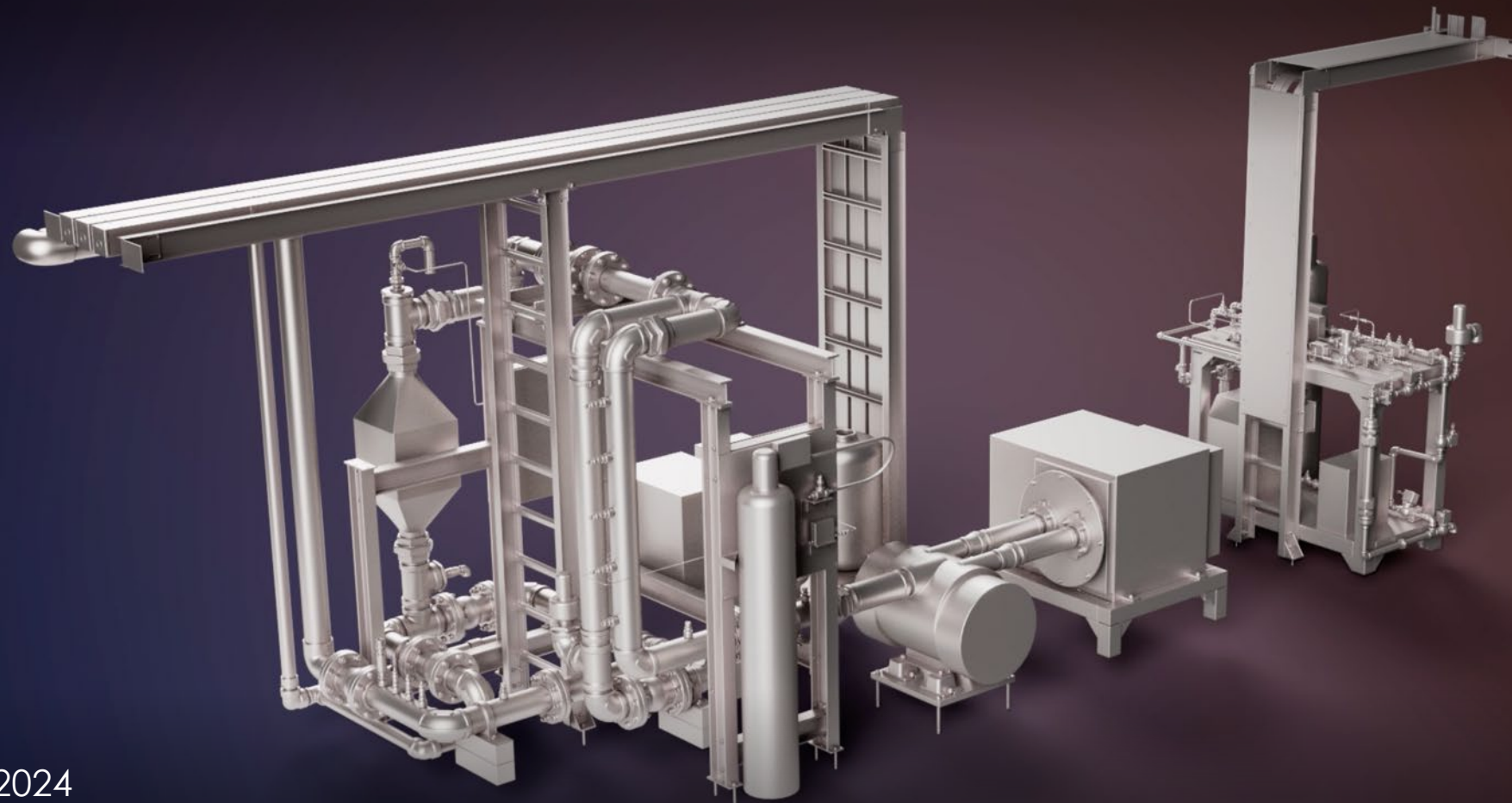




NETL DIRECT AIR
CAPTURE CENTER



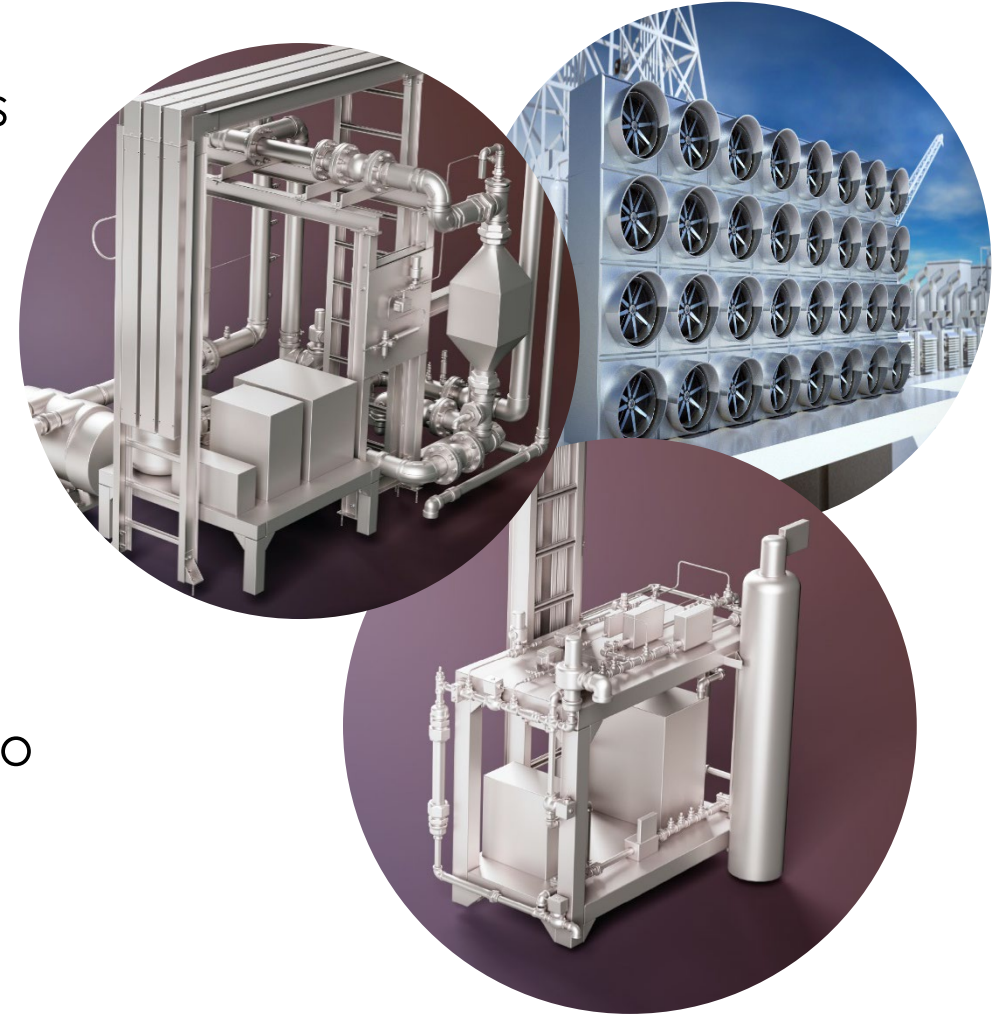
August 5, 2024



NETL DAC Center

Supporting Rapid Technology Development for Atmospheric CO₂ Capture

- ✓ Rapid scale-up and commercialization of DAC technology is needed to achieve net-zero emissions by 2050
- ✓ One-of-a-kind facility dedicated to supporting private sector technology maturation
- ✓ Leverage two decades of experience in point source carbon capture technology development and national laboratory competencies
- ✓ Integrates experimental and modeling techniques to efficiently resolve scale-up issues
- ✓ Tests capture materials and processes under conditions representative of a variety of climates



Multiple Testing Scales

From the Laboratory to the Plant...



