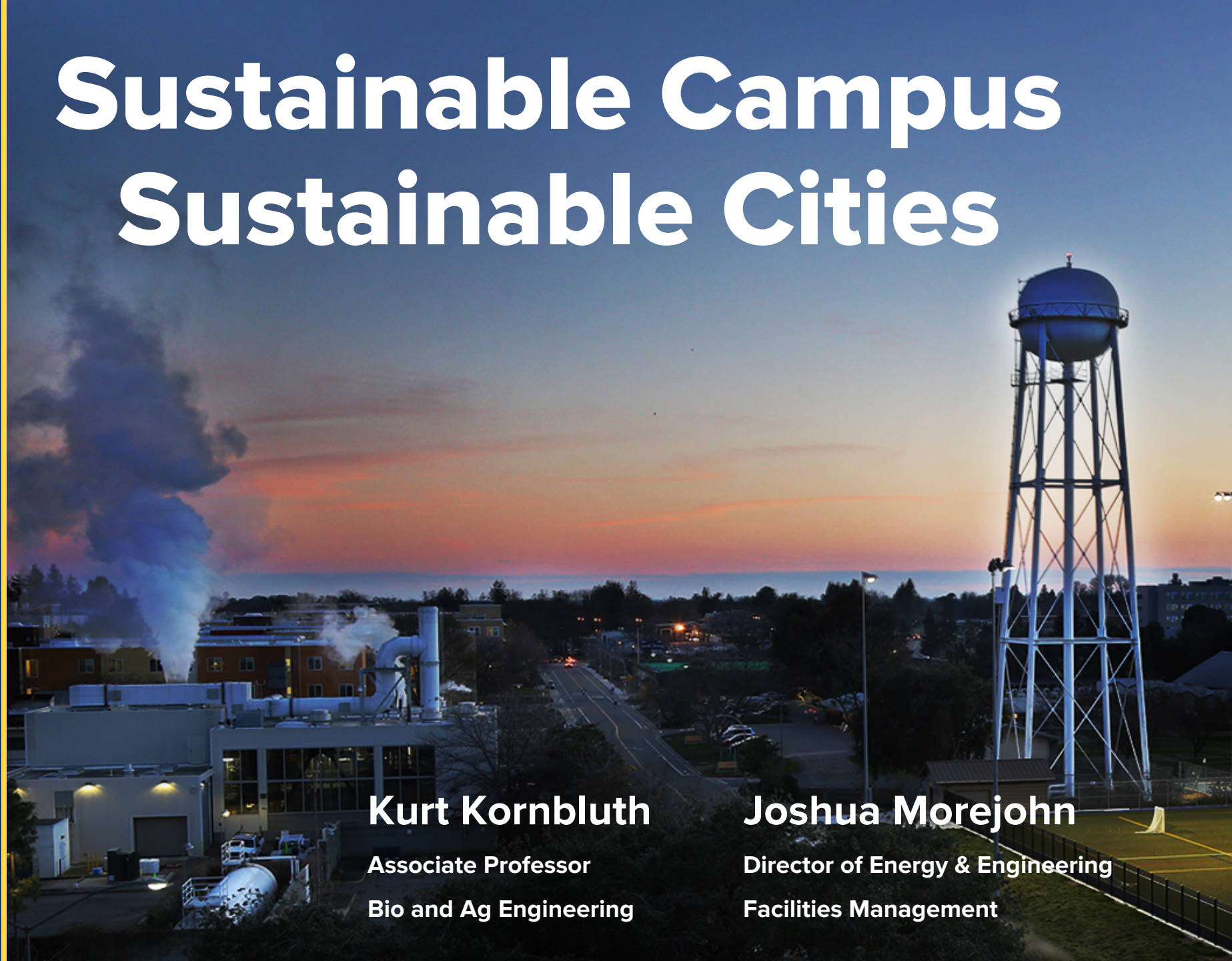




UCDAVIS

Sustainable Campus Sustainable Cities



Kurt Kornbluth

Associate Professor

Bio and Ag Engineering

Joshua Morejohn

Director of Energy & Engineering

Facilities Management

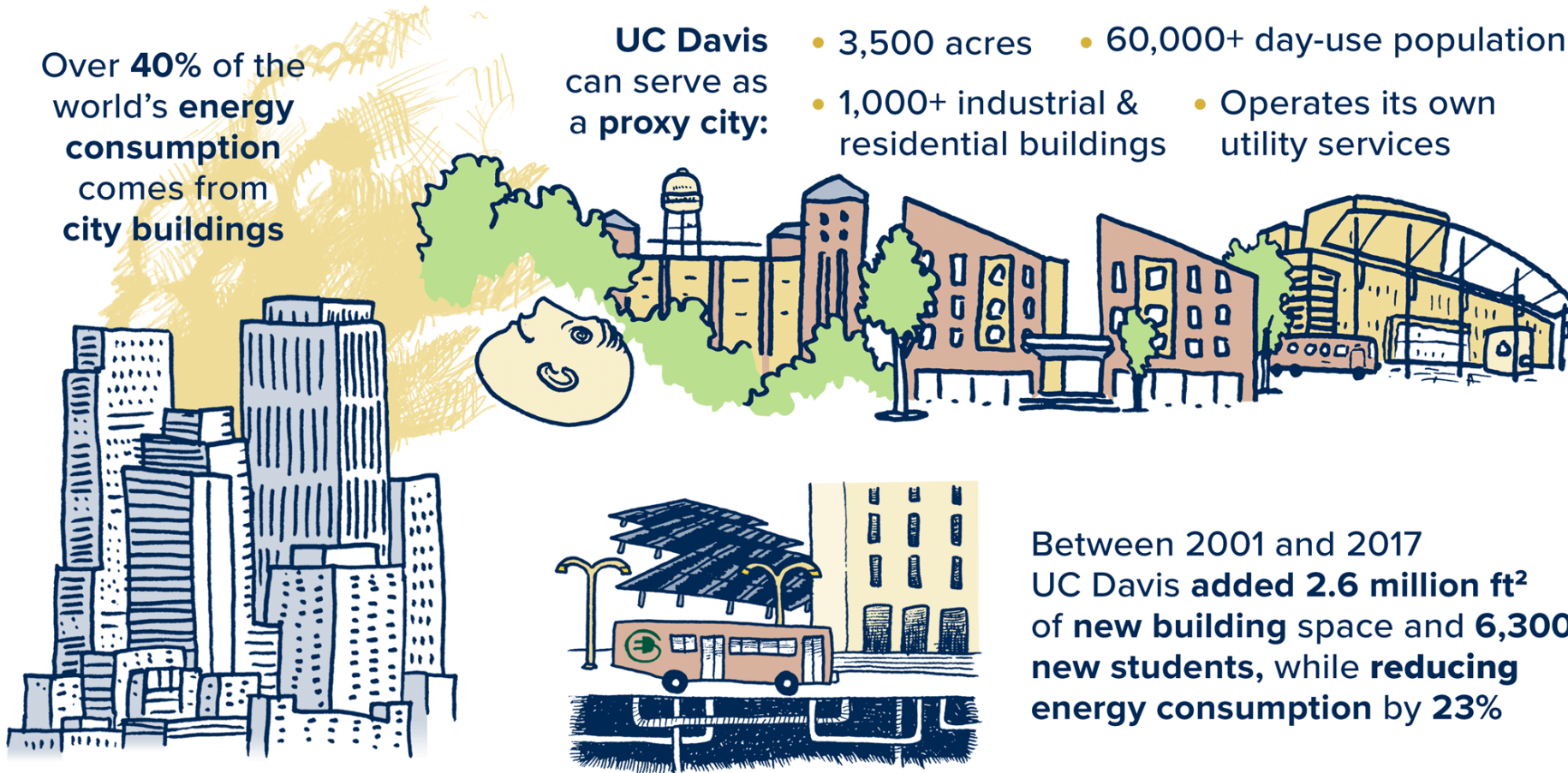
Sustainable Campus, Sustainable Cities

A Living Lab for Green Energy

Over **40%** of the world's **energy consumption** comes from **city buildings**

UC Davis can serve as a **proxy city**:

- 3,500 acres
- 60,000+ day-use population
- 1,000+ industrial & residential buildings
- Operates its own utility services



Between 2001 and 2017
UC Davis added **2.6 million ft²**
of new building space and **6,300**
new students, while **reducing**
energy consumption by **23%**



