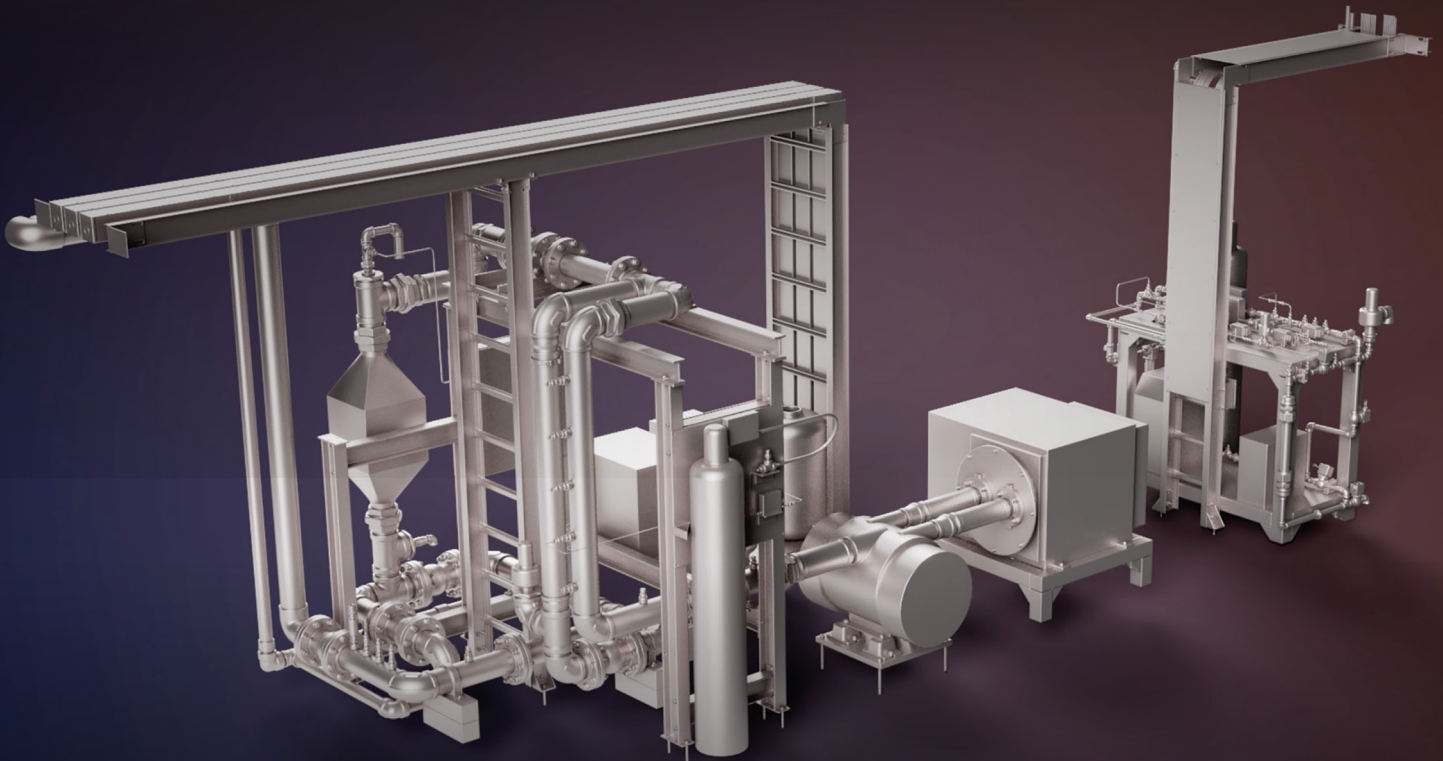


NETL DIRECT AIR CAPTURE (DAC) CENTER



NETL DIRECT AIR
CAPTURE CENTER

NETL

NATIONAL ENERGY TECHNOLOGY LABORATORY

SUPPORTING RAPID TECHNOLOGY DEVELOPMENT FOR ATMOSPHERIC CO₂ CAPTURE

The NETL DAC Center is a one-of-a-kind facility dedicated to supporting private sector technology maturation by leveraging National Laboratory competencies and knowledge through collaborative research efforts.

