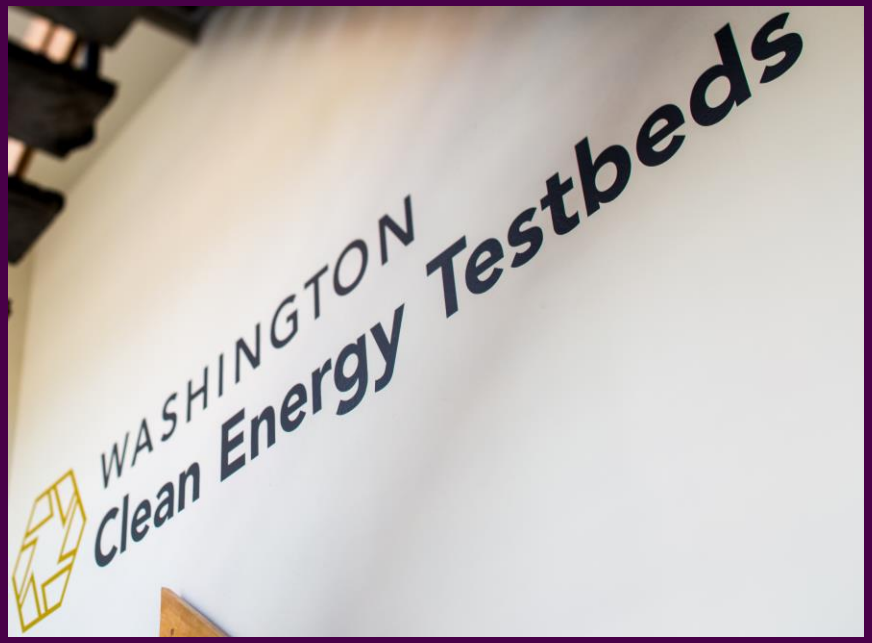
WASHINGTON Clean Energy Testbeds

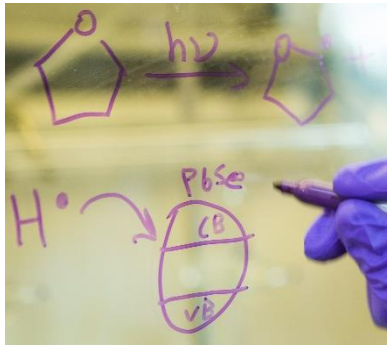
University of Washington Clean Energy Institute

Accelerating the Path from Clean Energy Research to Industry Innovation



Clean Energy Institute Mission Statement

Universities push research frontiers



Industry makes new technologies commercially viable

Founded in 2013, CEI is accelerating the adoption of a scalable clean energy future by advancing next-generation **solar energy and battery materials and devices**, as well as their integration with **systems and the grid**.

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Clean Energy:
A State Investment Imperative

“This is the right thing to do for the future of our children and health of our planet...”

