



The Challenges and Choices for Woodland Owners In a Cap and Trade World



WOODLANDS CARBON

CREATING ACCESS TO CARBON MARKETS FOR FAMILY WOODLAND OWNERS

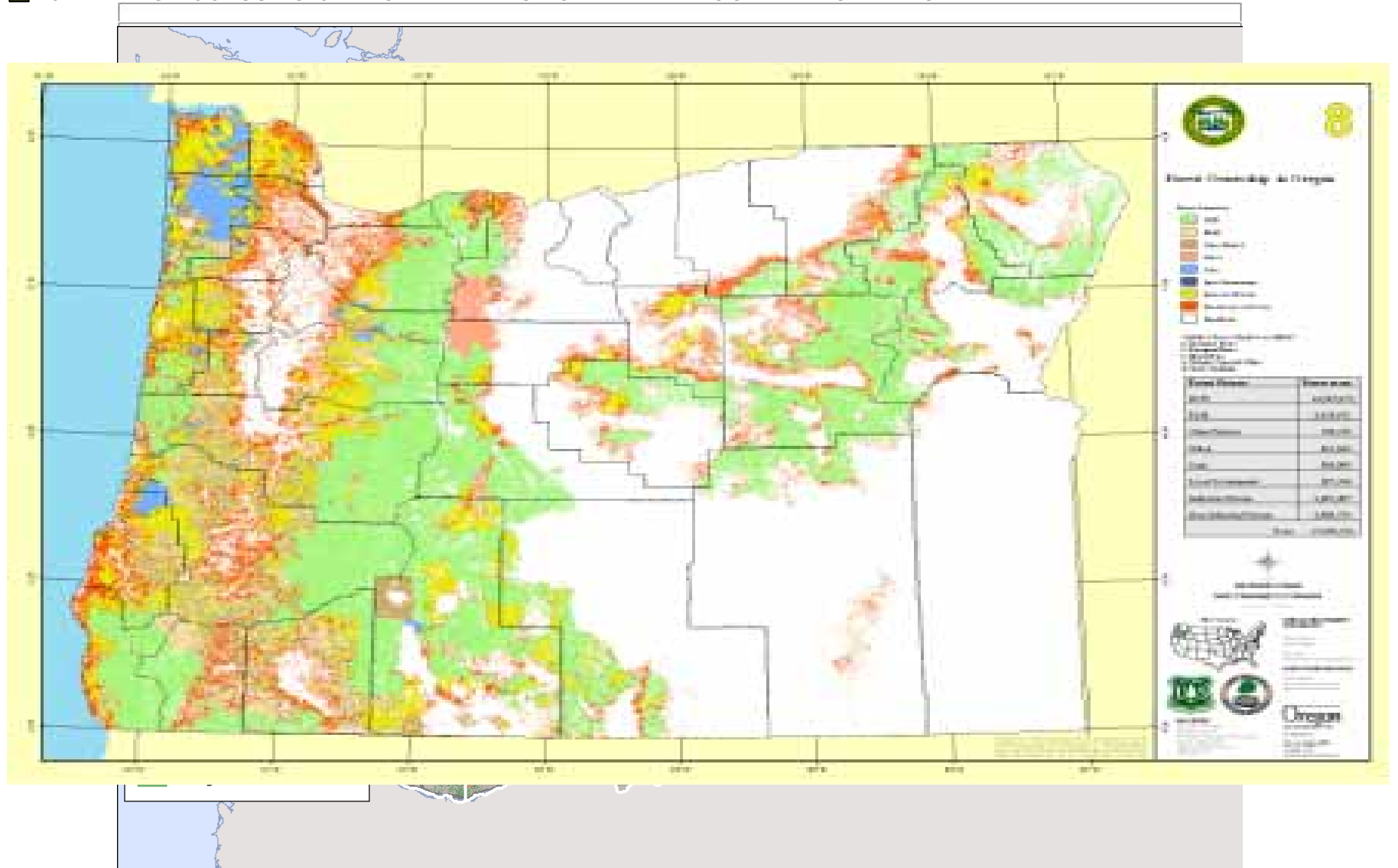
- Woodlanders, Forests, Wood, Climate
- Cap and Trade - Forest Offsets
- The Markets We Can Access Today
- The Basic Rules
- The Contract
- The Inventory Guidelines (MBG PPT)
- The Numbers
- The Next Steps



