

CROP and “Levelized” Supply:

**A National Pilot Project
for
Sustainable Woody Biomass Removal from Public Forestlands**

**Presented by
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First - Thank-you all!

Main political pressures (public perspective):

- *Reduction of catastrophic wildfires* – especially around urban interface areas
- Urgent focus on *new renewable energy sources*
- Early front-runner ‘silver bullet’ solutions on wind, ethanol ... *just about everything but woody biomass.*

... and yet ...

New energy goals cannot be achieved without woody biomass in the feedstock mix . . .

. . . not enough other feedstocks to satisfy demand

Unintended impacts already being felt as a result of push toward uni-feedstock use (corn for ethanol)

. . . higher food prices

. . . increased hunger in the poor

Wildfires, fuel load, and carbon emissions . . .

No small matter!

- **200,000 high risk acres could emit 16 million tons of CO₂**
- **Equivalent to 30-40 tons of dry biomass going up in smoke *per acre!***

. . . most starting well outside urban interface areas

- . . . the projections for catastrophic wildfires have increased and fighting these fires is projected to consume over 35% of the entire USFS federal
- . . . President Bush proposed that the nation produce 35 billion gallons a year of biofuels by 2017. The Energy Policy Act requires that 7.5 billion gallons/year of biofuels be produced by 2012
- . . . biotechnology companies in the US that once focused on aspects of the drug discovery process have switched course and are now immersed in biofuels, which are expected to generate revenue in a much shorter time frame than drugs

Different stakeholders; *same questions*

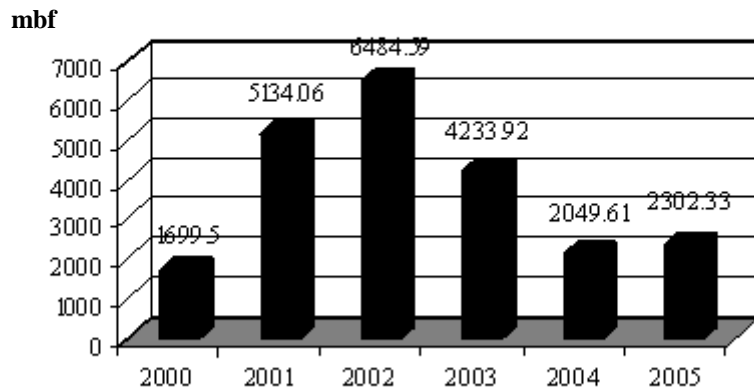
	Energy Investor	Enviros
<u>Transparency of information:</u>		
<i>What? (landscape scale)</i>	✓	✓
<i>How much?</i>	✓	✓
<i>Where removed?</i>	✓	✓
<i>When?</i>	✓	✓
<i>How levelized?</i>	✓	
<u>Sustainability:</u>		
<i>Focus on small diameter</i>	✓	✓
<i>Coordination at landscape scale</i>	✓	✓
<i>NEPA</i>	✓	✓
<i>Road accessibility</i>	✓	✓
<u>Credibility:</u>		
<i>Performance as planned</i>	✓	✓
<i>Monitor impacts</i>		✓
<i>Update info</i>	✓	✓

And woody biomass supply?

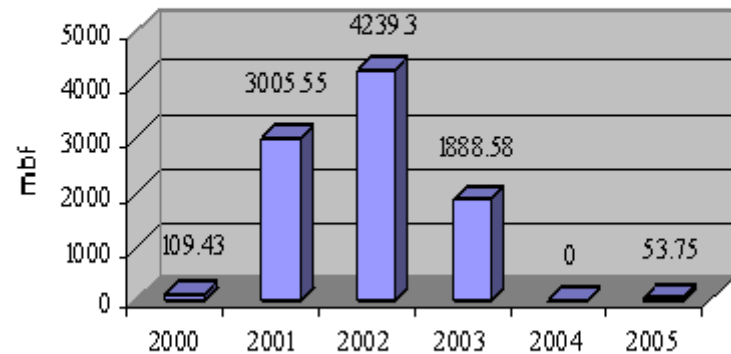
An unreliable proposition at best . . .

