

Highlights of Vermont Forest Carbon Sequestration Working Group Report and Related Research Findings

Testimony to VT Senate Committee on Natural Resources and Energy
February 5, 2020

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Overview of Forest Carbon Study Committee Report

- Study Committee established by Act 83 “to study how to create a Statewide program to facilitate the enrollment of Vermont forestlands in carbon sequestration markets.”
- Includes overviews of:
 - Forest sequestration and storage process
 - Current status of carbon markets
 - **Forest carbon market initiatives by other states**
 - Projects under development in Vermont
 - Analysis of potential revenues
 - Potential for a statewide program
 - Interactions with UVA (Current Use)
 - State lands enrollment, town forests
- Makes 7 policy recommendations
- Overall, sees potential in carbon markets to help keep forests as forests, which offers multiple benefits to Vermont.

Vermont Forest Carbon Sequestration Working Group

Final Report

January 4, 2020

Working Group Membership

Commissioner Michael Snyder, Chair – Commissioner, VT Department of Forest, Parks, and Recreation

Representative John L. Bartholomew – Windsor-1

Jack Byrne – Director of Sustainability Integration, Middlebury College, *House appointee*

Cecilia Danks, PhD – Associate Professor & Gund Fellow, Environmental Program & Forestry, Rubenstein School of Environment & Natural Resources, University of Vermont, *House appointee*

Senator Ruth Hardy – Addison District

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Forest Carbon Market Terms

Types of carbon markets

1. Compliance or regulatory market

- Created by government regulation.
- California's Compliance Offset Program is largest in US; 84% are forestry.
- Reliable demand and price (~\$14 per ton).

2. Voluntary market

- Created by individuals, businesses institutions and others committed to reducing emissions.
- Variable demand and prices (\$0.10-\$70 per ton) influenced by "co-benefits" and provenance

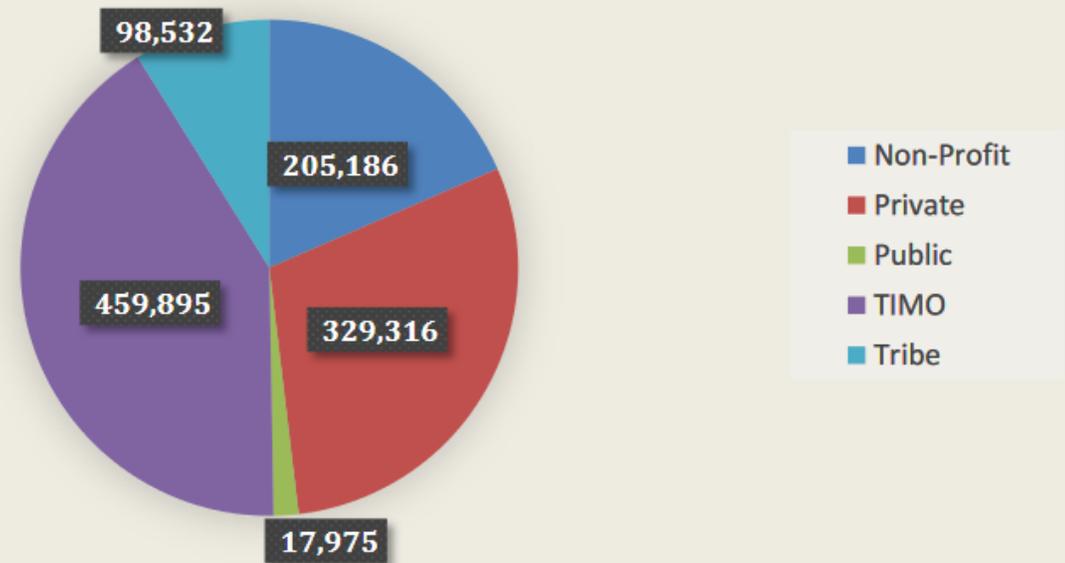
What makes for a high quality carbon credit?

1. Follows a recognized protocol that ensures:
 - **Additionality** – above "business as usual"
 - Credits issued for storage above "baseline"
 - **Permanence** – 40-100+ years
 - **Verification** – 3rd party audits
2. Credits used as just a small portion of a comprehensive plan to reduce GHG emissions.
 - E.g. In California, offsets limited to 8% of emissions reductions, dropping to 4% in 2020.

