

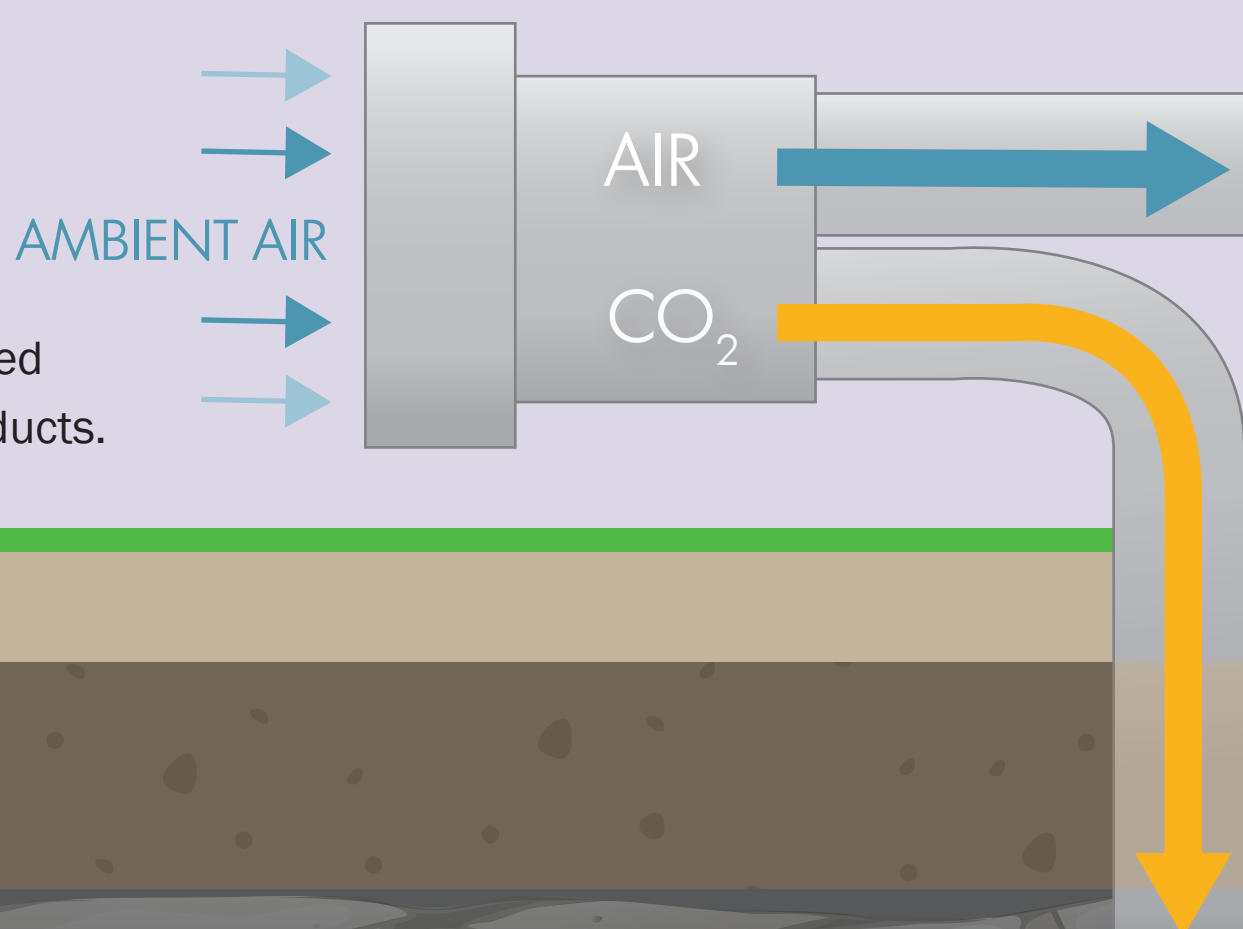
DIRECT AIR CAPTURE

Research and Development Activities

As a global leader in the advancement of carbon management technologies that are essential for decarbonizing the economy and removing carbon dioxide (CO₂) from the atmosphere, the U.S. Department of Energy's Office of Fossil Energy and Carbon Management (FECM) is researching and investing in direct air capture (DAC) technologies to help scale them to the commercial market.

WHAT IS DIRECT AIR CAPTURE?

DAC is a process that separates CO₂ from ambient air. The separated CO₂ can then be safely and permanently stored deep underground or converted into products.



CO₂

WHY DO WE NEED IT?

Advancing the deployment of DAC and other carbon dioxide removal approaches will be critical to meeting our net-zero emissions targets and addressing the global climate crisis.

CURRENT RESEARCH ACTIVITIES



More than \$1 billion has been invested by government agencies and by private investors to develop technologies for point-source carbon capture, a method that captures CO₂ directly from power plants and industrial facilities to lower plant emissions. To date, these technologies have successfully captured and injected over nine million metric tons of CO₂ domestically.



