CARBON UTILIZATION

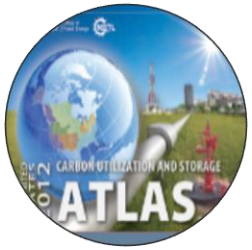
U.S. Department of Energy

Office of Clean Coal & Carbon Management

John Litynski | January 28, 2020
Deputy Director
Advanced Fossil Technology Systems

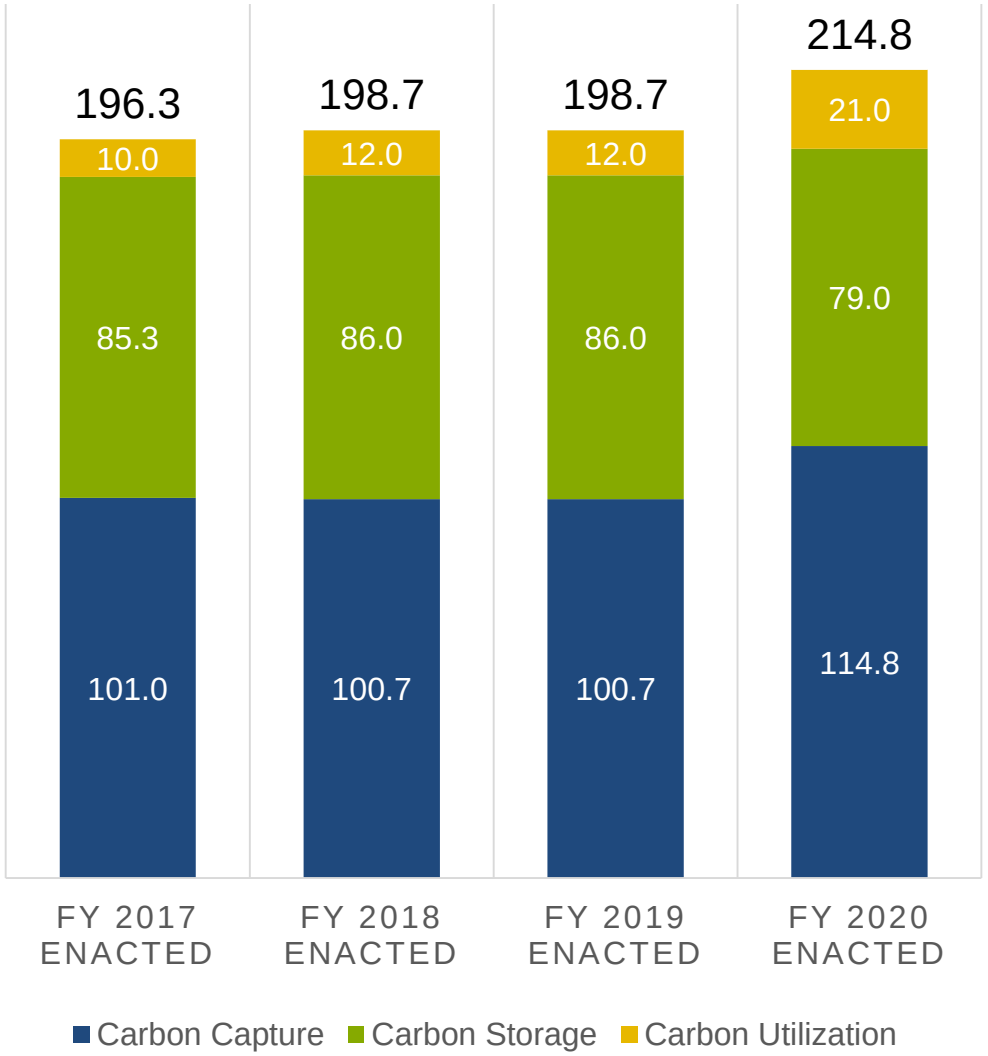
FEDERAL INVESTMENT

Carbon Utilization
