

# CLEARPATH



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## Mission



Accelerate American innovation to reduce global energy emissions

## Vision



Deep global decarbonization by 2050 through an innovation and deployment agenda – driving global uptake of clean technology

# Carbon Dioxide Removal: Enacted policies provide R&D building blocks

## Energy Act 2020

- **Dual Direct Air Capture Prizes:** \$35M for EPA prize, \$100M for commercial & \$15M for precommercial
- DOE: **DAC, BECCS, enhanced weathering, agricultural practices, forest management and afforestation, & carbon sinks CDR RD&D.**
- **CDR Task Force & Report:** DAC, enhanced mineralization, BECCS, forest restoration, soil carbon management, & DOC.
- **Title XVII Innovative Energy Loan Guarantee Program** to include synthetic tech to remove carbon from the air and oceans.

## IIJA

- **\$3.5B for 4 regional DAC hubs** capturing 1MMTCO<sub>2</sub>/yr.
- **DAC Prize Program** funded for FY22.
- **\$6.5B in natural carbon sequestration** funding (~4.5B for USDA and ~1.5B for DOI).
- REPLANT Act, which **increases the Reforestation Trust Fund by ~\$123M to aid in reforestation each year.**

## CHIPS+

- **Carbon Sequestration Research and Geologic Computational Science Initiative + science centers:** \$50M each year for FY23-27 for R&D to advance understanding of carbon sequestration in geologic formations.
- **DOE:** \$11.2B for 10 R&D technology areas, includes \$1B to carry out carbon removal RD&D in demonstration with FECM.

## Tax Bill

- **45Q enhancement for DAC.**
  - Extends deadline for construction to 01/01/2033;
  - Increases credit amount to \$180/ton for DAC stored in saline geologic formations and \$130/ton for utilization or EOR.
  - Decreased minimum plant size reqs from 100,000 to 1,000 tons/year.
- **USFS:** \$50M to pay forest landowners for practices that increase carbon removal on private lands.
- **USFS: Wood Innovation Grant Program:** \$100M for forest residue innovative end uses.
- **New Clean Electricity Credit (45Y)** to include BECCS for electricity production.

# Carbon Removal & Emissions Storage Technologies Act (CREST Act)



- Introduced by Sen. Collins (R-ME) and Sen. Cantwell (D-WA) in June 2022; reintroduced May 2023
- **Expands DOE's carbon removal research and development programs** to include biomass carbon removal and storage, carbon mineralization, ocean carbon removal, carbon conversion and utilization, and ocean carbon storage
- Creates a **carbon removal footprint program** to provide grant funding to entities who are seeking financial assistance to complete a techno-economic assessment (TEA) or life-cycle assessment (LCA)
- Creates a **five-year pilot carbon removal prize program** that has a clear goal of accelerating the deployment and market commercialization of proven carbon removal technologies within the U.S.

# How this stacks against other CDR legislation

## CREST Act

- Senate introduction by Sens. Susan Collins (R-ME), Maria Cantwell (D-WA), Bill Cassidy (R-LA), Angus King Jr. (I-ME), Christopher Coons (D-DE)
- Bipartisan CDR R&D with support for biomass carbon removal such as BECCS and carbon conversion, carbon mineralization, waste mineralization, and ocean carbon removal such as direct ocean capture, macro & micro algae, & ocean alkalinity enhancement.
- Tech-neutral pilot carbon dioxide removal purchase program
- Cost: \$546 million

## Carbon Dioxide Removal Research and Development Act

- House introduction by Rep. Paul Tonko (D-NY)
- Senate introduction by Sen. Brian Schatz (D-HI)
- Launches a 10-year, multi-agency program for carbon dioxide research, development & demonstration.
- Incorporates diverse CDR solutions, including DAC, BiCRS, and ocean CDR.
- Establishes and funds a research program at the NSF.
- Prioritizes holistic social, economic, and environmental considerations.
- Cost: \$12 billion

## CREATE Act

- Senate introduction by Sens. Kyrsten Sinema (I-AZ), Lisa Murkowski (R-AK), Sheldon Whitehouse (D-RI), Shelley Moore Capito (R-WV)
- Establishes the Committee on Large-Scale Carbon Management within the National Science and Technology Council (NSTC) to coordinate and oversee federal efforts on carbon management.
- The group will focus on carbon removal in the oceans, atmosphere, and land using both natural and technological approaches and monitor carbon dioxide levels, environmental impacts and pursue long-term shortage solutions.

# DOE has started a CDR Innovation Prize but CREST Act would codify it

## CDR Purchase Pilot Prize

- Capture carbon directly from the **atmosphere**
- Help develop a **national supply of quality carbon removals** with capability to scale and come down in cost
- Help build **evaluation metrics for successful carbon dioxide removal** programs

### Timeline



### Selection

**3 Phases starting with 25 winners** able to receive up to \$50,000

**Two** down selections of up to 10 winners

**Up to \$3M** in phase 3.

### Areas of Interest

- **DAC** storage technologies
- Biomass with carbon removal and storage (**BiCRS**) pathways
- **Enhanced geological weathering** or mineralization pathways, including both ex-situ and surficial approaches
- Alternative **planned or managed carbon sinks**, including natural and artificial approaches in terrestrial and upper hydrosphere environments with **secure geologic storage or equivalent**

### Funding

- Direction provided in **FY23 consolidated appropriations act** to purchase CDR.
- Further language included in **FY24 Senate Energy & Water language** to provide an additional **\$20 million**, pending omnibus.



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