Erratic supply offering = *high risk; low credibility*

Volume Sold in Ashley NF 2000-2005
(Total 6-yr. = 21.9 mmbf)



Ashley NF: Sawtimber Sold
(Total 6-yr = 9.2 mmbf)



And perhaps not so surprising . . .

- *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 typically not *economically viable* without value-added step to make bottom line work.

Enter CROP!

*C*oordinated *R*esource *O*ffering *P*rotocol

What we expect from CROP

- Performance in removal vs performance in inventory
- Decreased cost/acre to remove through increased private investment
- Decreased litigation and appeals
- Acceleration of restoration of forest ecosystems
- Increased Congressional support
- Federal appropriations shift toward rewarding performance in small diameter removal

What we do not expect from CROP

- A static process and protocol . . . changes (improvements, adaptations) are essential!

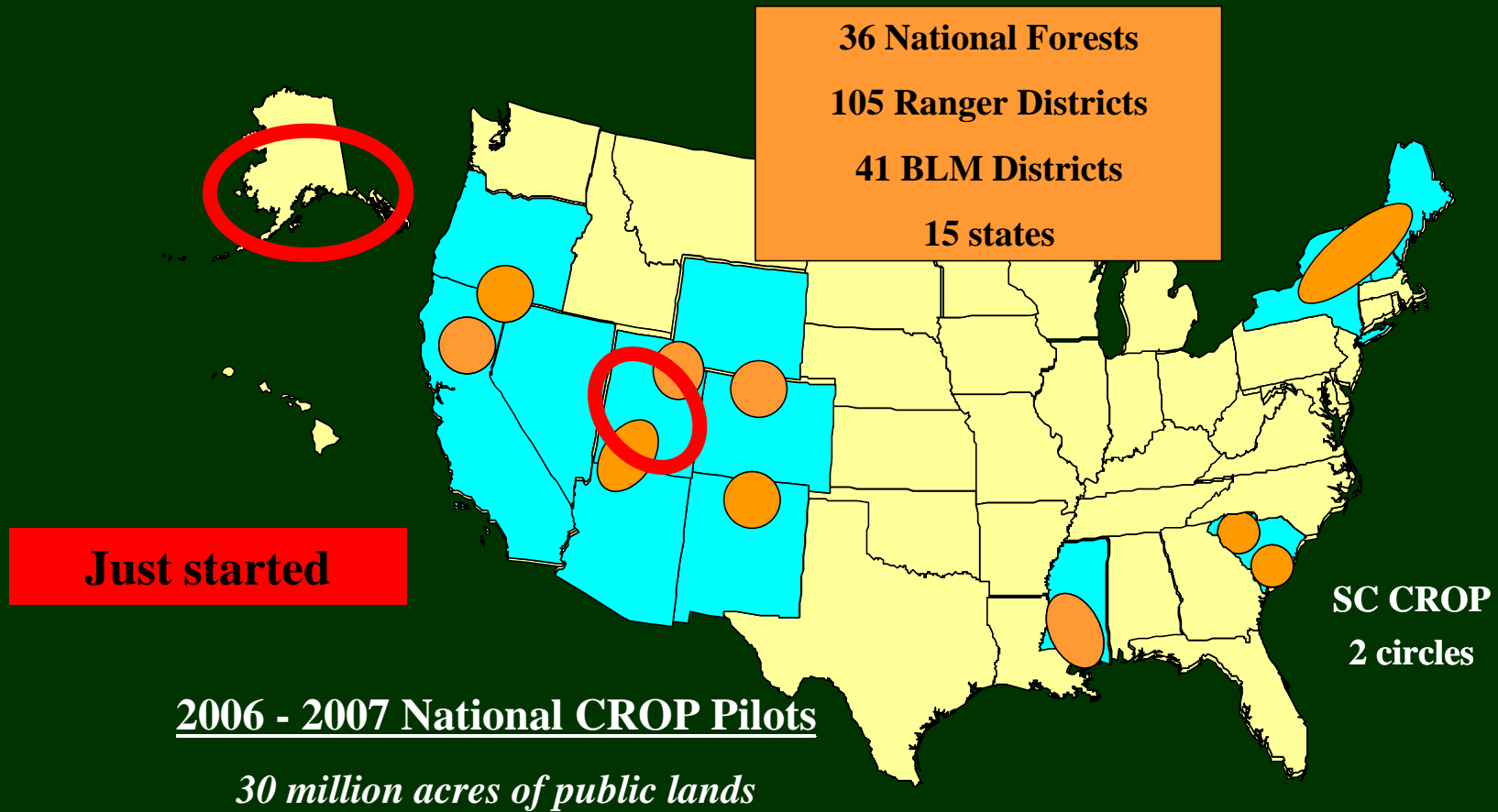
What we asked for:

