



Carbon Credits:

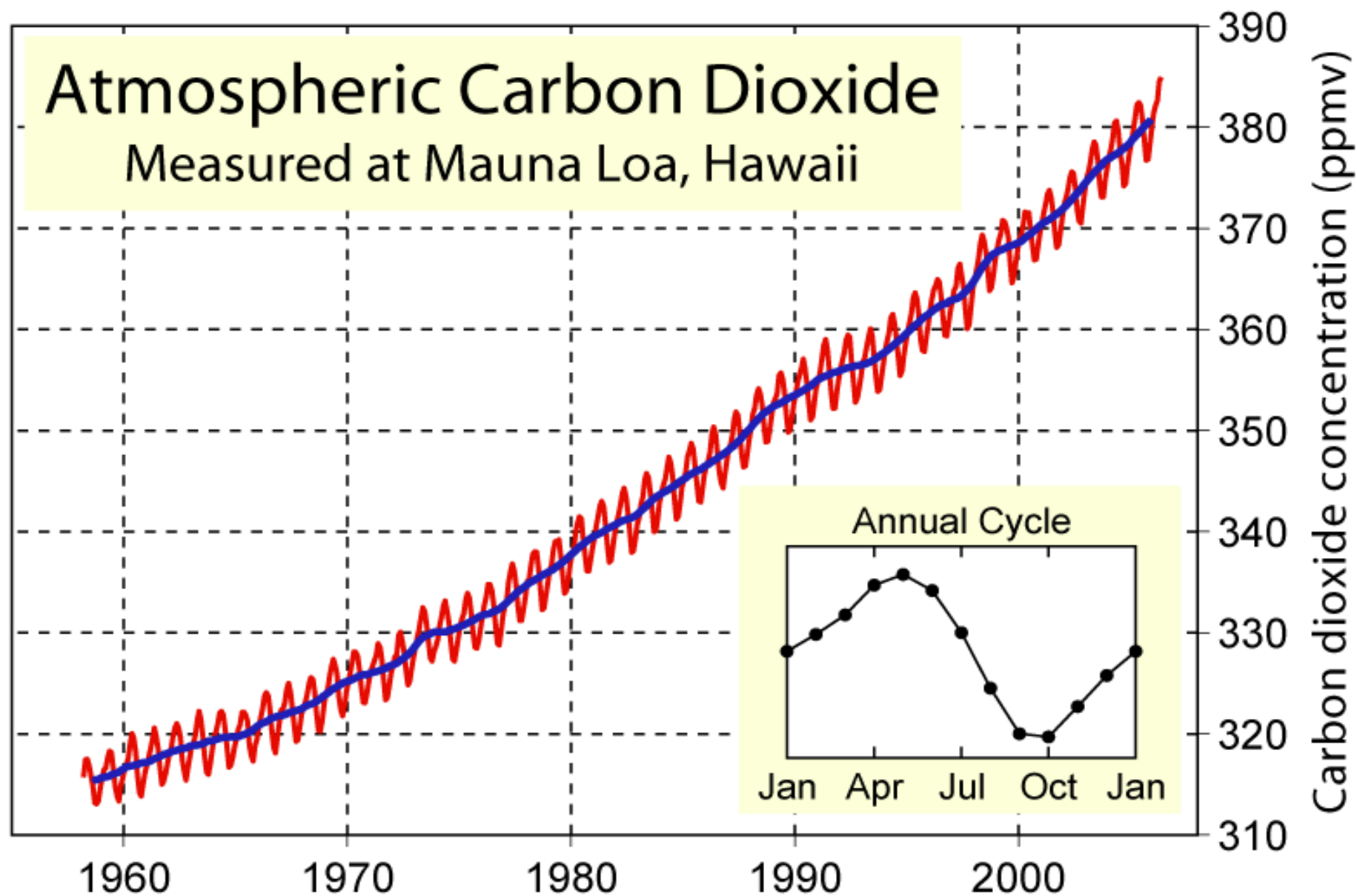
An Opportunity for Forest Landowners

Hughes Simpson
Texas Forest Service





Carbon and Greenhouse Gases





How can we mitigate Carbon / GHGs?

- Reduce emissions
 - Stop burning fossil fuels
 - Improve technology
- Offset
 - Sequester
 - Biological (vegetation)
 - Geologic
 - Destroy
 - Methane digesters (landfills, livestock)

1 carbon credit = 1 metric ton carbon dioxide equiv.





Is There a Demand for Carbon Credits?

2007 Fox News Poll

82% of Americans Believe in Global Warming, up from 77% in 2005



Car Climate Tags



Verified. Audited. Registered.

