



U.S. DEPARTMENT OF  
**ENERGY**

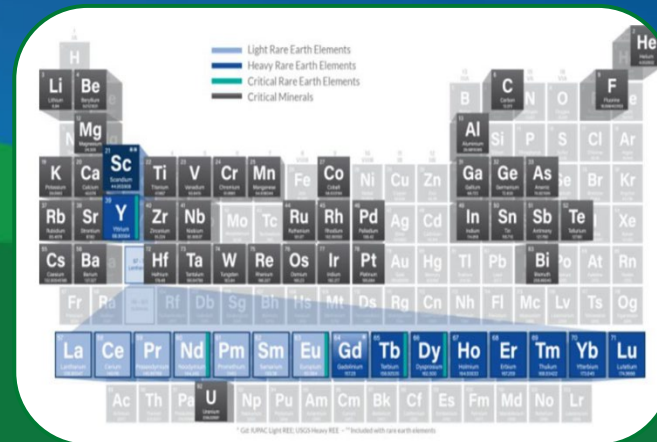
Fossil Energy and  
Carbon Management

# Carbon Capture Program at DOE Fossil Energy and Carbon Management

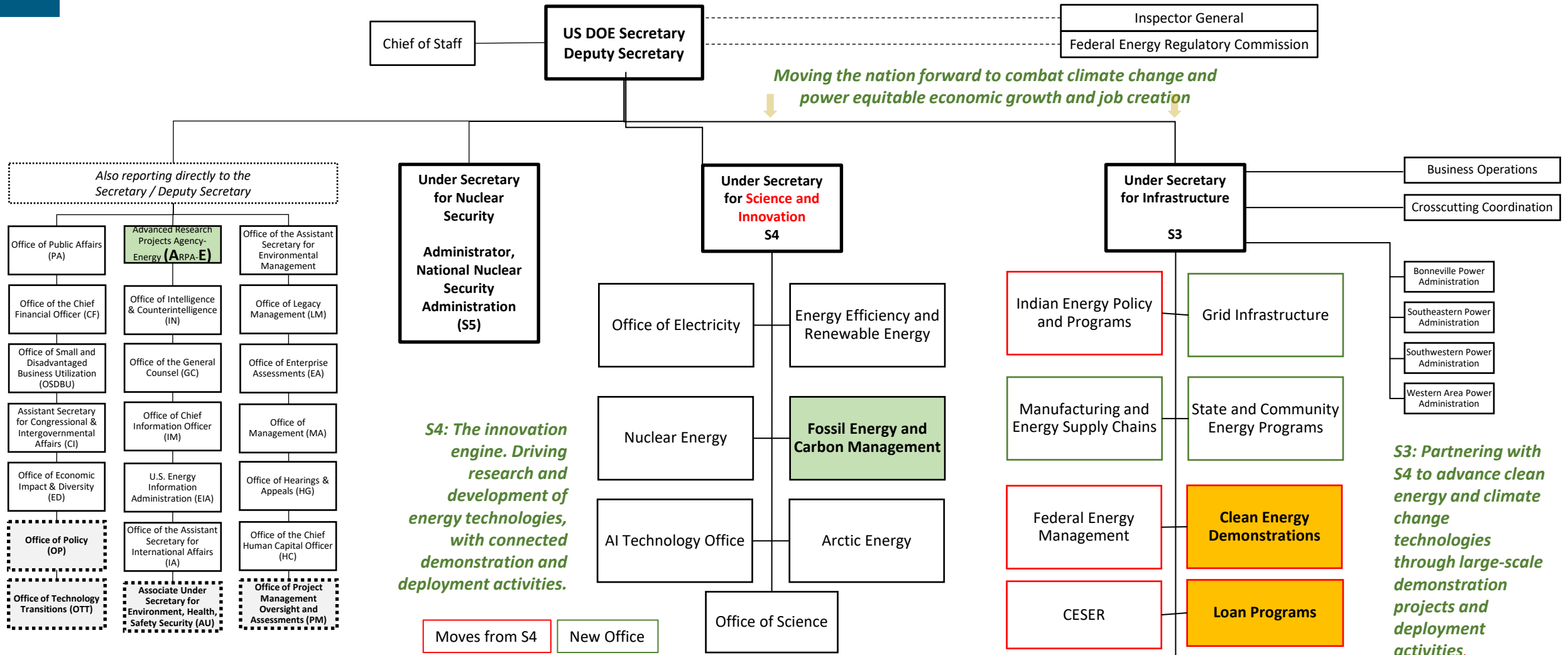
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# U.S. Department of Energy – Fossil Energy and Carbon Management (DOE-FECM)



# DOE-FECM Mission: Deep Decarbonization

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



## Point-Source Carbon Capture (PSC)

Reduce the cost, increase the efficacy, and advance the deployment of commercial-scale point source capture technologies in the power and industrial sectors, coupled to storage.