- **Volume** (by mmbf, green tons, ccf, etc.)
 - **Diameter sizes** <4" 4"-7" 7"-9" 9"-12" >12"
 - **Species** (all species evaluated for resource flow)
 - **Harvest "type"**: fuel load reduction, timber sale, etc.
 - **Location** of resource offering
-
- **NEPA Phase**
 - **Road accessibility**
- } USFS Pilots

The CROP projects started in 2006 . . .

National Strategy Plan for Woody Biomass Utilization
with *USDA, DOI, DOE* as partners.

Plan initiates ten CROP pilots across the US that
encompass over 25 million acres of public forestland.





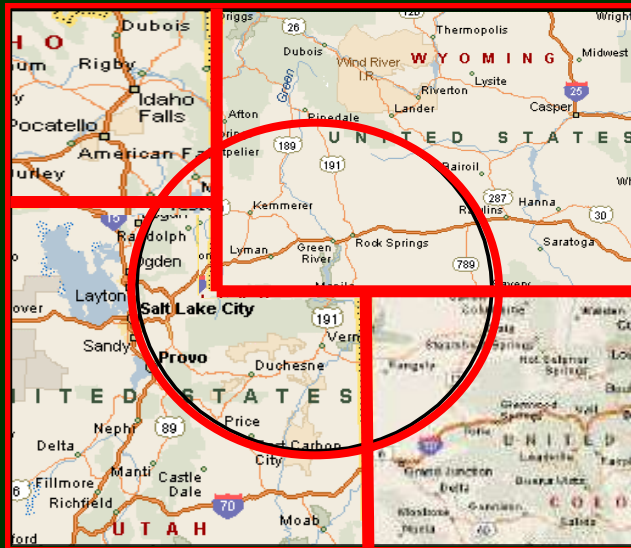
S. Oregon CROP :

**Center Point: Lakeview
100-mi. radius**

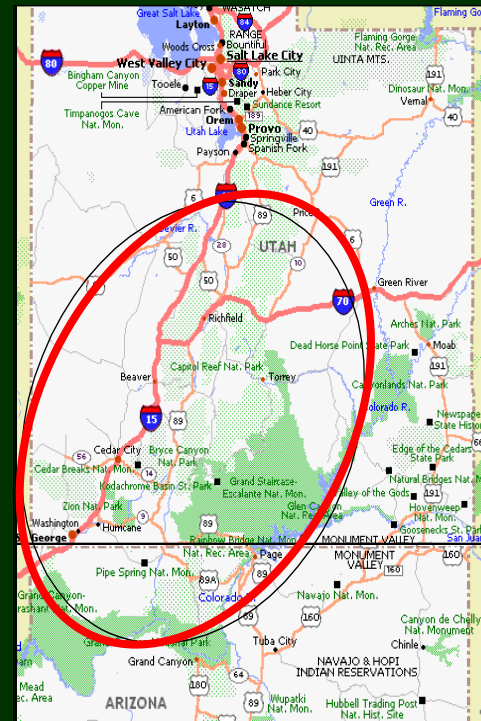


Tahoe Region CROP :