– Governor Jay Inslee

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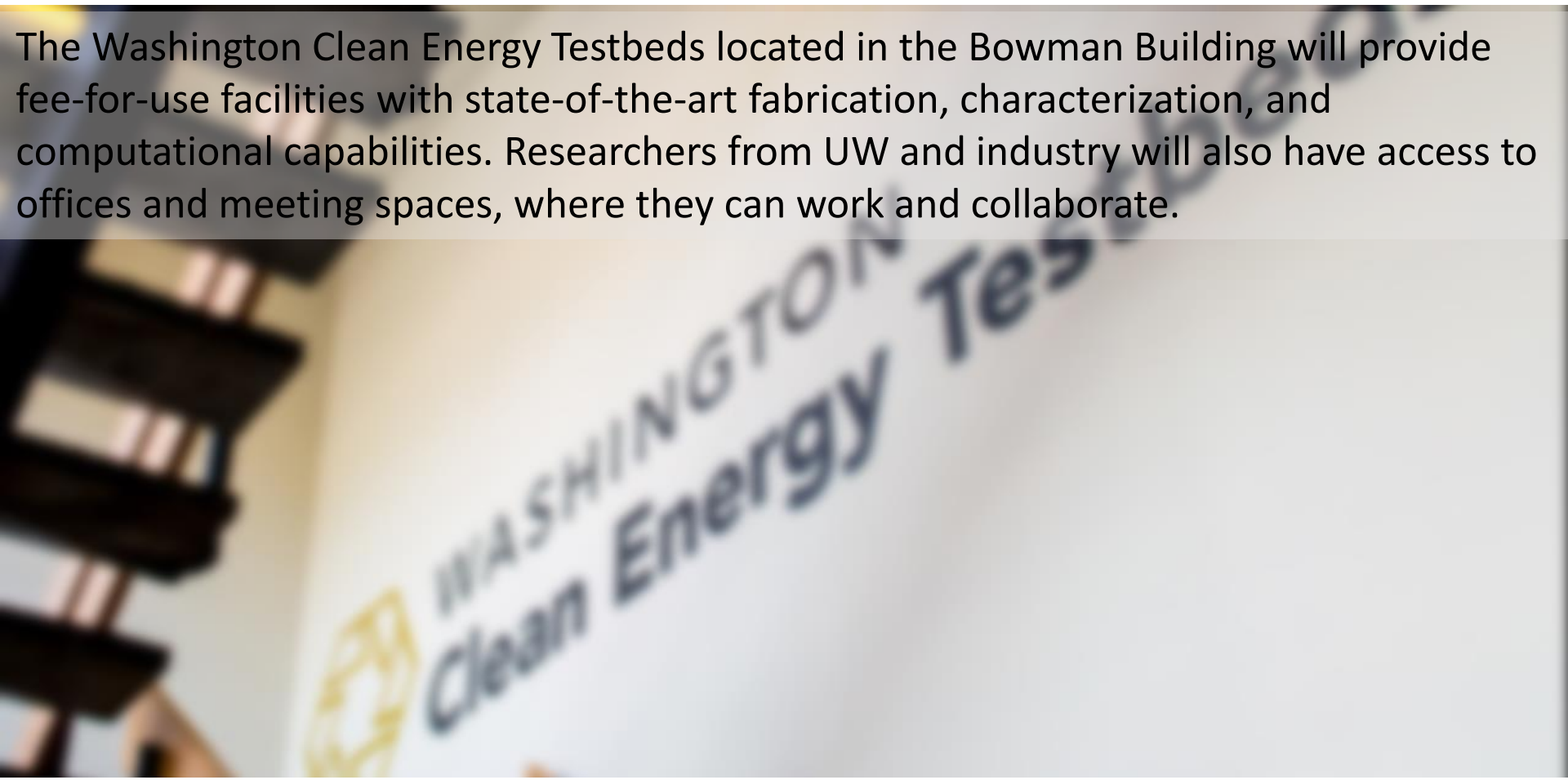
Washington Clean Energy Testbeds

$8M was allocated to University of Washington in FY 15-17

The Washington Clean Energy Testbeds located in the Bowman Building will provide fee-for-use facilities with state-of-the-art fabrication, characterization, and computational capabilities. Researchers from UW and industry will also have access to offices and meeting spaces, where they can work and collaborate.



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Clean Energy Testbed Development

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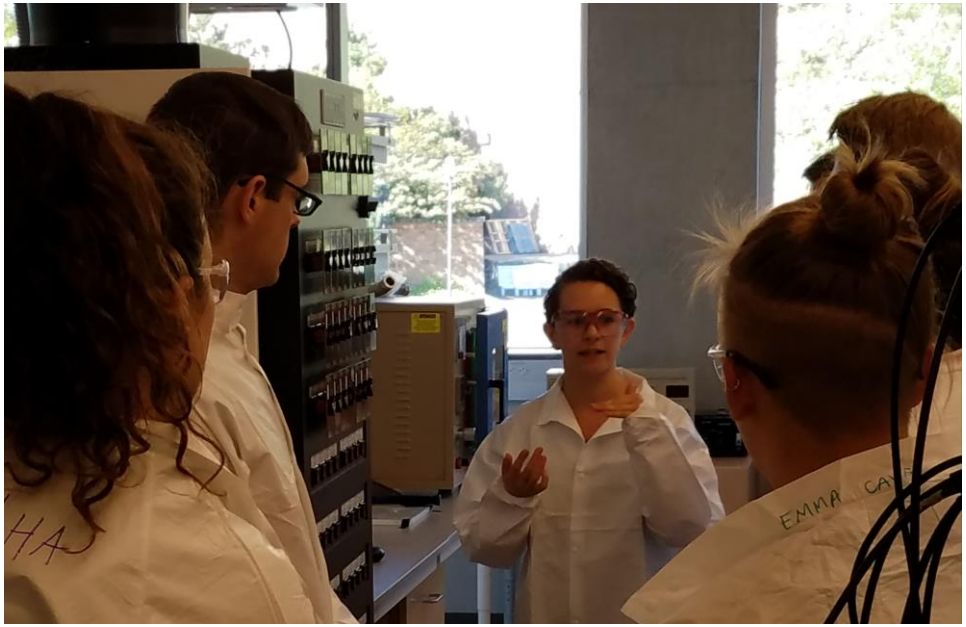
Research Training

Provide an integrative training environment for upper-division undergrads and grad students that helps them understand energy materials, devices, and systems. “From molecules to miles”