Realcarboncreditsnow.com

- [Level 1](#) one or two autos and infrequent travel. \$9.95/Month
- [Level 2](#) two or more autos and moderate travel. \$19.00/Month
- [Level 3](#) more than two autos and frequent travel. \$27.95/Month



Carbon Market Drivers

- Kyoto Protocol (1997)
 - 5% reduction by 2012 over 1990 levels
 - EU Emission Trading Scheme – 2005
- Environmental Awareness
 - “Green” movement
- Upcoming Federal Action?
 - Cap and Trade System vs. Carbon Tax
 - EPA Regulation





Federal Action - Legislation

- Carbon Tax
 - Tax based on amount of carbon emissions
- Cap and Trade
 - Cap set on carbon emissions
 - Companies that reduce emissions below cap earn credits that can be sold
 - Companies that don't reduce emissions below cap must purchase credits





Federal Action - Regulatory

Washington, D.C. – April 17, 2009

After a thorough scientific review ordered in 2007 by the U.S. Supreme Court, the Environmental Protection Agency issued a proposed finding Friday (April 17, 2009) that greenhouse gases contribute to air pollution that may endanger public health or welfare.

Cathy Milbourn, milbourn.cathy@epa.gov



US Forest Carbon Markets / Registries

Currently, no national framework... YET!

- California Climate Action Registry
- ***Chicago Climate Exchange (CCX)***
- Department of Energy
- Georgia Carbon Sequestration Registry
- Regional Greenhouse Gas Initiative
- Over-the-Counter Transactions



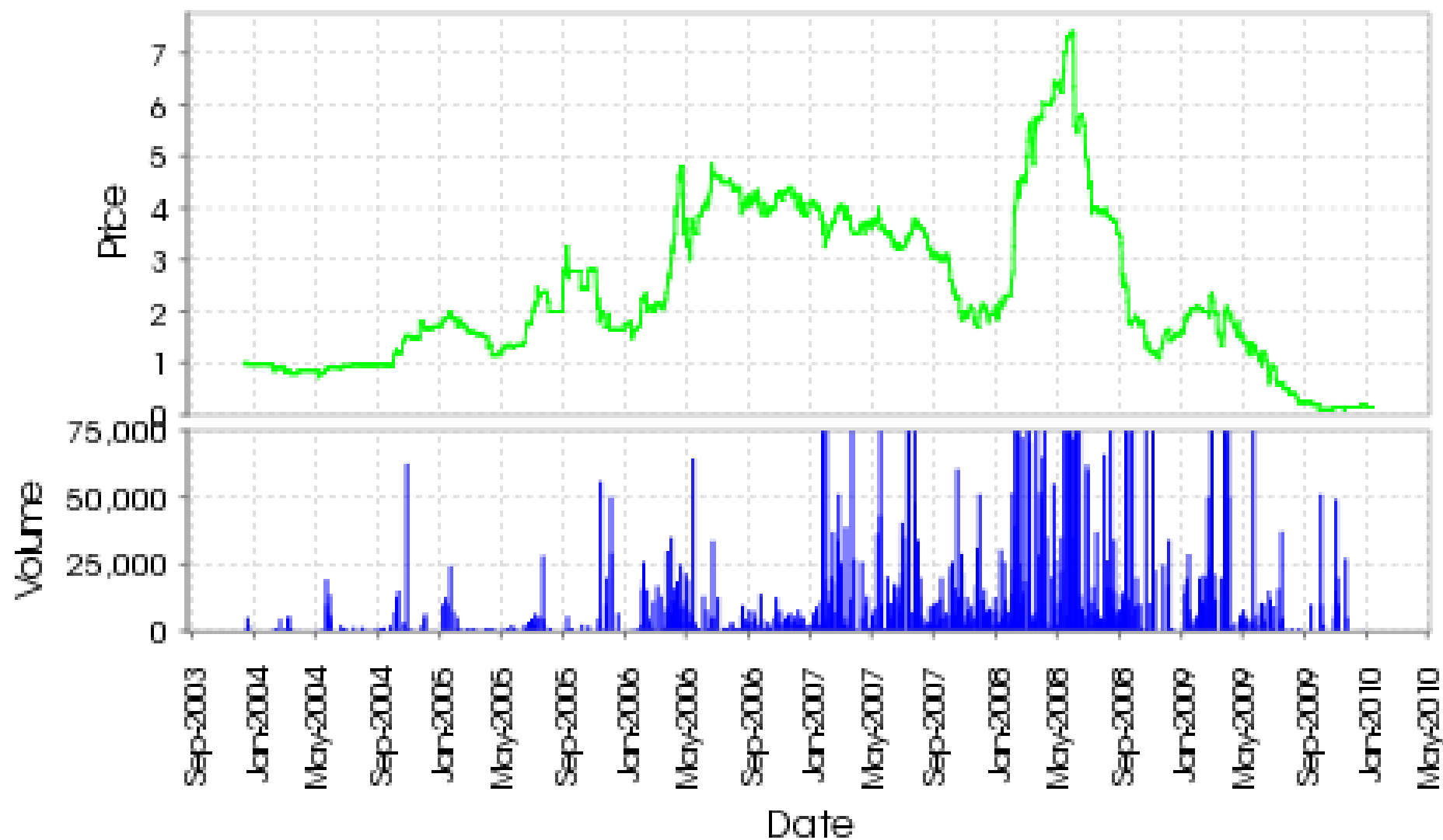


Market Participants

- CCX → NYSE, NASDAQ
- Landowners → Ford, GE, IBM
- Companies → Shareholders
- Aggregators → Brokers (Edward Jones)
- Verifiers → SEC (investigation)