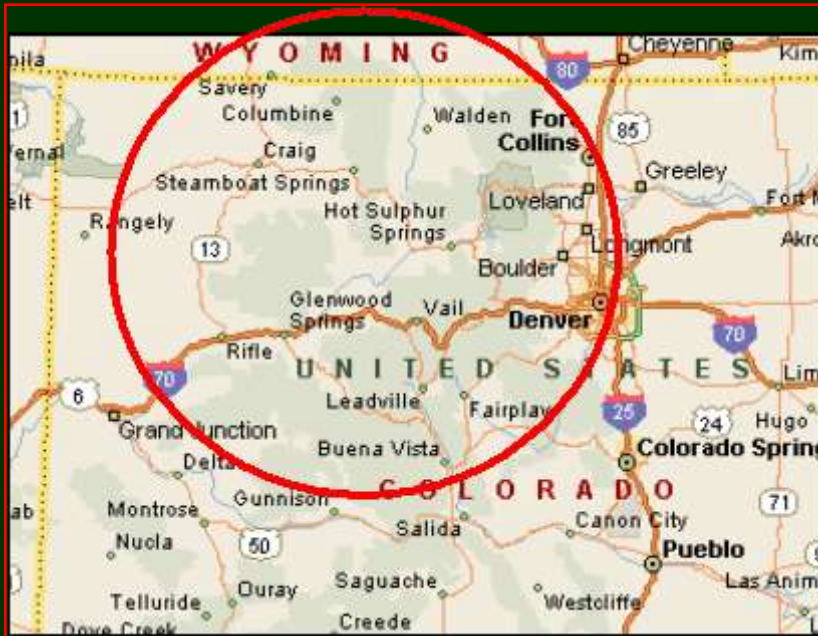
**Center Point: Nevada City, CA
100-mi. radius**



N. Utah CROP :
Center Point: Manila
100-mi. radius



S. Utah CROP:
Center Point: Panguitch
125-mi. (N & S)
100-mi. (E & W)

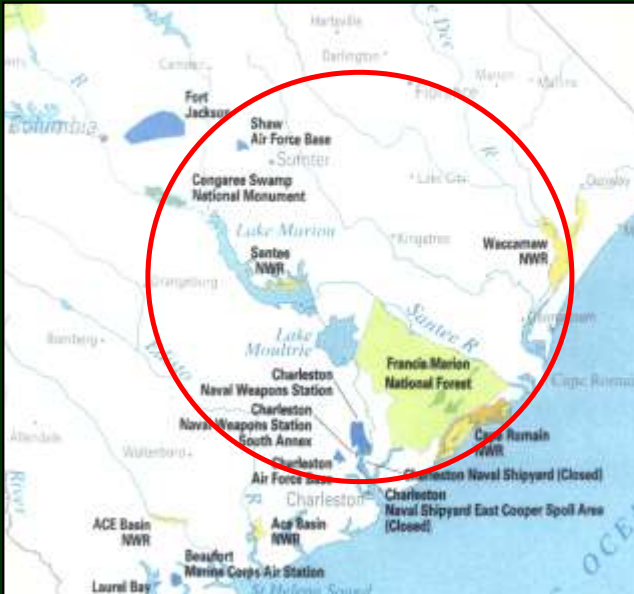


Colorado CROP :

**Center Point: Kremmling
100-mile radius**

New Mexico CROP:

**Center Point: Santa Fe
100-mi. radius**



South Carolina 1 CROP:

**Center Point: Foreston
50-mi. radius**



South Carolina 2 CROP:

**Center Point: Saluda
50-mi. radius**

Salt Lake City CROP Biomass Summit



Mississippi CROP :

**Center Point: Mt. Olive
100-miles N/S; 60 miles E/W**

Vermont/ New Hampshire CROP :

**Center Point: Hanover, NH
75-mi. radius**

Southern Oregon CROP Overall:

Year	Total Biomass (1,179,924.7 gT)	% of 5-yr volume	Total Small Log (284.317 mmbf)	% of 5-yr volume	Total Large Log (283.949 mmbf)	% of 5-yr volume
2006	285,125	24%	64.29	23%	66.64	23%
2007	220,737	19%	57.27	20%	55.62	20%
2008	270,861	23%	58.48	20%	55.78	20%
2009	215,030	18%	54.33	19%	59.22	21%
2010	188,170	16%	49.93	18%	46.69	16%