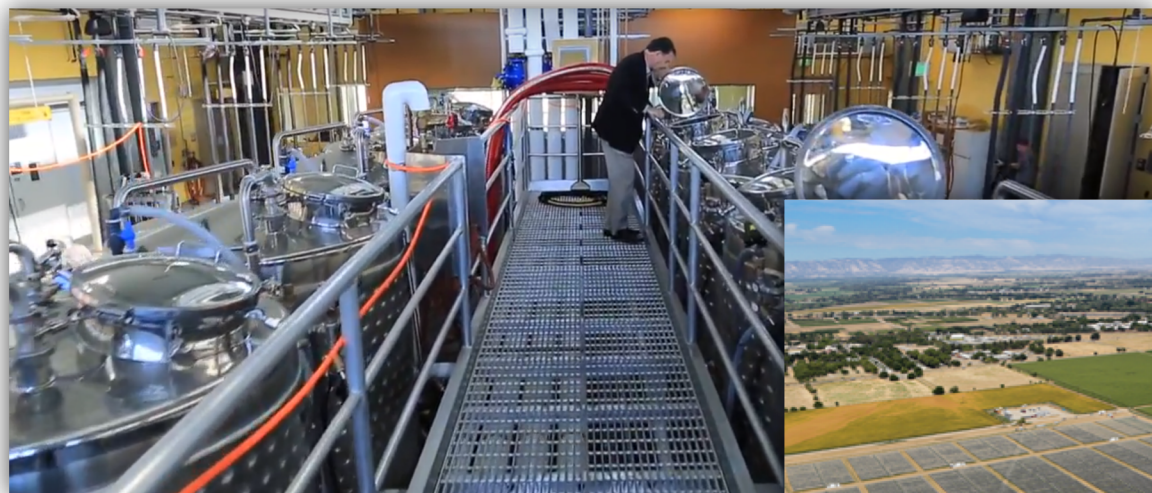
	UC Davis	City of Davis, CA
Population	More than 60,000 (day use)	66,000
Housing units	10,000	14,000
Annual budget	\$5 billion	\$200 million
Area	30 km ² (Davis and Sacramento campuses)	26 km ²
Wastewater treatment plant	1.3 billion gallons/year	1.8 billion gallons/year
Solar PV capacity	20MW	16MW
Central cooling and heating plant	Yes (30 miles of pipe)	No
Water use	780 million gallons/year	3 billion gallons/year
Electric and gas energy use	1.65 million Mbtu/year (Davis campus only)	2.2 million Mbtu/year
Electricity cost	\$20 million/year	\$44 million/year
Emissions	160,000 MTCO ₂ e/year (Davis campus only)	180,000 MTCO ₂ e/year



Faculty, staff, and students with a track record of energy & climate research



A vision for sustainable practices...



