

AGENDA

University of Connecticut Board of Trustees

Committee for Research, Entrepreneurship and Innovation Thursday, April 16, 2026, at 1:00 p.m. Virtual Meeting

Public Streaming Link (live captioning, upon request): <https://techsupport.uconn.edu/bot>

(A recording of the meeting will be posted on the Board website, <https://boardoftrustees.uconn.edu/>, within seven days of the meeting.)

Call to order at **1:00 p.m.**

1. Public Participation*

*Individuals who wish to speak during the Public Participation portion of the Thursday, April 16, meeting, must sign up 24 hours in advance of the meeting's start time (i.e., 1:00 p.m. on Wednesday, April 15) by emailing BoardCommittees@uconn.edu. Speaking requests must include a name, telephone number, topic, and affiliation with the University (i.e., student, employee, member of the public). The Committee may limit the entirety of the public comment to a maximum of 30 minutes. As an alternative, individuals may submit written comments via BoardCommittees@uconn.edu, and all comments will be transmitted to the Committee.

2. Minutes from the February 19, 2026, Meeting

3. Office of the Vice President for Research Updates – Dr. Michelle Williams

4. Update from Dr. Abhijit Banerjee, Associate Vice President, Research, Innovation & Entrepreneurship

5. Presentation by Xiao-Dong Zhou, Ph.D., Professor, Director, Center for Clean Energy Engineering (C2E2)

6. University Senate Representative Report

7. Other Business

8. Executive Session (as needed)

9. Adjournment

PLEASE NOTE: *If you are an individual with a disability and require accommodations, please e-mail the Board of Trustees Office at boardoftrustees@uconn.edu prior to the meeting.*



ENERGY R&D AT UCONN

Xiao-Dong Zhou

Director: Center for Clean Energy Engineering
The Nicholas E. Madonna Chair in Fuel Cell and Hydrogen
Connecticut Clean Energy Fund Chair
Chemical, Materials, and Mechanical Engineering Departments
Special Advisor to UCONN President Radenka Maric
University of Connecticut

Email: xiao-dong.zhou@uconn.edu

Strategic Briefing to the UConn Board of Trustees REI Committee

Legacy and Enterprise in Energy R&D at UConn

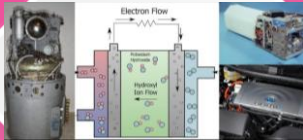
Research leadership, faculty depth, and testbed capabilities across power, mobility, and fuels