Woodlanders, Forests, Wood, Climate

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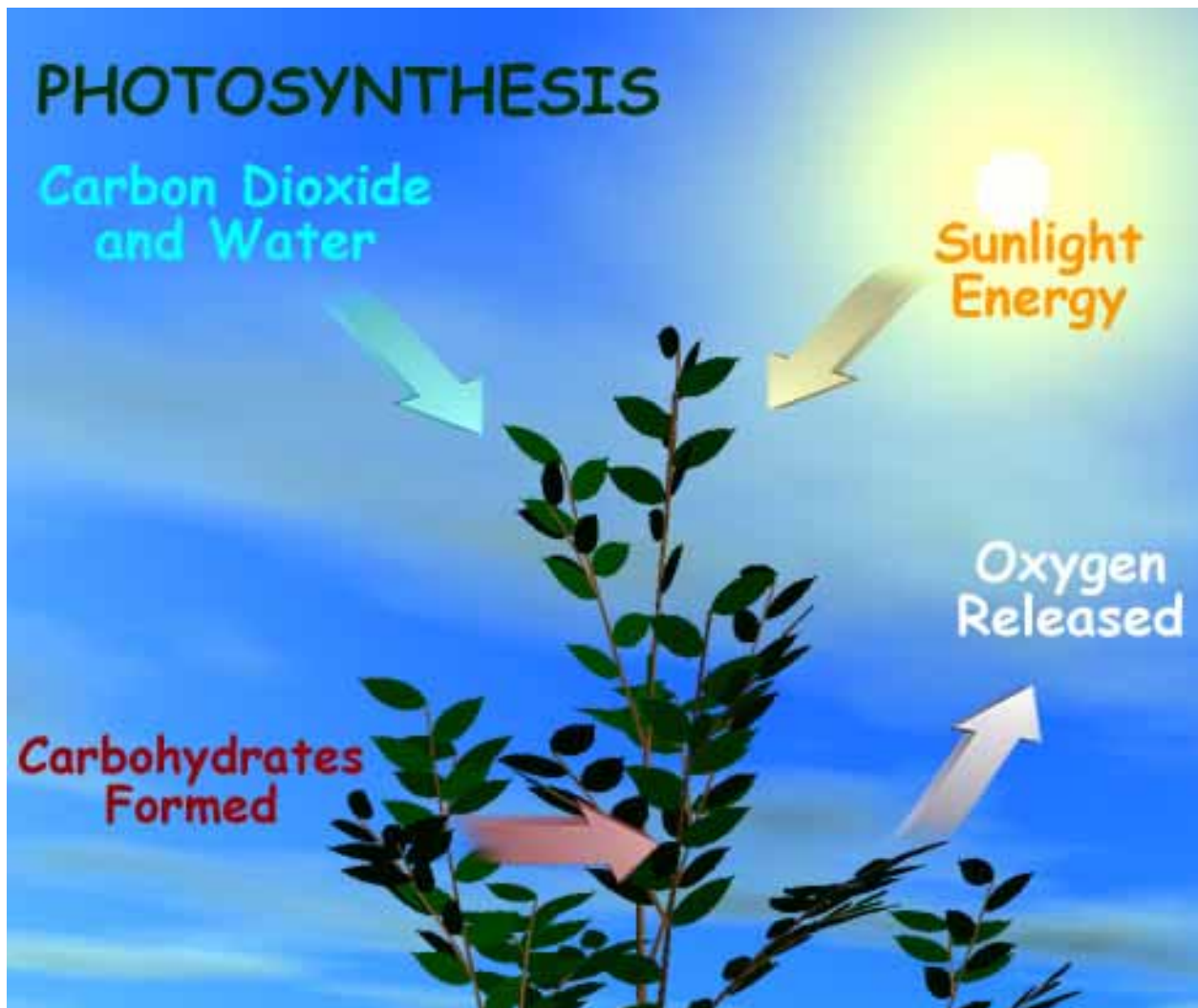
- The Key to Climate Change.

The Air is Agnostic

- We'll need a number of approaches and incentives to help forest communities capture and store carbon while the global economy moves to a less carbon intensive energy supply.

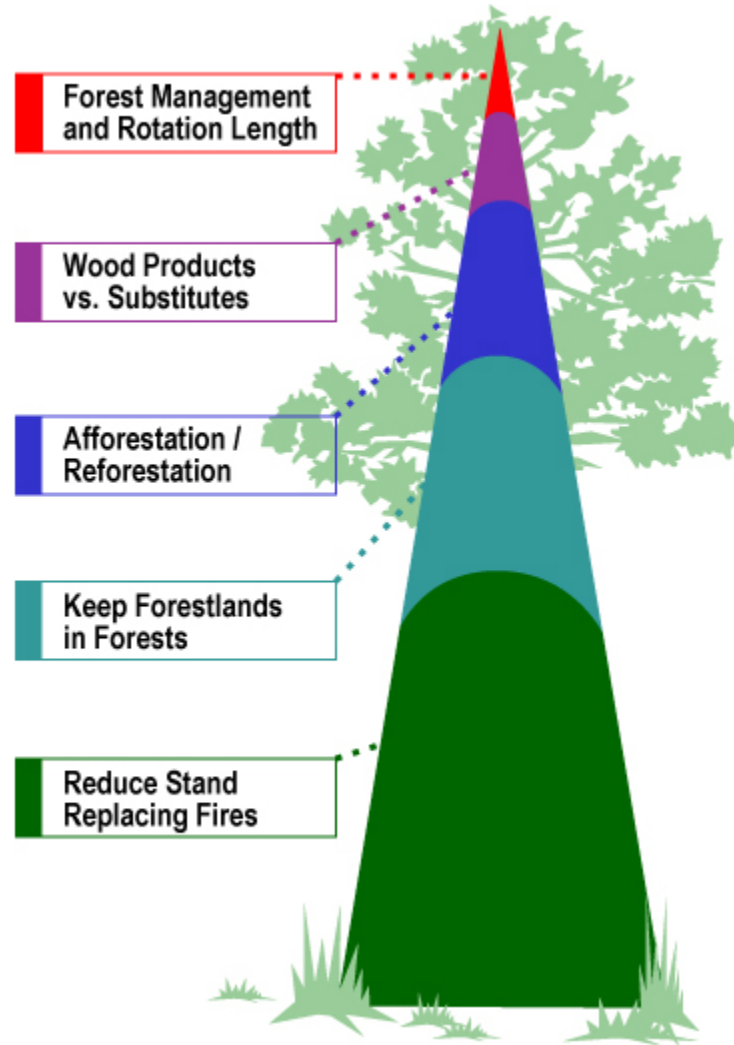
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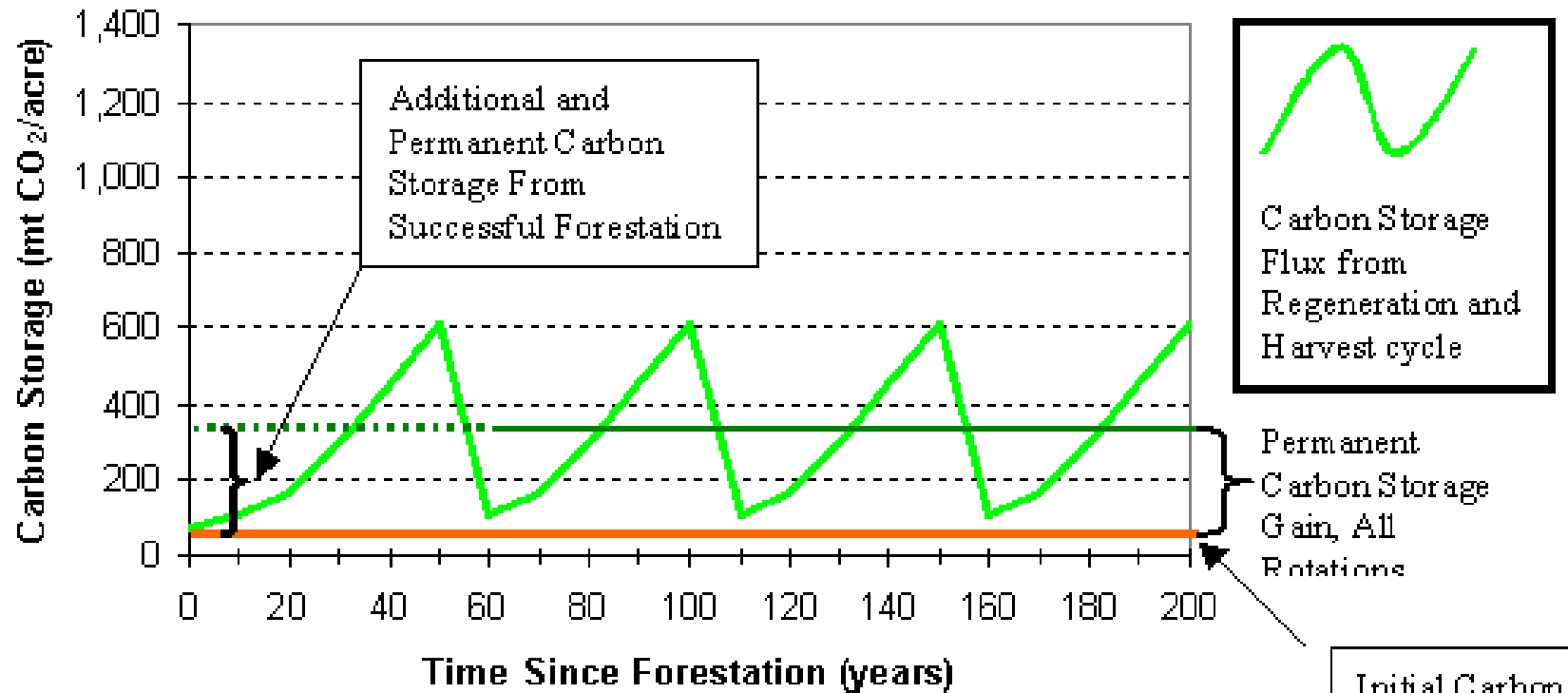
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Values based on Sampson and Hair (1996), Appendix 3 (by Richard A. Birdsey), Table 21 (Pacific Coast, Douglas-fir, High Site)

