

Forest Carbon Offsets: Project Development for the Nisqually Land Trust

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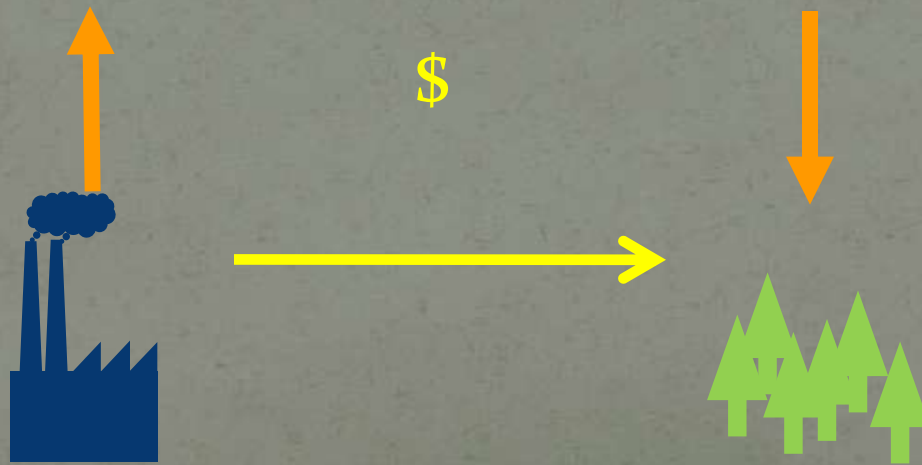
Trout Mount Forestry

February 2, 2012

- What are forest carbon offsets?
- What is creating opportunity now?
- What does it take to put offset projects together?

What is a Carbon Offset?

- **General:** A reduction in CO₂ emissions or increase in sequestration achieved to compensate for emissions somewhere else
- **In a Carbon Market:** A permit to emit greenhouse gases issued when a reduction is achieved at an uncapped source



Who Buys Them?

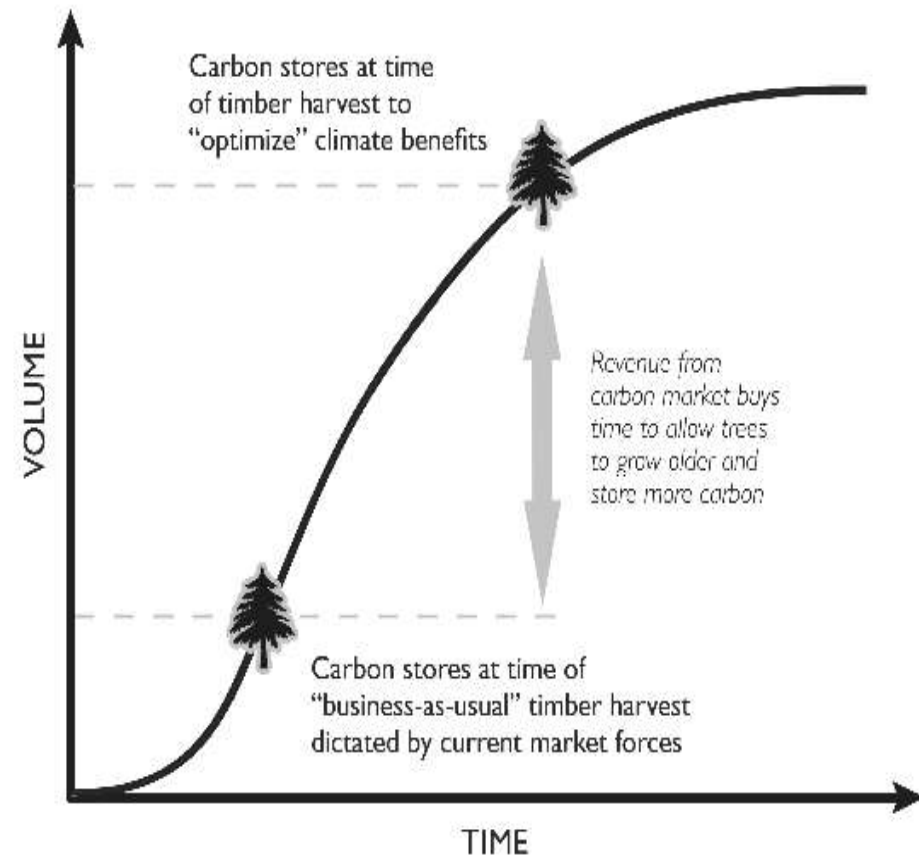
- Corporations wanting to improve sustainability of operations
- Entities who anticipate that they will be required to reduce emissions by law
- Entities already required to reduce emissions by law – Emitters in California, or brokers acting in that market

California Global Warming Solutions Act

- Requires reduction of GHG emissions of 15% from 2012 levels by 2020
- Uses cap and trade with offsets
- Allows forest offset projects from anywhere in the lower 48 states

Why Forests?

