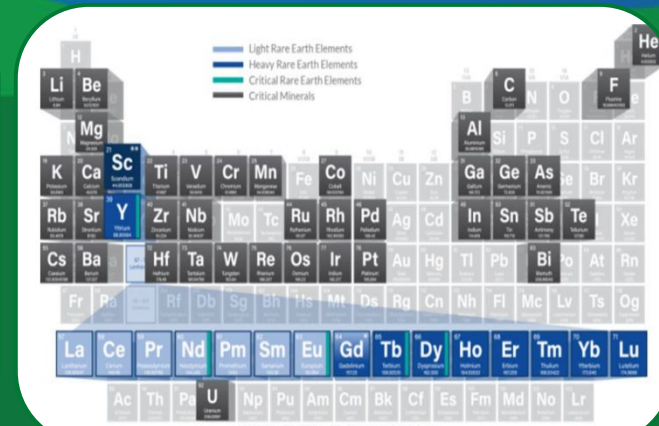


# International Collaborations

Clean Energy Transition Partnership Joint Call 2023, Applicant Education Webinar

October 16, 2023

Matt Antes, Acting Director for Engagement  
Office of Carbon Management, U.S. Department of Energy



# Fossil Energy and Carbon Management

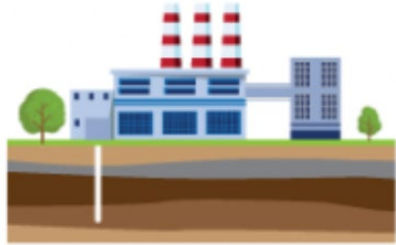
- Office name reflects updated vision
  - Carbon management for deep decarbonization and addressing legacy emissions

## United States Greenhouse Gas Emissions Goals:

- 50% emissions reduction by 2030
- CO<sub>2</sub> emissions-free power sector by 2035
- Net zero emissions economy-wide by 2050



# Strategic Directions



**CARBON MANAGEMENT  
APPROACHES TOWARD  
DEEP DECARBONIZATION**



**TECHNOLOGIES THAT  
LEAD TO SUSTAINABLE  
ENERGY RESOURCES**



**JUSTICE,  
LABOR, AND  
ENGAGEMENT**



# Priority Technology Areas

- Mission: Minimize environmental and climate impacts of fossil fuels from extraction to use
  - Point source carbon capture
  - Carbon dioxide removal
  - CO<sub>2</sub> conversion
  - Reliable CO<sub>2</sub> storage
  - Hydrogen production
  - Critical minerals
  - Methane mitigation





# Bipartisan Infrastructure Law

## Carbon Dioxide Removal through Direct Air Capture

Regional Direct Air Capture Hubs: \$3.5 billion  
DAC Technology Prize Competition: \$115 million

## Carbon Dioxide Utilization and Storage

Carbon Storage Validation and Testing: \$2.5 billion  
Carbon Dioxide Transportation Infrastructure Finance and Innovation Program: \$2.1 billion  
Carbon Utilization Program: \$310 million

## Carbon Capture from Industry & Power Generation

Carbon Capture Technology Program: \$100 million  
Carbon Capture Large-Scale Pilots Program: \$973 million  
Carbon Capture Demonstration Projects Program: \$2.5 billion

## Critical Minerals and Materials

Rare Earth Element Demo Facility: \$140 million  
Rare Earth Mineral Security Program: \$127 million  
Critical Materials (CM) Innovation...: \$600 million  
CM Supply Chain Research Facility: \$75 million