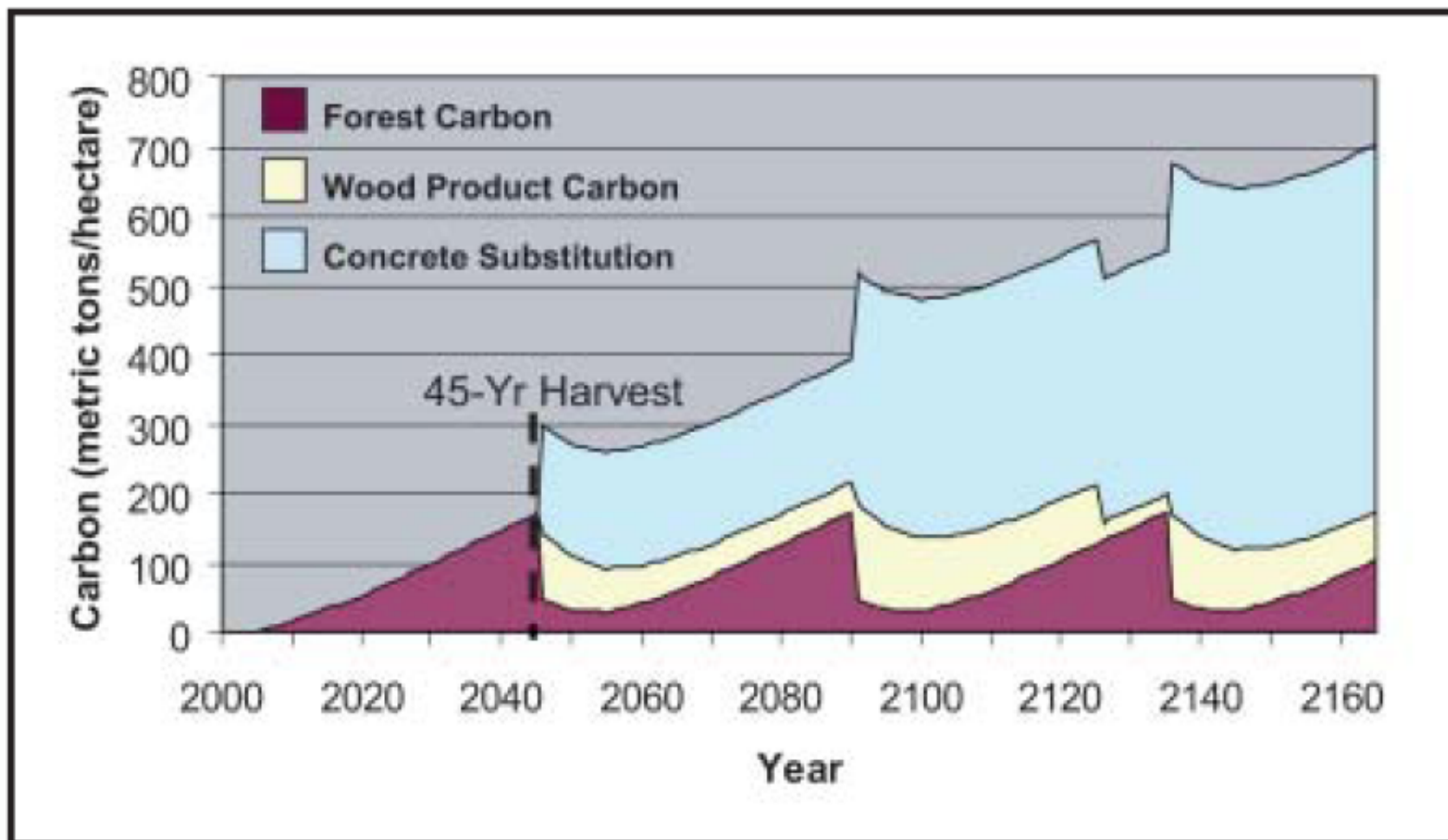
mt CO₂ – metric tonnes carbon dioxide emission equivalent