CCX Carbon Financial Instrument (CFI) Contracts Daily Report





Growing Carbon





Pillars of Stored Carbon





Stored Carbon in Wood Products





Afforestation – Eligibility

- Planted after 2002
- Land that was not forested for the past 10 years
- **Trees may not be cut for 15 years**
- Credits awarded based on annual growth





Sustainably Managed Forests - Eligibility

- Evidence of sustainable forest management
- 15-year commitment period
- Enroll all entity-owned lands
- Document net increases in carbon storage





Long Lived Wood Products - Eligibility

- Evidence of Sustainable forest management
- Must have exclusive right to sequestered carbon
- Enrolled in Sustainably Managed Forest Protocol
- Participants report harvest quantity by product class. Conversion factors are then used to determine credits





How Do I Sign Up?

- Contact appropriate entity
 - Aggregator / Associate aggregator / consultant
- Calculate carbon credits
 - Reference tables
 - Direct measurement / Modeling
- Agree to terms of contract, sign
- Prepare supporting documentation
- Verification
- Maintain forest land / records



Calculating Carbon Credits

- Reference tables
 - Based on geographic region, species, age class
- Direct Measurement / Modeling
 - Establish Carbon Baseline from forest inventory
 - Results input into approved G&Y model
 - Model predicts net annual change (**growth**) in carbon
- Conversion Factors for Wood Products
 - Based on DOE technical guidelines





Carbon Accumulation Tables

<u>Region</u>	<u>Species</u>	1 through 5	6 through 10	11 through 15	16 through 20	21 through 25	26 through 30
South Central	Elm-ash-cottonwood	1.823	2.000	2.052	2.031	2.104	2.041
South Central	Loblolly-shortleaf pine	2.284	2.482	2.367	2.147	2.199	2.010
South Central	Oak-gum-cypress	1.152	1.948	2.534	2.419	2.345	2.104
South Central	Oak-hickory	2.053	2.252	2.220	2.073	2.042	1.958
South Central	Oak-pine	1.844	2.304	2.535	2.262	2.157	1.989



Contracts

- Must be signed
- Minimum of 15 years
- Aggregators have sample contracts on web
 - Terms and Conditions
 - Fees
 - Payments
- Enrollment worksheet
 - Tract / stand details





Terms and Conditions

- **Catastrophic Loss**
 - 20% of credits placed in Reserve pool to mitigate for catastrophic losses.
- **Acquisition / Disposition of Forest Land**
 - Credits adjusted annually to account for changes in forest ownership
- **Harvesting**
 - Must account for all losses in carbon stocks





Supporting Documentation

- Aerial photograph / map
- Legal description of property
- Planting Records
- Evidence of Forest Certification
- Legal evidence of property ownership
- Evidence to maintain forest carbon stocks for 15 years
- Forest Management Plan
- Forest inventory results





Verification

- All projects subject to verification
- Goal of Verification:
 - Uniform Quality
 - Transparency
 - Identify Errors
 - Protect buyers/value
- Initial and periodic verification





Anticipated Fees

- Aggregator – 10%
- Associate aggregator – 10%
- Verification – \$.15/credit
- Market Transaction fees - \$.20/credit
- Reserve – 20% of credits held back





Anticipated Returns

- Amount of Credits Dependent on
 - Species
 - Geographic Location / Site Index
 - Management Intensity
 - Standing Volume
- Market Conditions





What is Texas Forest Service Doing?

- Education / Technical Assistance
- Monitoring Markets / Legislation
- Assist in Market Development
- Landowner Survey





Landowner Participation in TX

2007 Texas Pool (February – December 2007)

- 129 TX family forest landowners
- Afforestation projects only
- Approximately 14,000 total acres
- Tracts ranged in size from 10 – 1,525 acres
Avg. = 136 acres, Median = 71 acres

Credits have been verified, registered, and marketed





Landowner Participation in TX

2009 Texas Pool (January 2008 – June 2009)

- Managed Forests projects
- Planted pine, mixed forests, bottomlands
- 30 - 40,000 total acres

2009 Single Owner Texas Pool

- 10,000 acre managed forest tract





Future of Carbon Markets

- Increased accounting of “carbon footprint”
- Federal “Cap and Trade” scheme
- Higher prices for offset credits
- Increased participation from forest landowners?





Conclusion

**Income generated from marketing
carbon credits and other ecosystem
services can help maintain
Texas forests**





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