UConn's Clean Energy Leadership: From Fuel Cells to a Carbon-Neutral Future

1996

- Connecticut Fuel Cell Center
- UTC Fuel Cell Center



1969

- Apollo 11
- Pratt & Whitney
- Max Power: 2.3 kW
- H₂-fuel cells

2023

- 2030 Carbon Neutral Campus
- 2040 Carbon Zero Campus



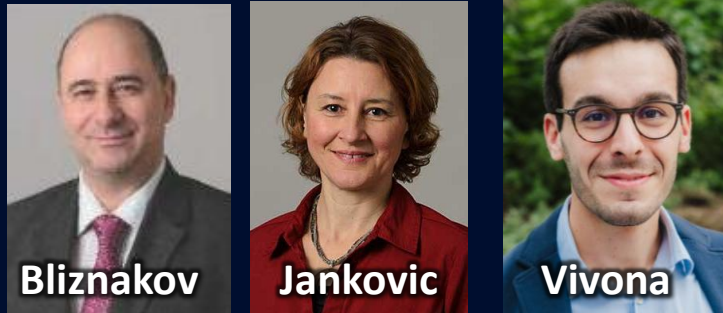
CONNECTICUT
GREEN BANK

2011

- Connecticut Clean Energy Fund
- Connecticut Green Bank

Core Faculty Members and Their Research Areas

