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Maximizing the Impact of Natural Climate Solutions

Tuesday, June 11, 2024

About EESI

EESI
Environmental and Energy Study Institute

Non-partisan Educational Resources for Policymakers

A bipartisan Congressional caucus founded EESI in 1984 to provide non-partisan information on environmental, energy, and climate policies

Direct Assistance for Equitable and Inclusive Financing Program

In addition to a full portfolio of federal policy work, EESI provides direct assistance to utilities to develop “on-bill financing” programs

Commitment to Diversity, Equity, Inclusion, and Justice

We recognize that systemic barriers impede fair environmental, energy, and climate policies and limit the full participation of Black, Indigenous, people of color, and legacy and frontline communities in decision-making

Sustainable Solutions

Our mission is to advance science-based solutions for climate change, energy, and environmental challenges in order to achieve *our vision of a sustainable, resilient, and equitable world*.

Policymaker Education

Briefings and Webcasts

Live, in-person and online public briefings, archived webcasts, and written summaries

Climate Change Solutions

Bi-weekly newsletter with everything policymakers and concerned citizens need to know, including a legislation and hearings tracker

Fact Sheets and Issue Briefs

Timely, objective coverage of environmental, clean energy, and climate change topics

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Active engagement on Twitter, Facebook, LinkedIn, and YouTube

EESI
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US Nature 4Climate

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Please take 2 minutes to let us know at:
www.eesi.org/survey

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Tuesday, June 11, 2024

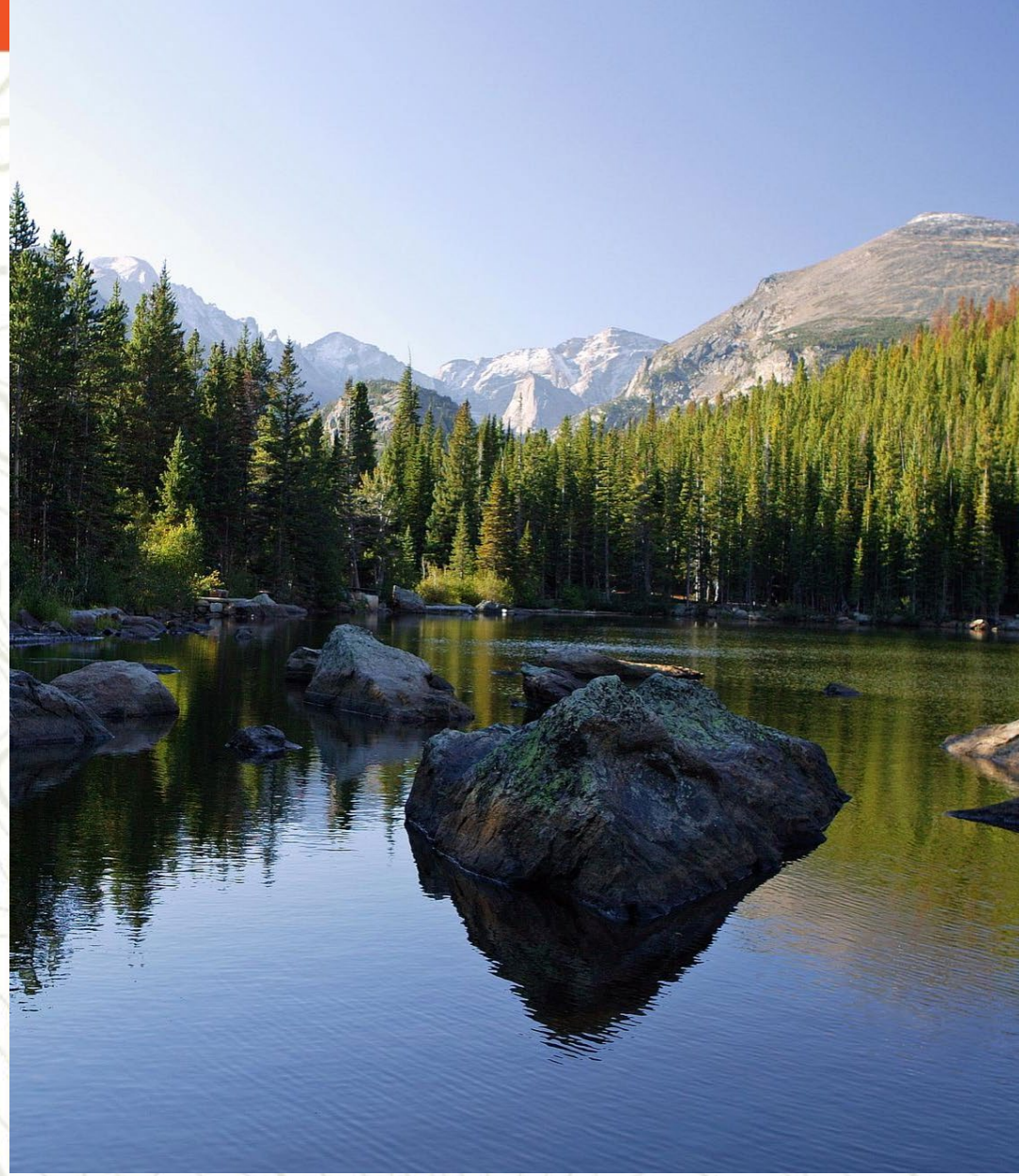
Natural Climate Solutions in the United States

NATIONAL WILDLIFE FEDERATION

Shannon Heyck-Williams
Associate Vice President of Climate & Energy
HeyckWilliamsS@nwf.org

What are Natural Climate Solutions?

- **Nature-based Solutions (NBS) –** actions that incorporate natural features and processes to protect, conserve, restore, sustainably use, and manage natural or modified ecosystems to address socio-environmental challenges while providing measurable co-benefits.
- **Natural Climate Solutions (NCS)–** a subset of nature-based solutions that store carbon and/or avoid greenhouse gas emissions while providing additional co-benefits.
- **Co-benefits** - the cumulative positive impacts on human well-being, ecosystems, and biodiversity resulting from NBS implementation.