Initial Carbon Storage at Time of Forestation

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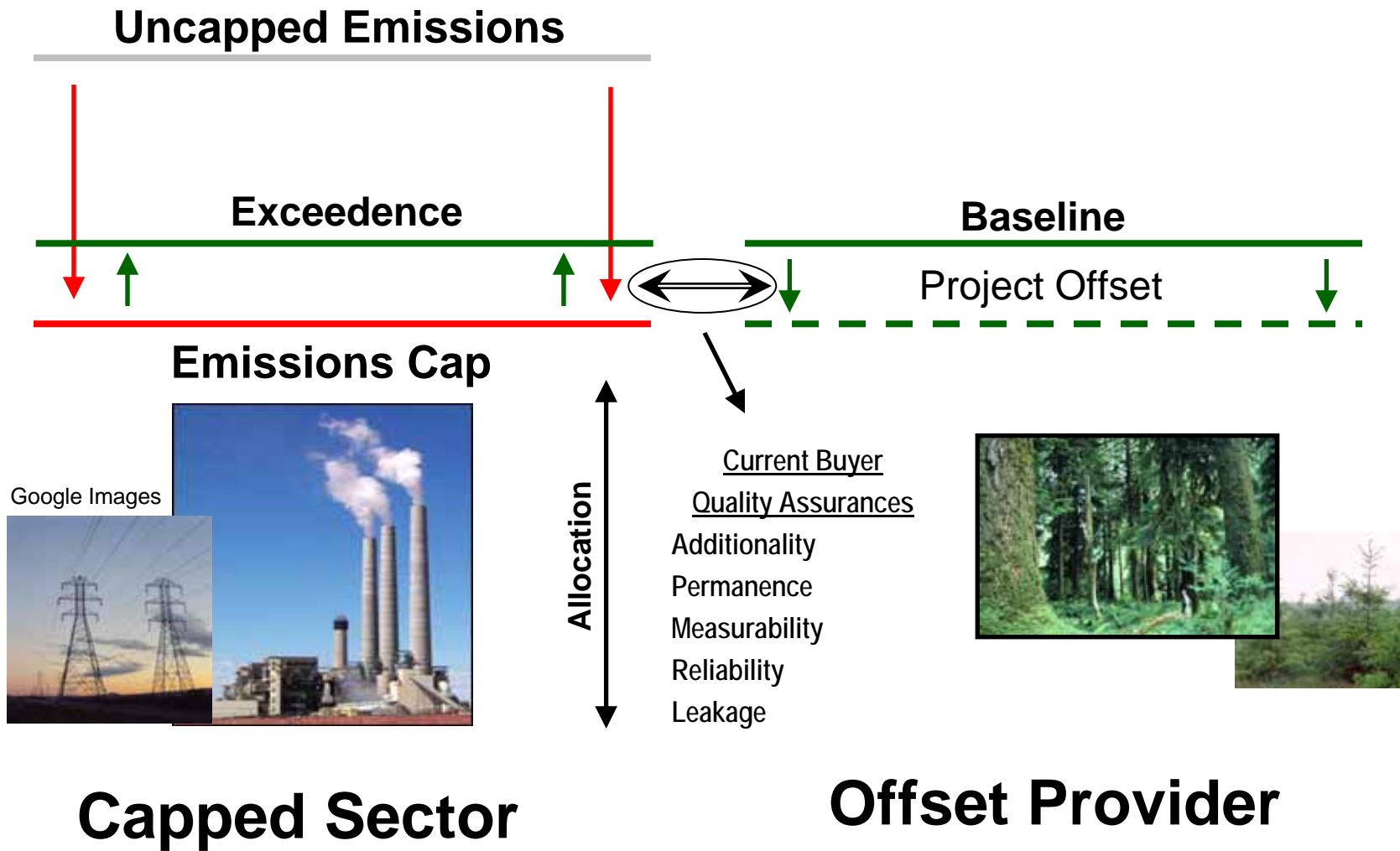


Cap and Trade

Forest Offsets

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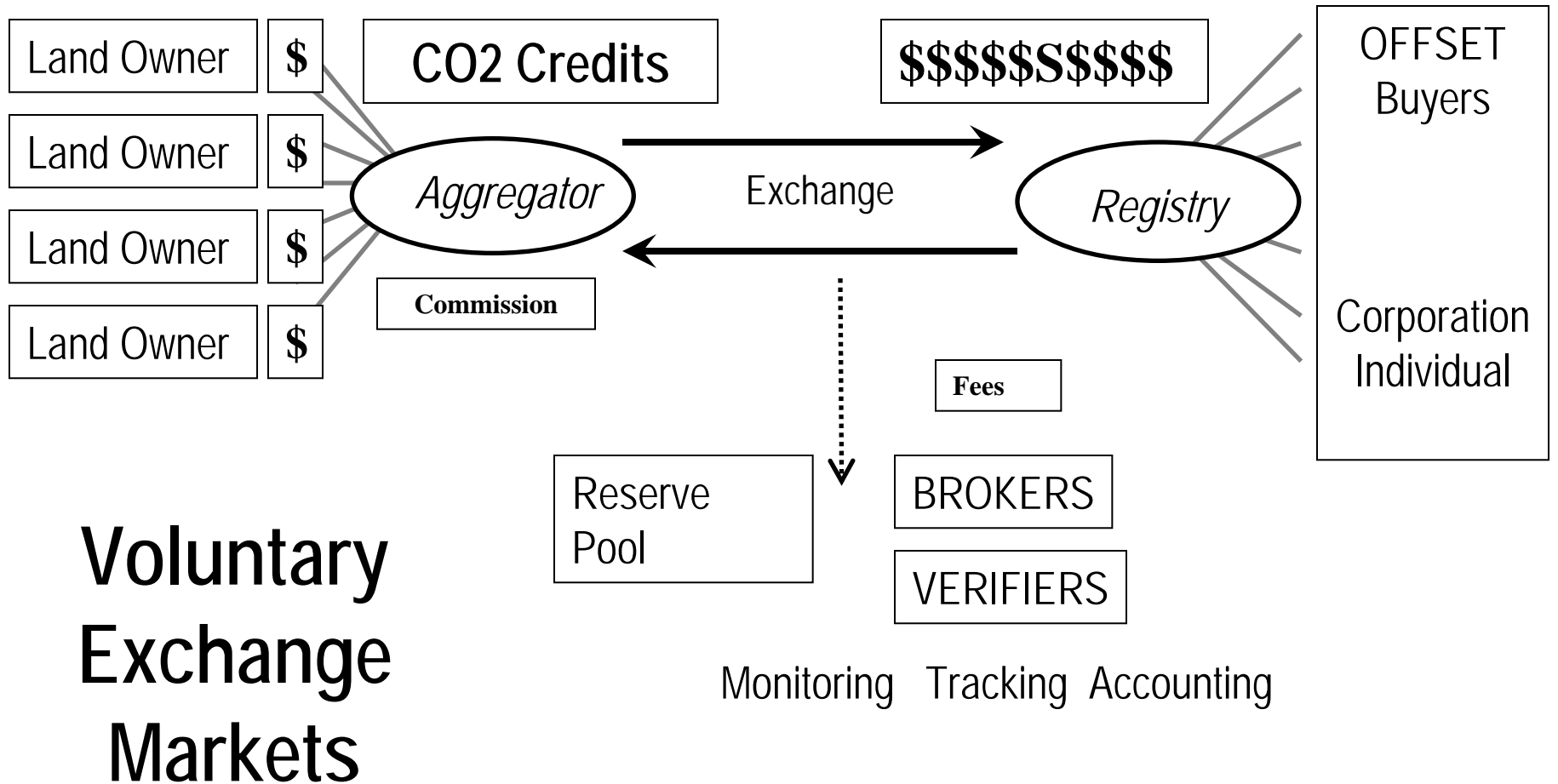
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The Markets Access We Can Today