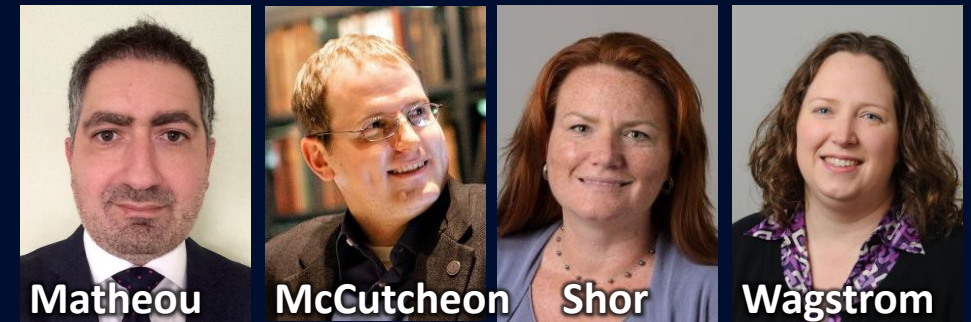
Electrochemical Devices



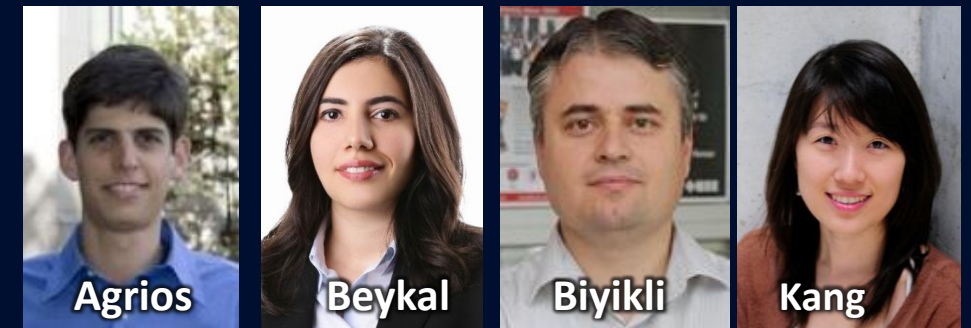
Propulsion, Power and Fuels



Water & Environment



Energy Materials and Systems



32 Core Faculty
40 Affiliated Faculty

Testbeds in Energy and Sustainability

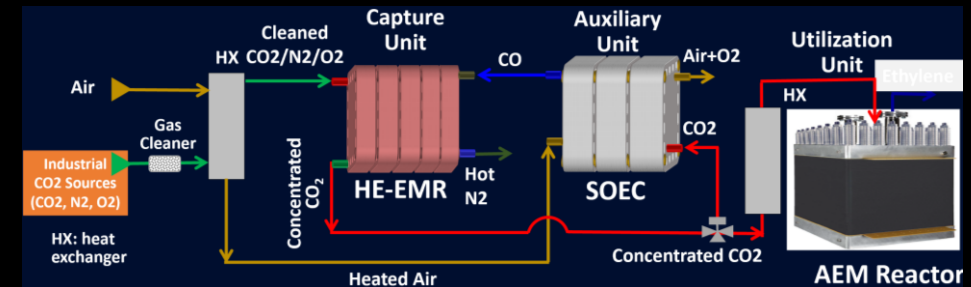
Power and Heat



Future Mobility



Future Fuels



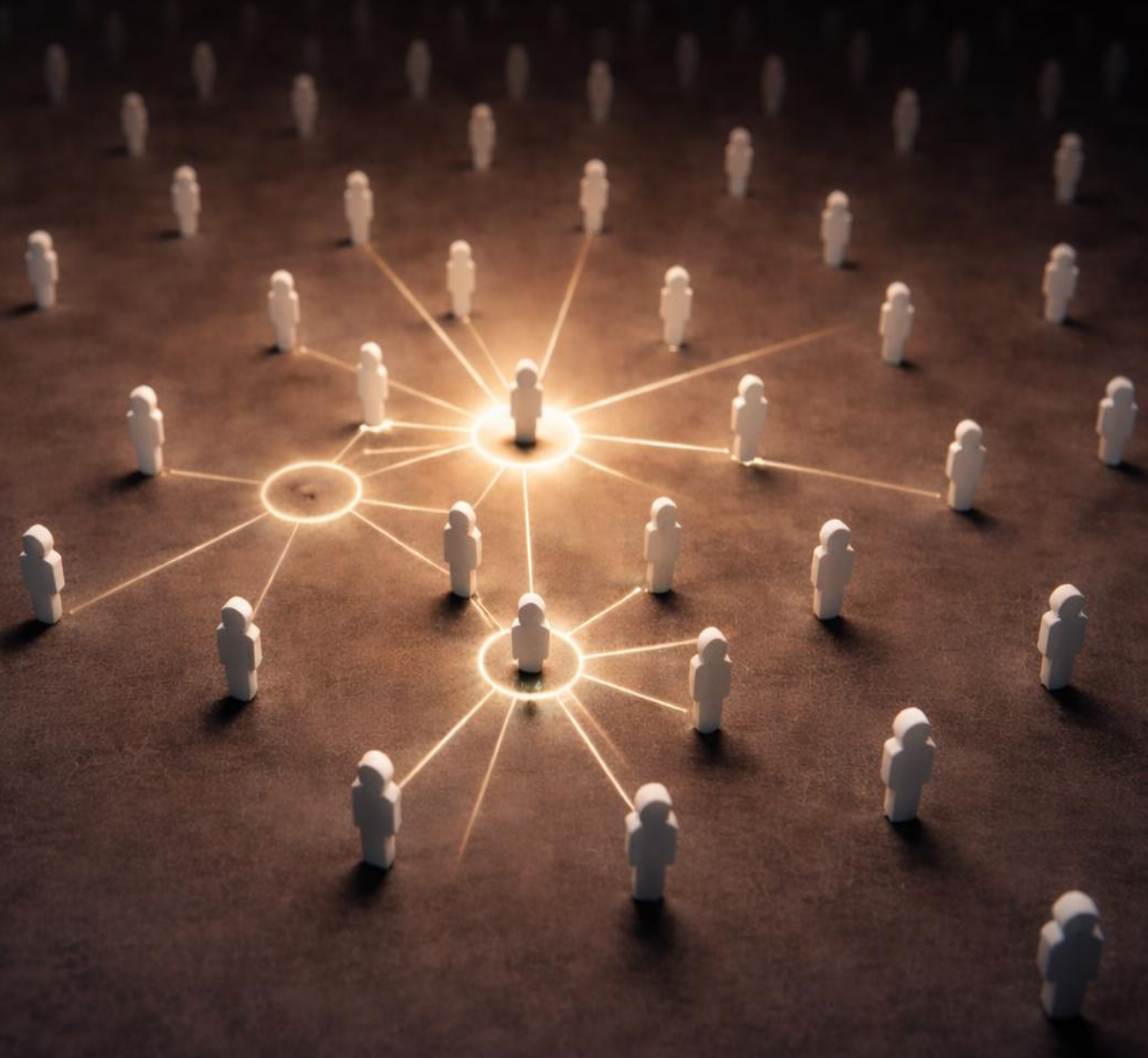
Toward a Carbon Neutral Campus by 2030