Definitions Sourced from the DOI

Categories of NCS

- Avoided emissions and protection of ecosystems
  - protection is an immediate and significant way to reduce emissions with enormous co-benefits
- Improved stewardship and management of lands
  - benefits from improved management can be easier to achieve than restoration
- Restoration of native habitats
  - restoration has the most technical potential, but benefits are delayed and it is more expensive than protecting and managing existing natural carbon stores

Cook-Patton, S.C., Drever, C.R., Griscom, B.W. et al. Protect, manage and then restore lands for climate mitigation. Nat. Clim. Chang. 11, 1027–1034 (2021). https://doi.org/10.1038/s41558-021-01198-0

Diverse Ecosystems bring Diverse benefits

- In 2019, forest land, harvested wood products, and urban trees in the U.S. accounted for a net uptake of ~775.7 MMT of CO2 eq. (~11% of 2019 US GHGs)
- Federal rangelands offer potential sequestration of 16.6 MMT of carbon dioxide each year.
- Climate-smart ag practices could sequester 100-200 MMT/yr by 2050.
- Freshwater wetlands in North America absorb about 123 MMT of carbon per year, and store about 161 billion metric tons of carbon in their soil and vegetation.

Domke, Grant M.; Walters, Brian F.; Nowak, David J.; Smith, James, E.; Nichols, Michael C.; Ogle, Stephen M.; Coulston, J.W.; Wirth, T.C. 2021. Greenhouse gas emissions and removals from forest land, woodlands, and urban trees in the United States, 1990–2019. Resource Update FS–307. Madison, WI: U.S. Department of Agriculture, Forest Service, Northern Research Station.

Kolka, R., Trettin, C., Tang, W., Krauss, K., Bansal, S., Drexler, J., Wickland, K., Chimner, R., Hogan, D., Pindilli, E., Benscoter, B., Tangen, B., Kane, E., Bridgham, S., Richardson, C., Cavallaro, N., Shrestha, G., Birdsey, R., Mayes, M. A., ... Zhu, Z. (2018). Chapter 13: Terrestrial Wetlands. Second State of the Carbon Cycle Report. U.S. Global Change Research Program. https://doi.org/10.7930/SOCCR2.2018.Ch13

Olander, L., D. Cooley, and C. Galik. 2010. The Potential Role for Management of Public Lands in Greenhouse Gas Mitigation and Climate Policy. Duke Nicholas Institute for Environmental Policy Solutions

Mulligan, J., et al. 2020. CarbonShot: Federal Policy Options for Carbon Removal in the United States. Working Paper. Washington, DC: World Resources Institute.

Trees are not always the answer

- Afforestation is not reforestation.
- **Afforestation** is the planting of trees where forests did not exist before or have not existed for centuries.
  - For example planting trees in grasslands or rangelands
- **Reforestation** focuses on restoring damaged or destroyed forests, or planting trees where forests previously existed.
- While planting trees can sequester carbon, we must be careful not to harm native habitats and species

Briske, D.D., Vetter, S., Coetsee, C. and Turner, M.D. (2024), Rangeland afforestation is not a natural climate solution. Front Ecol Environ, 22: e2727. https://doi.org/10.1002/fee.2727

Urban Forests and NCS

- In cases such as increasing tree cover in cities, carbon sequestration is the co-benefit, while the increased health of communities and local wildlife is the direct benefit.
- Trees can have human health benefits by lowering surface temperatures in cities.
- Urban trees also provide key habitat for species, all while sequestering carbon.
- Urban trees in the continental US currently store an estimated 643 MMT of carbon.

Knight, T., S. Price, D. Bowler, et al. 2021. How effective is 'greening' of urban areas in reducing human exposure to ground-level ozone concentrations, UV exposure and the 'urban heat island effect'? An updated systematic review. *Environmental Evidence* 10, 12.

Nowak, D.J., Greenfield, E.J., Hoehn, R.E. and Lapoint, E., 2013. Carbon storage and sequestration by trees in urban and community areas of the United States. Environmental pollution, 178, pp.229-236.

Conniff, Richard. Trees Shed Bad Rap As Accessories to Crime, *Environment Yale*.

NBS for Climate Adaptation

- Alongside mitigating climate change, nature-based solutions can be an important way of adapting to impacts of climate change.
- By restoring, managing, and protecting key ecosystems you can help reduce communities' vulnerability to natural disasters, water scarcity, and food insecurity.
- As climate change increases the intensity of storms, NBS deployed in wetlands and coastlines can be highly effective and cheaper than alternative gray solutions.
- Prevention is more affordable than recovery.

Chausson, A., Turner, B., Seddon, D., Chabaneix, N., Girardin, C.A., Kapos, V., Key, I., Roe, D., Smith, A., Woroniecki, S. and Seddon, N., 2020. Mapping the effectiveness of nature-based solutions for climate change adaptation. Global Change Biology, 26(11), pp.6134-6155.

NCS in Carbon Dioxide Removal (CDR)

- CDR is intended for permanent carbon storage or reuse.
- NCS can be an important part of the CDR puzzle if they are:
  - Permanent
  - Additional
  - Verifiable
  - Enforceable
- NCS and CDR are most likely to meet these conditions when they are designed, implemented, managed in partnership with Indigenous peoples and local communities.
- While NCS for carbon storage can be less permanent than engineered solutions, they are immediately ready for large scale deployment, and typically have co-benefits.
- Engineered approaches to CDR do not bring the suite of additional ecosystem services offered by well-implemented and managed NbS.