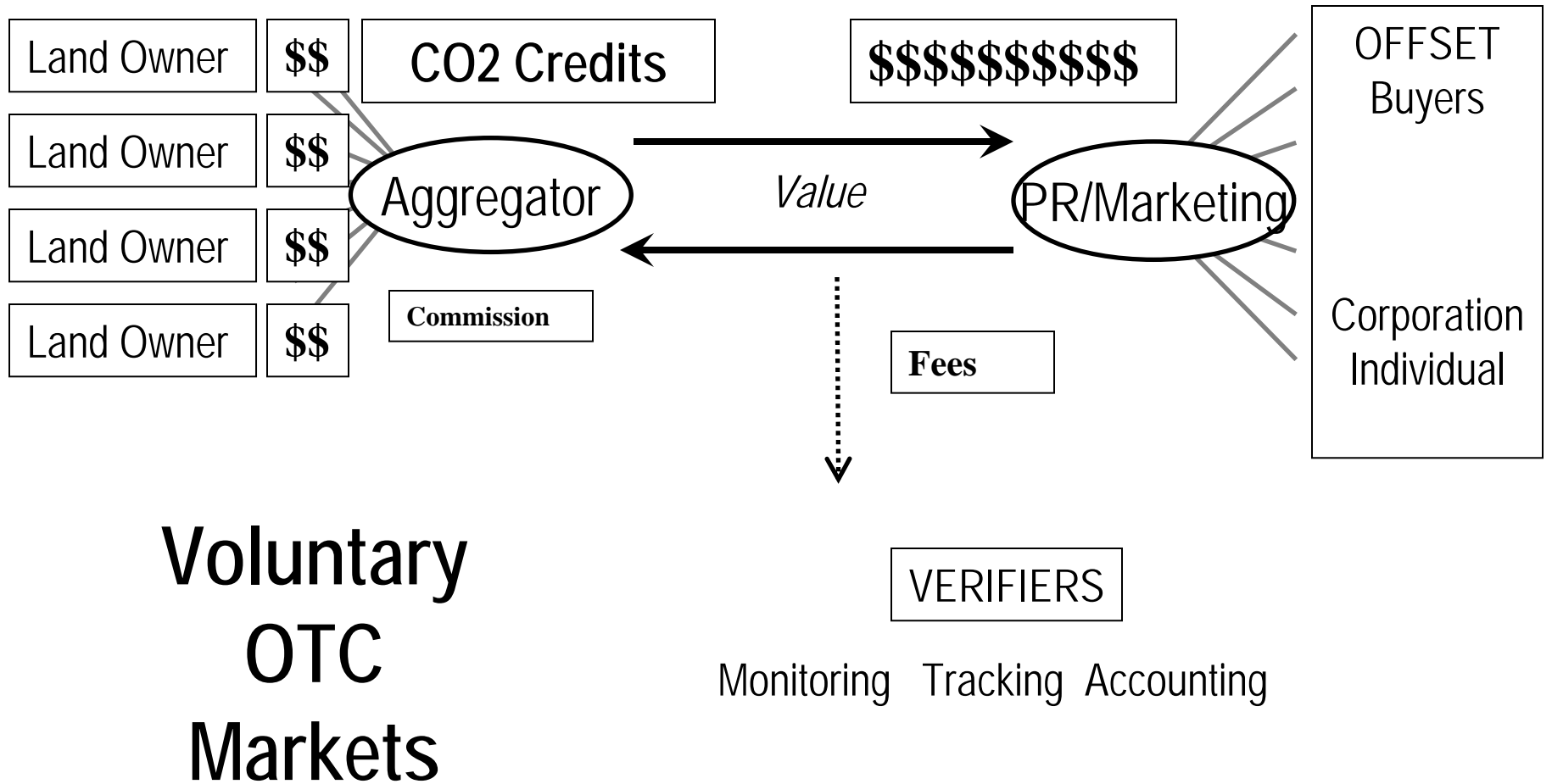
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Market Carbon

Inventory

Get Certified

Oregon Small Woodlands

Family Forest Owners



The Basic Rules



I can get paid for growing & harvesting trees?

Yes

- A number of markets recognize annual growth from certified forests and long term carbon stored in harvested wood products as a legitimate method for storing carbon.



The Air Don't Care.



I can get paid for growing & harvesting trees?

- **Base Year "Grow More" Example**
- In this type of market you conduct a base year inventory and are selling the additional annual increase in carbon sequestered by your forest (the volume growth). You are guaranteeing that this amount will remain sequestered for the length of the contract between you and Woodlands Carbon.
- Contract length is short (3 years and renewable)



I can get paid for growing & harvesting trees?

