

Carbon Sequestration
on
Natural and Working Lands

Governor's Task Force on Climate Change
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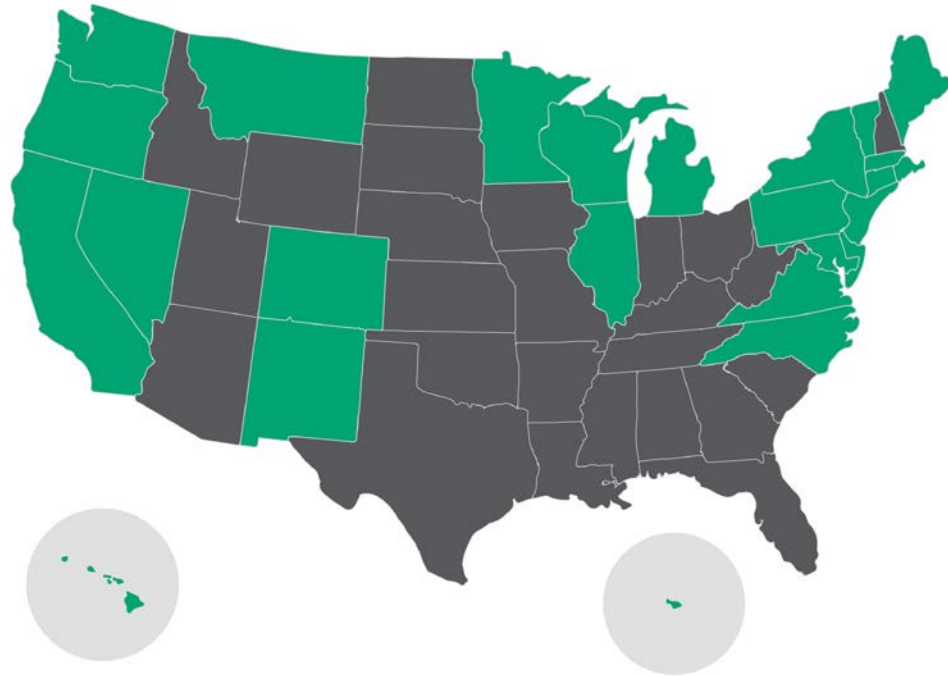
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 - ✓ Agriculture
 - ✓ Forests
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- Carbon Markets

U.S. Climate Alliance

U.S. Climate Alliance

Bipartisan coalition of 25 governors cooperating to tackle climate challenge.



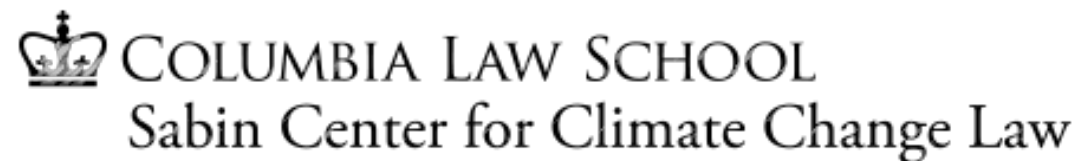
Alliance States commit to:

1. Reduce GHGs by at least 26-28 percent below 2005 levels by 2025;
2. Track and report progress; and
3. Accelerate implementation of existing and new policies.

USCA Impact Partners



AMERICAN FORESTS



DO YOU ACCEPT THE #NWLCHALLENGE?

- Improve inventory methods
- Identify best practices for conservation and management
- Advance programs, policies, and incentives to reduce GHG emissions and enhance resilient carbon sequestration
- Integrate actions and pathways into state GHG mitigation plans

Natural and Working Lands Climate Solutions Overview

Natural and Working Lands Climate Solutions

- ➔ Forests, Farms, Grasslands, Wetlands, Urban Forests...
- ➔ Conservation - Restoration - Improved Management



-21%



-28%

Natural Climate Solutions for the U.S.