Material Scale

Novel Material Assessments
(~0.1 kg CO₂/day)



Operational

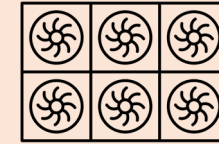


Module Scale

Form Factor Evaluation
(~10 kg CO₂/day)

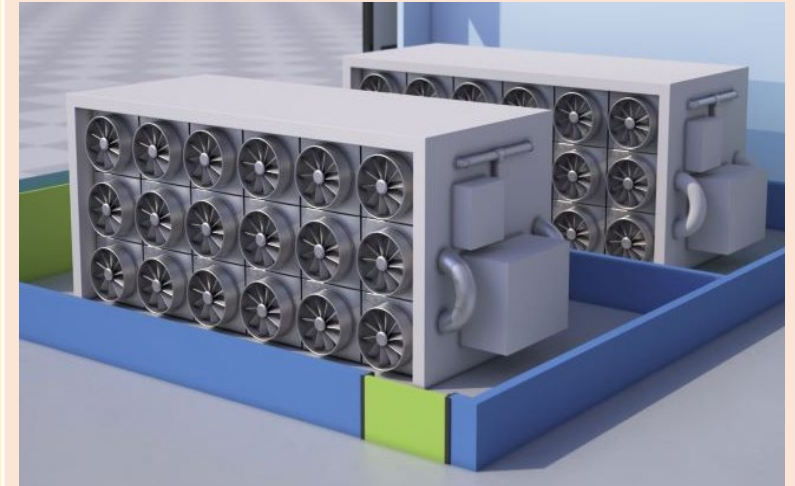


2024



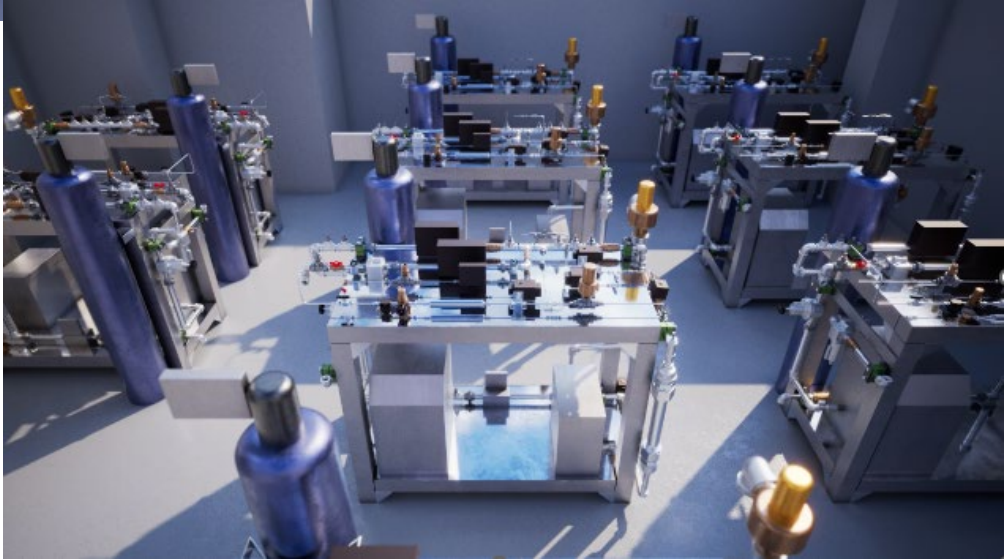
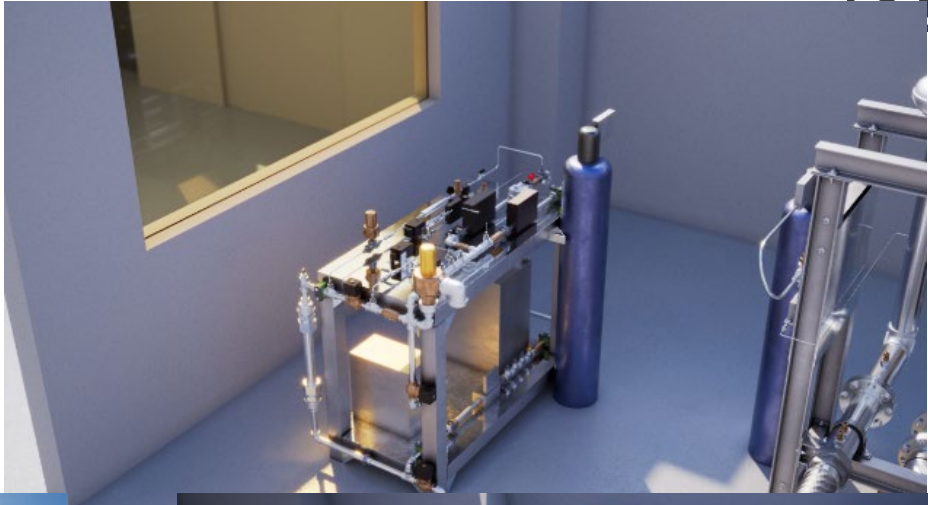
Prototype Scale