Biomass = 30%
(up to 7" dbh)

Small Logs = 35%
(>7" – 12" dbh)

Large Logs = 35%
(>12" dbh)

65% of biomass offering in small diameter material

*Southern Oregon CROP results:
... baseline for investor decisions*

- ✓ **Locator map** per specific supplier
- ✓ **Summary sheet**
- ✓ **Detailed supply breakouts** by volume, diameter, and year per supplier

Oregon: All Agencies CROP offering '06 - '10
 (gT = 1,179,925 / S = 284.317 mmbf / L = 283.949 mmbf)

BLM:

- A Eagle Lake District (CA) (3.9 mmbf)*
- B Alturas District (CA) (5.09 mmbf)
- C Surprise District (CA) (.488 mmbf)
- D Burns District (OR) (5.381 mmbf)
- E Lakeview District (OR) (56.89 mmbf)

OR - DOF:

- F DOF (33.136 mmbf)

Fremont-Winema NF:

- G SE Zone-Lakeview/Bly RDs (91.02 mmbf)
- H NE Zone-Silver Lake/Paisley RDs (68.78 mmbf)
- I SW Zone-Chiloquin/Klamath RDs (80.97 mmbf)
- J NW Zone-Chemult RD (86.42 mmbf)

Shasta-Trinity NF:

- K Mt. Shasta-McCloud Mgt. Unit (134.75 mmbf)

Modoc NF:

- L Warner Mtn RD (49.75 mmbf)
- M Devils Garden RD (35.84 mmbf)
- N Big Valley RD (56.5 mmbf)
- O Doublehead RD (13 mmbf)

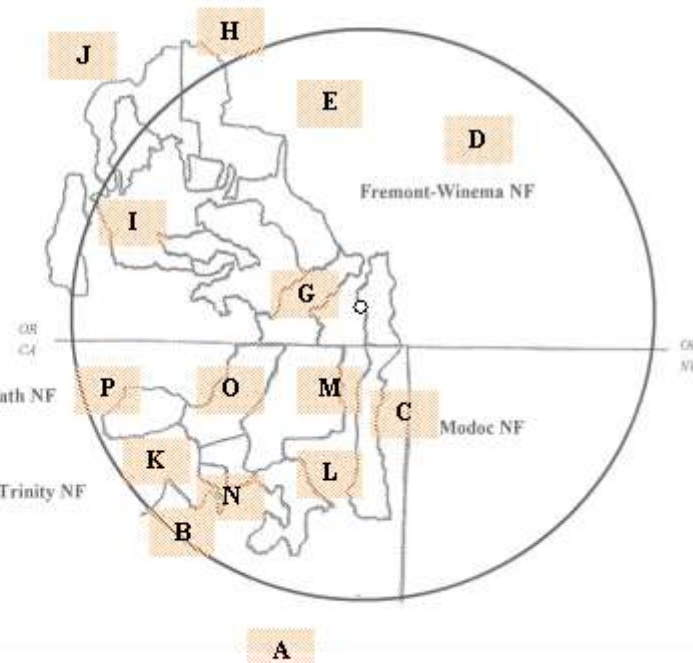
Klamath NF:

- P Gooseneck RD (63.7 mmbf)

OR - DSL:

- Q DSL (18.639 mmbf)

Locator Map



* 5-yr volume offering

Summary Sheet *Walt Lake City CROP Biomass Summit*

Oregon: All Agencies CROP offering '06 - '10
 (gT = 1,179,925 / S = 284.317 mmbf / L = 283.949 mmbf)

gT = green tons (up to 7" dbh)
 S = small log mmbf (>7"-12" dbh)
 L = large log mmbf (>12" dbh)

Fremont-Winema NF: 4 Zones - 40%
 (gT = 555,953 / S = 141.94 / L = 74.05)

Klamath NF: 1 RD - 8%
 (gT = 53,750 / S = 36.15 / L = 16.8)