Seddon, N., Chausson, A., Berry, P., Girardin, C.A., Smith, A. and Turner, B., 2020. Understanding the value and limits of nature-based solutions to climate change and other global challenges. *Philosophical Transactions of the Royal Society B*, *375*(1794), p.20190120.

Nature-based Solutions to Climate Change Guidelines, 2024. Nature-based Solutions Initiative, University of Oxford

IPCC Factsheet CDR :WGIII 6AR I

NCS are scalable, proven, and deliver wins for communities, wildlife, and our climate.

Learn more: https://www.nwf.org/Our-Work/Climate/Climate-Change/Policy/Natural-Solutions

National Association of Conservation Districts

@nacdconserve @nacdconserve @nacdconserve @nacdconserve

www.nacdnet.org

3,000 Conservation Districts in every state and territory

17,000 individuals governing local district boards

To be effective, **conservation** must be:

- Locally led
- Voluntary
- Incentive based
- Economically viable


RURAL
COMMUNITIES


1882
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URBAN
COMMUNITIES


COMMUNITY AG
& FOOD SECURITY


SOIL HEALTH

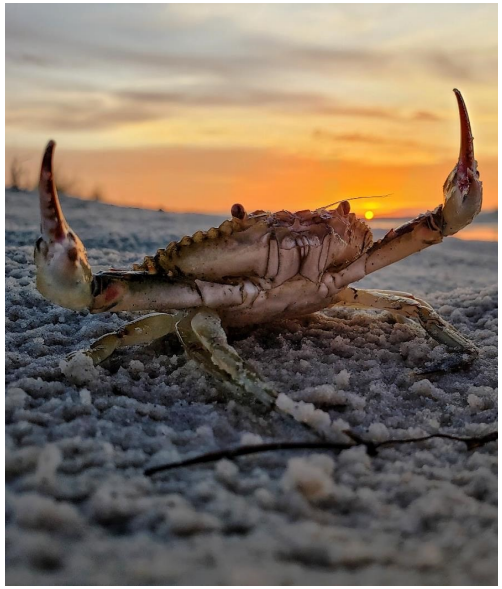

Partner


FORESTRY


POLARIS
WILDFIRE

WATER QUANTITY & QUALITY

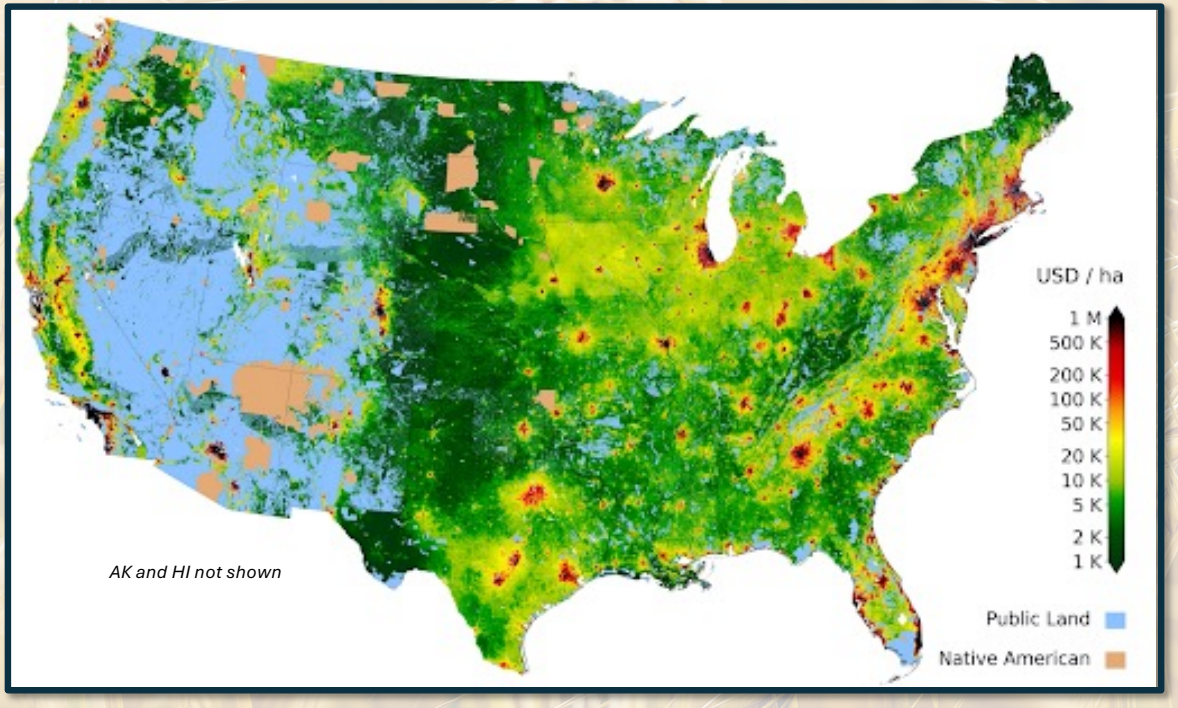

ECOLOGICAL
RESILIENCE



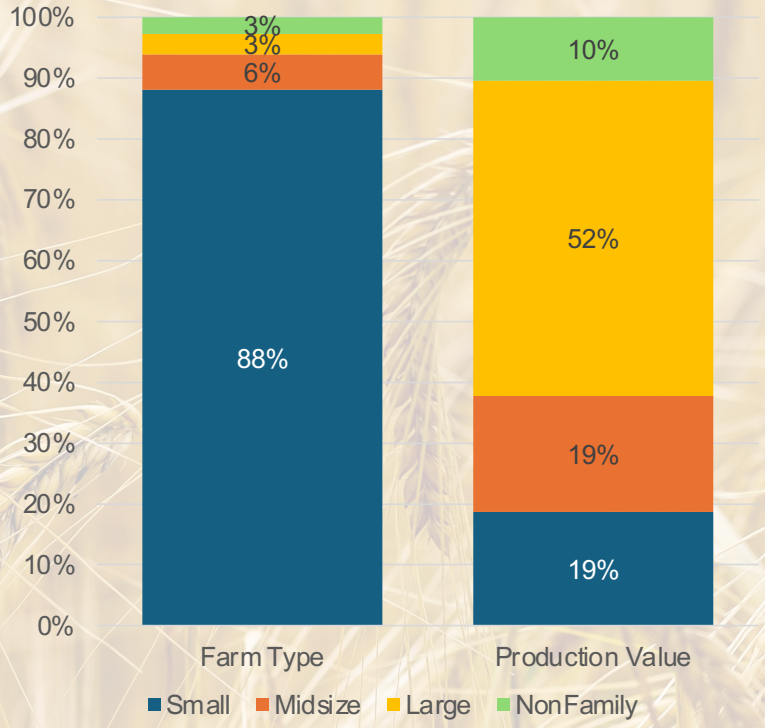

BIODIVERSITY

~60% of US lands are privately owned[1]

~39% of U.S. land is farmland[2]



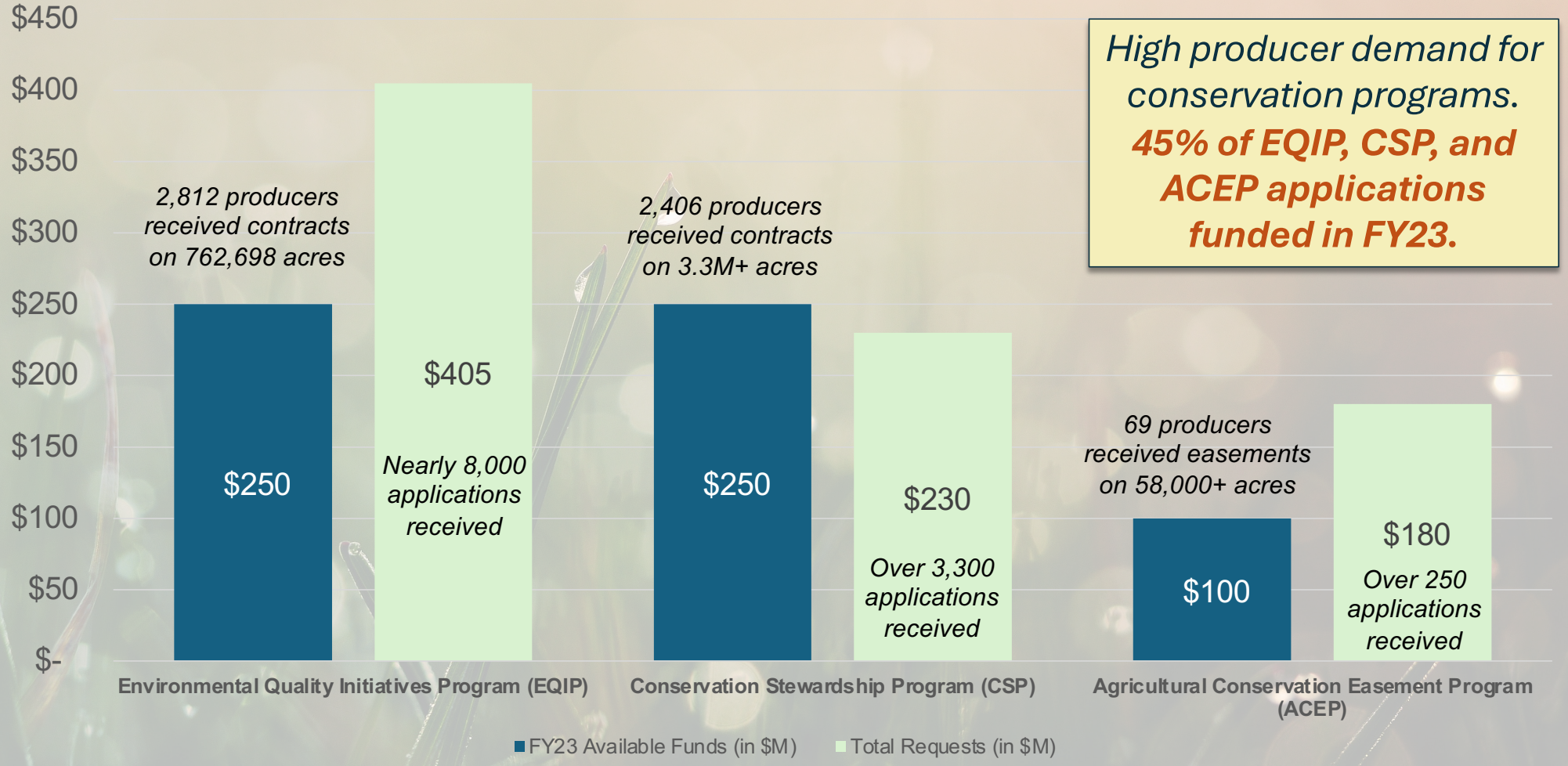
2022 Ag Census
Farm Size vs. Production Value (% Total)[2]



- **29.4%** of farmers are **new and beginner**
- **9%** of farmers are **<35 years old**

Sources:
1) https://ubique.americangeo.org/map-of-the-week/map-of-the-week-mapping-private-vs-public-land-in-the-united-states
2) https://www.nass.usda.gov/Newsroom/2024/02-13-2024.php

FY23 Available IRA Funds vs. Demand[3]



High producer demand for conservation programs. ***45% of EQIP, CSP, and ACEP applications funded in FY23.***

[3]*USDA NRCS IRA Data Visualization Tool – FY2023: https://publicdashboards.dl.usda.gov/t/FPAC_PUB/views/InflationReductionActDataVisualizationTool/IRAEndofYearReport?%3Aembed=y&%3AisGuestRedirectFromVizportal=y*