- ~ 3 MW fuel cell generators (4 SOFC and 4 PAFC generators)
- 6 MW SOFC generators at UConn Health
- Co-gen (7 MW) capable of using up to 30% H₂; Solar farm
- 1.7 MWh battery energy storage system
- 76 wells (750 feet deep) to use geothermal energy for student dorms
- Hydrogen refueling station (750 bar); Hydrogen bus; Hydrogen cars



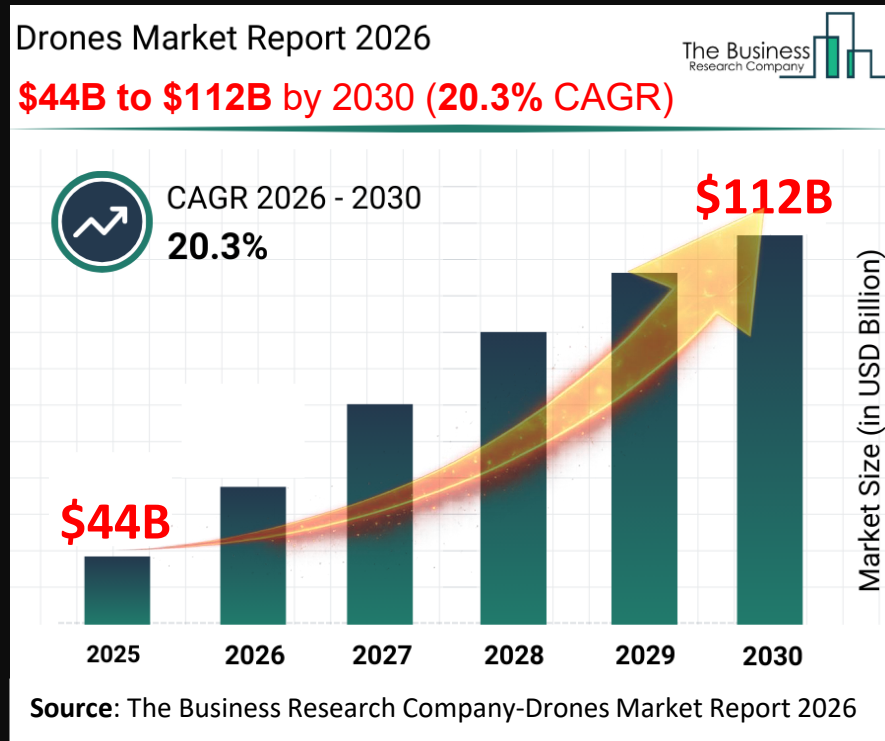
From Individual Leadership To Institutional Impact

