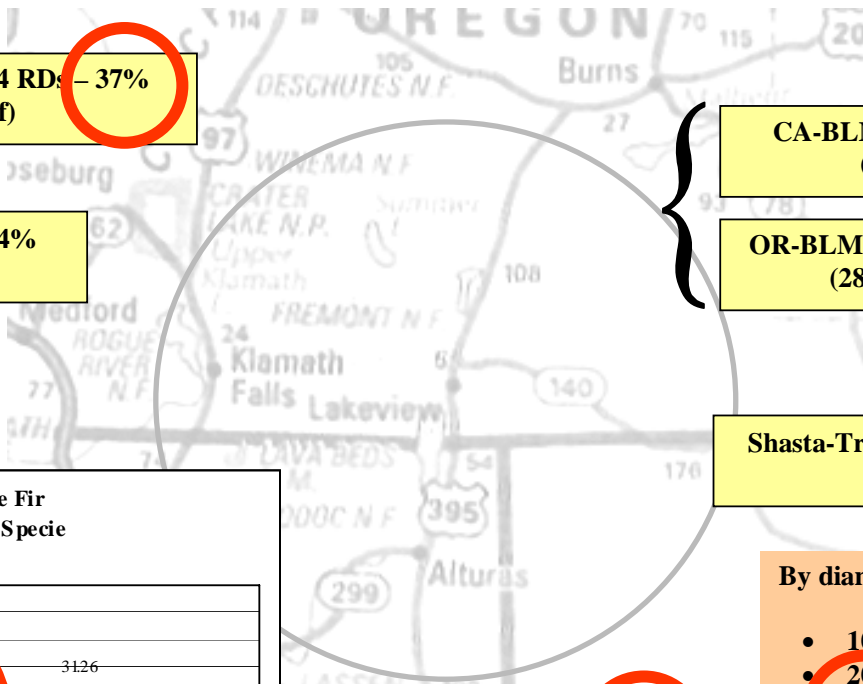
OR-BLM: 1 district - 17%
(28.67 mmbf)

Shasta-Trinity NF: 1 RD - 13%
(22 mmbf)

Modoc NF: 4 RDs - 19%
(32.39 mmbf)

By diameter:

- 10% = <4" (18 mmbf)
- 20% = >4" - 7" (35 mmbf)
- 10% = >7" - 9" (17 mmbf)
- 24% = >9" - 12" (41 mmbf)
- 30% = >12" (62 mmbf)



Klamath Falls Biomass Conference

Oregon Ponderosa Pine CROP offering '06 - '10
(407.16 mmbf)

ROM # PP.1

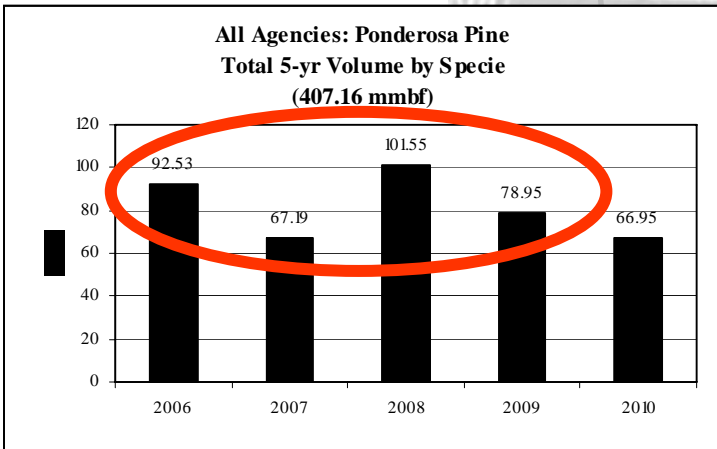
Fremont-Winema NF: 4 RDs - 49%
(198.90 mmbf)

Klamath NF: 1 RD - 10%
(40.75 mmbf)

CA-BLM: 2 districts - <1%
(1.76 mmbf)

OR-BLM: 1 district - 6%
(25.39 mmbf)

Shasta-Trinity NF: 1 RD - 11%
(44.35 mmbf)



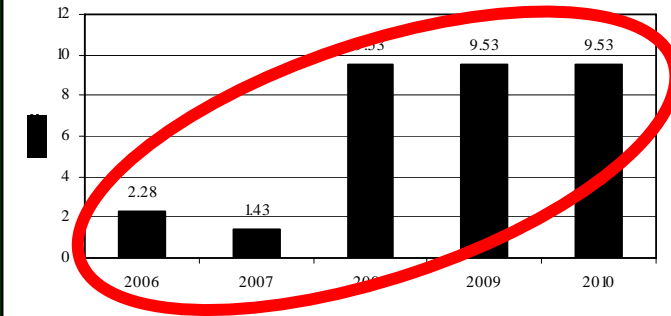
Modoc NF: 4 RDs - 24%
(96.03 mmbf)