Shasta-Trinity NF: 1 RD - 17%
 (gT = 48,750 / S = 40 / L = 85)

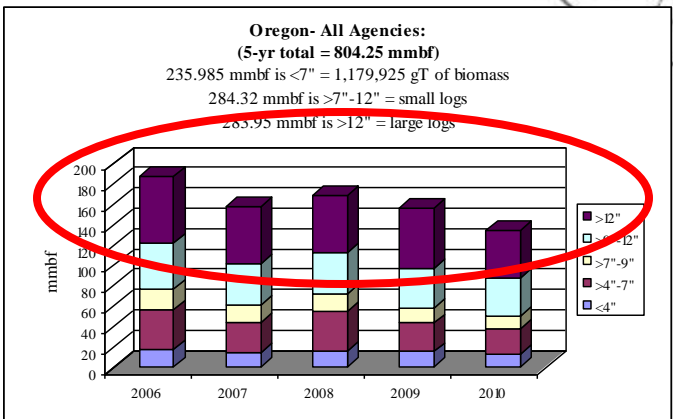
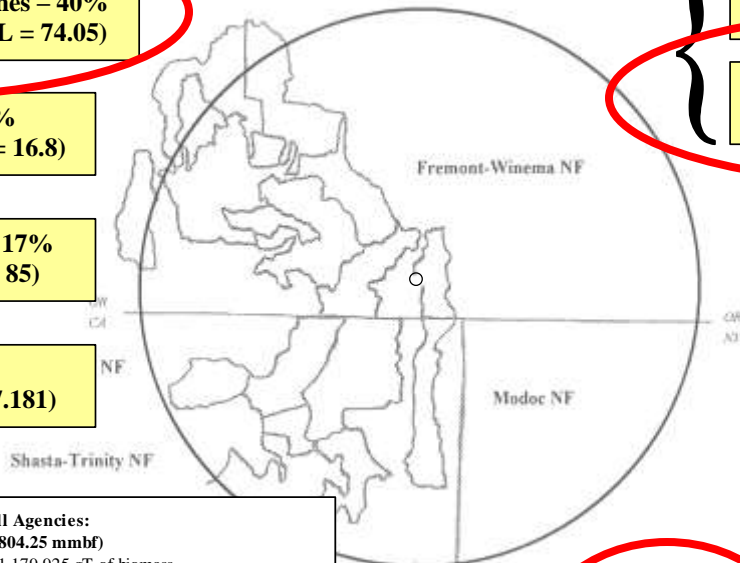
OR-DOF: 4%
 (gT = 224 / S = 5.91 / L = 27.181)

CA-BLM: 3 districts - 1%
 (gT = 5,150 / S = 5.607 / L = 2.842)

OR-BLM: 2 districts - 9%
 (gT = 79,270 / S = 29.53 / L = 16.88)

OR-DSL: 2%
 (gT = 126 / S = 3.325 / L = 15.29)

Modoc NF: 4 RDs - 19%
 (gT = 436,700 / S = 21.845 / L = 45.9)



	gT	mmbf	
	Biomass	Small Log	Large Log
2006	35125.5102	64.292574	66.64043223
2007	210737.2339	57.27669064	55.61689684
2008	270861.4812	58.48988663	55.78514069
2009	215030.0886	54.33014315	59.21929954
2010	188170.3815	49.92775859	46.68697723
Totals	1179924.695	284.3170527	283.9487465
%		29%	35%
mmbf	235.9849391		