Initiatives in electrical aviation, data center power, and fuels have multi-\$B economic potential for the state



2026: Drone missions approach a scaling limit

Endurance + payload + low-signature will decide winners



Demand is accelerating

- ✓ Commercial adoption (delivery, inspection, agriculture)
- ✓ Low-altitude economy scaling

Constraint: Endurance

- ✓ Mission hours + payload capacity + low signature

The winner is not who flies—it's who stays in the air longest

Connecticut Advantages

#1 in
Aircraft engines (jobs & GDP)

259 Aerospace companies
>28K Aerospace employees

>32% of exports from CT
from aerospace industry

Electric and Supersonic Aviation

TOPICAL AREAS

- ✈️ Electric aviation
- 🔥 High-Efficiency Combustion
- 🚀 Hypersonic Propulsion
- ⤵️ Ion Propulsion
- 🔋 Fuel Cell and Battery Applications



First SOFC-powered RC airplane by LNG or propane (Video)

OPPORTUNITIES

- DOE ARPA-E (\$7.8M): electrical drones
- NASA ULI: electrical aviation
- NGC, Boeing, Airbus, ZeroAvia, Sikorsky, PM



PEMFC/Battery powered RC airplane by UConn students (Videos)

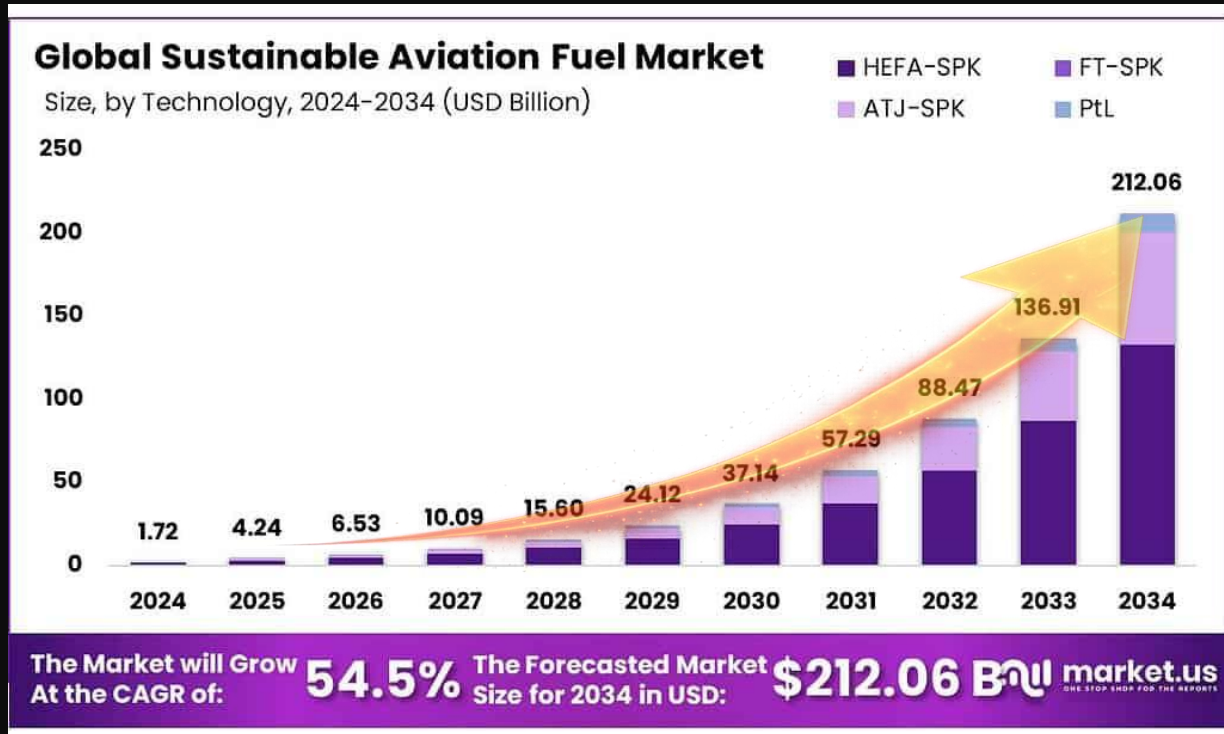
COLLABORATORS

- Marty Bradley (retired Boeing Senior Technical Fellow)
- Dave Daggett (retired Boeing Technical Fellow)
- Hossein Ghezeli-Ayagh (retired FCE VP)
- Dave Tew (SF; formerly PW/DOE)
- Parag Kshirsagar (RTRC/Pratt & Whitney)
- Troon Tan (MIT)
- Raja Rajashekara (UH NAE)
- Hao Wang (UH, NAE)



Sustainable Aviation Fuels for Ultralong Flight

Low cost · Available at scale · Drop-in · Sustainable



Market pull:

- Procurement : SAF mandates, airline offtakes
- Bottleneck is low-cost syngas: The winners – cost effective
- Drop-in fast scale.



PUBLICATION DATE: Apr 07 2026

U.S. Department of Energy Announces \$34 Million to Pair Artificial Intelligence with Autonomous Labs to Accelerate Catalyst Development

CATALCHEM-E Project Descriptions

Catalytic Application Testing for Accelerated Learning Chemistries via High-throughput Experimentation and Modeling Efficiently

University of Wisconsin-Madison – Madison, WI

AI-Driven Design of Industrial Fixed Bed Reactor Catalysts for Production of Renewable Fuels and Chemicals from Oxygenated Feedstocks (AI-FIXCAT) - \$2,835,000
The University of Wisconsin-Madison will develop catalysts to convert ethanol into higher-value alcohol for fuels and specialty chemicals. The project will combine AI models with automated laboratory tools and industrial-scale catalyst testing. The team will also explore integrating the technology into laboratory information management systems, making the catalyst design workflow accessible to a wide range of commercial entities.

Ames National Laboratory – Ames, IA

Autonomous High Throughput Experimentation to Accelerate Chemical Manufacturing (A-TEAM) - \$2,520,000
Ames National Laboratory will deliver precious-metal-lean catalysts for specific hydrocarbon processing reactions, cutting energy use and boosting domestic manufacturing competitiveness. The project's collaborative workflow uses advanced AI models coupled with robotic synthesis platforms to rapidly explore new catalyst concepts. The workflow ensures industrial relevance through multiscale validation, from atomistic simulations to pilot-scale reactor testing.

North Carolina State University – Raleigh, NC

Human-AI-Robot Teaming to Accelerate Heterogeneous Redox Catalyst Discovery with a Self-Driving Lab - \$2,992,500
North Carolina State University aims to discover catalysts for the conversion of biomass and other waste liquids into hydrogen-rich syngas, a critical industrial feedstock for fuels and chemicals. This platform distinguishes itself by integrating several cutting-edge innovations. These include AI for self-driving labs that learn from physics and employ intelligent optimization, automated synthesis, proxy screening methods, as well as transport modeling. These elements will collectively ensure new catalysts can be industrially scaled.