Sustainable Winery

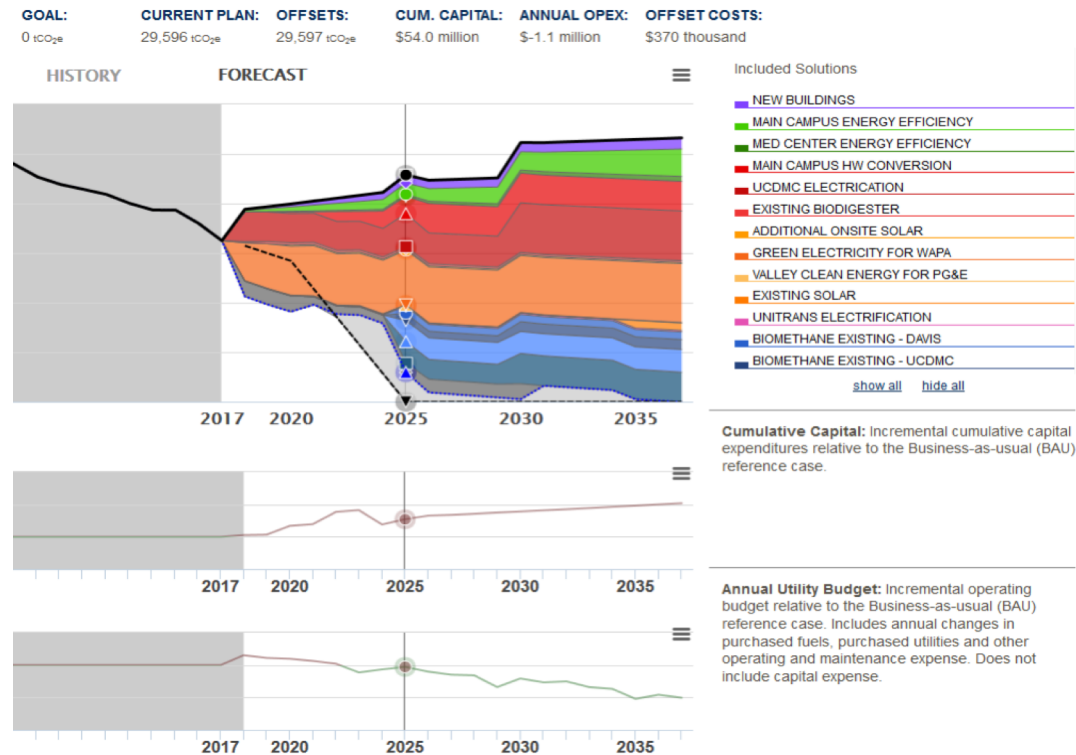
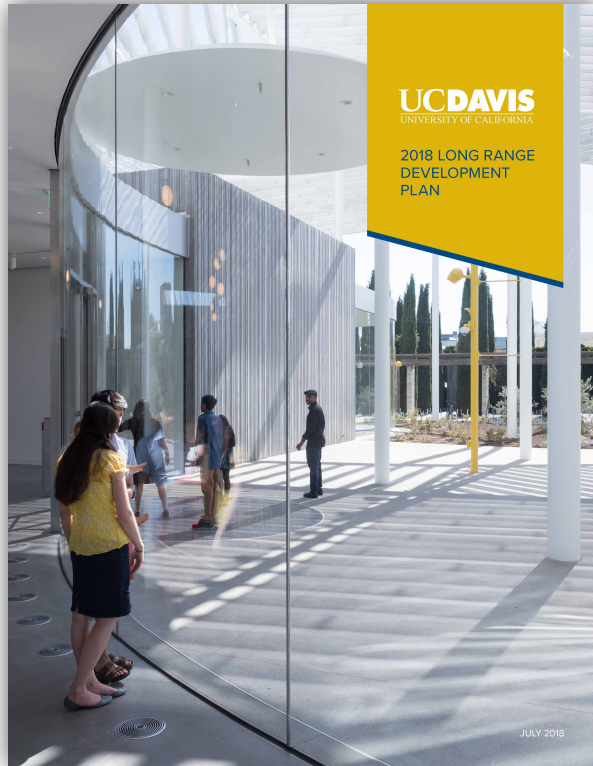


