CARBON UTILIZATION
U.S. Department of Energy
Office of Clean Coal & Carbon Management

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Advanced Fossil Technology Systems
**Carbon Utilization**
R&D and technologies to convert CO₂ to value-added products

**Carbon Storage**
Safe, cost-effective, and permanent geologic storage of CO₂

**Carbon Capture**
R&D and scale-up technologies for capturing CO₂ from new and existing industrial and power plants

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<table>
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<th>FY 2017 ENACTED</th>
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$ millions
FIGURE 3: Market size and GHG mitigation potential of selected CCU sectors

Source: C2ES/Cognitec Solutions analysis of market trends and potential greenhouse gas reduction capacity based on market projections from the Global CO₂ Initiative’s Roadmap.
Current Carbon Utilization Portfolio

**Production of Inorganic Materials**
(9.5 projects*)

**Synthesis of Fuels and Organic Chemicals**
(30 projects)

*Some projects incorporate multiple conversion pathways*
FOA2186: NOVEL CONCEPTS FOR THE UTILIZATION OF CO₂ FROM UTILITY AND INDUSTRIAL SOURCES

This FOA seeks applications that propose to develop and test technologies that can utilize carbon dioxide (CO₂)—from power systems or other industrial sources—as the primary feedstock to reduce emissions and create valuable products to offset the cost of capture.

**1st Opening Due 2/20/20**
- **AOI 1**: Synthesis of Value-Added Organic Products via Catalytic Conversion of CO₂
  - Up to 6 Awards
  - $1 M/project
- **AOI 2**: Production of Inorganic Materials: Solid Carbon Products
  - Up to 2 Awards
  - $2 M/project

**2nd Opening Due 3/17**
- **AOI 3**: Integrated CO₂ Capture with Algae
  - Up to 2 Awards
  - $3 M/project
- **AOI 4**: Production of Inorganic Materials: Maximizing Carbon Uptake in Concrete and Cement
  - Up to 2 Awards
  - $2 M/project
Gaseous Carbon Waste Streams Utilization: Status and Research Needs

Released October 18, 2018

- Research Agenda and Challenges
- Improvements Needed
- Research Needs
- LCA Requirements
- Market Opportunities
- Commercialization Opportunities

https://www.nap.edu/catalog/25232/gaseous-carbon-waste-streams-utilization-status-and-research-needs
LIFE CYCLE ANALYSIS PROJECT GUIDELINES

• DOE FE/NETL Life Cycle Analyses work and templates, best practices, baseline studies

A comprehensive form of analysis that evaluates the environmental, economic, and social attributes of energy systems ranging from the extraction of raw materials from the ground to the use of the energy carrier to perform work.

NETL CO₂U LCA Toolkit is now available at netl.doe.gov/LCA/CO2U
Thank you