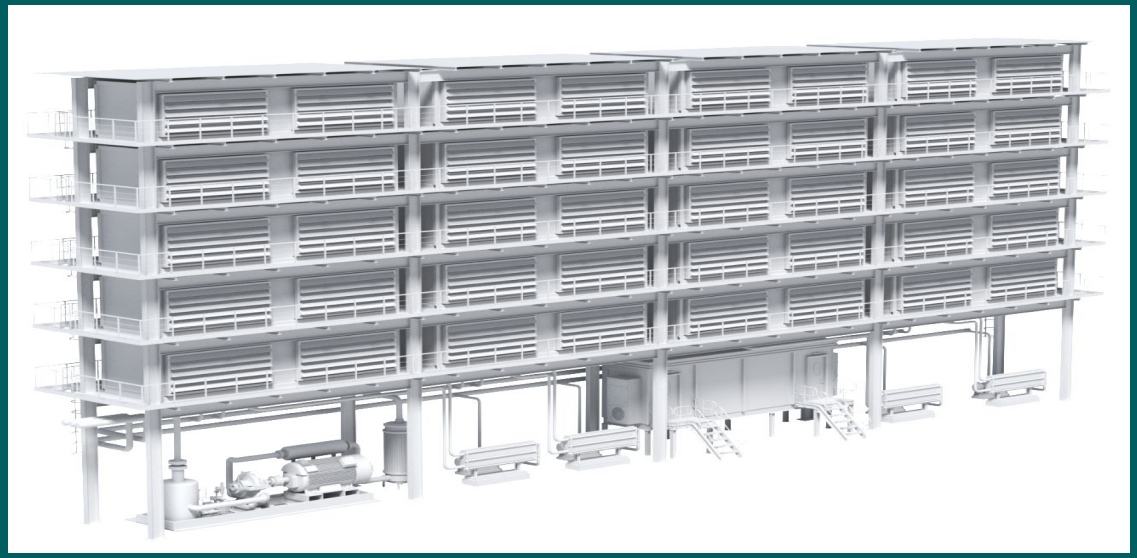
GE VERNOVA




GE VERNOVA CARBON SOLUTIONS

Donald Whisenhunt
1/30/2025



GE Vernova Advanced Research Mission

GE VERNOVA

POWER
Decarbonize

Carbon Capture, 100% H_2 ,eFuels
Next Gen Nuclear

WIND
Accelerate

Scalable Workhorse Product,
AI Enabled Service Tech

ELECTRIFIC
More Resilient

A Secure, Flexible
& Resilient Grid

Bringing Research to Reality … Energy Innovation

Advanced Research at a GLANCE

GE VERNOVA

TALENT

275+

Global Researchers

70%

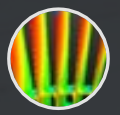
PhDs

LOCATIONS

Niskayuna, NY

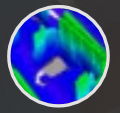
Bangalore, India

TECH CAPABILITIES



Aero & Thermosciences

AI, Robotics & Software



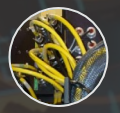
Controls & Optimization

Electrical & Power Systems

Embedded Systems & Cybersecurity

Material Chemistry & Physics

Materials, Coatings & Modeling



Mechanical Systems & Design

CAGE Lab… *Climate Action @ GE*

Mission: Accelerate the development & deployment of novel solutions to enable a zero-carbon emissions future

Foundational principles:

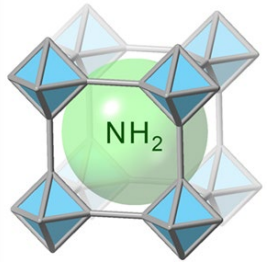
- Climate change is an urgent global priority
- At the same time, energy demand is increasing
- GE Vernova helps to generate 1/3 of the world's electricity….we play a central role in meeting this demand while lowering energy carbon intensity and making energy more reliable
- GEV Advanced Research is uniquely positioned to accelerate the technology innovation because of our partnerships across GEV and with the Department of Energy
  - ✓ **Direct Air Capture**
  - ✓ **Post-combustion Carbon Capture**
  - ✓ Advanced Nuclear
  - ✓ Hydrogen
  - ✓ Superconductor Generators

