



U.S. DEPARTMENT OF
ENERGY

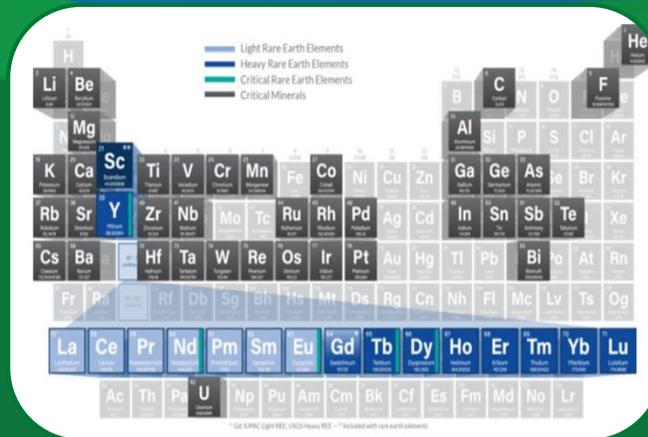
Fossil Energy and
Carbon Management

Regional Carbon Conversion Procurement Grants Workshop

Amishi Claros

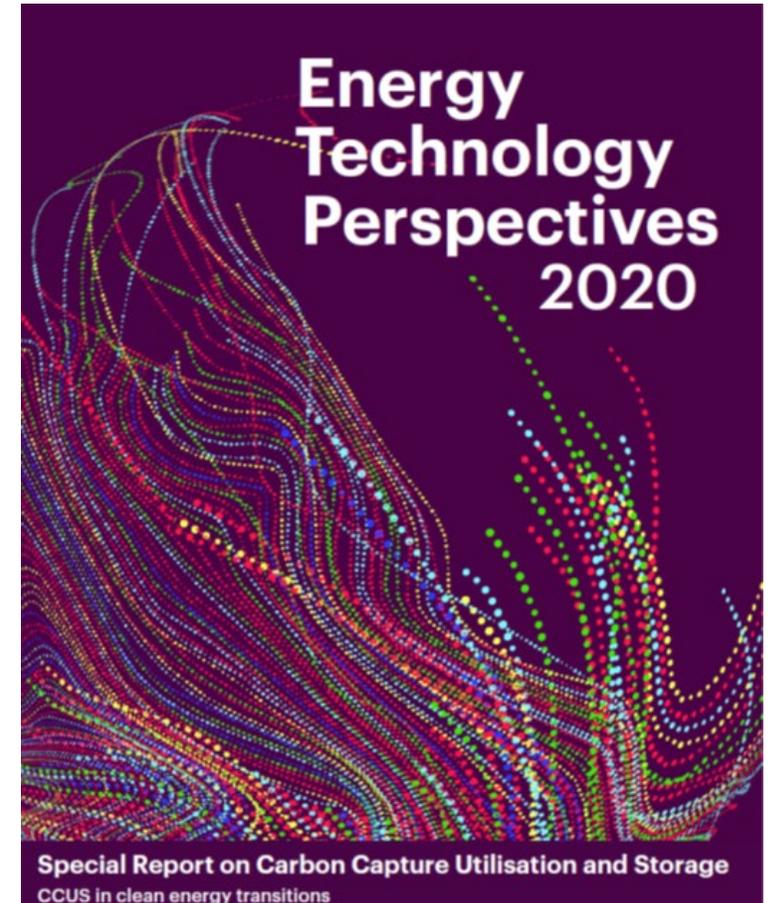
ACTING DIVISION DIRECTOR, CARBON DIOXIDE REMOVAL AND CONVERSION
OFFICE OF CARBON MANAGEMENT

October 18, 2022



The Role of CCUS: Critical to addressing the challenge

- CCUS will need to form a key pillar for efforts to put the world on a path to net zero emissions
- Reaching net zero will be virtually impossible without CCUS
- CCUS tackles emissions from existing infrastructures – power, heavy industry
- CCUS is one of two pathways to low carbon hydrogen
- Remove carbon from the atmosphere
- Moving the de-carbonization goal from 2070 to 2050 - requires increasing CCUS by 50% over past applications



Fossil Energy and Carbon Management (FECM)