National **State**

18

Mitigation Potential
(Million tons CO₂e per year)

64

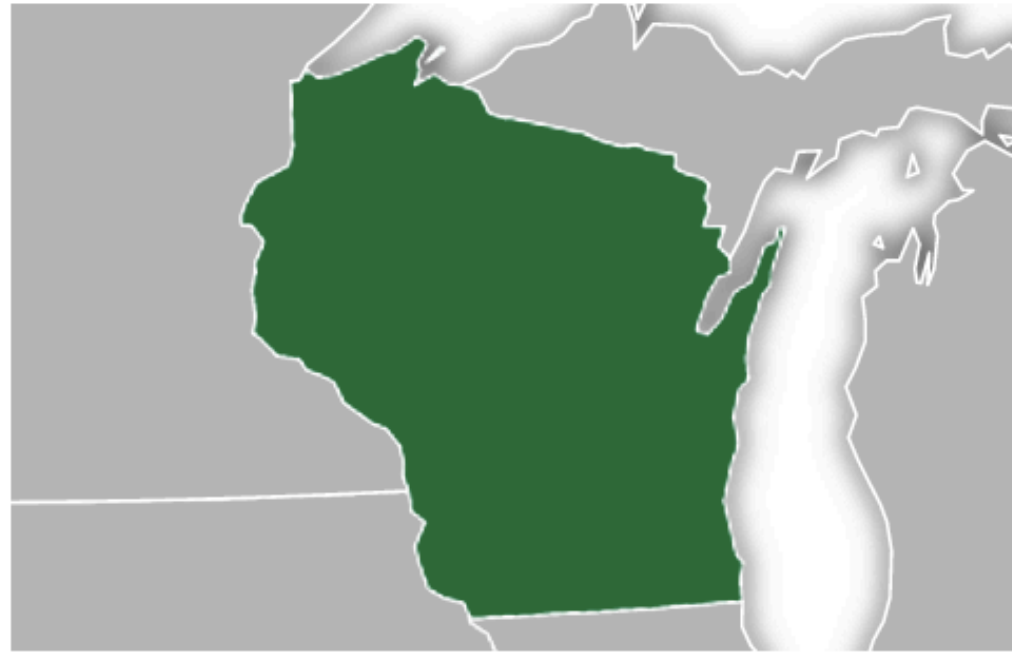
2014 net emissions
Million tons CO₂e per year



Wisconsin

Full Extent

Click map to select state



18M tons CO₂e/year
~9.3M acres
biological potential

Mitigation Pathways

Marginal Abatement Cost
\$ per ton of CO₂e

- Reforestation Off \$10 \$50 \$100 Max
- Avoided Forest Conversion Off \$10 \$50 \$100 Max
- Fire Management Off \$10 \$50 \$100 Max
- Urban Reforestation Off \$10 \$50 \$100 Max
- Avoided Grassland Conversion Off \$10 \$50 \$100 Max
- Grassland Restoration Off \$10 \$50 \$100 Max
- Alley Cropping Off \$10 \$50 \$100 Max
- Cover Crops Off \$10 \$50 \$100 Max
- Cropland Nutrient Management Off \$10 \$50 \$100 Max
- Improved Manure Management Off \$10 \$50 \$100 Max
- Improved Rice Cultivation Off \$10 \$50 \$100 Max

Pathway	NCS Mitigation (Mt CO ₂ per year)	Area Available (million acres)
Reforestation	6.8	2.64
Avoided Grassland Conversion	4.02	0.05
Cover Crops	2.57	5.41
Alley Cropping	2.03	0.94
Cropland Nutrient Management	1.36	N/A
Urban Reforestation	0.33	0.14
Grassland Restoration	0.33	0.14
Avoided Forest Conversion	0.28	0.05
Improved Manure Management	0.21	N/A
Fire Management	N/A	N/A
Improved Rice Cultivation	N/A	N/A

1. Reforestation
2. Grass Conservation
3. Cover Crops

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Natural Climate Solutions for the U.S.

National **State**

4

Mitigation Potential
(Million tons CO₂e per year)