- **You Tell Me “Change Behavior” Example**
- Other markets (CAR, VCS, and ACR) recognize “Changed behavior” such as extending rotation lengths or moving from low to high carbon productive forests.
- Very much project by project focused at present.
- Difficult to scale. IFM Subjective. Expensive to Implement.
- **Contract lengths an issue for woodland owners**



- **What am I committing to?**
- A Woodlands Carbon base contract runs through 2013.
- That your woodland remains certified for 15 years after the date of enrollment.
- We are developing a 20-50 year contract.
- We aim to be a one stop shop for all market sellers and buyers.



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- **Why should I trade with Woodlands Carbon rather than doing it myself?**
- We play the role of an aggregator to make economies of scale work for accounting and auditing requirements.
- Traders buy and sell credits in 10,000+ metric ton blocks or larger. We aggregate (bundle) woodland owners' yearly carbon growth together into carbon credit pools and then trade the pools on the open market.
- By pooling resources we are also able to employ experts in the fields of forestry and commodity trading, putting us in the best position to succeed in generating additional yearly income for forest landowners.

How many tons of carbon will my forest sequester?

- On average, western forests will sequester between 1.5 to 20 metric tons of CO₂e's / acre / year.
- The exact number will come from the data generated by your inventory.

So I can trade up to 20 tons per acre per year?

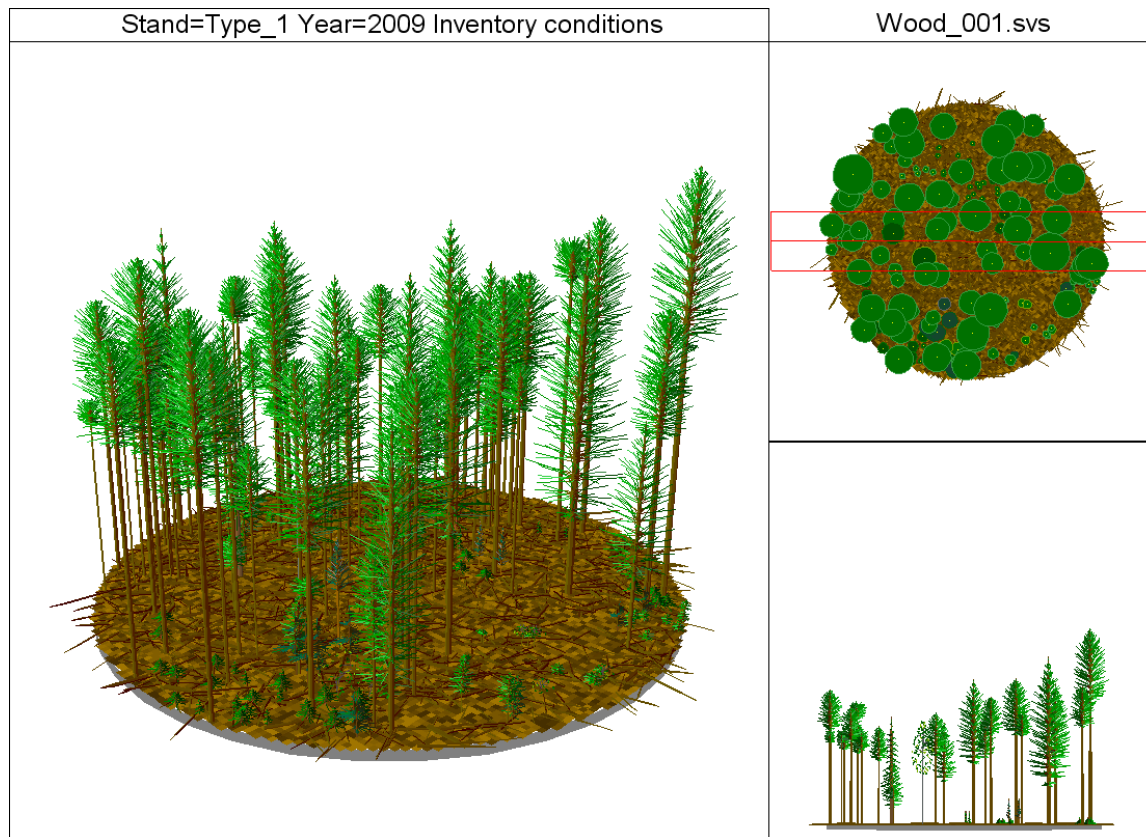
- A: No. On a base year approach you can realistically trade between 60-80% of the sequestered carbon annually. 0 - 20% maximum error calculated into the inventory
 - 20% mandatory reserve against catastrophic loss (can be recaptured at end of contract)
 - Initial data management cost per landowner for this system between \$600-\$1200 (MRG Consulting 2009)

So I can trade up to 20 tons per acre per year?

- On the changed behavior approach, tons are determined by modeling out from an FIA average “baseline” of private forestland stocking in your area.
 - There are around 550 different areas in the USA.
 - Initial data management cost per landowner for this system between \$16,000-\$20,000 (MRG Consulting 2009)