National Laboratory of the Rockies – Golden, CO

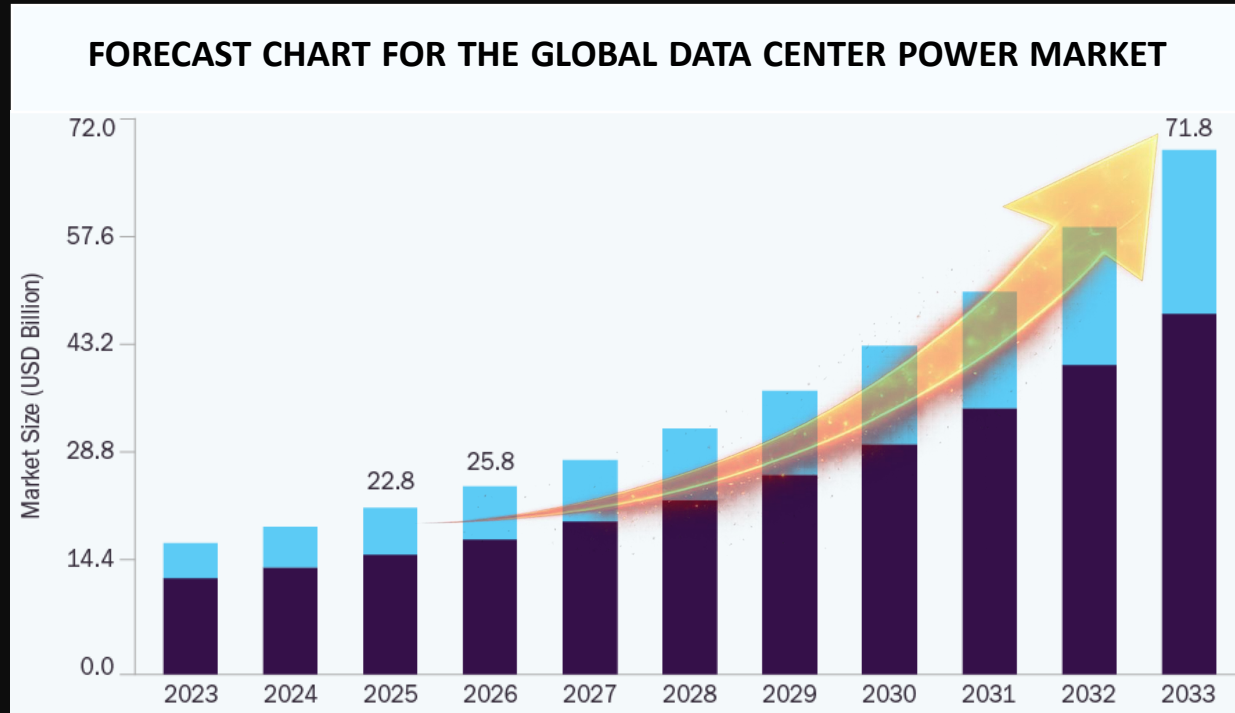
SYNTH-ON: An Autonomous Synthetic Framework to Power the Refinery of Tomorrow - \$2,835,000
The National Laboratory of the Rockies plans to accelerate catalyst discovery using an AI-enabled automated workflow featuring high-throughput flow synthesis. This system will develop catalysts ten times faster, producing thousands of samples daily and scaling to enable kilogram-scale production. Initially, it will validate catalysts for the reverse water-gas shift reaction, then explore new materials to convert simple carbon molecules into valuable chemicals, reducing import reliance.

University of Connecticut – Storrs, CT

REACT: Revolutionary Enhancements in AI-Guided Catalyst Transformations - \$2,916,450
The University of Connecticut's REACT project will develop an AI-powered workflow to discover electrocatalysts for directly converting methane gas into alcohols, which are crucial for producing fuels and chemicals. The team's "design-make-test-learn" workflow will use uncertainty-aware models with high-throughput experimentation to identify promising catalysts, which will then be validated in commercial-scale membrane electrode assemblies.

