



U.S. DEPARTMENT OF  
**ENERGY**

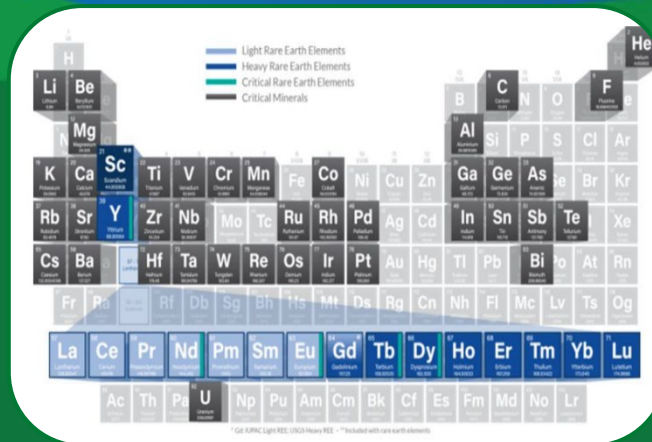
Fossil Energy and  
Carbon Management

# The Role of Carbon Management in Achieving Net-Zero

*Jen Wilcox, US Department of Energy*

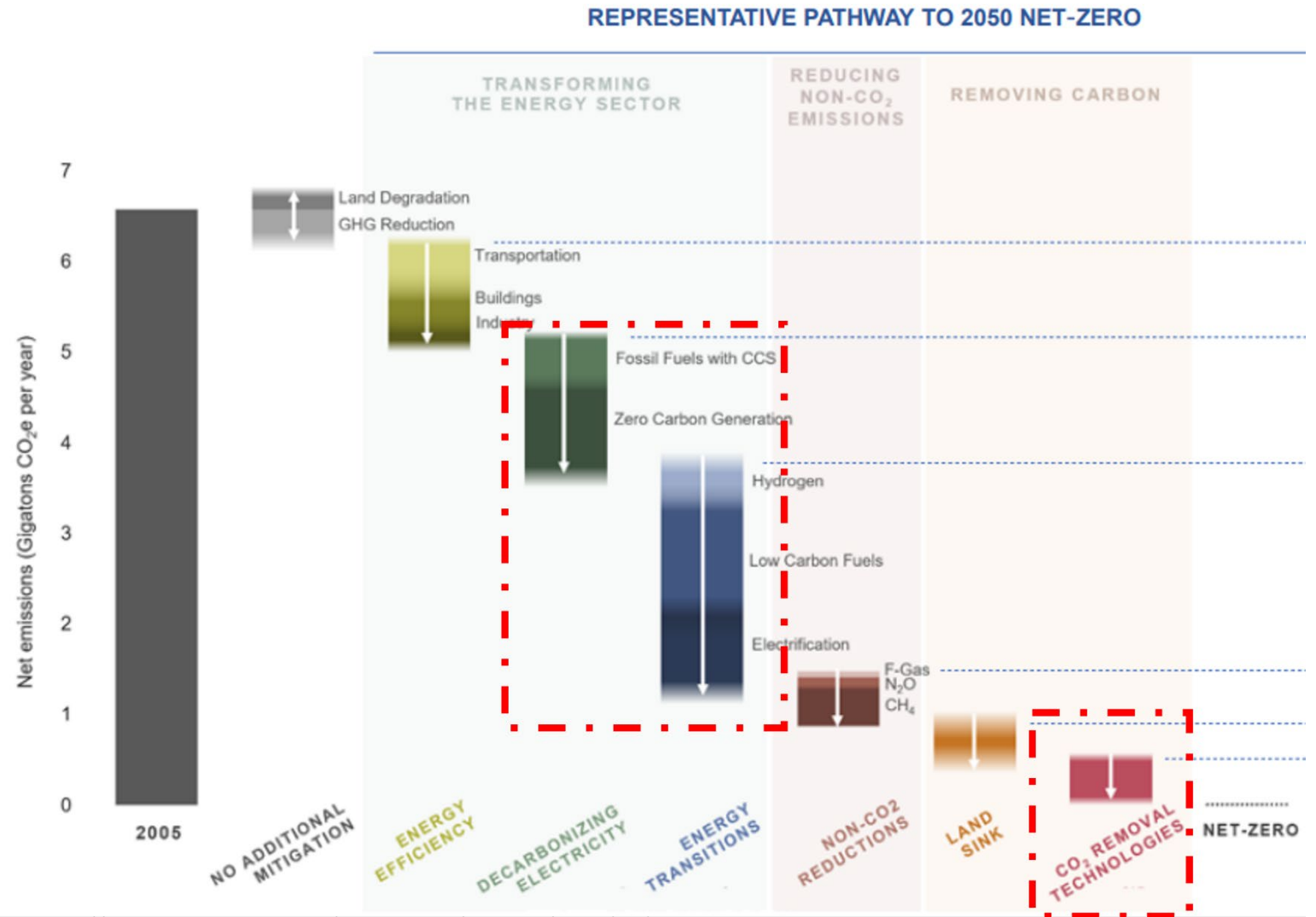
Workshop on Measurement, Monitoring, and Controlling Potential  
Environmental Impacts from the Installation of Point-Source Capture

