URBAN FORESTRY CARBON CREDITS IN COLORADO

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INSTITUTE FOR
ENVIRONMENTAL SOLUTIONS

PREVIEW

- IES
- The Tree Project
- What is an urban forestry carbon credit (UFCC)?
- Who buys UFCCs?
- Who can sell UFCCs?
- How are UFCCs created?
- How much money can be made?
- Colorado Urban Forestry Climate Coalition
- Next steps

INSTITUTE FOR ENVIRONMENTAL SOLUTIONS

Mission

Engage stakeholders to deliver proactive, technically sound solutions to complex environmental and natural resource problems that avoid unwanted side effects.

Approach

SCIENTIFIC SOLUTIONS FOR A BETTER ENVIRONMENT

THE TREE PROJECT

- Identifying how trees can optimize:
  - Air quality
  - Water conservation
  - Energy conservation
  - Carbon sequestration
- Pilot city: Golden

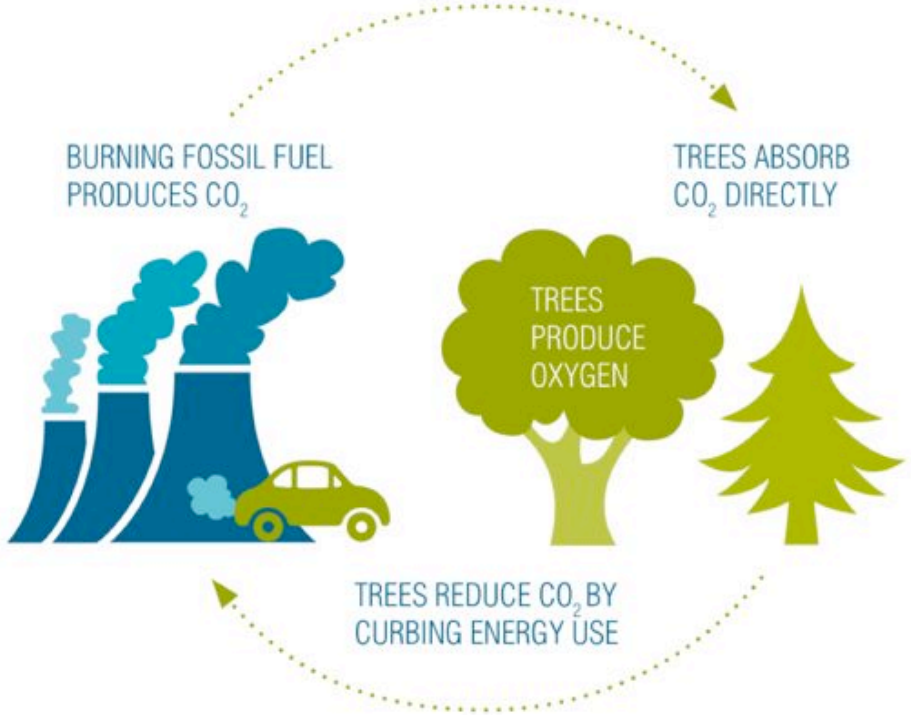
RESULTS: COMPLEX TRADEOFFS

- Potential Benefits
  - Summer energy conservation
  - Shading/water conservation
  - Improved air quality
  - Climate change mitigation
- Potential Costs
  - Winter energy consumption
  - Increased water consumption
  - VOC emissions (ozone potential)

SCIENTIFIC SOLUTIONS FOR A BETTER ENVIRONMENT

CARBON EFFECTS AND TRADEOFFS

- Sequestration vs. emissions
- Energy offsets vs. indirect emissions
- Carbon storage



1. Annual net carbon sequestration of Golden's forest: 500 tons.
2. Carbon stored by Golden's forest: 16,400 tons.

SCIENTIFIC SOLUTIONS FOR A BETTER ENVIRONMENT

URBAN FORESTRY CARBON CREDITS

- Credit for carbon sequestered by urban trees
- Projects verified, guidelines set by market
- Existing and new trees
- Long-term commitment to a healthy forest
- Multiple projects aggregated