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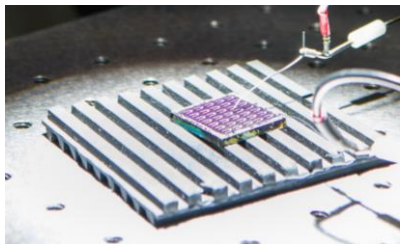
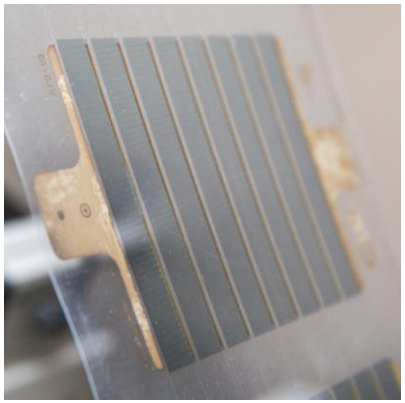
Scale-Up & Characterization

Translate, develop, prototype and test energy devices and manufacturing processes at the scale required for commercial use

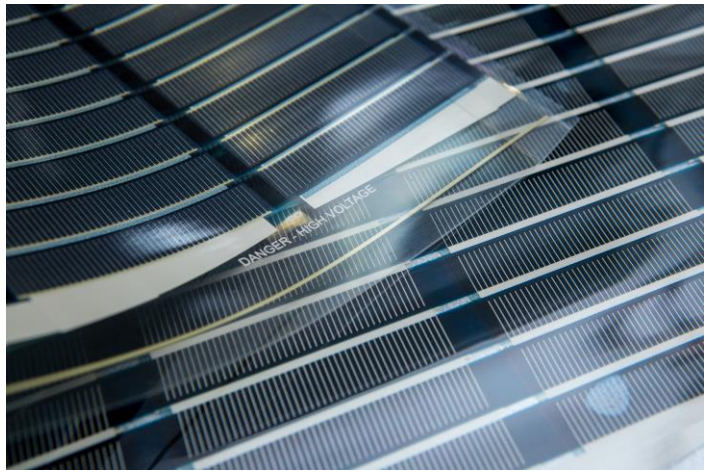
Lab Scale



Device Demo Scale



Manufacture Scale



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Scale-Up & Characterization

- Roll-to-roll printer
- Sheet coater
- High precision screen printer
- High resolution 3D printer

- Photovoltaic Testing
- Battery and Electronic Testing
- Spectroscopic Materials Analysis
- Morphological analysis

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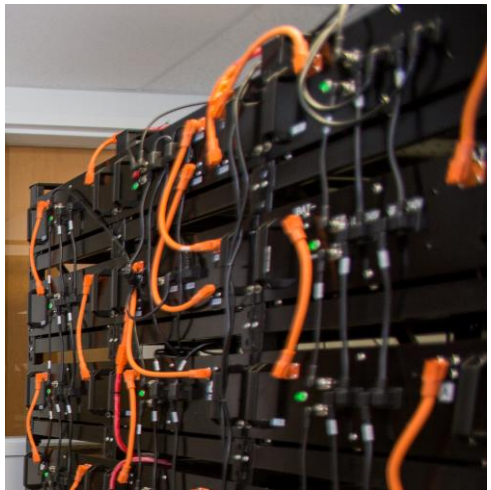
Systems Integration

Campus Control Center manages real-time digital simulator, battery energy storage system, and grid interaction



UW as a Testbed

- PV installations on campus
- Smart meter data

Real Time Digital Simulator

- Model developmental grid
- Integrated computing, energy storage, and simulation

Battery Energy Storage System

- 40kWh, 30kW bidirectional
- Test battery management limits
- Provide storage for simulations

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User Profiles

300+ users

- UW users from across the science and engineering departments
- 40 companies, including start-ups, mid-size companies, and Microsoft

FOM TECHNOLOGIES

CANATU

DEMAND energy
An Enel Green Power Company

SIRONIX RENEWABLES

enerG2
NEXT GENERATION ENERGY STORAGE

BATTERY INFORMATICS, INC.

astrolabe analytics

membrion

Microsoft

ETC | Solar

MicroConnex

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Fostering Our PNW Ecosystem

Current WCET programs:

Entrepreneur-in-Residence: Ram Krishnan, CTO of NantEnergy

Investor-in-Residence: Jeff Canin, Fund Manager at E8 Angels

Lunch & Learn series

Involved in a robust network of organizations supporting entrepreneurship and innovation:

CleanTech Alliance, Solar WA, E8, WA Dept. of Commerce, PNNL

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Entrepreneur in Residence

Ramkumar Krishnan, Ph.D.

CTO, NantEnergy

Available weekly for free consultation

Advice on:

- Team building
- Market research
- Channel, manufacturing, and strategic partnerships
- Fundraising

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Investor in Residence

Jeff Canin

Board Member At-Large, E8

Monthly topical lunch-and-learns and office hours

Advice on:

- Fundraising
- Product value propositions
- Intellectual property
- Grant proposals
- Investor pitches

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Questions?

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