64

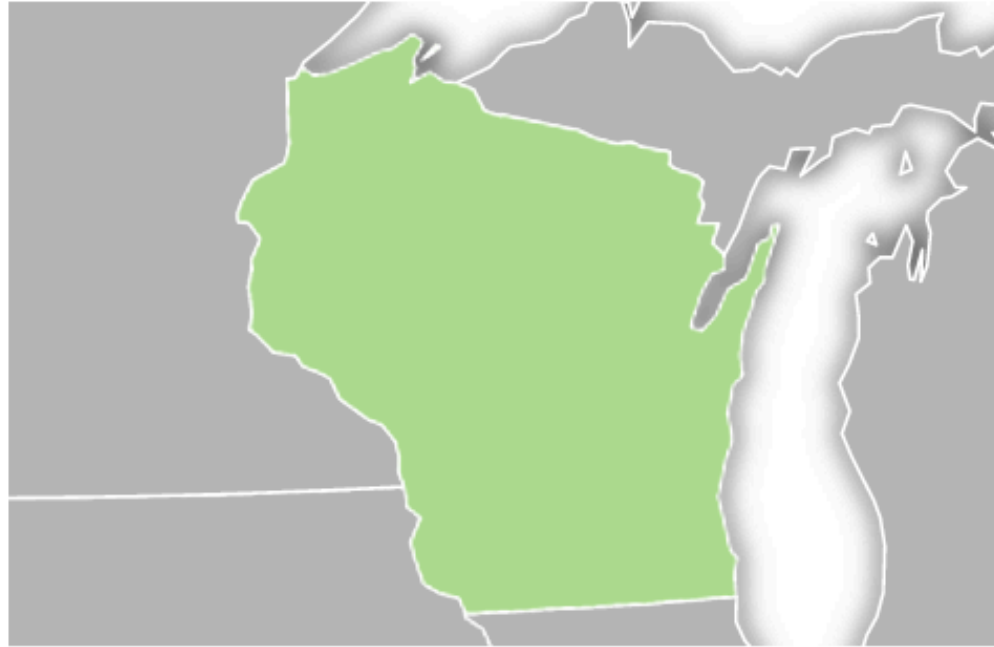
2014 net emissions
Million tons CO₂e per year



Wisconsin

Full Extent

Click map to select state



4M tons CO₂e/year
~5.4M acres
at \$10/ton

Mitigation Pathways

Marginal Abatement Cost
\$ per ton of CO₂e

Reforestation Off \$10 \$50 \$100 Max

Avoided Forest Conversion Off \$10 \$50 \$100 Max

Fire Management Off \$10 \$50 \$100 Max

Urban Reforestation Off \$10 \$50 \$100 Max

Avoided Grassland Conversion Off \$10 \$50 \$100 Max

Grassland Restoration Off \$10 \$50 \$100 Max

Alley Cropping Off \$10 \$50 \$100 Max

Cover Crops Off \$10 \$50 \$100 Max

Cropland Nutrient Management Off \$10 \$50 \$100 Max

Improved Manure Management Off \$10 \$50 \$100 Max

Improved Rice Cultivation Off \$10 \$50 \$100 Max

Pathway	NCS Mitigation (Mt CO ₂ per year)	Area Available (million acres)
Cover Crops	2.49	5.24
Cropland Nutrient Management	0.85	N/A
Avoided Forest Conversion	0.27	0.05
Reforestation	0.24	0.09
Avoided Grassland Conversion	0.17	0.01
Alley Cropping	0.1	0.05
Improved Manure Management	0.06	N/A
Grassland Restoration	0.01	0
Urban Reforestation	0	0
Fire Management	N/A	N/A
Improved Rice Cultivation	N/A	N/A

1. Cover Crops
2. Nutrient Mgmt.
3. Grass Conservation

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Strategic Considerations

- Complementary objectives (multiple benefits)
- Statutory enablers and restrictions
- Programs, institutions, partners (federal, NGO, private)
- Funding, current and future
- Climate resilience needs and objectives

Opportunities and Policy Examples

General

- Public landowners: Setting management objectives
- Private landowners:
 - Conservation easements and temporary restrictions on conversion
 - Compensation for practices (grants, tax credits, de-risking)
 - Compensation for outcomes (payments for ecosystem services)
 - Carbon as a co-benefit of existing management objectives



Farmland Soil Health



Photo: USDA NRCS



Photo: USDA NRCS





Carbon Markets

Carbon Offset

- A carbon offset is defined by its protocol
- Regulatory vs. Voluntary markets
- Market actors: landowner, project developer, verifier, registry, broker, buyer
- Consider transaction costs



CLIMATE
ACTION
RESERVE



Carbon Markets

Regulatory

Voluntary

Example

California

Verra/ VCS

Demand

Compliance

Corporate Goals

Prices

\$12/ ton

\$4/ ton

Consider ...

CA statute

CSR shifts

Carbon Markets: On the Horizon

- Interest in regenerative agriculture: Ecosystem Services
Market Consortium, Indigo, Nori
- Local TMDL requirements/ water quality
- Family Forests: Working Woodlands
- ..beyond offsets?



UNITED STATES
CLIMATE ALLIANCE

Thank you

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