Powering Data Centers by Low-Cost Fuel Cells

Skip the grid queue | Modular | Firm power | Deployed fast



By Grand View Research



1. CAPEX: stop interconnect-driven overbuild



2. OPEX: predictable 24/7 ops at scale

Connecticut Energy & Defense R&D Corridor

Vision and Roadmap



CT Leadership in aerospace, fuel cells and defense



UConn-led R&D enabling next-gen energy systems

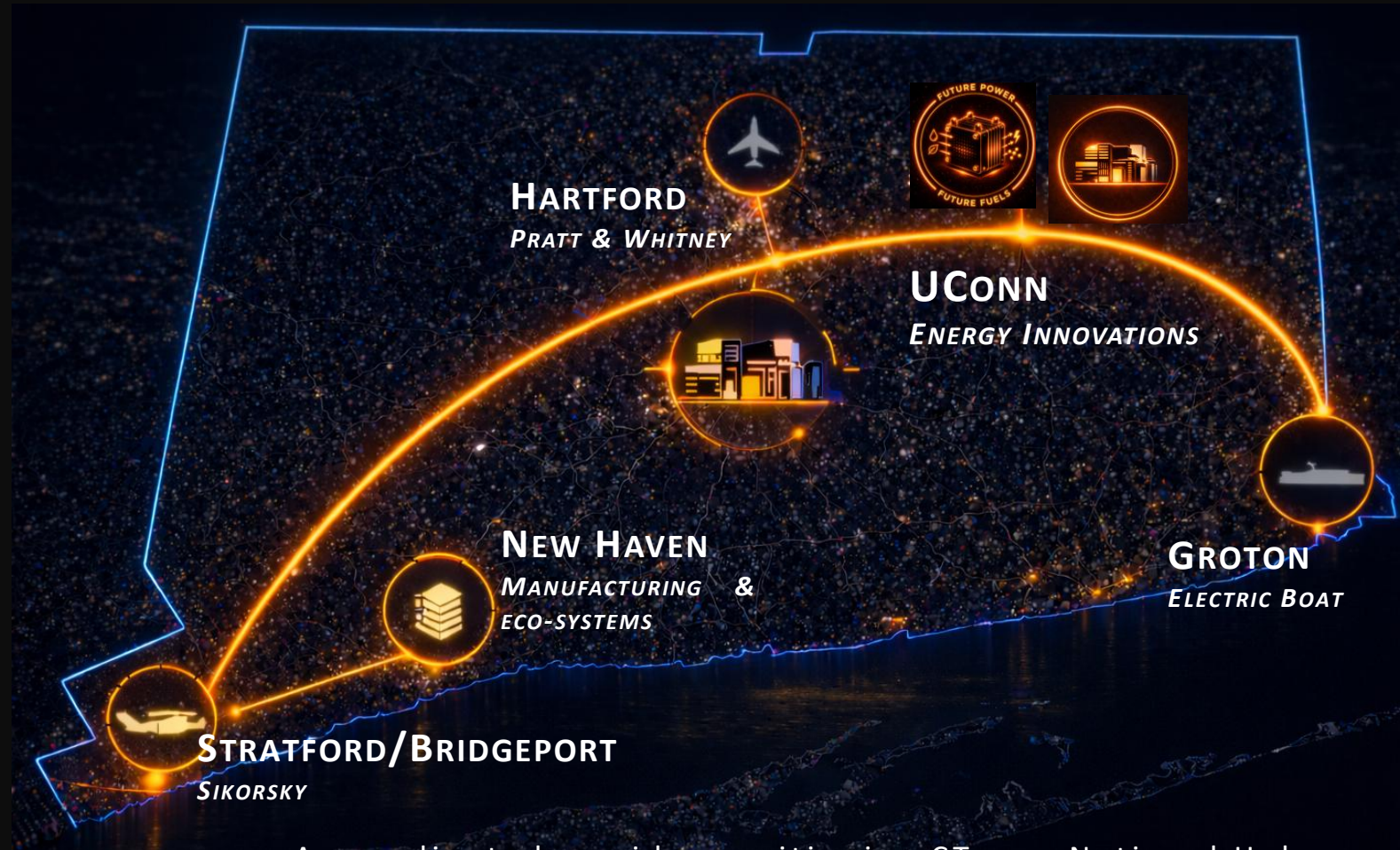


Major industry, VCs, and Gov't agencies:

- Northrop, Boeing, Airbus; ZeroAvia
- Capricorn, CTV;
- DOE, DoD



Multi-billion \$ economic potential in CT across powering data center, electric aviation, and fuels



A coordinated corridor positioning CT as a National Hub for future energy & aviation technology enterprise of multi-\$B economic potential