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Stand 1

5194 Total Cubic ft /
acre

Accumulating 7.3
tons / acre of
CO₂e's in 2010

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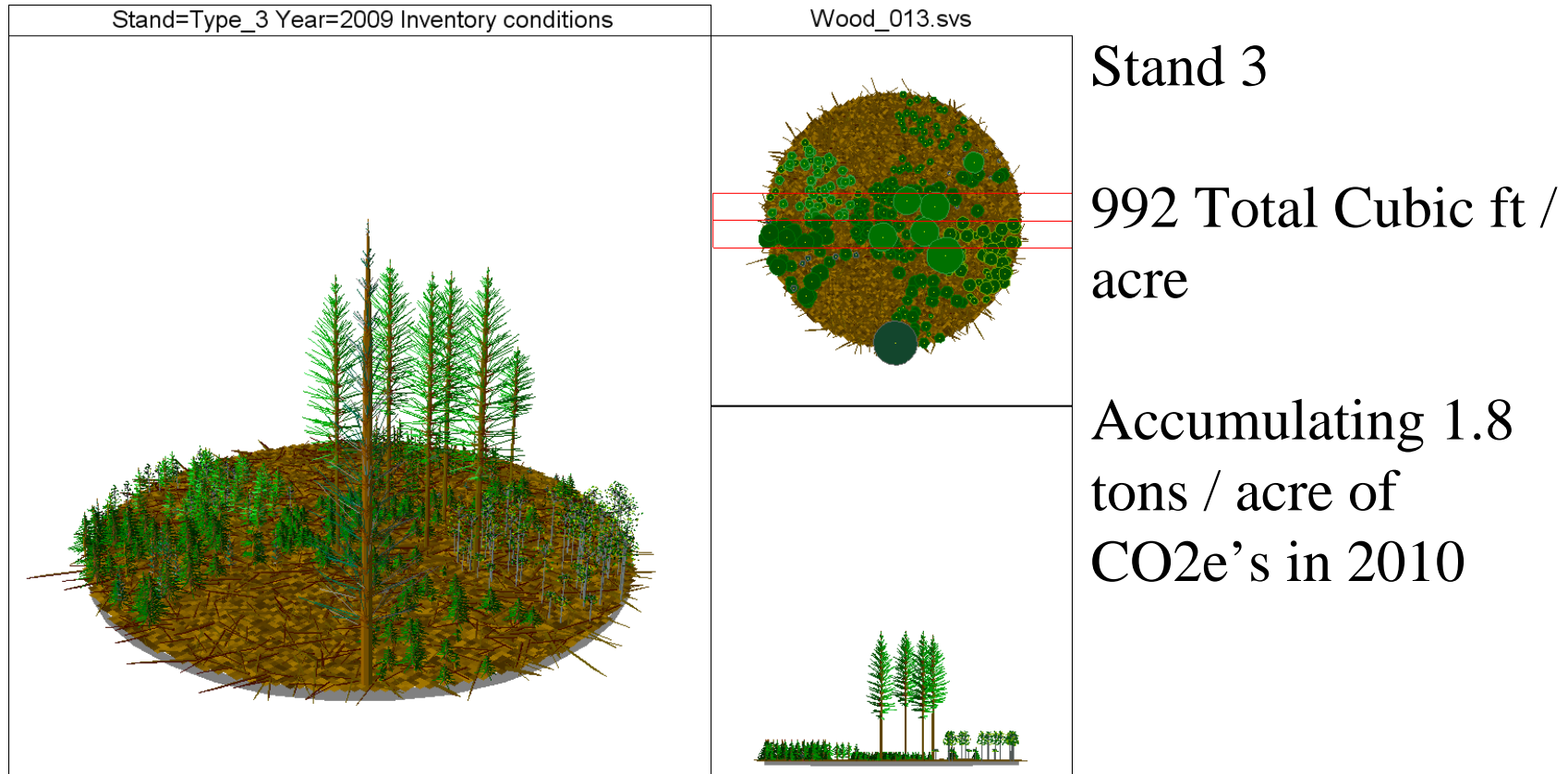
Stand 2

740 Total Cubic ft /
acre

Accumulating 19.21
tons / acre of
CO₂e's in 2010

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The Contract

The Inventory Guidelines (MBG)



The Numbers



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Sample Landowner Data, Forest Inventory and HWP

160 acres of Douglas-fir plantation, PNW west

681000 cf base inventory in 2010 as of baseline inventory data.

32000 cf average annual growth (assumed to stay roughly similar for future years)

Factors

52.77 lbs. of CO₂e per cf (Western Douglas-fir)

41.8 cu ft Df wood per metric ton CO₂e

7.0% Statistical Sampling error % in 2010 original inventory

0.076 Allowable % of softwood pulpwood counted as CO₂e

0.409 Allowable % of softwood sawtimber counted as CO₂e

Scenario

1. Large Early Harvest
2. No Harvest during Contract
3. Split Harvest during Contract

Scenario

Large Early Harvest

We Will Not Sign Contract



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CREATING ACCESS TO CARBON MARKETS FOR FAMILY WOODLAND OWNERS

Year:	2010	2011	2012	2013
Carbon Stock (cf)	681,000	713,000	565,000	597,000
Growth (cf)	32,000	32,000	32,000	32,000
Removals (cf)		180,000		
Percent Saw Timber				
Net Change (cf)	32,000	(148,000)	32,000	32,000
Net Change (tCO2e)	766	-3048	659	659
Placed in Reserve	153	-3048	659	659
Reserve Account	153	-2567	-1908	-1249
<u>Net to sell on CCX</u>	<u>613</u>	<u>0</u>	<u>0</u>	<u>0</u>
Harvested Wood Products				
Softwood Pulpwood (cf)	-	180,000	-	-
Softwood Sawtimber (cf)	-	-	-	-
Allowable CCX Credits (tCO2e)	0	328	0	0



Scenario

No Harvest during Contract



WOODLANDS CARBON

CREATING ACCESS TO CARBON MARKETS FOR FAMILY WOODLAND OWNERS

Year:	2010	2011	2012	2013
Carbon Stock (cf)	681,000	713,000	745,000	777,000
Growth (cf)	32,000	32,000	32,000	32,000
Net Change (cf)	32,000	32,000	32,000	32,000
Net Change (tCO ₂ e)	766	659	659	659
Placed in Reserve	153	132	132	132
Reserve Account	153	285	417	549
Net to sell	613	527	527	527



WOODLANDS CARBON

CREATING ACCESS TO CARBON MARKETS FOR FAMILY WOODLAND OWNERS

Year:	2010	2011	2012	2013
Total to sell (CO2e)	613	527	527	527
Gross Sale Total (GST) \$8.00	4,904	4,217	4,217	4,217
Verification Fee Estimate \$	200	200	200	200
CCX Registration/Trading Fee (\$.20 / Reg credit)	153	105	105	105
Broker Fee (5% of GST) \$	245	211	211	211
Aggregation Fee (15% GST) \$	736	633	633	633
<u>Net to Landowner</u>	<u>3,815</u>	<u>3,279</u>	<u>3,279</u>	<u>3,279</u>



Scenario

Split Harvest during Contract



WOODLANDS CARBON

CREATING ACCESS TO CARBON MARKETS FOR FAMILY WOODLAND OWNERS

Sample Landowner Data, Forest Inventory and HWP

160 acres of Douglas-fir plantation, PNW west

681000 cf base inventory in 2010 as of baseline inventory data.