FECM is leveraging that research to accelerate the development of DAC processes.



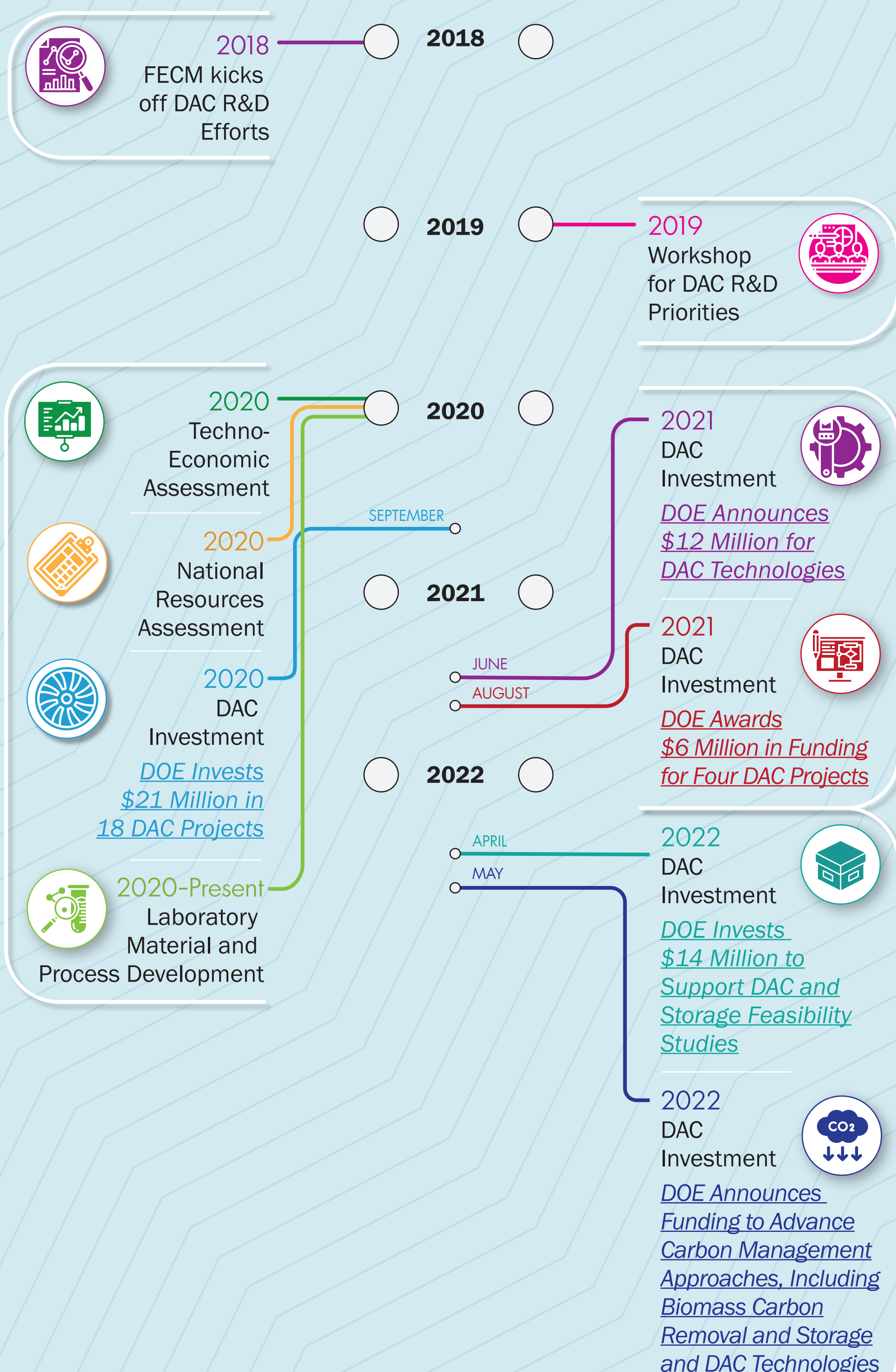
Over \$350 million has also been invested in the National Carbon Capture Center, located in Wilsonville, AL, a user facility that hosts developers of point-source carbon capture and DAC. At this center, approximately 80 engineers and scientists support the research and development (R&D) of these systems.

DIRECT AIR CAPTURE RESEARCH

Research, development, demonstration and deployment of decarbonization technologies, including DAC, will be a critical component to achieving net-zero emissions by 2050—one of the climate goals established by the Biden-Harris Administration.

DOE is also investing in approaches that develop and scale DAC technologies to make the most efficient use of existing carbon capture and storage program activities and infrastructure, while supporting first generation DAC companies.

RESEARCH ACTIVITIES



These advances are a part of a diverse portfolio of industry cost-shared technology development projects, university research grants and collaborative work with other National Laboratories. FECM will continue to build on that work to make great strides in DAC efficiency improvements.