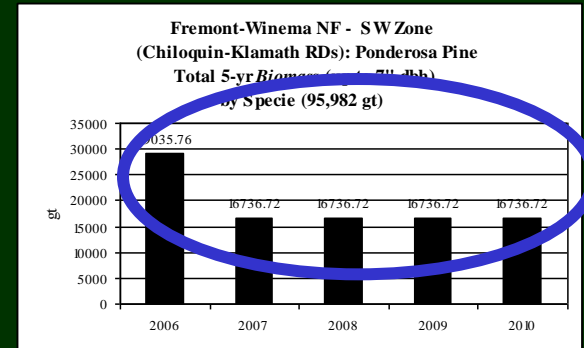
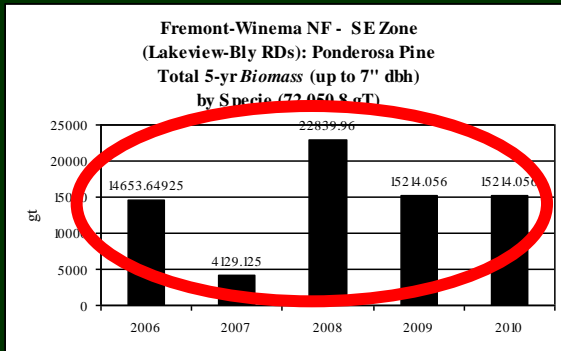
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Ponderosa Pine: Fremont-Winema - NF 4 RDs – biomass offerings

(% of NF offering of 275,312 gT)

SE Zone (Lakeview-Bly RDs) - 26%

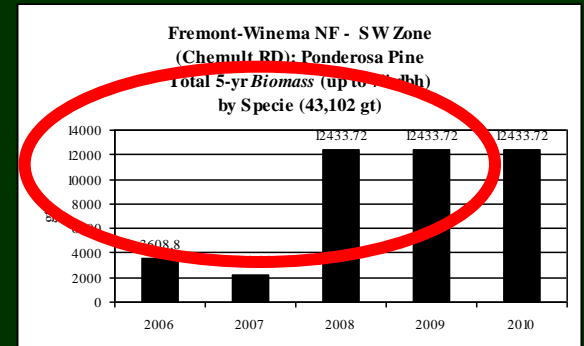
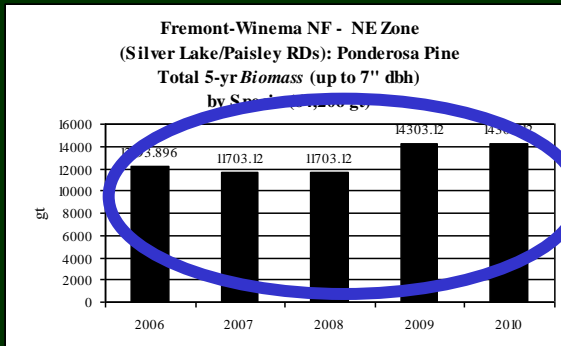
SW Zone (Chiloquin-Klamath RDs) - 35%



Levelized supply?

NE Zone (Silver Lake-Paisley RDs) - 23%

NW Zone (Chemult RD) - 16%



A very good picture for small log processing with largest percentage of flow to be in the >9"-12" strata, and with an annual volume of ~ 57 mmbf.

(% of total volume)	4"-7"	>7"-9"	>9"-12"	<4"
<i>Ponderosa pine</i>	22%	9%	28%	11%
<i>White fir</i>	17%	8%	21%	9%
<i>Jeffrey pine</i>	42%	3%	14%	14%
<i>Juniper</i>	13%	18%	31%	6%
<i>Douglas fir</i>	23%	17%	28%	7%
<i>Lodgepole pine</i>	21%	12%	25%	9%
<i>Incense cedar</i>	11%	12%	19%	0%
<i>Knobcone pine</i>	11%	16%	21%	0%
<i>Sugar pine</i>	25%	25%	26%	0%
<i>Other conifers</i>	6%	7%	23%	0%

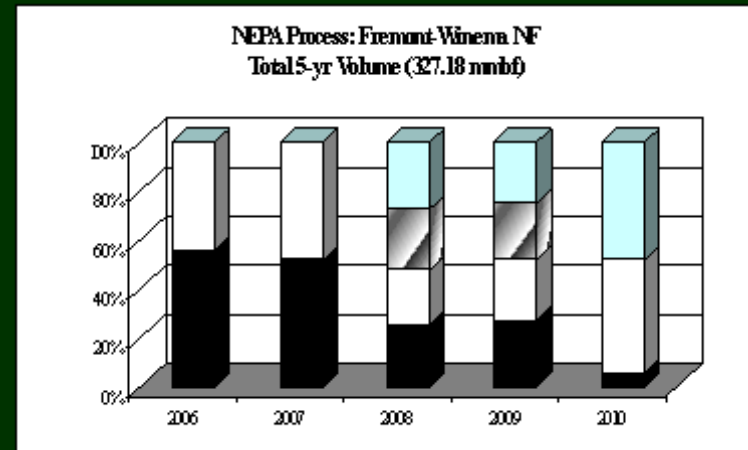
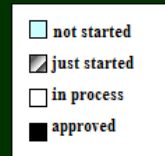
Is there a change? *Yes!*