- By diameter:**
- 11% = <4" (44 mmbf)
 - 24% = >4" - 7" (97 mmbf)
 - 10% = >7" - 9" (40 mmbf)
 - 27% = >9" - 12" (111 mmbf)
 - 28% = >12" (115 mmbf)

Ponderosa Pine: Fremont-Winema NF – 4 RDs – annual offerings

Chemult RD

Fremont-Winema NF - Chemult RD:
Ponderosa Pine Total 5-yr Volume
by Specie (32.31 mmbf)

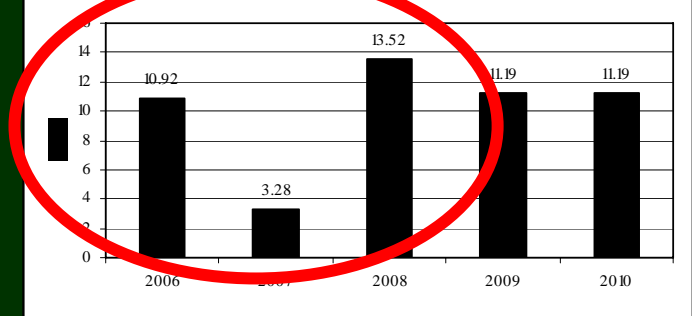


8%

12%

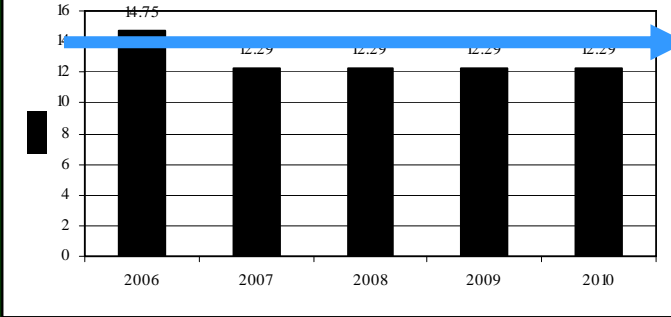
Lakeview/Bly RD

Fremont-Winema NF - Lakeview/Bly RD:
Ponderosa Pine 5-yr Total Volume
by Specie (40.11 mmbf)



Chiloquin/Klamath RD

Fremont-Winema NF - Chiloquin/Klamath
RD: Ponderosa Pine Total 5-yr Volume by
Specie (63.91 mmbf)

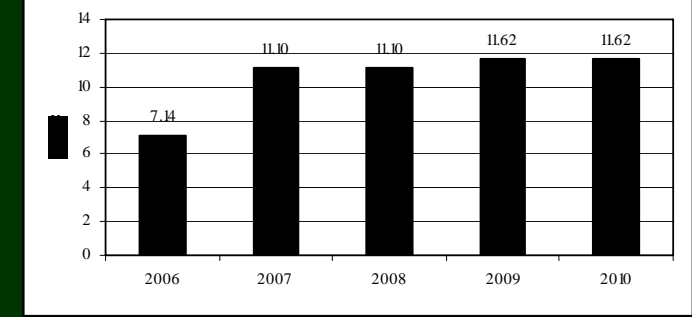


16%

13%

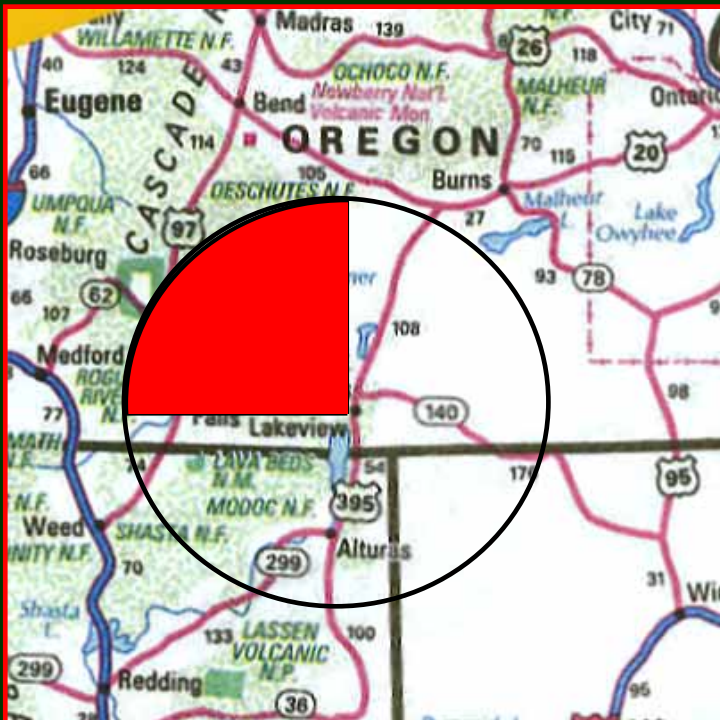
Silver Lake/Paisley RD

Fremont-Winema NF - Silver Lake/Paisley
RD: Ponderosa Pine 5-yr Total Volume
by Specie (52.56 mmbf)