R&D and technologies to convert CO_2 to value-added products

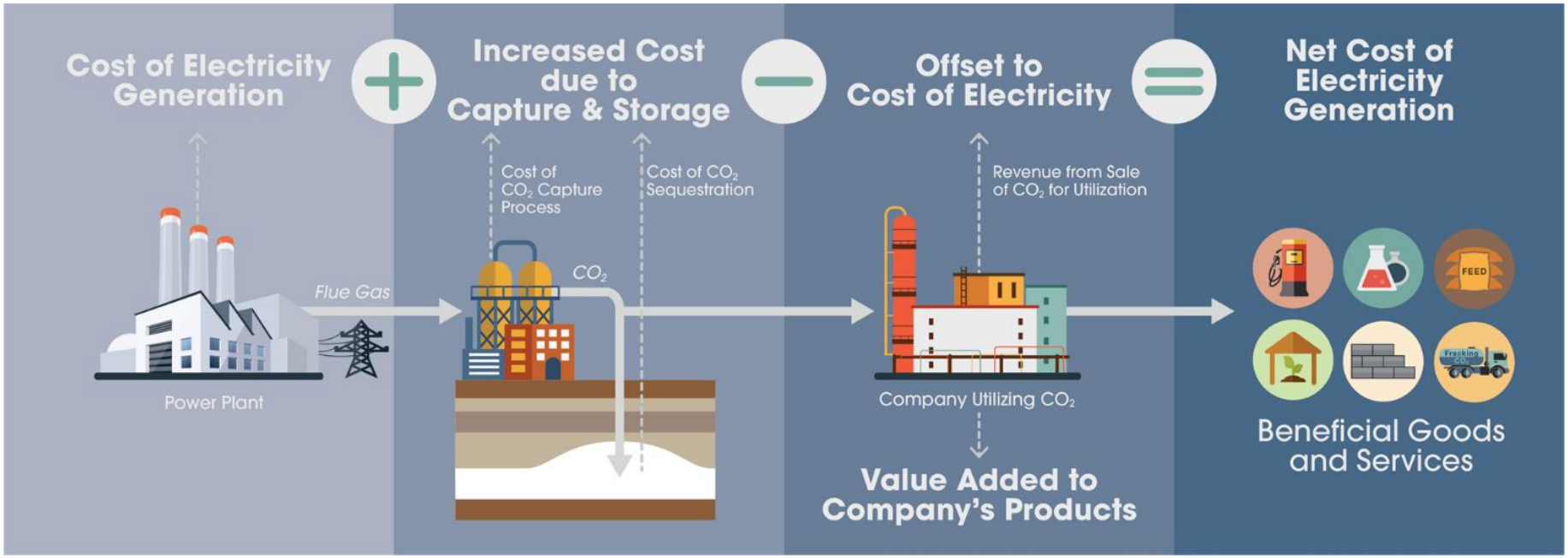


Carbon Storage
Safe, cost- effective, and permanent geologic storage of CO_2

Carbon Capture
R&D and scale-up technologies for capturing CO_2 from new and existing industrial and power plants