June 8<sup>th</sup>, 2023



# Role of Carbon Capture and Carbon Removal in Achieving Net-Zero

- Point-source carbon capture necessary for infrastructure and industries with limited decarbonization options today, like cement
- Carbon dioxide removal critical for counterbalancing hard to decarbonize sectors, like agriculture, to reach net-zero
- US Long-term climate strategy shows that even scenarios with lower removal, will still require *some* removal



<https://www.whitehouse.gov/wp-content/uploads/2021/10/US-Long-Term-Strategy.pdf>

# FECM Strategic Vision

## Advancing Technologies that Lead to Sustainable Energy Resources

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

## Advancing Carbon Management Approaches Toward Deep Decarbonization

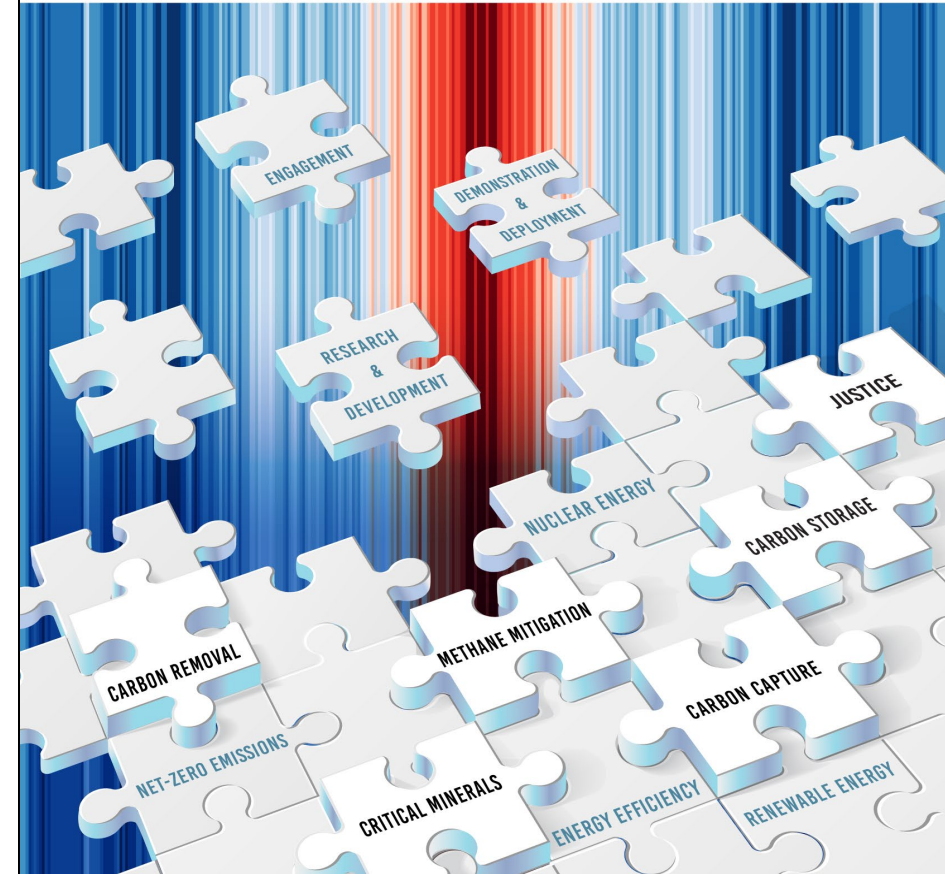
*Priorities: Point-source carbon capture, carbon dioxide conversion, carbon dioxide removal (CDR), and reliable carbon transport and storage*