Developer-built Unit Testing
(~100 kg CO₂/day)



2025

The DAC Center Vision

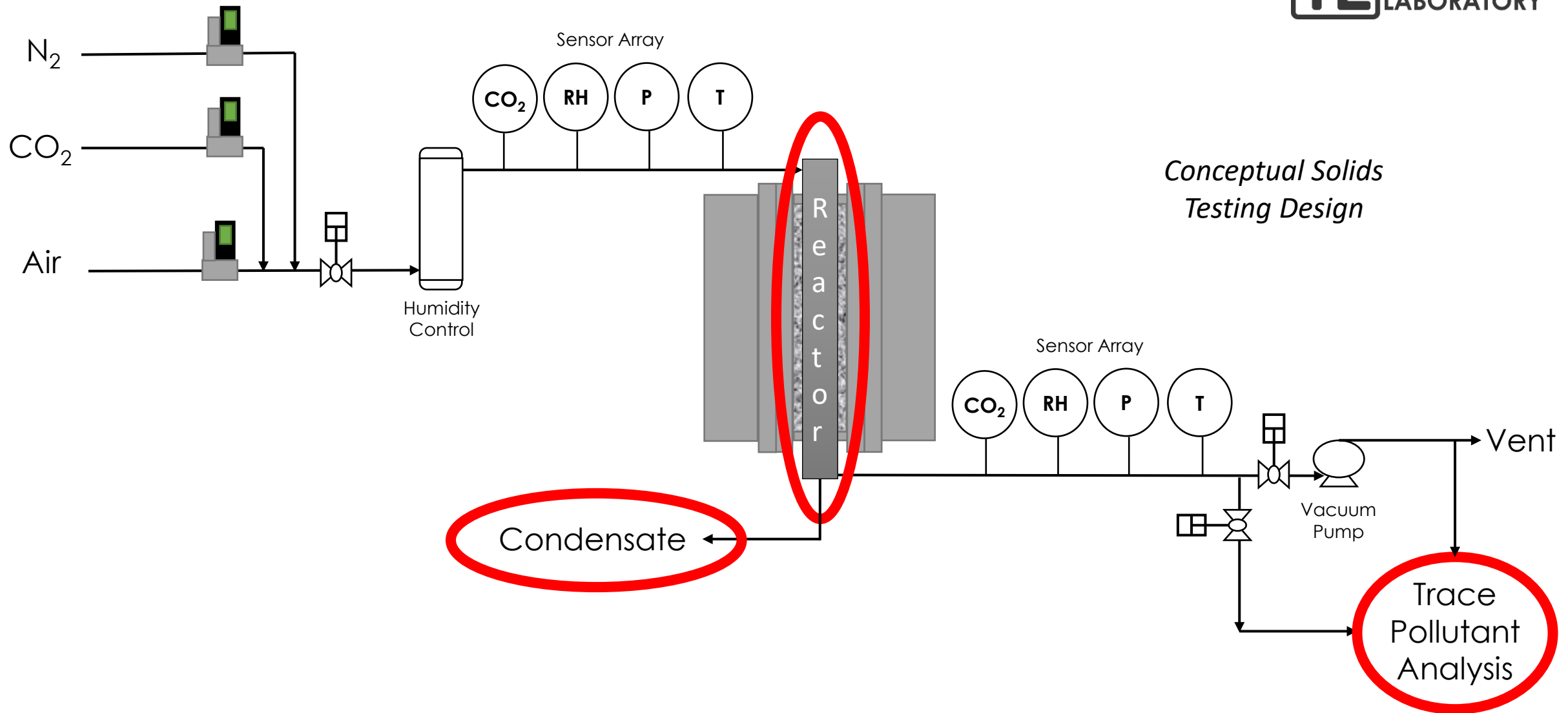


Improving Uniformity in DAC Performance Analysis

- MOU Signed
- Benchmark Material Development
- Standard Testing Protocols

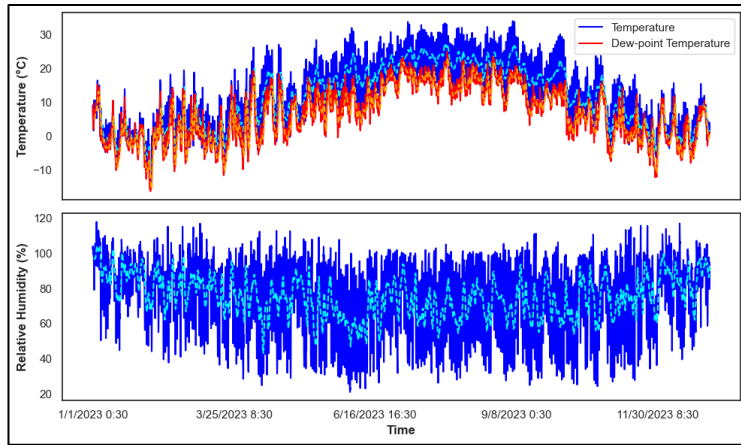