- Forests accumulate carbon as they grow
- Forests store carbon for long periods of time
- Harvesting less than growth allows carbon gains in the forest



Generalized forest carbon stores over time for U.S. forests

Why Now?

- CA cap and trade goes live January 1, 2012
- Current prices for regulatory forest offsets: \$11/ton CO₂e
- Projected average price through 2020: \$30/ton
- Projected maximum price: \$63/ton

Two Project Types under ARB Protocol



- Improved Forest Management
 - Harvest less than or retain more carbon than business as usual
- Avoided Conversion
 - Used in areas at risk of development

CA Air Resources Board Protocol Basics

- 100 year commitment period (IFM))
- Standards for measuring carbon pools and forest inventory data quality (very stringent!)
- Standards for setting baseline and additionality: Carbon amount with and without an offset project determines how much credit your project earns
- Requirements for natural forest management

Steps to a Carbon Project



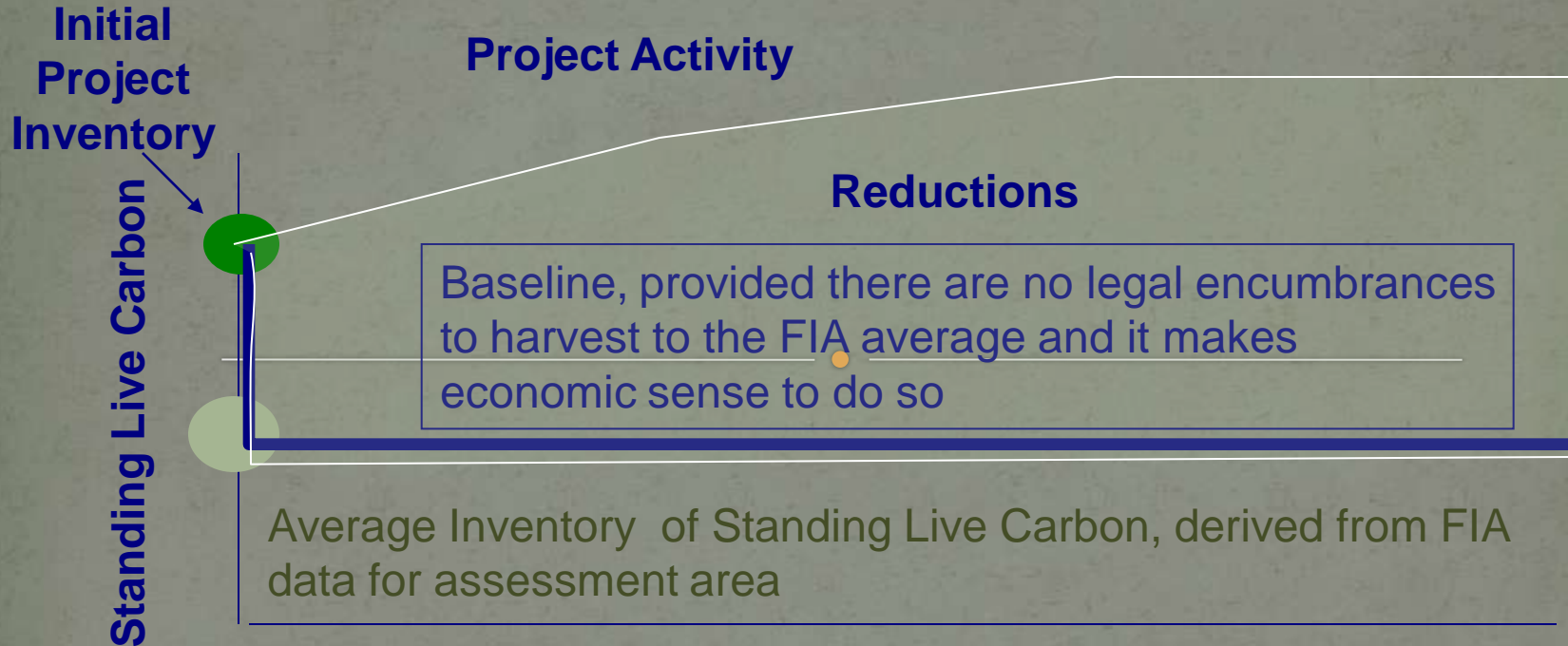
- Carbon inventory (more than a timber cruise!)
- Baseline modeling
- Project activity projections
- Listing
- Leakage assessment

Steps to a Carbon Project



- Permanence risk assessment
- Natural forest management terms
- Quantification of Offsets
- Verification and annual reports
- Registration and credit issuance