NACD and the Soil Health Institute studied the economics of Soil Health Management Systems on 30 U.S. Farms

- Soil health practices increased net farm income by an average of $65/acre
- Reduced expenses:
  - $14/acre less to grow corn
  - $7/acre less to grow soybean
  - $16/acre less to grow other crops
- Yield Increases:
  - 42% of farms growing corn
  - 32% of farms growing soybean
  - 35% of farms growing other crops

Conservation has additional economic benefits:

State	Best Quality Land Characteristics			Low Quality Land Characteristics		
	Ave. Corn Yield	Ave. Rent	Ave. Value per acre	Ave. Corn Yield	Ave. Rent	Ave. Value per acre
Indiana	221	$306	$13,739	165	$212	$8,689
Illinois	230	$412	$16,005	180	$285	$6,473
Iowa	212	$328	$14,296	161	$232	$7,664

[1]https://ag.purdue.edu/commercialag/home/paer-article/2024-farmland-and-cash-rent-outlook/ [2]https://ispfmra.org/download/2023-illinois-farmland-values-lease-trends-presented-at-2024-conference/
[3]https://www.extension.iastate.edu/agdm/wholefarm/pdf/c2-10.pdf

Long-term, market demand for climate-smart commodities are needed in addition to Farm Bill programs.

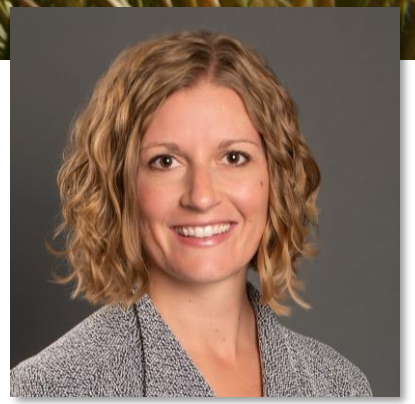
Conservation is a journey and investment. It is not a transaction in return for ecosystem service credits.

Producers need technical assistance and ongoing education. There are no shortcuts.

Conservation is profitable. Producers need financial support and voluntary incentives to implement conservation systems of practices.


Next-Gen Development
• Working Lands Climate Corps
• National Conservation Foundation Envirothon
• Next Generation Leadership Institute
AmeriCorps
GRID ALTERNATIVES

City of Trees Challenge



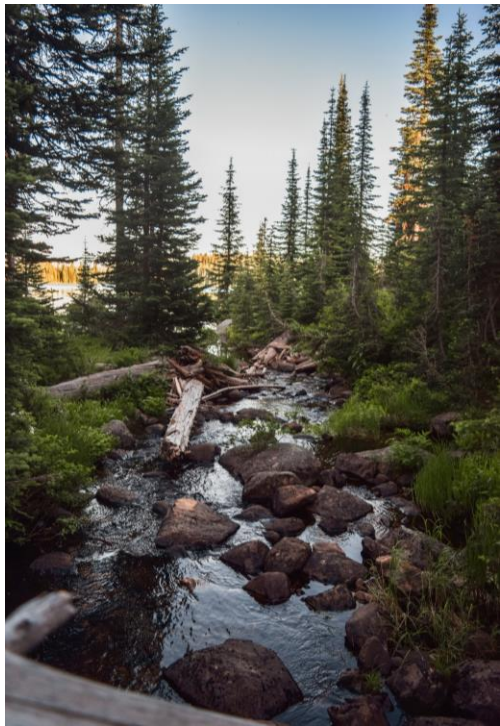
KARI KOSTKA| *Director of External Affairs*


Elaine Clegg
I'm Elaine Clegg

ELAINE CLEGG

City of Trees

CHALLENGE



Celebrating Success

- Planted 235,000 forest seedlings
- Collaboration across local and federal government, nonprofits, and more
- Leveraged a variety of funding


City of Trees
BOISE
IDAHO
PARKS AND RECREATION

Congressional support for pragmatic solutions leading to healthy forests makes projects like the City of Trees Challenge possible.

Thank you!

Bipartisan Policy Center
Where democracy gets to work

Federal Policy Landscape for Natural Climate Solutions

Lesley Jantarasami
Managing Director, Energy Program

June 11, 2024

Bipartisan Policy Center Energy Program

Combining the best ideas from both parties to promote health, security, and opportunity for all Americans.

BPC's Farm and Forest Carbon Solutions Initiative advances innovative climate and conservation policies that deliver economic and environmental benefits across rural America.

https://bipartisanpolicy.org/farm-forest-carbon-solutions-initiative

2

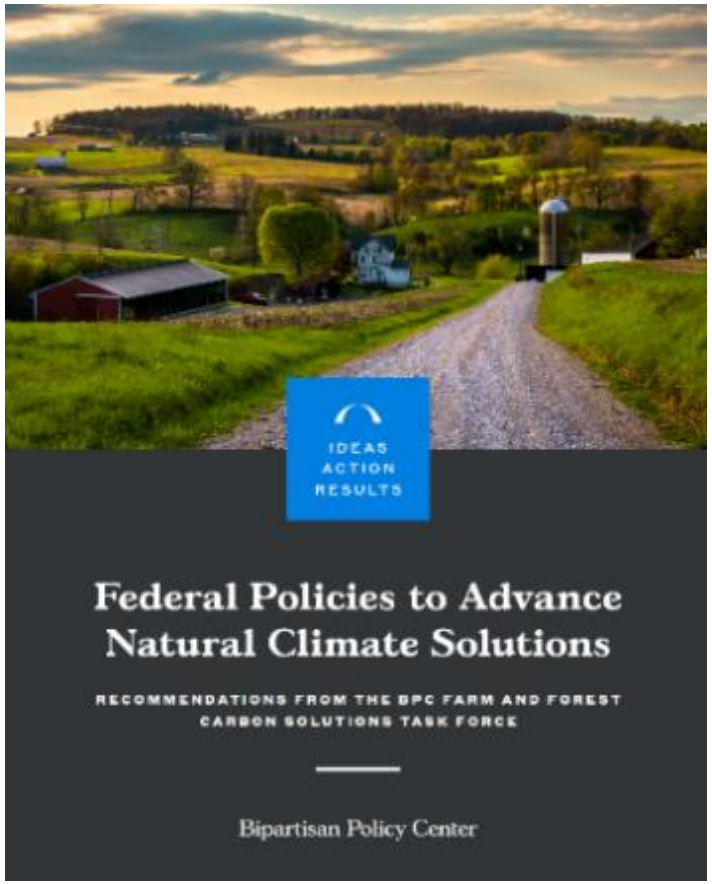
Why Natural Climate Solutions?