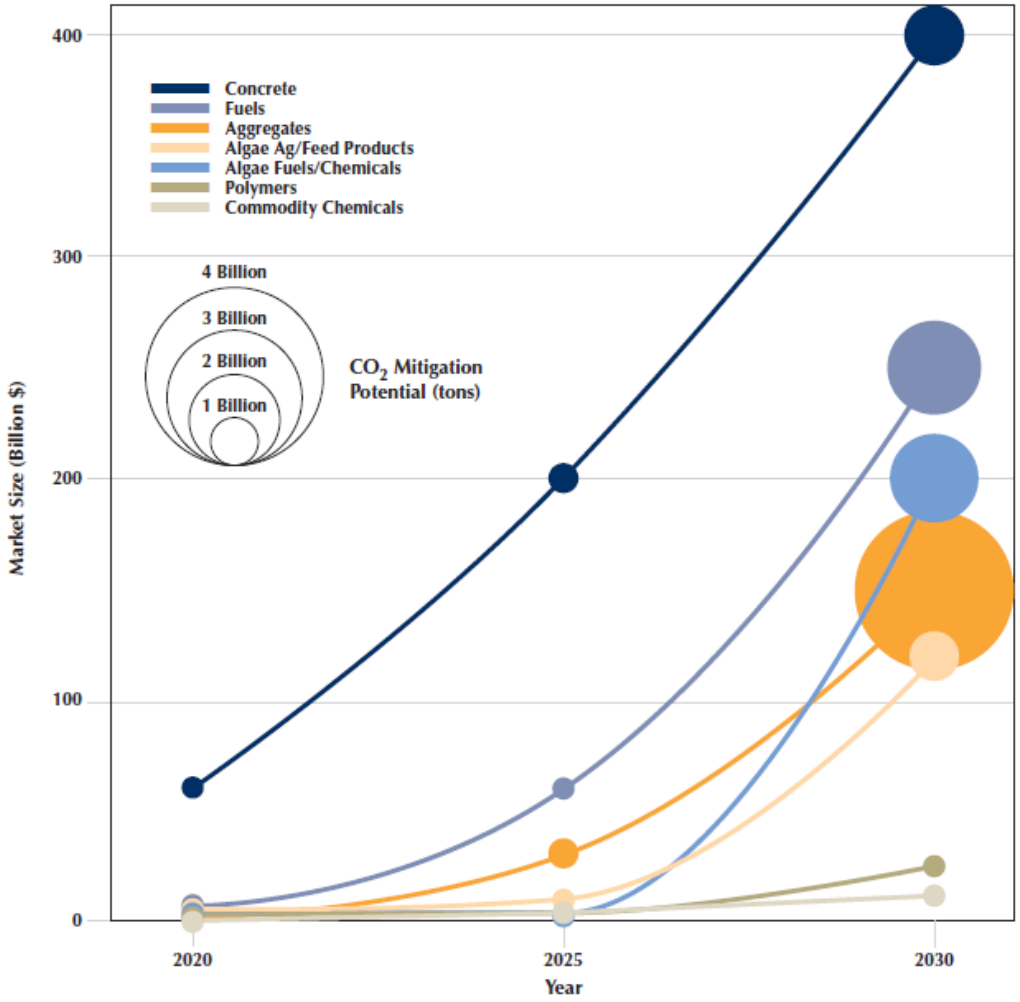


MARKET DRIVEN SOLUTION



MARKET POTENTIAL