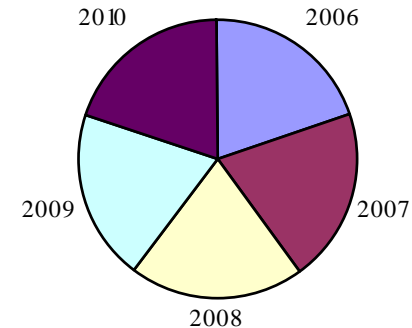


Klamath Falls Biomass Conference

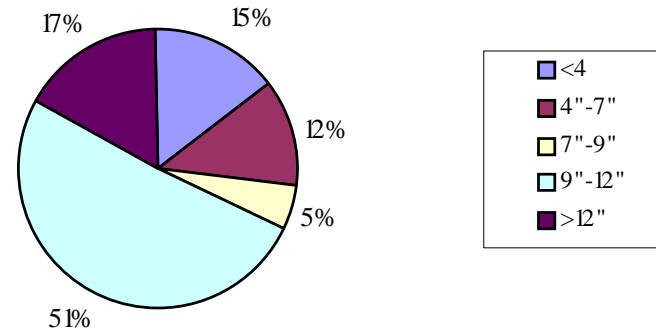
Oregon CROP: Ponderosa Pine (key supplier = 16% of total)



Oregon CROP Chiloquin-Klamath RD
Ponderosa Pine Annual Volume
(~13 mmbf/yr.)



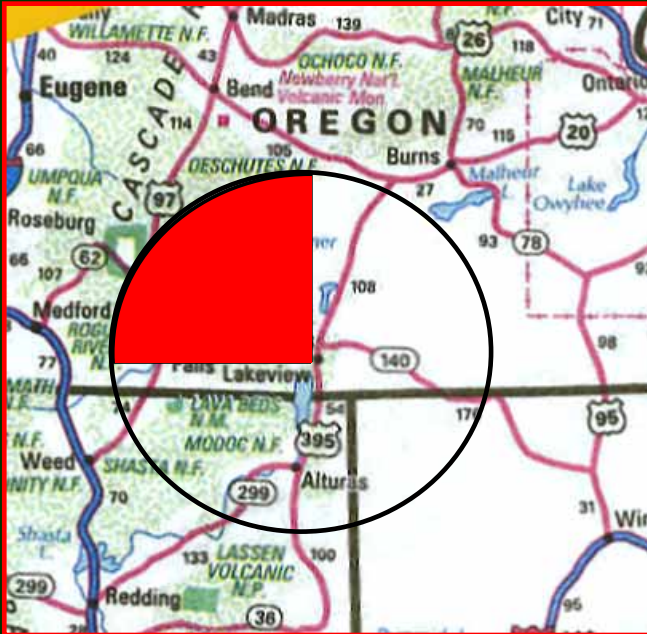
Oregon CROP Chiloquin-Klamath RD
Ponderosa Pine Annual Volume
(~13 mmbf)