Natural climate solutions bolster production and promote cleaner air and water, greater drought resilience, improved wildlife habitat, carbon storage, and increased rural economic opportunities.

BPC Farm and Forest Carbon Solutions Task Force Co-Chairs

Heidi Heitkamp
Former Senator (D-ND)

Saxby Chambliss
Former Senator (R-GA)



https://bipartisanpolicy.org/report/federal-policies-to-advance-natural-climate-solutions

Bipartisan Policy Center

Federal Energy & Climate Policy Wins of the Last Few Years

Energy Act of 2020

CHIPS & Science Act of 2022

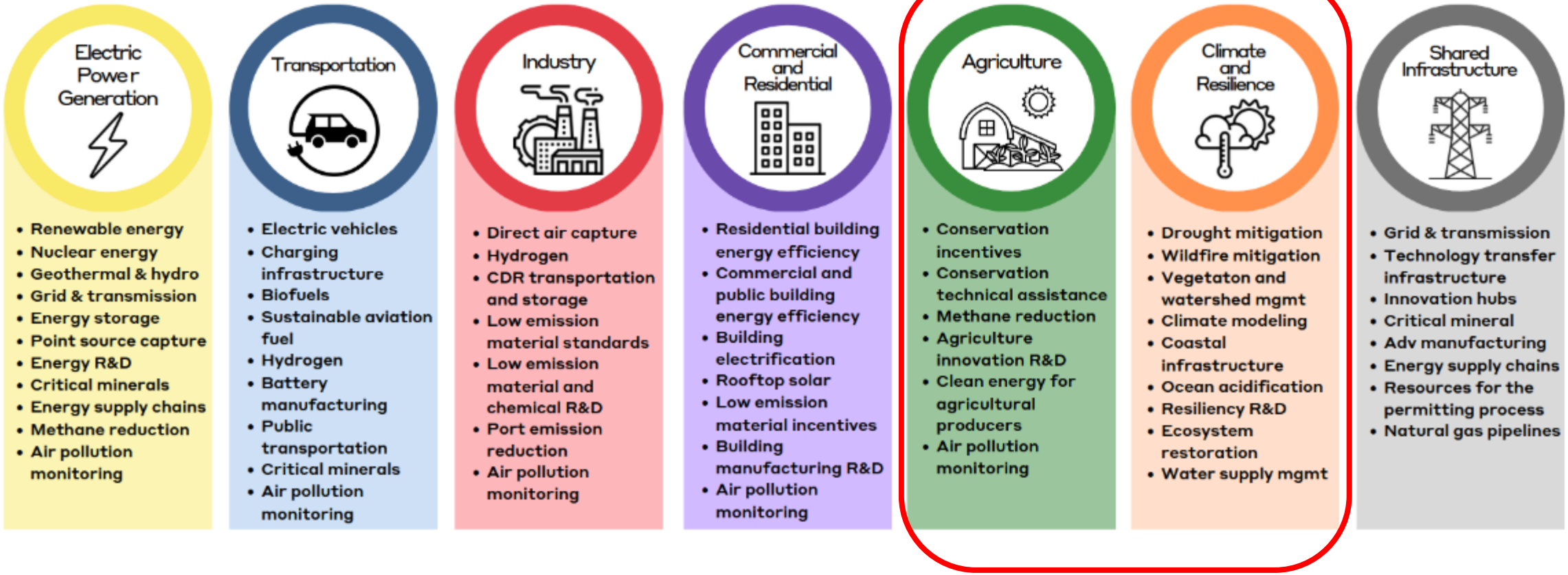
Setting the stage: First comprehensive energy bill in 13 years, focus on energy innovation.	**Regional investment & infrastructure:** Clean energy demonstration and R&D.
Spurring innovation: Strengthen supply chains, advance U.S. competitiveness, and strengthen U.S. scientific enterprise.	**Market incentives:** Extends existing tax credits and creates new credits.

Infrastructure Investment & Jobs Act of 2021 (or Bipartisan Infrastructure Law)

Inflation Reduction Act of 2022 (IRA)

Bipartisan Policy Center

What energy and climate provisions did Congress enact?



Federal Policy Pathways for Natural Climate Solutions

Appropriations

Legislation

Executive Actions

Agency Budgets & Program Implementation

Regulatory Authorities

Congress OKs Climate, Energy, Water Spending in $1.5T Bill

March 12, 2022 News Editor GovPolitics, Latest News, RSS Comments Off

CONGRESS

Biden signs $1.2T funding package after partial shutdown thwarted

The vote caps a remarkably tumultuous spending battle that has consumed Congress.

— The House Appropriations Ag-FDA subcommittee is set to unveil its draft bill today and hold a markup tomorrow, kicking off another contentious spending fight.