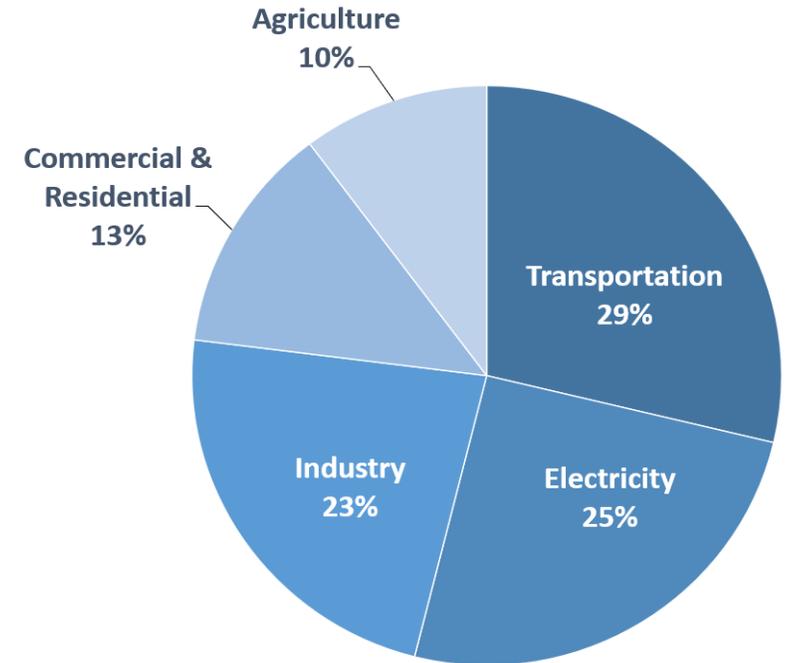
Office of Fossil Energy and Carbon Management

DOE-FE is now DOE-FECM

New name for our office reflects our new vision

- President Biden's goals:
 - 50% emissions reduction by 2030
 - CO₂ emissions-free power sector by 2035
 - Net zero emissions economy by no later than 2050

Total U.S. Greenhouse Gas Emissions
by Economic Sector in 2019



U.S. Environmental Protection Agency (2021). Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2019

FECM Mission: Deep Decarbonization and Environmental Justice

Minimize environmental and climate impacts of fossil fuels from extraction to use

Priority Technology Areas

1. Point source carbon capture
2. Carbon dioxide (CO₂) removal
3. CO₂ conversion into products
4. Reliable CO₂ storage
5. Hydrogen production
6. Critical mineral production from industrial and mining waste
7. Methane mitigation

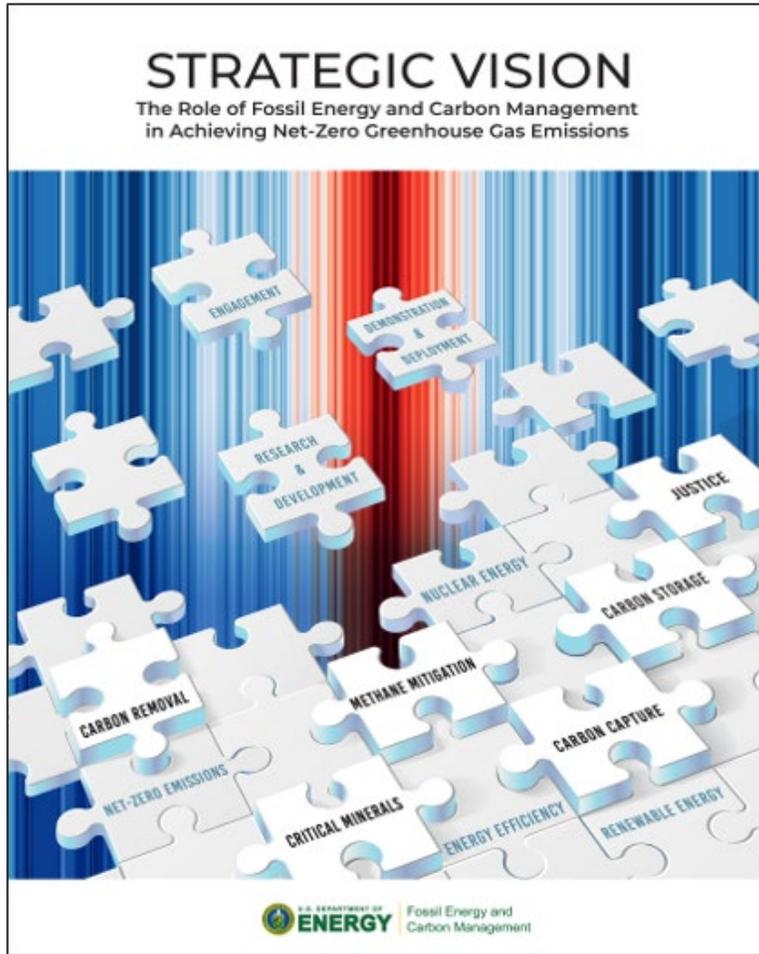
Office of Carbon Management
(FECM-20)