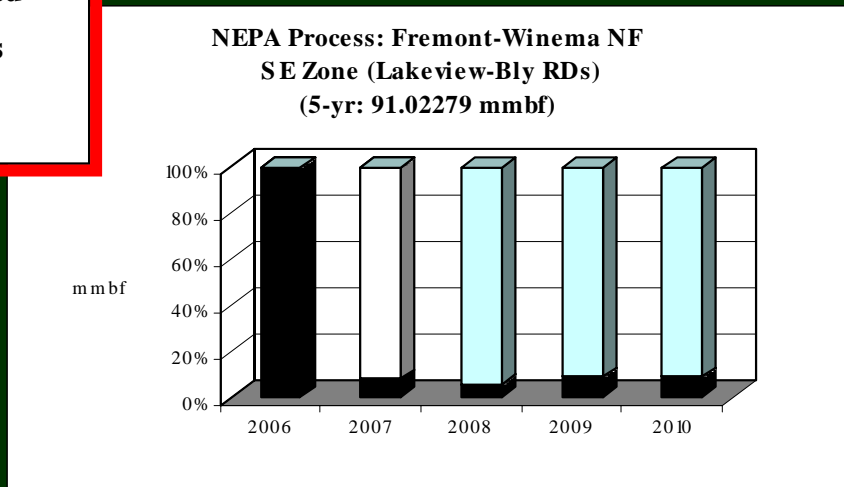
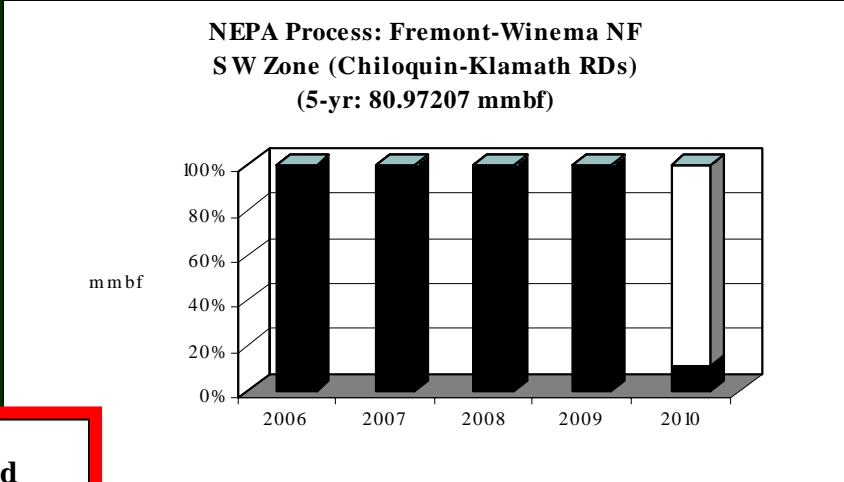
Klamath Falls Biomass Conference

Oregon CROP: NW Quadrant

NEPA Status/Supplier



- not started
- just started
- in process
- approved



Oregon CROP: NW Quadrant

Road miles to centerpoint

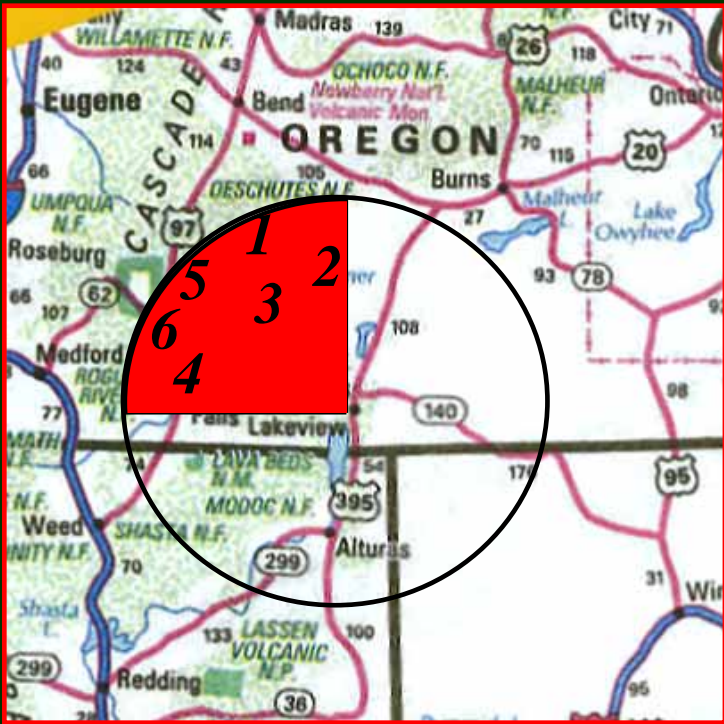
- 1. 100 miles
- 2. 88 miles
- 3. 63 miles

68.7 mmbf

4. 95 miles – 91 mmbf

5. 157 miles – 86.4 mmbf

6. 132 miles – 80.9



What we know this far for Oregon CROP:

Not bad . . .

- ✓ Total annual volume sufficient to *invite investment in small log processing* and create viable options for biomass to energy use.

but . . .

- ✓ *Supply not levelized* in 3 key species that provide 90% of volume (Ponderosa pine in particular).
- ✓ Volume of <4” material typically *vastly under estimated.*

Things to think about . . .

- ✓ *Federal lands certification* and CROP fit?
- ✓ *CROP carbon banking* registers with carbon credit payments to help finance stewardship contracts.
- ✓ *Payments for ecosystem services* using CROP foundation.

..... more to come!

For more information:

Edmond Gee:

Nat'l Woody Biomass Utilization Team Leader

Nat'l Partnership Coordinator USFS

Washington DC

tel: (202) 205-1787 fax: (202) 205-1045 cell: (202) 236-5153

E-mail: eagee@fs.fed.us

Catherine M. Mater:

President—Mater Engineering

Senior Fellow – The Pinchot Institute for Conservation

Corvallis, Oregon; Washington, DC

tel: (541) 753-7335 fax: (541) 752-2952; cell: (541) -60-5526

E-mail: catherine@mater.com