FARM BILL

Executive Order on Tackling the Climate Crisis at Home and Abroad

APRIL 22, 2022

Executive Order on Strengthening the Nation's Forests, Communities, and Local Economies

BRIEFING ROOM › PRESIDENTIAL ACTIONS

USDA NRCS CONSERVATION STEWARDSHIP PROGRAM

USDA FSA CONSERVATION RESERVE PROGRAM

USDA FDA EPA United States Environmental Protection Agency

Bipartisan Policy Center

Key Federal Entities for Natural Climate Solutions

Bipartisan Policy Center

BPC Task Force Policy Recommendations

- Scaling public and private investments in natural climate solutions while reducing barriers to voluntary stewardship practices.

- BPC's task force prioritized 6 policy categories:

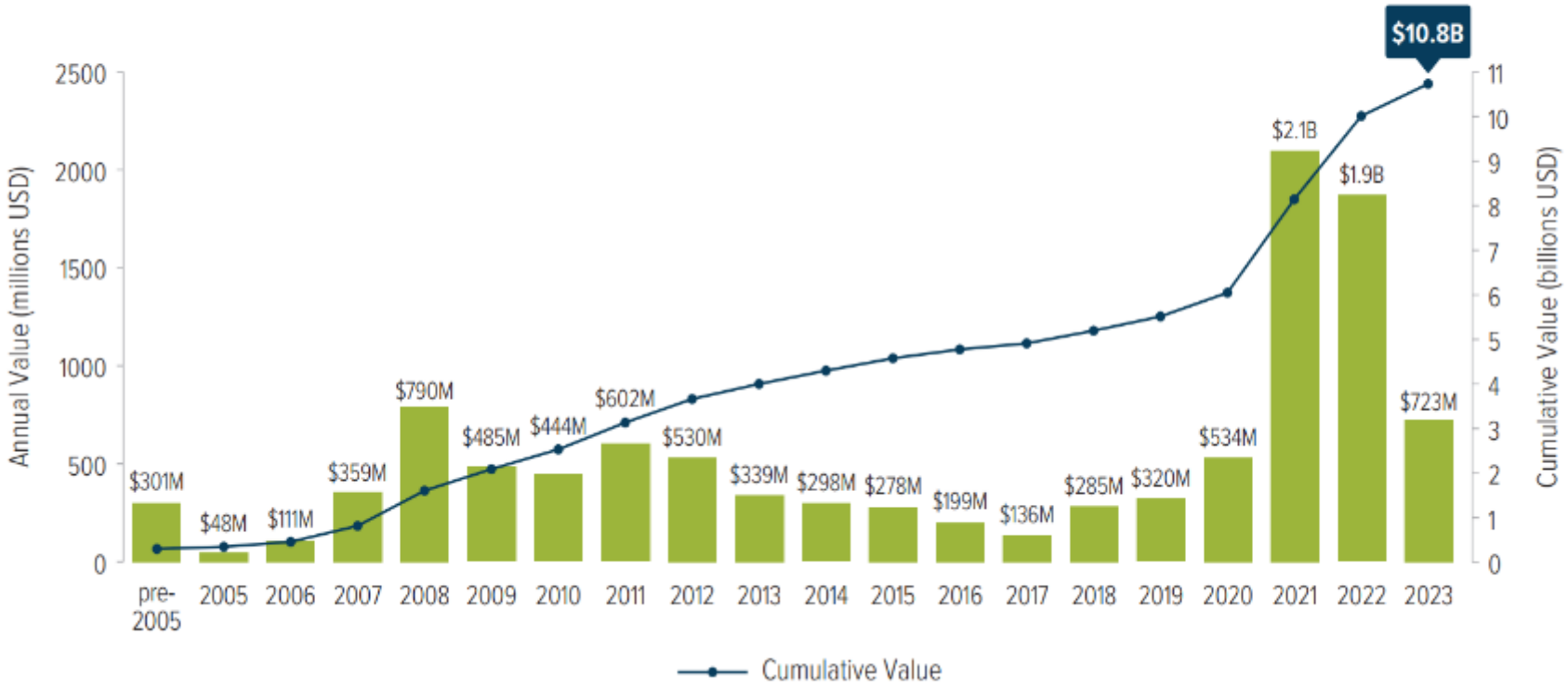
1. **Conservation programs**
2. **Technical assistance and workforce**
3. **Voluntary carbon markets**
4. **Finance & insurance**
5. **Resilience**
6. **Research & innovation**

Bipartisan Policy Center

Global Demand for Carbon Credits Returns to pre-2021 Trends

Voluntary carbon market grew nearly 4x in 2021, approaching $2 billion, and has since reduced to $723 million, a figure larger than any year prior to 2021

Figure 1. Voluntary Carbon Market Size, by Value of Traded Carbon Credits, pre-2005 to 2023



Forestry, land use, and agriculture credits command higher prices than other projects

Table 3. VCM Transaction Volumes, Values, and Prices, by Project Category, 2022-2023

	2022			2023			Percent Change		
CATEGORY	Volume ($MtCO_2e$)	Value (USD)	Price (USD)	Volume ($MtCO_2e$)	Value (USD)	Price (USD)	Volume	Value	Price
Forestry & Land Use	113.0	$1.1 B	$10.14	36.2	$351.3 M	$9.72	-68%	-69%	-4%
Renewable Energy	92.7	$386.1 M	$4.16	28.6	$111.1 M	$3.88	-69%	-71%	-7%
Chemical Processes/ Industrial Manufacturing	13.3	$68.5 M	$5.14	12.2	$50.2 M	$4.10	-8%	-27%	-20%
Household/ Community Devices	9.1	$77.6 M	$8.55	9.9	$76.6 M	$7.70	+10%	-1%	-10%
Energy Efficiency/ Fuel Switching	6.6	$35.6 M	$5.39	9.4	$34.4 M	$3.65	+43%	-3%	-32%
Agriculture	3.8	$41.7 M	$11.02	4.7	$30.6 M	$6.51	+24%	-26%	-41%
Waste Disposal	6.2	$44.9 M	$7.23	1.5	$10.9 M	$7.48	-77%	-76%	+3%
Transportation	0.18	$770 K	$4.37	-	-	-	-	-	-

Note: EM cannot report an average price for Transportation credits in 2023 because of the confidentiality of individual EM respondent data.