How common are forest carbon projects in the Northeast? (p.15)

- 1.1 million acres to date in 5 northern states (NY, VT, NH, MA, ME)
- Only 1 project in VT has sold credits (Middlebury)
- Several VT projects underway (with help from VLT and TNC)

Table 3: Forest Carbon Projects (measured in acres)
NY, VT, NH, MA, ME



What affects viability of carbon projects in Vermont? (p.14)

- Size (> 1,000+ acres)
- Amount of timber at start
- Conservation easements
- Aggregation options
- Length of contract
- Price of carbon

Table 2: Factors Affecting Financial Viability of Carbon Projects in the Northeast

- 1) The size of the project
 - More than 1,000 acres is generally needed for compliance market, often more than 5,000 acres depending on stocking levels, to cover fixed costs
 - Fewer than 1,000 acres may be viable for voluntary market, especially if aggregation is facilitated
- 2) The initial stocking level of timber
 - Above regional averages are generally needed for a viable project
- 3) The specific provisions and timing of any conservation easements
 - Pre-existing easements could limit potential for generating credits if they restrict harvest levels
 - New easements created as part of the carbon project could help satisfy protocol requirements
- 4) The availability of aggregation options in offset protocols
 - Currently no option in compliance market
 - Options do exist in voluntary standards
- 5) The willingness of landowners to commit to long-term contracts
 - More than 100 years for compliance market
 - 40 years for most voluntary markets
- 6) The price of carbon
 - The financial viability of a forest carbon project is very sensitive to the price of carbon
 - Should the commodity price of compliance carbon rise, as is expected, or a relatively high price is obtained in the voluntary market, then projects on smaller parcels or less well-stocked forests may become viable

My Research Group's Questions (2008-2018)

(Forest Carbon & Community Research Group, www.uvm.edu/forestcarbon)

How to help forest landowners participate in carbon markets?

Supply side:

- What factors affect the ability of **family forest owners and community-based forestry initiatives** (FF & CBF) to participate in emerging forest carbon markets?
- What roles did **states** play (agencies and legislatures) – to what effect?
- What kinds of **partnerships** helped these efforts?

Demand Side:

- What are **purchaser preferences** for voluntary market forest carbon credit?

Findings: What have other states done?

Last “Boom” and Current “Surge”

In 2008 - Boom

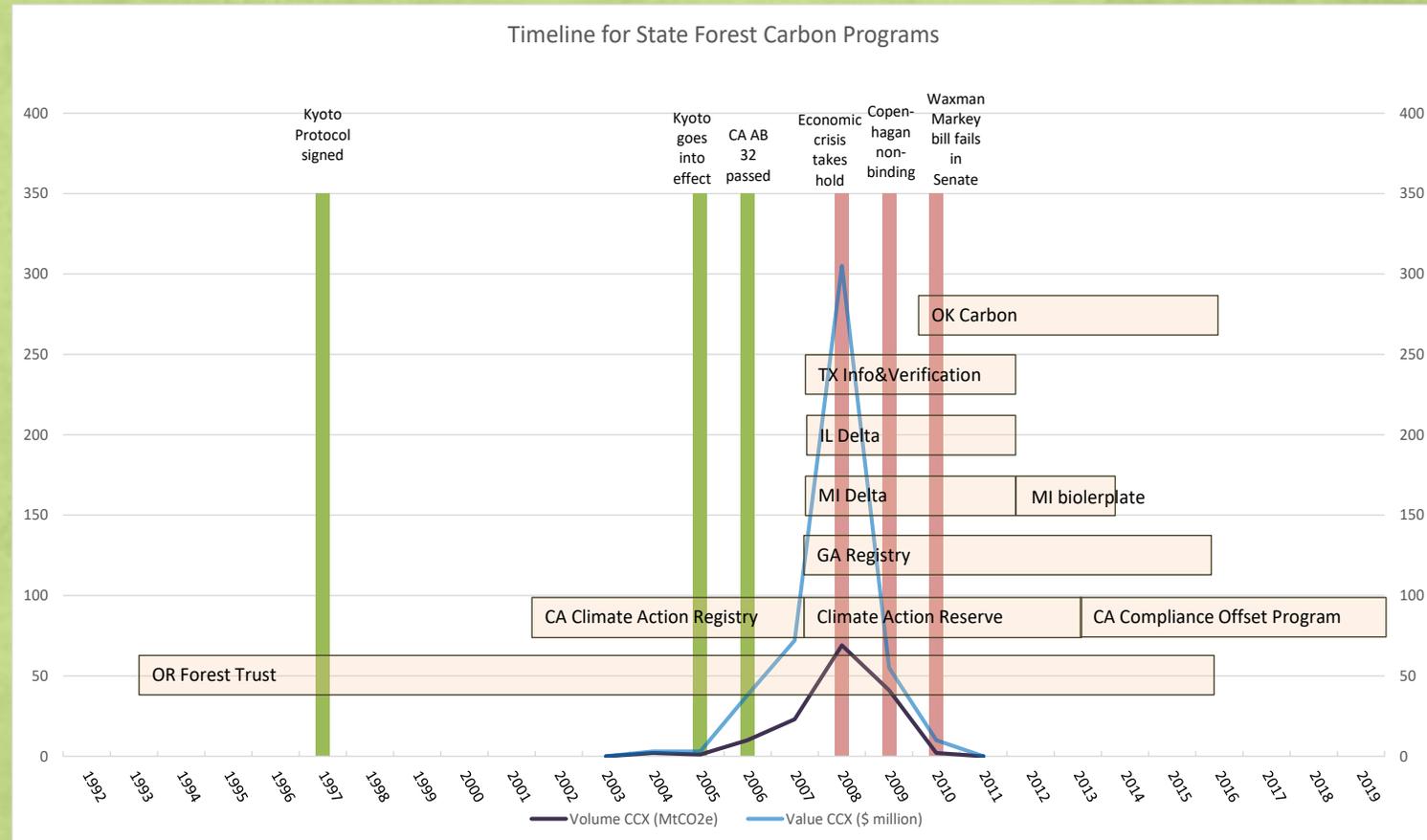
- 7 states had programs facilitating participation in forest carbon markets.
- 20+ states programs “under development”