Quantifying Secondary DAC Impacts



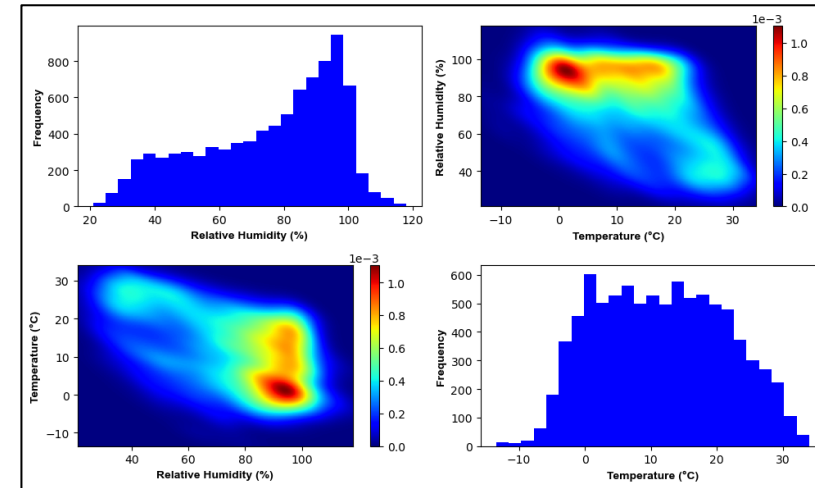
Clarifying the Influence of DAC Siting

Time series data for Temperature and Relative Humidity



Statistical Analysis

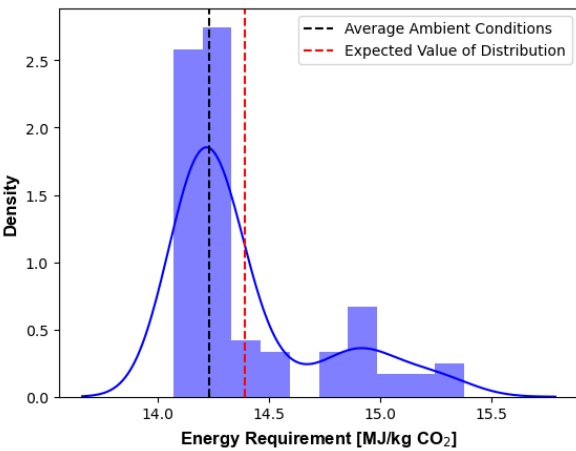
Marginal and joint probability distributions