# Carbon Management in IEA Net Zero Emissions Scenario

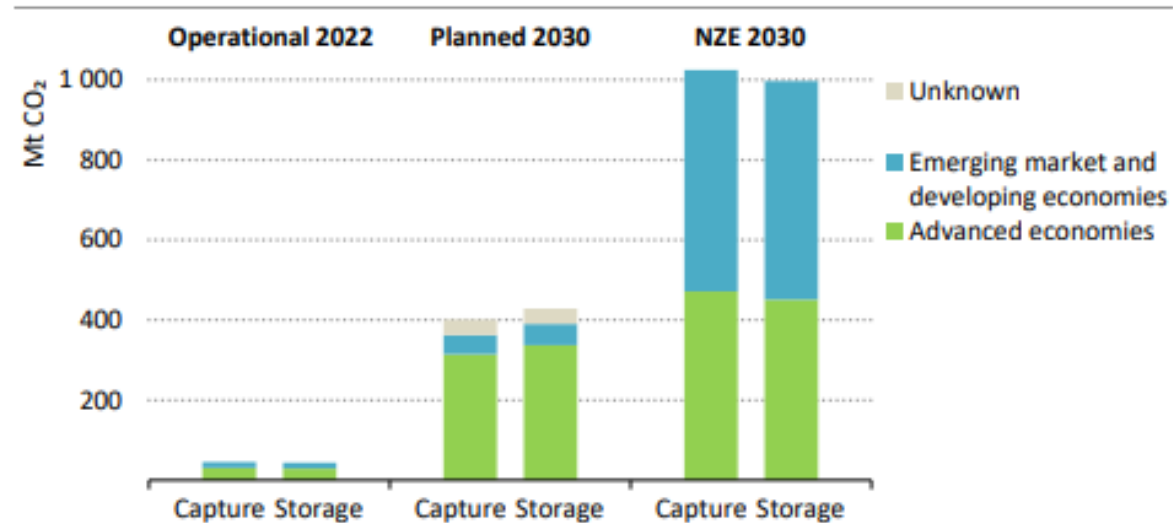
## Net Zero Roadmap

A Global Pathway to Keep the 1.5 °C Goal in Reach

2023 Update

International Energy Agency

**Figure 3.19** ▶ CO<sub>2</sub> capture and storage capacity by economic grouping in the NZE Scenario, 2022 and 2030



IEA. CC BY 4.0.

*Gap between the levels of planned CCUS deployment and what is needed by 2030 is the largest in emerging economies*

Note: Planned capture and storage capacity include all facilities with a capacity larger than 0.1 Mt CO<sub>2</sub> per year as of June 2023, and projects with an announced operation date by 2030.

Source: IEA CCUS Projects Database (IEA, 2023h).



U.S. DEPARTMENT OF  
**ENERGY**

# International Engagement

- Developing and deploying climate technologies and approaches represents a *global* challenge

International engagements provide:

- Country complementarities to leverage resources and avoid duplication of effort
- Sharing key insights on RD&D, technology innovations, and market opportunities
- Deeper understanding of the unique challenges facing deployments under different conditions
- Opportunities to increase awareness of the major advances emerging from DOE programs

# International Collaborative Initiatives

## Example Collaborations







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**ENERGY**

Fossil Energy and  
Carbon Management

# Thank you!



Legend:

- Light Rare Earth Elements (Blue)
- Heavy Rare Earth Elements (Dark Blue)
- Critical Rare Earth Elements (Green)
- Critical Minerals (Black)

H																	He	
Li	Be											B	C	N	O	F	Ne	
Mg												Al	Si	P	S	Cl	Ar	
K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr	
Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe	
Cs	Ba	La	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn	
Fr	Ra	Ac	Rf	Db	Sg	Bh	Hs	Mt	Ds	Rg	Cn	Nh	Fl	Mc	Lv	Ts	Og	
		La	Ce	Pr	Nd	Pm	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu		
		Ac	Th	Pa	U	Np	Pu	Am	Cm	Bk	Cf	Es	Fm	Md	No	Lr		

\* Ga, K, Rb, Cs, Fr, U, Th, Pa, Np, Pu, Am, Cm, Bk, Cf, Es, Fm, Md, No, Lr are included with rare earth elements.