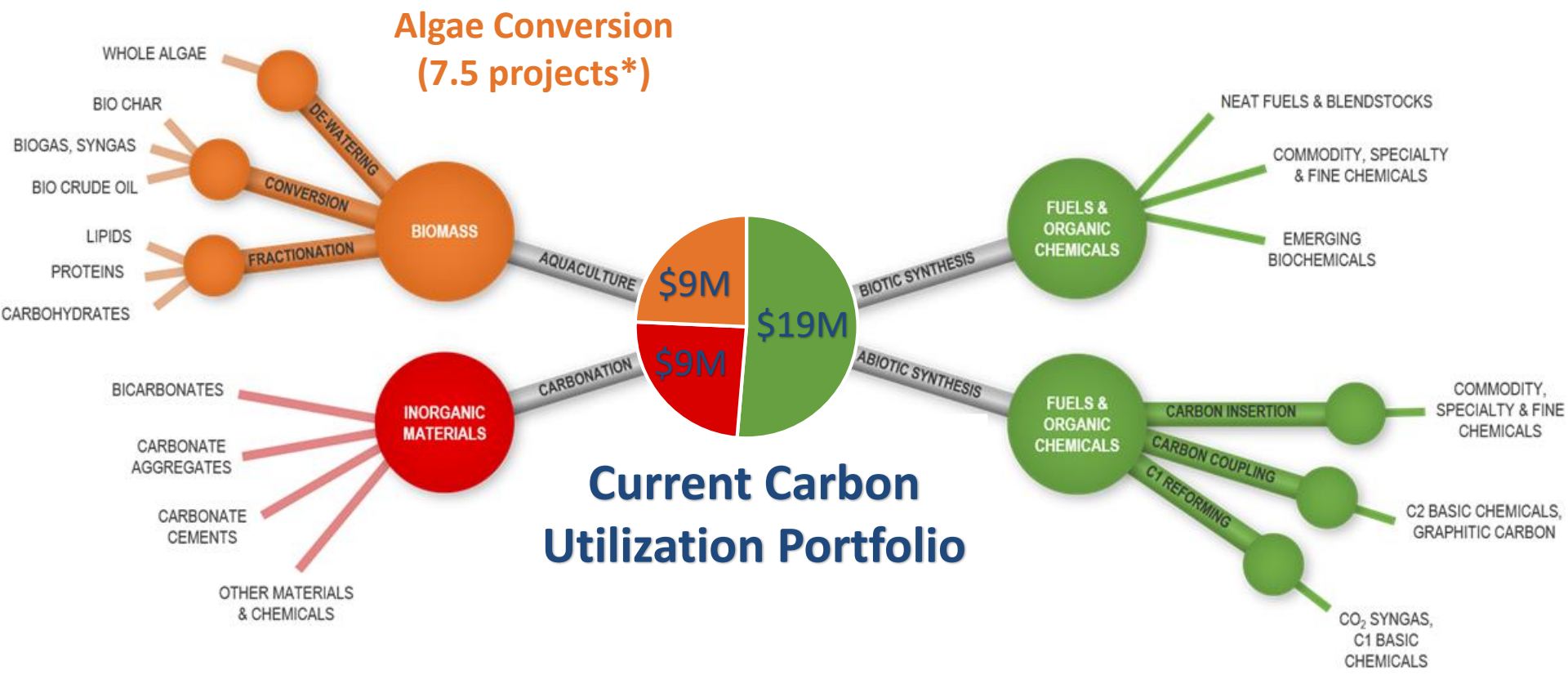
FIGURE 3: Market size and GHG mitigation potential of selected CCU sectors