## Advancing Justice, Labor, and Engagement

*Priorities: Justice, labor, and international and domestic partnerships*

## STRATEGIC VISION

The Role of Fossil Energy and Carbon Management in Achieving Net-Zero Greenhouse Gas Emissions



# Recently Passed Legislation Provides Opportunity for Funding and Stimulating US Innovation

## **Bipartisan Infrastructure Law** - \$12B over 5 years

- Build out infrastructure for first-of-a-kind projects
- Create a new gold standard

## **Inflation Reduction Act** - Federal tax credit (45Q) to stimulate private sector projects

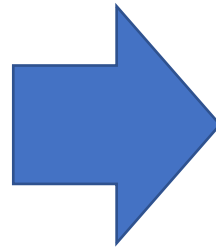
- \$85/tCO<sub>2</sub> for point-source capture
- \$180/tCO<sub>2</sub> for direct air capture, coupled to dedicated geologic storage (e.g., Class VI well)
- Reduced minimum project size to 1,000 tons for direct air capture

<https://www.energy.gov/fecm/justice-engagement-planning-societal-considerations-impacts-fecm-projects>

# Legislation is Accelerating Carbon Management

>\$12B over five years

**Grants**  
**Loans**  
**Credits**



## Expected development

- 6 carbon capture demonstration projects and several new small-scale pilots
- 4 direct air capture hubs
- 100+ new dedicated CO<sub>2</sub> storage wells
- New CO<sub>2</sub> pipelines and transportation networks (~10,000 miles moving 10Ms tons CO<sub>2</sub>/yr)
- Expected blue H2 Hub(s)

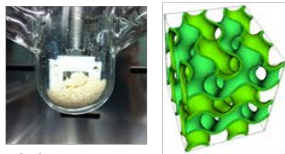
FOA Release September 23, 2022: <https://www.energy.gov/oced/carbon-capture-demonstration-projects-program>

Broader Press Release: <https://www.energy.gov/articles/biden-harris-administration-announces-49-billion-deploy-infrastructure-necessary-manage>

# (Point Source) Carbon Capture Program

Integrated Approach to Accelerate Technology Development

Lab & Bench



TRL 2-4

Small Pilots



TRL 4-5

Large Pilots



TRL 5-7

FEED Studies



## Point Source Capture Focus

- Develop capture technologies for the power and industrial sectors
- Reduce CAPEX/OPEX under a wide range of feed conditions
- Achieve high capture efficiencies (>95%)
- Maximize co-benefit pollutant removal
- Create low-carbon supply chains (i.e., cement, steel, hydrogen, etc.)

# Carbon Capture and Removal with Equity and Justice

A New Requirement for DOE Carbon Management Projects

- Must advance equity and justice for communities

Project Applications Require New Plans for **Four Priorities**

- Community and stakeholder engagement
- Diversity, equity, inclusion, and accessibility
- Justice40 Initiative
- Quality jobs

FECM's website (resources) provides guidance for applicants to develop these plans

<https://www.energy.gov/fecm/justice-engagement-planning-societal-considerations-impacts-fecm-projects>

# Thank You

## *Learn More About Us*

### **The Office of Fossil Energy and Carbon Management**

*<https://www.energy.gov/fecm>*

### **Justice & Engagement**

*<https://www.energy.gov/fecm/justice-engagement-planning-societal-considerations-impacts-fecm-projects>*

### **Our Strategic Vision**

*[https://www.energy.gov/sites/default/files/2022-04/2022-Strategic-Vision-The-Role-of-Fossil-Energy-and-Carbon-Management-in-Achieving-Net-Zero-Greenhouse-Gas-Emissions\\_Updated-4.28.22.pdf](https://www.energy.gov/sites/default/files/2022-04/2022-Strategic-Vision-The-Role-of-Fossil-Energy-and-Carbon-Management-in-Achieving-Net-Zero-Greenhouse-Gas-Emissions_Updated-4.28.22.pdf)*