Accelerating the energy transition with breakthrough decarbonization solutions

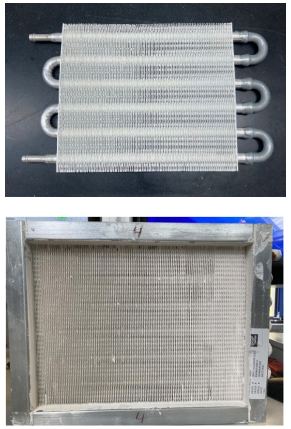
Carbon Capture: Technology to Demonstration

2021-2022

Solid Sorbent Fabrication



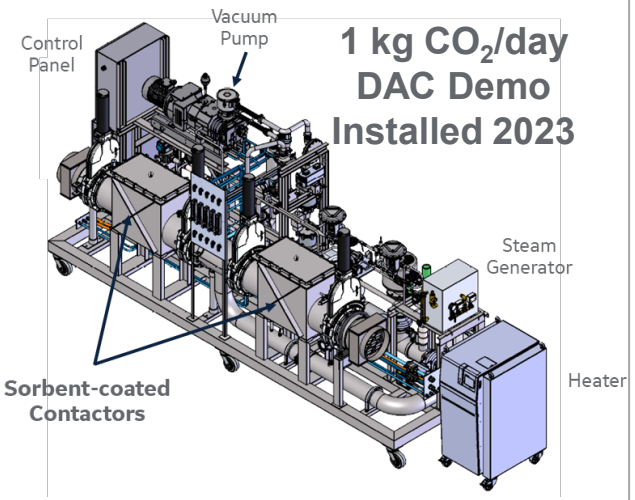
Sorbent-coated Contactor



Sorbent & Contactor Pilot Design

- Sorbent life and productivity
- Contactor selection & coating
- Novel system designs to reduce energy requirements

2023-2024



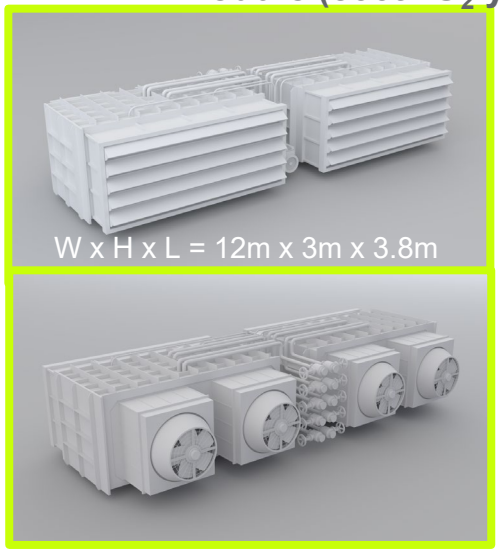
Pilot Demonstration

- Large-scale sorbent production
- Coated contactor mfg @ scale
- Strategic partnerships and project downselection

10 t/y – 8/2025

2025-2028

DAC Module (500tCO_2/yr)

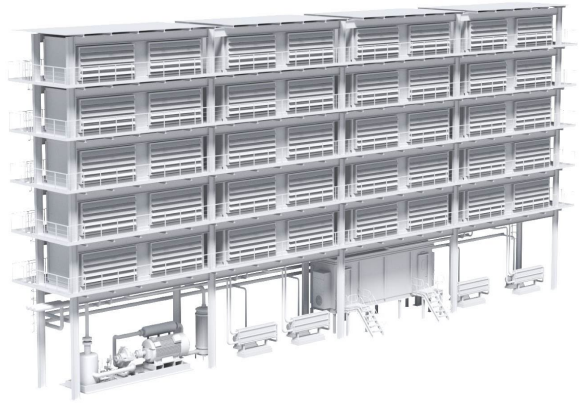


Commercial Piloting

- System energetics & cost reductions
- Meet CO_2 sequestration requirements

1000 t/y – end 2026

2029-2030+



Commercial Operation

50,000 t/y

Houston Area DAC Hub

Evaluating partnerships to accelerate commercialization of carbon capture solutions

Large Scale Carbon Capture from a Gas Turbine

GE VERNOVA

- *Net-Zero Teesside (NZT) Power is expected to be one of the first gas-fired power stations of its kind - fully integrated with carbon capture technology.*

- *Consortium and technology selection marks an important next step towards the proposed development of bp's NZT Power project in the UK, aiming to capture up to 2 million tonnes of CO2 per year.*

- *Project is expected to provide flexible, dispatchable low-carbon power equivalent to the average electricity requirements of around 1.3 million UK homes, and to progress the deployment of carbon capture technology in line with the UK Government's net-zero programme.*

First Full-Scale Carbon Capture project at a Gas Turbine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