THE CARBON CREDIT MARKET

- Eligible trees: planted since 1990
- Market price for carbon sequestered from 2003 to 2010
- 15-year commitment to maintain trees
- Project owners must be insignificant GHG emitters

- Eligible trees: planted since 2001 *beyond baseline*
- Buyer and seller negotiate price and terms
- 100-year commitment to maintain trees (and report)

PROJECT OWNERS (SELLERS)

- Anyone with a long-term legal right to trees
- Municipalities
- Counties
- Universities
- Utilities

DATA COLLECTION

- For all project trees
  - Year planted
  - Species
  - Diameter
- Depending on protocol
  - Tree health
  - Forestry program info
    - Budget
    - Maintenance schedule

APPLICATION TO SELL

Tree Age	Tree Type	Growth Rate	Number (in 100's)	Annual CO_2e	Vintage Year
8	H	F	10	18.1	2010
8	H	M	10	10.6	2010
8	H	S	10	5.4	
23	H	F	10	56.1	
23	H	M	10	31.6	
23	H	S	10	14.6	
14	C	F	10	22.8	
14	C	M	10	12.6	
14	C	S	10	5.7	
7	H	F	10	15.9	
7	H	M	10	9.4	
7	H	S	10	4.8	
22	H	F	10	53.3	
22	H	M	10	30.1	
22	H	S	10	14	
13	C	F	10	17.1	
13	C	M	10	9.6	2009
13	C	S	10	4.4	2009
6	**H**	**F**	**10**	**13.8**	**2008**
6	**H**	**M**	**10**	**8.3**	**2008**
6	**H**	**S**	**10**	**4.3**	**2008**
21	**H**	**F**	**10**	**50.5**	**2008**
21	**H**	**M**	**10**	**28.4**	**2008**
21	**H**	**S**	**10**	**13.3**	**2008**
12	**C**	**F**	**10**	**19**	**2008**
12	**C**	**M**	**10**	**10.6**	**2008**
12	**C**	**S**	**10**	**4.9**	**2008**
5	H	F	10	11.8	2007
5	H	M	10	7.1	2007
5	H	S	10	3.7	2007
20	H	F	10	47.8	2007
20	H	M	10	27	2007
20	H	S	10	12.6	2007
11	C	F	10	17.1	2007
11	C	M	10	9.6	2007
11	C	S	10	4.4	2007

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POTENTIAL REVENUE: CCX, $20/ton

	2003	2004	2005	2006	2007	2008	2009	2010
Metric tons CO_2e	97.2	107.6	118.3	129.8	141.1	153.1	158.6	177.5
20% Reserve Pool	19.44	21.52	23.66	25.96	28.22	30.62	31.72	35.5
Net tons CO_2e for CCX	77.76	86.08	94.64	103.84	112.88	122.48	126.88	142
Value at $20/ mt	$1,555	$1,722	$1,893	$2,077	$2,258	$2,450	$2,538	$2,840
5% verification cost	$78	$86	$95	$104	$113	$122	$127	$142
5% aggregation cost	$78	$86	$95	$104	$113	$122	$127	$142
Net remuneration at $20/mt	$1,400	$1,549	$1,704	$1,869	$2,032	$2,205	$2,284	$2,556

TOTAL **$15,598**

COLORADO URBAN FORESTRY CLIMATE COALITION

Goal: Develop urban forestry carbon credits to generate new funds for forestry and improve the urban environment in Colorado.