Improved Forest Management Avoided depletion project



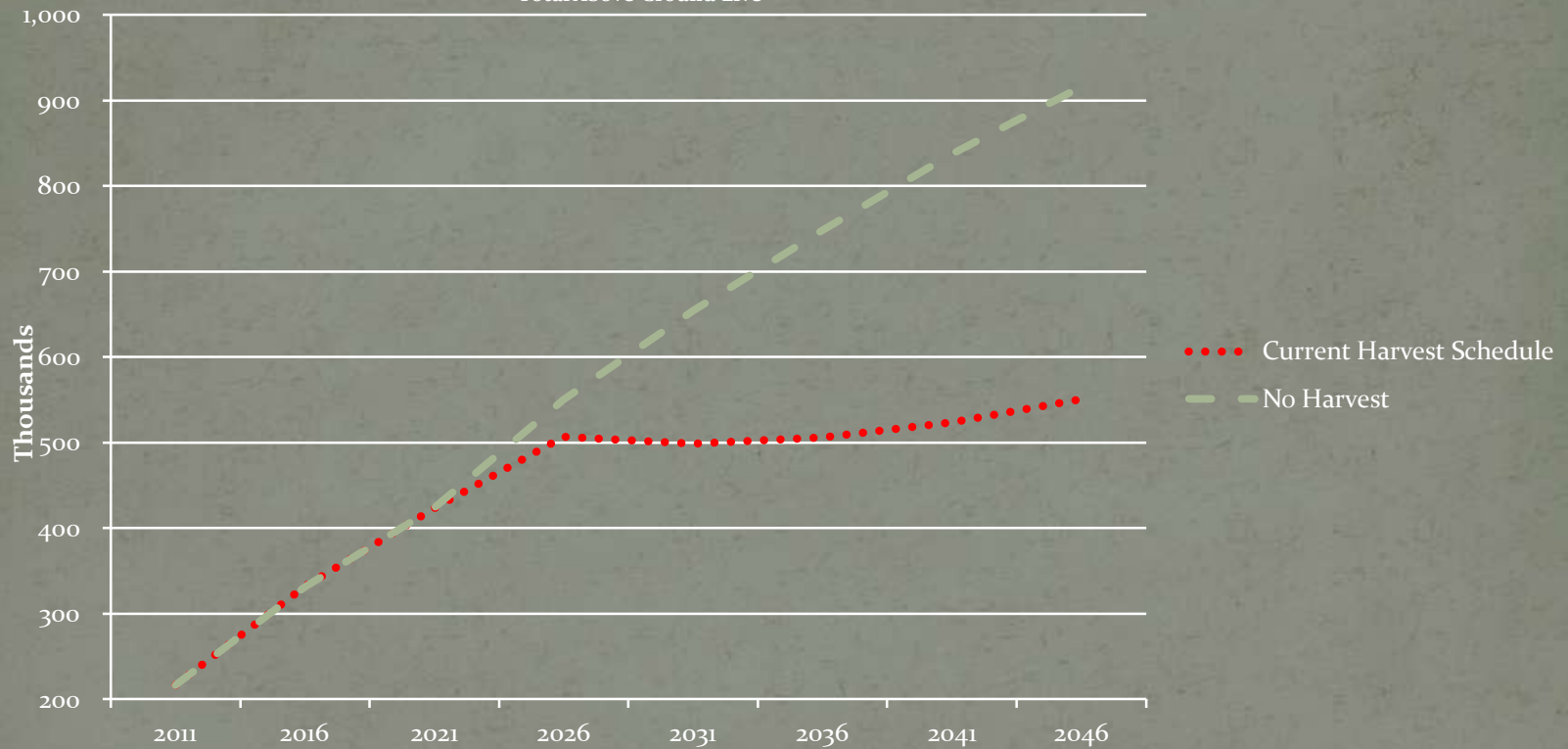
Carbon Project Example



- 2,500 acres in western OR
- Actively managed for timber
- Management goal to restore older complex forest
- Can harvest 50% of growth
- Conservation Easement
- Starts below FIA mean

Carbon Project Illustration

OR CO₂e 2011 to 2046
Total Above Ground Live



Financial Analysis Assumptions

- **Costs**

- \$30,000 for project development
- \$25,000 for inventory data every 10 years
- \$25,000 for initial 3rd party verification
- \$20,000 every six years for continuing field verification
- \$4,000 for interim desk verification
- \$3-5,000/year project maintenance
- 5% legal and broker fees

Financial Analysis Assumptions

- Offset pricing:
 - \$12/mt 1st year
 - \$15/mt years 2-5
 - \$20/mt year 5 to 35

Conservative – some market projections are significantly higher!

Financial Analysis Results for 35 years

Total Credits Generated	230,646
Gross Revenue	\$2,845,245
Total Costs	\$701,295
Net Revenue	\$2,143,950
<u>NPV@5%</u>	\$1,867,185

Steps to a Decision

- Does your project area have enough carbon to make further investment in project development worthwhile?
 - Use existing cruise data
- If yes, do full carbon inventory
- Does the revenue generating potential based on full inventory and a financial analysis meet your organization's goals?
- If yes, proceed to full project development

Thanks!



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