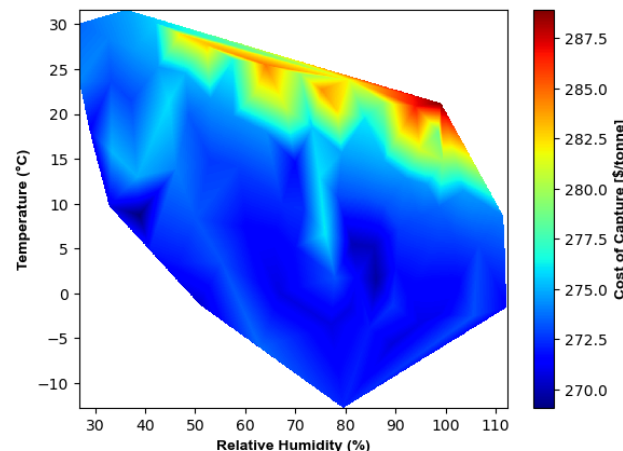
Sampling

System Performance: Propagation Through Process Model Using FOQUS

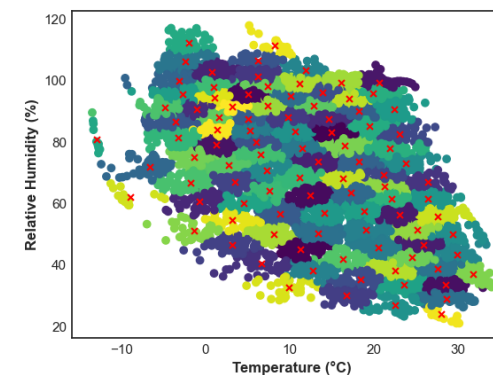
Energy Requirement Distribution



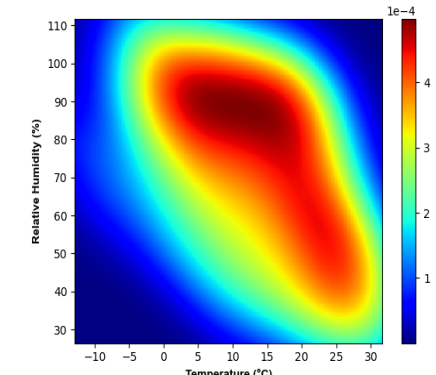
Cost Heatmap



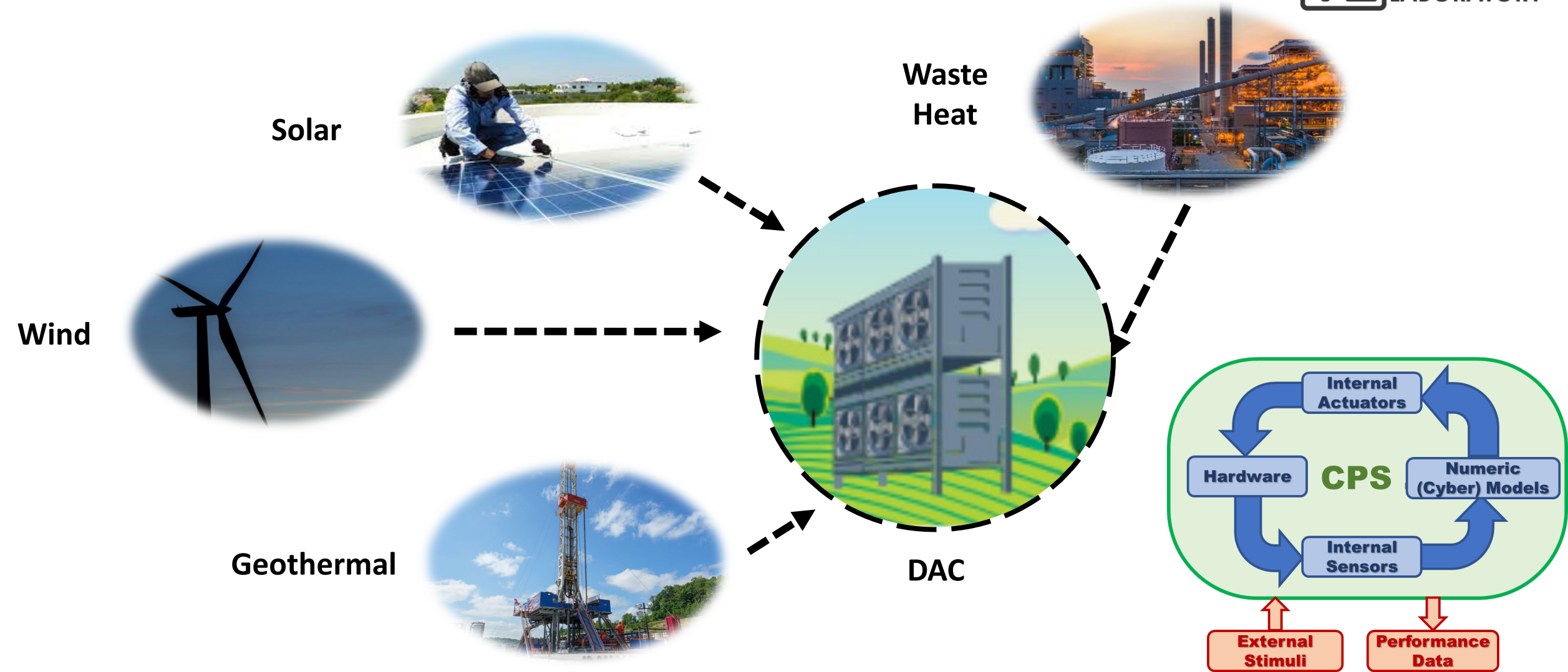
Clustering



Joint probability distribution of sampled data set



Probing Dynamic Operability



Partnering with NETL



The TOOLBOX



- Cooperative Research and Development Agreement (CRADA)
- Contributed Funds-In Agreement (CFA)
- Memorandums of Understanding (MOU)/ Memorandums of Agreement (MOA)
- Small Business Innovation Research (SBIR) & Small Business Technology Transfer (STTR) Programs
- Unsolicited Proposals (USP)
- Non-disclosure Agreement (NDA)
- Funding Opportunity Announcement (FOA)

Available Technologies

- NETL's technology portfolio contains a broad range of innovations that have resulted from research
- Technologies and intellectual property available for licensing on NETL's website.

Available Technologies: <https://www.netl.doe.gov/business/tech-transfer/available-technologies>

Funding Opportunity Announcement (FOA)

- NETL uses FedConnect.net, Grants.gov and FedBizOpps.gov to post FOAs
- Proposals and applications are only accepted electronically through FedConnect.net or Grants.gov

Funding Opportunities:

<https://www.netl.doe.gov/business/solicitations>

Come Hear More from NETL



- DAC Test Center Workshop: 4 p.m. – 6 p.m. Monday
- NETL RIC Update Session: 10:30 a.m. – 12:10 p.m. Tuesday
- Poster Session: 5:45 p.m. – 7:45 p.m. Tuesday

Partner with us!

- ✉ Email: david.luebke@netl.doe.gov
- ✉ DACCcenter@netl.doe.gov
- 🌐 NETL.doe.gov/direct-air-capture-center



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