



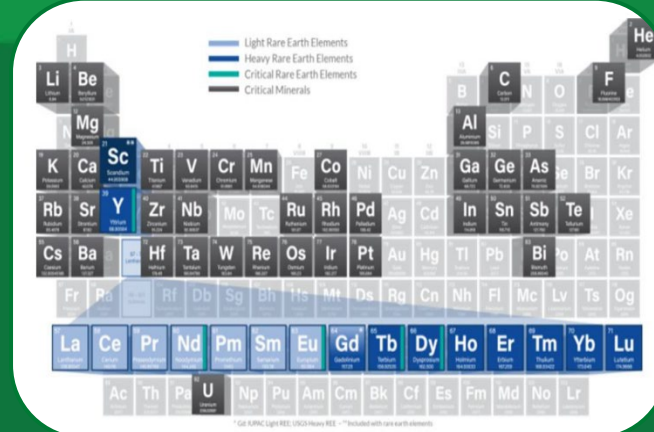
U.S. DEPARTMENT OF
ENERGY

Fossil Energy and
Carbon Management

U.S. Policy Highlights – Carbon Management through CCUS and CDR

2nd Asia CCUS Network Forum

September 30, 2022



Biden Administration priorities for carbon management through CCUS and CDR

Climate Goals

- 50-52% emissions reduction by 2030
- CO₂-emissions-free power sector by 2035
- Net-zero economy by 2050

CCUS and carbon dioxide removal (CDR) need to be done in parallel!

- Advance carbon management approaches toward deep decarbonization and addressing legacy emissions:
 - Point-source carbon capture
 - CO₂ conversion
 - CDR
 - Reliable CO₂ transport and storage
- Advance technologies that lead to sustainable energy resources
 - Hydrogen with carbon management
 - Methane mitigation
- Advance justice, labor, and international and domestic partnerships

Infrastructure Investment and Jobs Act

Enacted on November 15, 2021, appropriating \$20+ billion over 5 years for CCUS, CDR and clean Hydrogen research, development, demonstration, and deployment

Carbon Capture Demonstrations and Large Pilots

Integrated Systems: \$3.5 billion

Carbon Dioxide Removal - Direct Air Capture

Regional Direct Air Capture Hubs: \$3.5 billion

DAC Technology Prize Competition: \$115 million

Carbon Dioxide Storage and Utilization

Carbon Storage Validation and Testing: \$2.5 billion

Carbon Utilization: \$310 million

Front-End Engineering and Design

Pipeline Infrastructure: \$100 million

Carbon Dioxide Transportation Infrastructure

Finance and Innovation: \$2.1 billion

Clean Hydrogen production, processing, delivery, storage, and end-use

Regional Clean Hydrogen Hubs: \$8 billion

(at least four hubs, including at least one using fossil fuels with carbon management)

Inflation Reduction Act

Enacted on August 16, 2022, further expanding and enhancing Tax Credits for Carbon Oxide Sequestration (45Q); creating new Clean Hydrogen Production Tax Credit (45V)

45Q enhancements

- Higher credit amounts; full value (below) realized only if prevailing wage and apprenticeship requirements are met
 - Point-source capture:
 - \$85 (vs \$50) for a tonne of CO₂ stored in saline formations
 - \$60 (vs \$35) for a tonne of CO₂ utilized
 - DAC:
 - \$180 (vs \$50) for a tonne of CO₂ stored in saline formations
 - \$130 (vs \$35) for a tonne of CO₂ utilized
- Extended deadline for “beginning of construction” to end of 2032 (from end of 2025)
- Lower minimum capture requirements
- Direct pay
- Extended credit transferability

45V

- New 4-tiered 10-year incentives based on life-cycle greenhouse gas emissions from the production process
 - Maximum credit: \$3 per kilogram (kg) of H₂ if emissions less than 0.45 kg of CO₂ equivalent per kg of H₂ (kgCO₂e/kgH₂)
 - Maximum emissions eligible: 4 kgCO₂e/kgH₂
 - Prevailing wage and apprenticeship requirements apply
- Deadline for “beginning of construction:” end of 2032
- Retrofits eligible
- Cannot stack with 45Q
- Direct Pay
- Transferability

CHIPS and Science Act

- Enacted on August 9, 2022, authorizing \$1 billion over 4 years for CDR research, development and demonstration by the Department of Energy's Office of Fossil Energy and Carbon Management
- Further manifesting bipartisan recognition of the role of CDR, specifically direct air capture (DAC), in achieving climate goals



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