## Methane Mitigation

Develop technologies and deploy regional initiatives to quantify and reduce methane emissions from fossil fuel infrastructure including coal, oil, and gas.



## Carbon Dioxide Removal (CDR)

Invest in a diverse set of CDR approaches to support DOE's Carbon Negative Shot of just, sustainable, and scalable CDR at costs below \$100/net metric ton of CO<sub>2</sub>-equivalent.



## Domestic Critical Minerals (CM) Production

Support demonstrations for extraction and remediation to processing and refining for building a strong CM supply chain while creating good-paying jobs.



## Carbon Transport and Storage

Make advancements in storage technologies and transport mechanisms, provide technical assistance in Class VI well permitting, and support large-scale transport and storage facilities and regional hubs.



## Hydrogen with Carbon Management

Hydrogen production coupled with carbon capture and storage using sustainably sourced carbon-based feedstocks. Invest in the advancement of hydrogen storage, fuel cells, and 100 percent hydrogen-fired turbines, supporting DOE's Hydrogen Shot target.



## Carbon Dioxide Conversion

Accelerate capabilities for large-scale conversion of CO<sub>2</sub> into products that advance net-zero goals, facilitated by markets that use CO<sub>2</sub> as a feedstock.



## Justice, Labor, and Domestic and International Collaboration

Collaborate with domestic and international partners to create a sustainable energy infrastructure with equity and justice at the core of FECM's work.

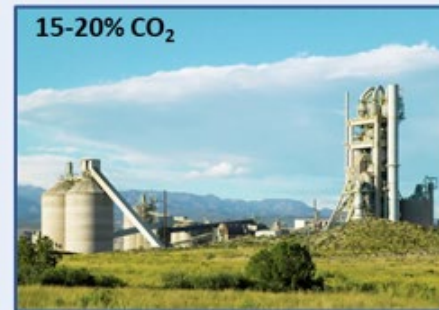
# Point Source Carbon Capture

## CARBON REDUCING

### Point-Source Capture (PSC) for Power Generation and Industrial Sectors



Power Plants



Cement Plants



Steel Plants



Hydrogen Plants

# Carbon Capture Program...Mission

- Mission

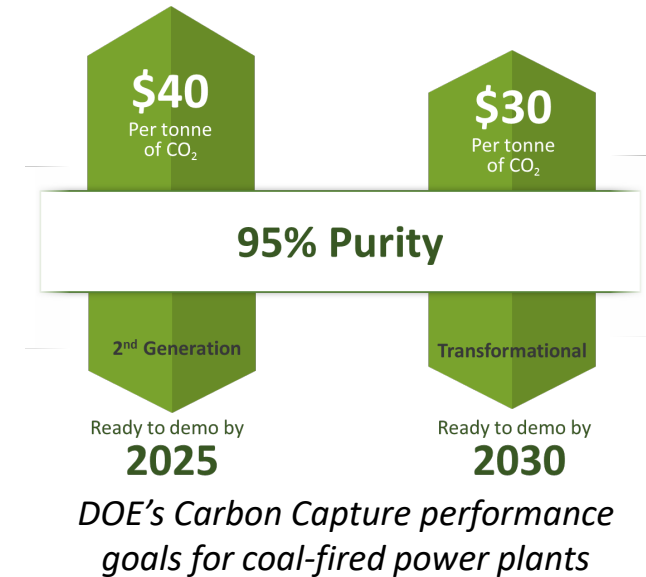
- Develop cost-effective point source capture throughout the power-generation and industrial sectors and CDR technologies
- Ensure access to safe, reliable, & affordable low-carbon energy generation

- Drivers/Challenges

- Reduce carbon capture CAPEX/OPEX under a wide range of feed conditions and high capture efficiencies
- Demonstrate first-of-a-kind carbon capture coupled to dedicated and reliable carbon storage, that will lead to commercially viable nth-of-a-kind opportunities for widescale deployment

- Goal & Metrics

- Support U.S goal to achieve carbon pollution-free power sector by 2035 and zero-carbon economy by 2050



National Carbon Capture Center

Photo Source: Southern Company Services

# CETP 2024 Call - Point Source Carbon Capture...Goals

- US DOE-FECM is encouraging and funding CO<sub>2</sub> capture projects as part of the CETP project call from energy intensive industrial sectors or heavy industry.
- CO<sub>2</sub> capture from these industries are encouraged to apply:
  - Waste to Energy,
  - Cement Production,
  - Steel, Aluminium, and other Metals Production,
  - Power Sector,
  - Maritime Transport,
  - Hydrogen Production from Natural Gas,
  - Reactive Carbon Capture (integrating CO<sub>2</sub> capture with conversion of the captured CO<sub>2</sub> into a product)
- Overall DOE-FECM goal: is to advance lower cost CO<sub>2</sub> capture technologies that can effectively remove 95-100% of CO<sub>2</sub> from flue gases with dilute CO<sub>2</sub> concentrations.





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# Questions?

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