Source: C2ES/Cogentiv Solutions analysis of market trends and potential greenhouse gas reduction capacity based on market projections from the Global CO_2 Initiative's Roadmap.

ACTIVE RESEARCH PORTFOLIO

U.S. DEPARTMENT OF ENERGY | Office of Fossil Energy



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 CO_2 FROM UTILITY AND INDUSTRIAL SOURCES

This FOA seeks applications that propose to develop and test technologies that can utilize carbon dioxide (CO_2)—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

2nd Opening Due 3/17

AOI 1: Synthesis of Value-Added Organic Products via Catalytic Conversion of CO_2

Up to 6 Awards
$1 M/project

AOI 2: Production of Inorganic Materials: Solid Carbon Products

Up to 2 Awards
$2 M/project

AOI 3: Integrated CO_2 Capture with Algae

Up to 2 Awards
$3 M/project

AOI 4 – Production of Inorganic Materials: Maximizing Carbon Uptake in Concrete and Cement

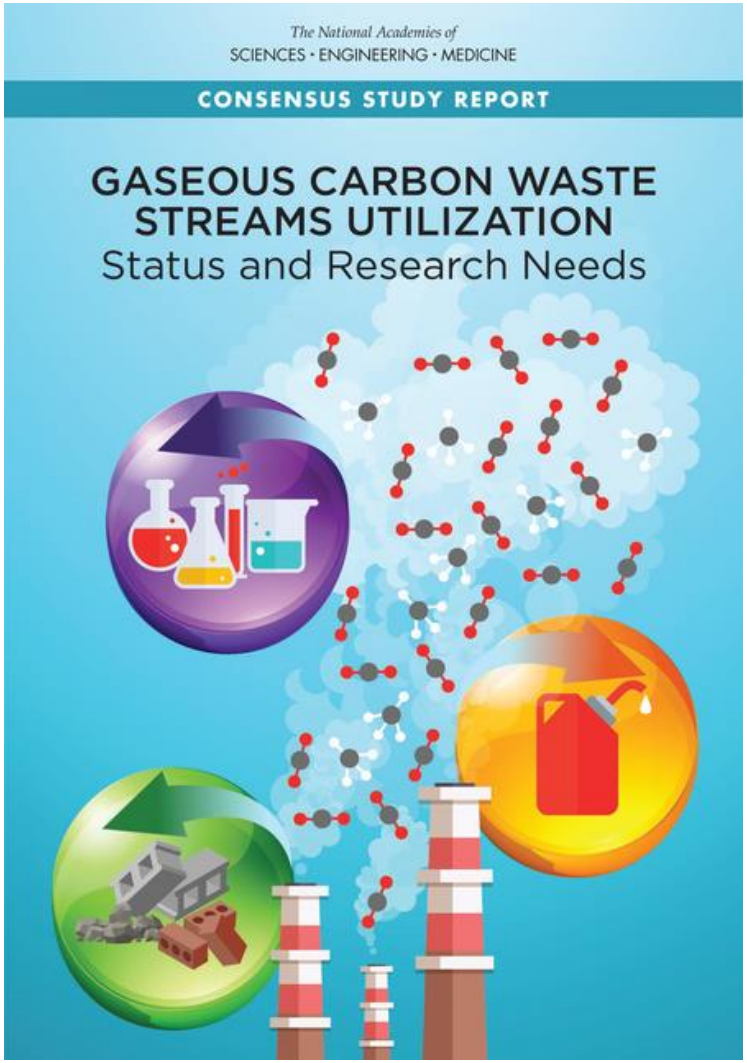
Up to 2 Awards
$2 M/project

NEW NATIONAL ACADEMIES UTILIZATION REPORT

Gaseous Carbon Waste Streams Utilization: Status and Research Needs

Released October 18, 2018

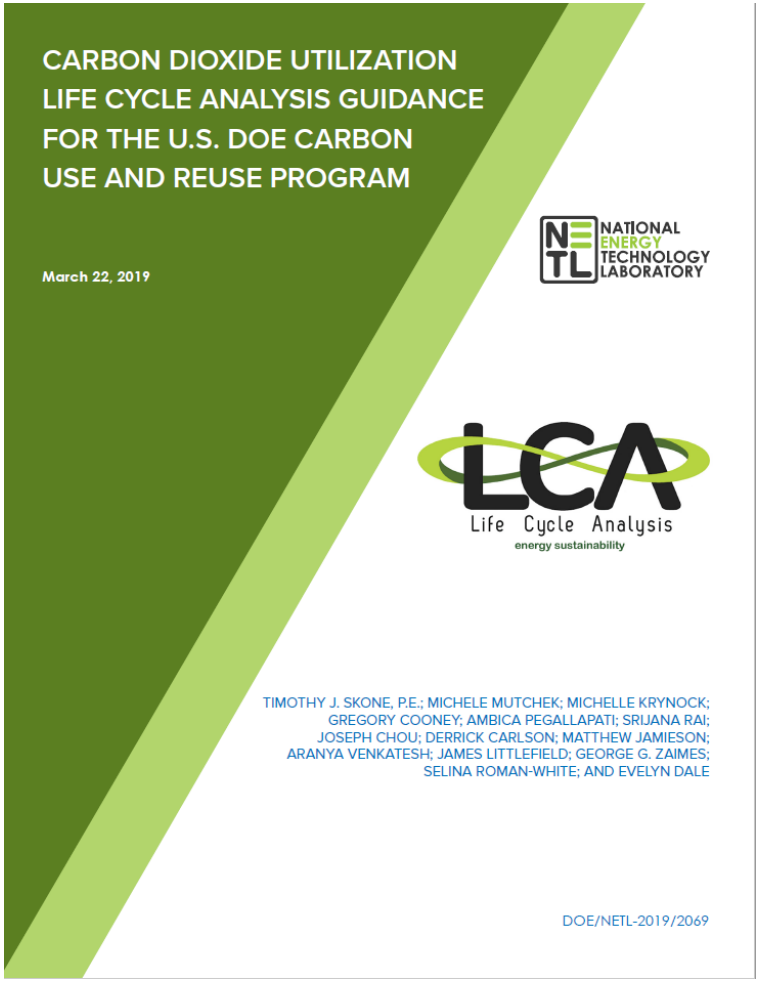
- Research Agenda and Challenges
- Improvements Needed
- Research Needs
- LCA Requirements
- Market Opportunities
- Commercialization Opportunities



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 CO_2U LCA Toolkit is now available at netl.doe.gov/LCA/CO2U

Thank you