Winema-Fremont NF	'01-'05 (mmbf)	Thru '09 (mmbf includes gT)
<i>White fir</i>	27.9	62.8
<i>Incense cedar</i>	7.07	0
<i>Ponderosa pine</i>	43.1	198.9
<i>White pine</i>	.229	0
<i>Other conifers</i>	7.9	0
<i>Lodgepole pine</i>	12.3	65.4
<i>Total</i>	93.4	327.1

Fremont-Winema NF: Total 5-yr volume (327.18 mmbf; includes gT as mmbf)

NEPA?

	<i>mmbf</i>	<i>% of total</i>
<i>Approved</i>	111.16	34%
<i>In process</i>	122.24	37%
<i>Just started</i>	30.25	9%
<i>Not started</i>	63.53	19%

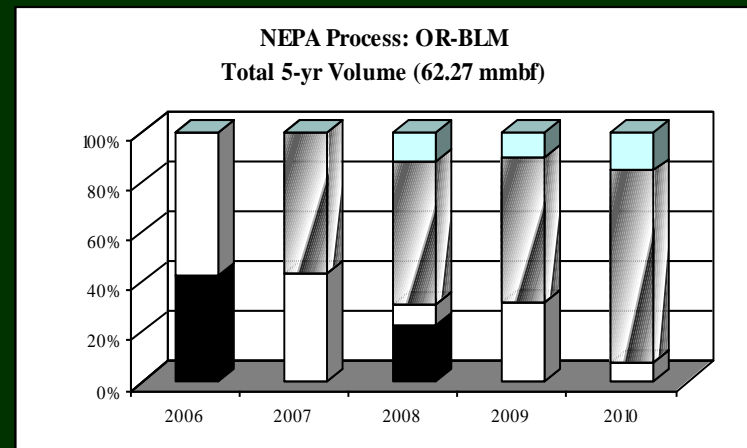
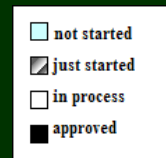


Over 70% of planned removal already NEPA approved or in process!

OR-BLM: Total 5-yr volume (62.27 mmbf; includes gT as mmbf)

NEPA?

	<i>mmbf</i>	<i>% of total</i>
<i>Approved</i>	7.61	12%
<i>In process</i>	16.73	27%
<i>Just started</i>	32.55	52%
<i>Not started</i>	5.38	9%



Almost 40% of planned removal already NEPA approved or in process!

5 year CROP volumes (gT)

	<i>Southern Oregon</i>	<i>Northern Utah</i>	<i>Southern Utah</i>	<i>Colorado</i>	<i>New Mexico</i>	<i>S. Carolina (1)</i>	<i>S. Carolina (2)</i>	<i>NE</i>	<i>Tahoe</i>	<i>MS</i>
<i>Biomass (gT)</i>	1,179,925	239,348	274,512	273,726	1,040,968	433,620	354,000	81,597	947,182	227,625
<i>Small log (mmbf)</i>	284.3	97.36	149.65	279.1	77.3	65.2	102.12	72.58	687.51	109.54
<i>Large log (mmbf)</i>	283.95	38.53	78.15	128.1	22.65	38	194.86	67.87	657.13	111.49
<i>Biomass and Small log as a % of total 5-yr.</i>	65%	79%	72%	72%	93%	77%	46%	57%	57%	58%

In proper perspective: enough biomass to build 17 new small log mills and 7 new large log mills

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