CUFCC PROJECT OBJECTIVES

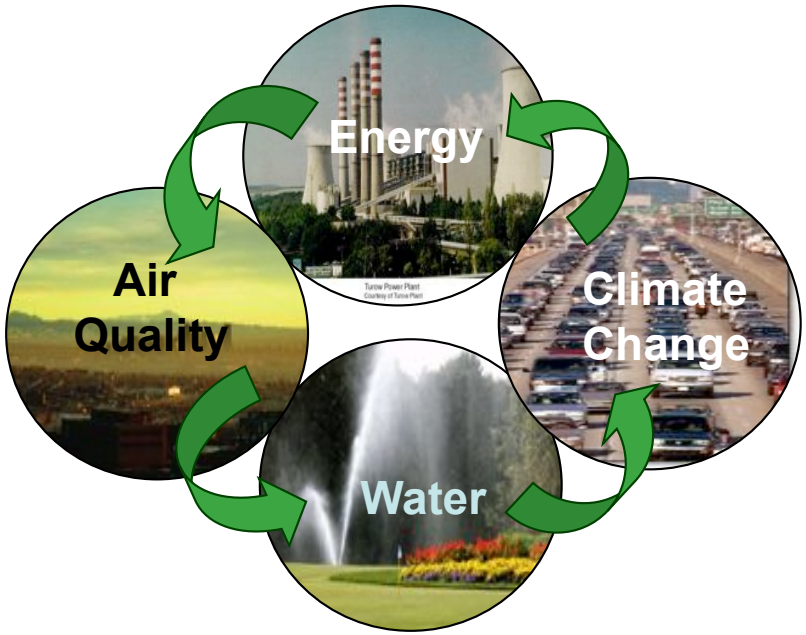
1. Assemble stakeholders for project planning and oversight
2. Characterize the critical environmental impacts of urban forestry
3. Aggregate urban forestry projects and sell them as offsets
4. Evaluate and share successes and setbacks with a national audience

Mitigate climate change.
Support urban forestry.

CUFCC

GUIDING PRINCIPLES

- Encourage **strategic** urban forestry – consider full impact
- Give foresters resources to improve **maintenance**
- Create **high-quality** offset credits



TIMELINE

Preliminary plan	Fall / Winter 2008-09
Stakeholder identification and outreach	Fall / Winter 2008-09
Scoping workshop / Final plan	Spring 2009
Impact investigation	Summer / Fall 2009
Baseline data / application	Spring / Summer 2010
Evaluation and reporting	Winter 2010-11

CUFCC: STAKEHOLDERS

Businesses

- Offset greenhouse gas emissions with verified carbon credits
- Support local environmental improvement

Local government

- Generate revenue for local environmental improvement
- Increase awareness of ROI from urban forestry
- Become a recognized leader in local climate action

Foresters

- Increase awareness of environmental benefits of urban forest
- Improve sustainability of your forestry program

Other community members

- Promote long-term success of Colorado urban forestry
- Achieve multiple environmental benefits

NEXT STEPS

- New partnerships / funding
- Convene Stakeholder Workshop
- Form steering committee

SUMMARY

- Urban forests can provide multiple environmental benefits *when planted and maintained strategically*
- Urban forestry carbon credit protocols allow supporters of the urban forest to get credit for the carbon mitigation function trees provide
- CUFCC project will encourage strategic urban forestry and improve the environment
- Take advantage of the opportunity to be a national leader in climate change mitigation while enhancing the local environment

RESOURCES

Colorado Tree Coalition

www.coloradotrees.org The Colorado Tree Coalition is a non-profit organization leading Colorado's efforts to preserve, renew, and enhance community forests.

National Carbon Offset Coalition

www.ncoc.us NCOC is designed to assist landowners in planning carbon sequestration activities and documenting the resulting Carbon Sequestration Unit (CSU) in a manner that adheres to national standards and protocols, and meets the needs of potential buyers. NCOC is an Aggregating Member of the Chicago Climate Exchange (CCX).

Chicago Climate Exchange

www.chicagoclimatex.com North America's only and the world's first global marketplace for integrating voluntary legally binding emissions reductions with emissions trading and offsets for all six greenhouse gases.

The Climate Action Reserve

www.climateregistry.org/offsets.html A division of the California Climate Action Registry created to provide a high, accurate and measurable standard for the national voluntary carbon reduction market.

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THE TREE PROJECT
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EMERGING
CONTAMINANTS