Source: *Ecosystem Marketplace, State of the Voluntary Carbon Market 2023*

USDA Implementing the Growing Climate Solutions Act

- Helps farmers, ranchers, forest landowners understand and access voluntary carbon market; generate credits.
- Requires USDA to:
  - Publish lists of widely accepted industry protocols and maintain voluntary registries of entities that provide technical assistance and meet certain standards set by USDA.
  - Convene an Advisory Council to guide USDA, ensure program is effective, and suggest additional methods to reduce barriers to entry.
  - Assess the current state of carbon market opportunities for U.S. agriculture and forestry.

Bipartisan Policy Center

Considerations for a strong, functioning market

- **Robust supply:** Farmers, ranchers, and forest landowners need to be willing and able to participate in voluntary carbon markets. Return on investment needs to be good enough to incentivize participation.
- **Robust demand:** Credit purchasers need to have confidence in credit quality, that project risks have been adequately managed, and that at the end of the day they will be able to use the credits to support their goals.

CFTC

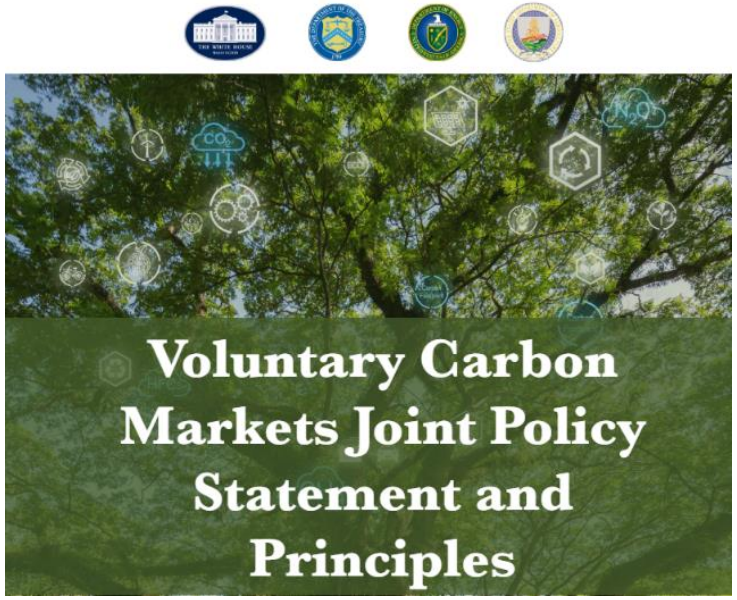
COMMODITY FUTURES TRADING COMMISSION

Release Number 8829-23

CFTC Issues Proposed Guidance Regarding the Listing of Voluntary Carbon Credit Derivative Contracts

December 04, 2023

Washington, D.C. — The Commodity Futures Trading Commission has approved a proposed guidance and request for public comment regarding the listing for trading of voluntary carbon credit derivative contracts. The proposed guidance



New Bicameral Momentum, but Collaboration Needed on Farm Bill

- On May 1st, House Agriculture Committee Republican Chair GT Thompson (R-PA) released a high-level summary of his Farm Bill proposal.
- Senate Agriculture Committee Chair Debbie Stabenow (D-MI) followed with a full summary and section by section for her Farm Bill proposal.
- On May 23rd, the House Agriculture Committee reported their Farm Bill by a bipartisan vote of 33-21.
- Senate Agriculture Committee Ranking Member John Boozman (R-AR) is expected to release his framework for a Farm Bill soon.

FB HOUSE COMMITTEE ON AGRICULTURE
THE 2024 FARM BILL

Title I: Commodities. Aids farmers in managing risk and provides assistance following precipitous declines in commodity prices. Through the reauthorization and enhancement of commodity, marketing loan
some certainty in times of ur

- Increases support for
(ARC) programs to a
- Provides authority to
participate in ARC/Pl
- Modernizes marketin
- Bolsters dairy progra
- Enhances standing d

Title II: Conservation. Provide
assistance to address a varie
water quality and quantity,
proven system of voluntary,
improvements.

UNITED STATES SENATE COMMITTEE ON AGRICULTURE, NUTRITION, & FORESTRY | U.S. SENATOR DEBBIE STABENOW, CHAIRWOMAN

The Rural Prosperity and Food Security Act

Keeping Farmers Farming, Families Fed, and Rural Communities Strong:

- **Makes investments to strengthen the farm safety net;** supports beginning, underserved, and small farmers and ranchers; and focuses assistance on the farmers with dirt under their fingernails and not billionaire and foreign investors.
- **Helps families working hard to make ends meet** by investing in nutrition assistance that puts food on the table, increasing access to fruits and vegetables, and supporting people on their path to self-sufficiency while cracking down on bad actors.
- **Improves the quality of life in rural communities** by improving rural health care, childcare, and education; creating-good paying jobs; expanding access to high-speed internet; and lowering costs for families and businesses.

A Strong, Bipartisan Path Forward:

- **The Rural Prosperity and Food Security Act contains more than 100 bipartisan bills** to keep farmers farming, families fed, and rural communities strong.
- **Senate Democrats are showing leadership by putting forward a bill that reflects bipartisan priorities** and meets the needs of farmers, families, and communities.

Natural Climate Solutions and the Farm Bill

- Today's production challenges are a call to action for Congress to update key programs in the 2024 Farm Bill. This includes:
  - Meeting the high demand for voluntary conservation programs
  - Doubling down on U.S. research and innovation
  - Bolstering forestry programs and the seedling supply chain

https://bipartisanpolicy.org/conserving-our-land-growing-our-economy

Thank you!

https://bipartisanpolicy.org/energy

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