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Factors

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7.0% Statistical Sampling error % in 2010 original inventory

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0.409 Allowable % of softwood sawtimber counted as CO₂e



WOODLANDS CARBON

CREATING ACCESS TO CARBON MARKETS FOR FAMILY WOODLAND OWNERS

Year:	2010	2011	2012	2013
Carbon Stock (cf)	681,000	713,000	735,000	757,000
Growth (cf)	32,000	32,000	32,000	32,000
Removals (cf)		10,000	10,000	10,000
Percent Saw Timber		75%	75%	75%
Net Change (cf)	32,000	22,000	22,000	22,000
Net Change (tCO ₂ e)	766	453	453	453
Placed in Reserve	153	91	91	91
Reserve Account	153	244	334	425
Makeup from Wood Products		78	78	78
<u>Net to sell</u>	<u>613</u>	<u>362</u>	<u>362</u>	<u>362</u>
Harvested Wood Products				
Softwood Pulpwood (cf)	-	2,500	2,500	2,500
Softwood Sawtimber (cf)	-	7,500	7,500	7,500
Allowable CCX Credits (tCO ₂ e)	0	78	78	78



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Year:	2010	2011	2012	2013
Total to sell (CO2e)	613	440	440	440
Gross Sale Total (GST) \$8.00	4,904	3,523	3,523	3,523
Verification Fee Estimate \$	200	200	200	200
Registration/Trading Fee (\$.20 / Reg credit)	153	88	88	88
Broker Fee (5% of GST) \$	245	176	176	176
Aggregation Fee (15% GST) \$	736	529	529	529
<u>Net to Landowner</u>	3,815	2,707	2,707	2,707



Prices



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Year:	2010	2011	2012	2013
Total to sell	613	440	440	440
Price (\$0.25)				
Gross sale total	153	110	110	110
Verification Fee Estimate	200	200	200	200
Registration/Trading Fee (\$.20/Reg credit)	153	88	88	88
Broker Fee (5% of GST)	8	6	6	6
Aggregation Fee (15% GST)	23	17	17	17
Net to Landowner	(\$222)	(\$194)	(\$194)	(\$194)



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CREATING ACCESS TO CARBON MARKETS FOR FAMILY WOODLAND OWNERS

Year:	2010	2011	2012	2013
Total to sell	613	440	440	440
Price (\$3.00)				
Gross sale total	1,839	1,321	1,321	1,321
Verification Fee Estimate	200	200	200	200
Registration/Trading Fee (\$.20/Reg credit)	153	88	88	88
Broker Fee (5% of GST)	92	66	66	66
Aggregation Fee (15% GST)	276	198	198	198
Net to Landowner	1,209	835	835	835



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CREATING ACCESS TO CARBON MARKETS FOR FAMILY WOODLAND OWNERS

Year:	2010	2011	2012	2013
Total to sell	613	440	440	440
Price (\$11.00)				
Gross sale total	6,743	4,845	4,845	4,845
Verification Fee Estimate	200	200	200	200
Registration/Trading Fee (\$.20/Reg credit)	153	88	88	88
Broker Fee (5% of GST)	337	242	242	242
Aggregation Fee (15% GST)	1,011	727	727	727
Net to Landowner	5,378	3,829	3,829	3,829



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CREATING ACCESS TO CARBON MARKETS FOR FAMILY WOODLAND OWNERS

Total to sell	613	440	440	440
<hr/>				
Price (\$18.00)				
Gross sale total	11,034	7,928	7,928	7,928
Verification Fee Estimate	200	200	200	200
CCX Registration/Trading Fee (\$.20/Reg credit)	153	88	88	88
Broker Fee (5% of GST)	552	396	396	396
Aggregation Fee (15% GST)	1,655	1,189	1,189	1,189
Net to Landowner	9,025	6,450	6,450	6,450
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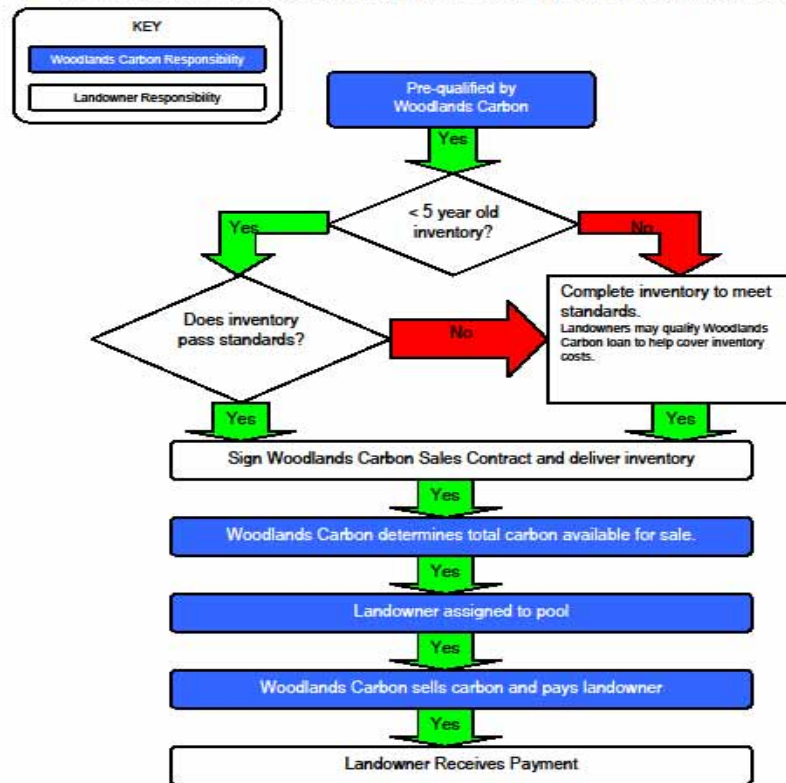
The Next Steps

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- Develop a Forest Management Plan – Have clear objectives. Link your style of management to the desire to improve the carbon sequestration and storage of your forest.
- Get Certified – Most markets require sustainable forest management certification. Both individual and group American Tree Farm System certification is now recognized at CCX.
- Conduct a Forest Inventory -- Know where your property is, what your resources are, and the condition and trajectory of your timber. In most cases, you can get to carbon from merchantable cubic feet. Guidance coming soon.



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