In 2012 - Bust

- 5 of original 7 still had programs
- No new states

In 2019 - Resurgence

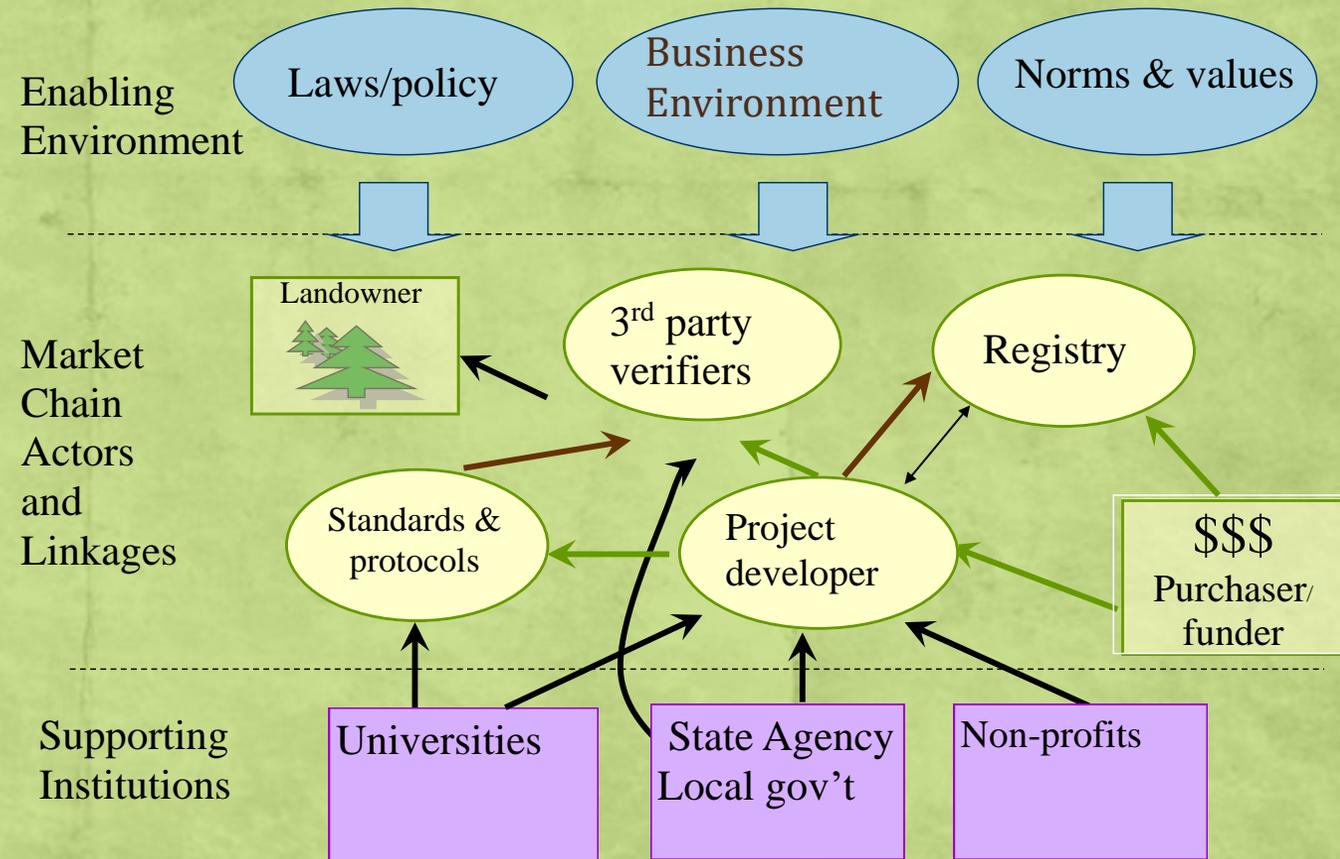
- At least 4 new states looking seriously at forest carbon programs
- At least 4 more states promoting carbon sequestering management practices