With testing beginning in 2023, the DAC Center aims to accelerate the commercialization of innovative DAC technologies that are technically and economically viable to achieve our Nation's goal of net-zero emissions by 2050.

Albany, OR • Anchorage, AK • Morgantown, WV • Pittsburgh, PA • Houston, TX



U.S. DEPARTMENT OF
ENERGY



R&D235, June 2023

NETL's DAC Center will support rapid development and commercialization pathways for technologies that remove carbon dioxide (CO₂) from the atmosphere.

Featuring one-of-a-kind facilities that empower innovators from government, academia and the private sector, the DAC Center will test emerging technologies that have achieved proof-of-concept but have not reached full pilot scale (technology readiness levels 3 to 6) to expedite development.

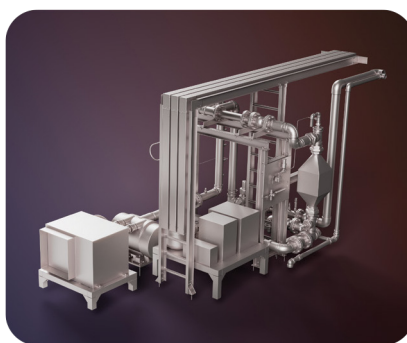
DAC CENTER CAPABILITIES



LAB SCALE

Systems for novel material assessment
(~0.1 kg CO₂/day)

- Focused on material properties and longevity
- Mixed-gas measurements with sample sizes greater than typical lab scale
- Able to accommodate all common materials (powder, granular, fiber, structured)
- Automated for extended, multi-cycle testing



BENCH SCALE

Test beds with flexible reactor designs
(~4 kg CO₂/day)

- Focused on module capture and flow measurements
- Sized for modules at typical scale: 12" X 12" X 12"
- Able to accommodate common form factors: granular solid, fiber mat, or monolith
- Instrumented to provide measurements of all parameters needed for prototyping models



SMALL PILOT SCALE

Bays for evaluating developer-built DAC skids
(~30 kg CO₂/day)

- Focused on testing of small pilot scale prototype DAC units
- Able to accommodate a wide variety of technology types
- Testing under conditions representative of many climates
- Automated for extended, multi-cycle testing
- Instrumented for measurement of all parameters needed for assessment of field deployment at NCCC or a DAC hub

Working together to accelerate technology deployment for atmospheric CO₂ capture.

NETL has created a comprehensive center to help partners—universities, research institutions and businesses developing DAC technologies—leverage NETL’s facilities and expertise to test innovative DAC technologies. Partners will have access to:

- Nationally recognized center supporting DAC technology development and testing from invention to commercialization
- Inclusive, state-of-the-art testing facilities
- Collaborative access to NETL’s world class expertise
- Standardized and bespoke testing options representing the “gold standard” in technology validation

BENEFITS TO PARTNERS

- Affordable, accessible, high-quality performance testing of DAC materials, modules, and prototypes
- Versatile, full-cycle systems able to conduct difficult-to-execute tests
 - Broad ranges of capture temperature and relative humidity
 - Steam and vacuum regeneration
 - Full automation allowing extended testing
 - Prototype testing under fully controlled atmospheric conditions
- Access to NETL capabilities built during two decades of carbon capture R&D
 - Engineering design and prototyping
 - Technoeconomic and lifecycle analysis
 - Computational fluid dynamics
 - Cycle and process optimization (CCSI2/IDAES)

Testing is beginning in 2023 with all capabilities coming online in 2024.

Located in Pittsburgh, PA, near major international airports and key NETL infrastructure

Partner with us!



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for more information visit [NETL.DOE.gov/DAC](https://www.NETL.DOE.gov/DAC)





NETL is a U.S. Department of Energy national laboratory that drives innovation and delivers technological solutions for an environmentally sustainable and prosperous energy future. By leveraging its world-class talent and research facilities, NETL is ensuring affordable, abundant and reliable energy that drives a robust economy and national security while developing technologies to manage carbon across the full life cycle enabling environmental sustainability for all Americans.

One of the most rewarding aspects of NETL's research is that our innovations and our technologies have the potential to improve people's lives in meaningful ways. Our work to advance direct air capture (DAC) to enable its widespread deployment in support of our nation's ambitious carbon management goals is a powerful example of this kind of impact.

Contact

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