Office of Resource Sustainability
(FECM-30)

Enacting Justice and Supporting Legacy Communities

- Good-paying jobs
- Job growth acceleration
- Healthy economic transitions
- Improve community conditions

A Vision for Carbon Management



A carbon management framework that will guide FECM's engagement with offices across the Department, Federal agencies, tribal and international governments, industry, non-governmental organizations, and communities

Advancing Justice, Labor, and Engagement

Priorities: Justice, labor, and international and domestic partnerships

Advancing Carbon Management Approaches Toward Deep Decarbonization

Priorities: Point-source carbon capture (PSC), carbon dioxide conversion, carbon dioxide removal (CDR), and reliable carbon transport and storage

Advancing Technologies that Lead to Sustainable Energy Resource

Priorities: Hydrogen with carbon management, domestic critical minerals (CM) production, and methane mitigation

Bipartisan Infrastructure Law (BIL)

FECM - **\$6.5 billion** in new carbon management funding over 5 years through the Infrastructure Investment and Jobs Act (Bipartisan Infrastructure Law).

Carbon Dioxide Removal - 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 Utilization Program: \$310 million

Front-End Engineering Design Studies

Carbon Capture Technology Program: \$100 million

Critical Minerals and Materials

Rare Earth Element Demonstration: \$140 million

Rare Earth Mineral Security: \$127 million

Office of Clean Energy Demonstrations (OCED)

OCED established December 2021

- Builds on existing DOE investments in clean energy research and development
- Increases DOE's partnership with industry leaders

OCED Projects Areas:

- Clean hydrogen
- Carbon capture – thoughtful siting w/ focus on hard to avoid sectors (e.g., industry and committed emissions)
- Grid-scale energy storage
- Small modular reactors and more

FECM-OCED Project Coordination

Hydrogen Hubs

- \$8 billion (for at least four projects, including at least one using fossil fuels with carbon management)

Carbon Capture Demonstrations and Large Pilots

- \$3.5 billion

Carbon Dioxide Transportation Infrastructure Finance and Innovation Program Account

- Loan Programs Office: \$2.1 billion

Inflation Reduction Act – 45Q Modifications

	Old	New
Commence Construction	January 1, 2026	January 1, 2033
DAC Facility	100,000 metric tons/year*	1,000 metric tons/year
Electric Generator	500,000 metric tons/year*	18,750 metric tons/year
All other facilities	100/000 metric tons/year*	12,500 metric tons/year
Saline Storage Credit	\$50/metric ton	\$85/metric ton (industry and power); \$180/metric ton (DAC)
EOR and Conversion Credit	\$35/metric ton	\$60/metric ton (industry and power); \$130/metric ton (DAC)

* Non-EOR Conversion facilities were previously 25,000 metric tons/year regardless of facility/source.

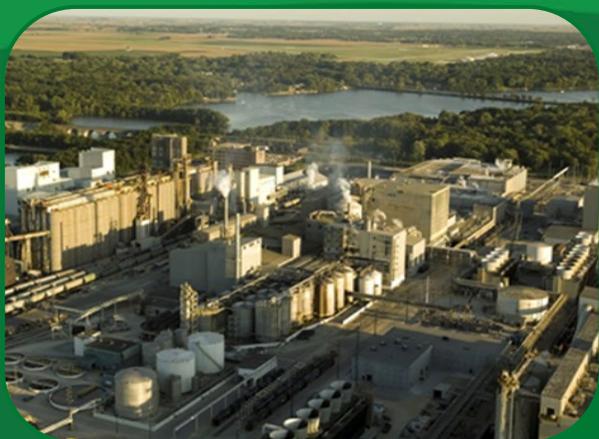
Notes: New Modifications allows up to 5 years for direct pay (up to 12 years certain entities)



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Questions?



Legend:

- Light Rare Earth Elements
- Heavy Rare Earth Elements
- Critical Rare Earth Elements
- Critical Minerals

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, Mn, Li, REE, U, O, D, H, He, REE, ** Included with rare earth elements.