Key Findings from State-run Programs (last boom)

- Protocols and financing varied widely
- Prices varied : \$0.15 to \$130 per ton
- Upfront *costs* – addressed fairly easily (e.g. revolving loan fund)
- Upfront *capacity* – a real barrier across the board – landowners, agencies, private foresters
- Programs were developed with *public-private partnerships* sharing costs & capacity
- Importance of “*trusted facilitator*” to landowners

Market Chain Map



Key Findings: From the prior carbon market boom

Importance of state legislatures!

- Prompted agency action
- Funded programs (though often delayed)
- State climate initiatives and targets prompted private sector interest as well as agency actions

However,

- Specific legislative direction for agency involvement in market chain – not very effective.



Findings: What are other states doing now?

Promoting participation in forest carbon markets:

- Washington – in 2019 established a working group with report due in Dec 2020
- Virginia – promoting aggregation of small parcels in 2019 legislation
- New York – including forest offsets in 2019 climate legislation

Promoting forest management practices for carbon sequestration:

- Massachusetts – incentivizes [“Managing our forests ... for carbon benefits”](#) through partnerships
- New Jersey & Connecticut – allocate some of RGGI funds to forests
- California [Forest Carbon Plan](#) (2018) guides Climate Investment Fund \$\$

Findings: Forest Carbon Credit Purchaser Preferences

- **Story is important; Aligning offset attributes or with “mission” (or product, service or clientele) is the principle factor in choosing in voluntary market credits**
 - Higher ed: education, research, same state
 - Small and medium size business: “local”
 - Large business: affecting sustainability in supply chain
- **Location, location, location**
- **Price matters, but...**
 - Flexible on price for projects that align with mission
 - Would consider a blend of credits – some “charismatic carbon” and some “commodity carbon” -- to meet goals and stay within budget.
- **Rigor? Important to all!**
 - Tension between internationally recognized standards with high transaction costs vs. local engagement and oversight

“Stacking” Payments for Ecosystem Services

- Current use (Use value appraisal)
- Payments for wetlands mitigation
- Federal and state cost share program

Generally compatible with carbon markets,
EXCEPT:

1. If compulsory, can set legally binding baseline.
2. If program specifically specifies carbon sequestration as a goal, and measures it, in order to receive payment or tax break, it might be interpreted that the carbon is already sold.

CAN REHABILITATIVE FORESTRY & CARBON MARKETS
BENEFIT DEGRADED FORESTLAND?



A CASE STUDY FROM NORTHEASTERN VERMONT

September 2013

Final Report Prepared for
Vermont Natural Resources Conservation Service
Conservation Innovation Grant # 69-1644-09-02

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Cecilia Danks, PhD, John Gunn, PhD, and Ben Machin

Recommendations of Forest Carbon Sequestration Study Committee Report (p.3)

1. Provide public information (online & print) by DFPR on both carbon sequestering forest practices and carbon markets.
2. Analyze feasibility of enrolling state land in forest carbon market program.
3. Work with municipalities to explore options for town forest pilot project.
4. Explore public-private partnerships to improve the viability of Vermont forest carbon projects.
5. Be attentive to avoiding double counting.
6. If amending UVA, consider how wording could affect ability for landowners to generate forest carbon credits.
7. Provide staffing for FPR to implement recommendations.

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My own recommendations (based on our research)

1. Focus on voluntary carbon market opportunities (as opposed to compliance market)
 - Emphasize “co-benefits” that can lead to a higher price
2. Use recognized standards and protocols; markets are established and growing.
 - Don’t reinvent market chain elements; make use of specialized knowledge of project developers.
3. Pair carbon market efforts with information and incentives to manage forests for carbon.
 - Carbon markets are not for everyone, even with assistance.
 - Many don’t realize good carbon management is compatible with timber harvesting.
4. Focus capacity-building on “trusted facilitators”, not landowners themselves.
 - Public-private partnerships are extremely helpful here.
5. Normalize carbon market participation and management practices that enhance carbon
 - Transparent state and town forests models can be powerful examples.
 - Clarify costs, risks, revenues and silviculture.
6. Don’t neglect marketing of VT forest carbon credits.
 - Good marketing increases the price, which make more projects viable at smaller sizes

Thank you for the opportunity to discuss forest carbon sequestration with you today.

Thank you to fellow study committee members.

And thanks to all the former students & colleagues who worked on the research reported here.

Any questions?