16 MW On-campus Solar PV

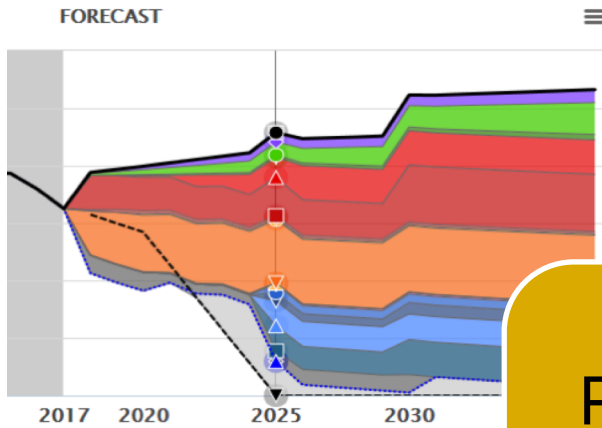


**West Village ZNE Community
Energy & Efficiency Institute**

An unprecedented collaboration between faculty, staff & students



Now, at a global scale

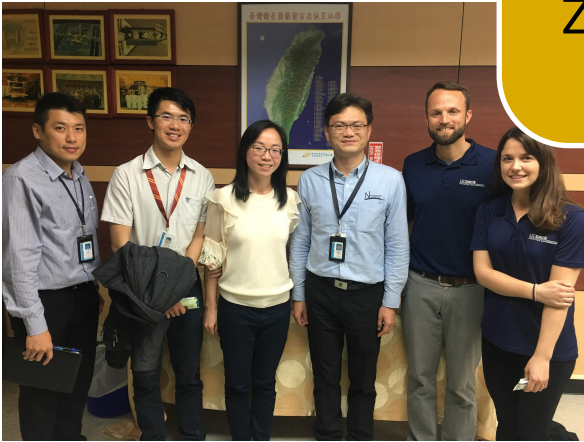


Progress
On-Campus
ZNE Projects

Research
UC Davis as
a Living Lab

Education
Project-based
learning/Energy
Graduate Group

Outreach
Global
Sustainable
Campus
Partnerships



Progress

UC DAVIS

Energy Conservation Office

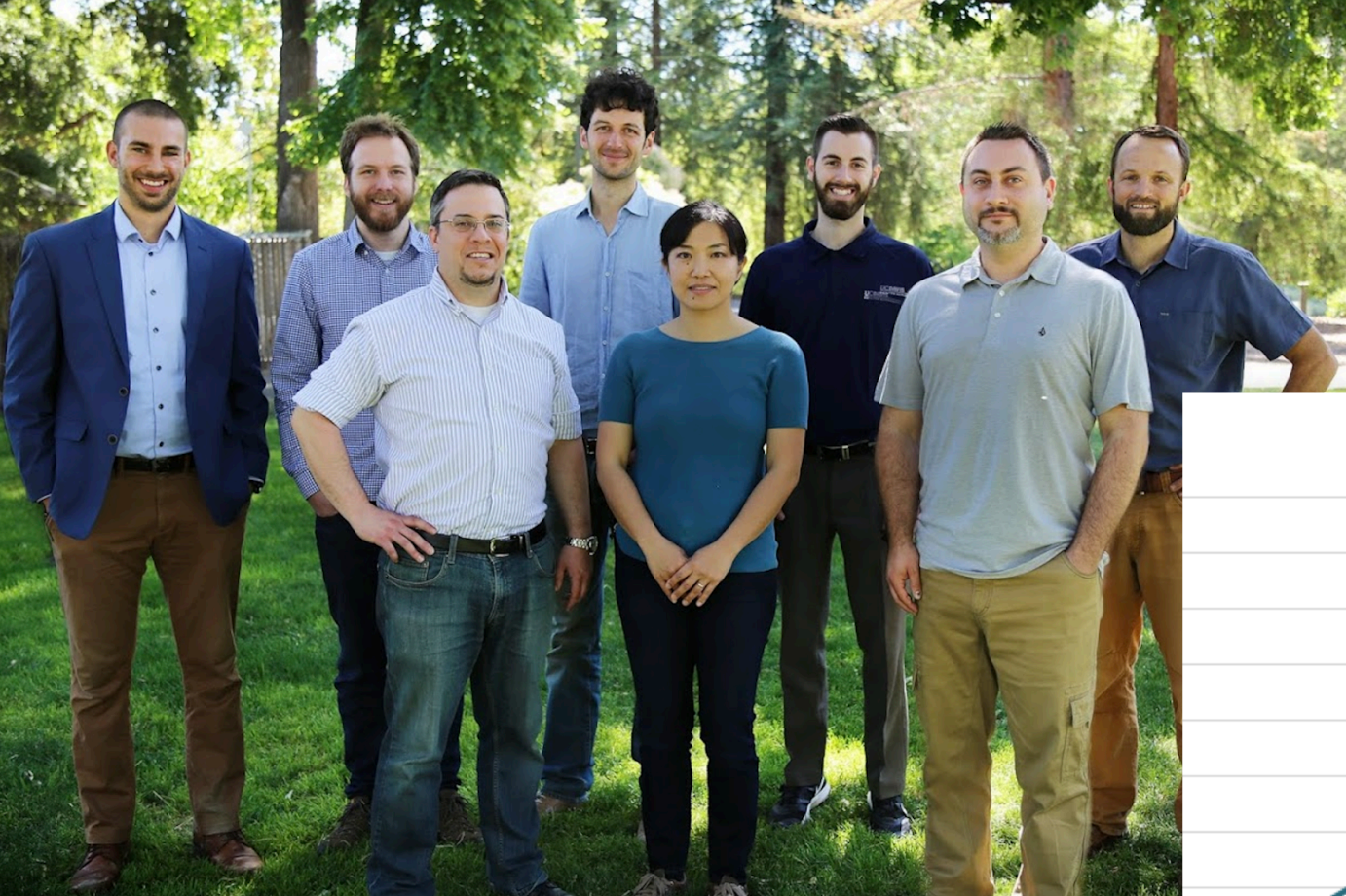
[ABOUT US](#) > [ENGAGE](#) > [PROJECTS](#) > [STUDENTS](#) [OUR BLOG](#) [CONTACT](#) >



Making our buildings work better for you.



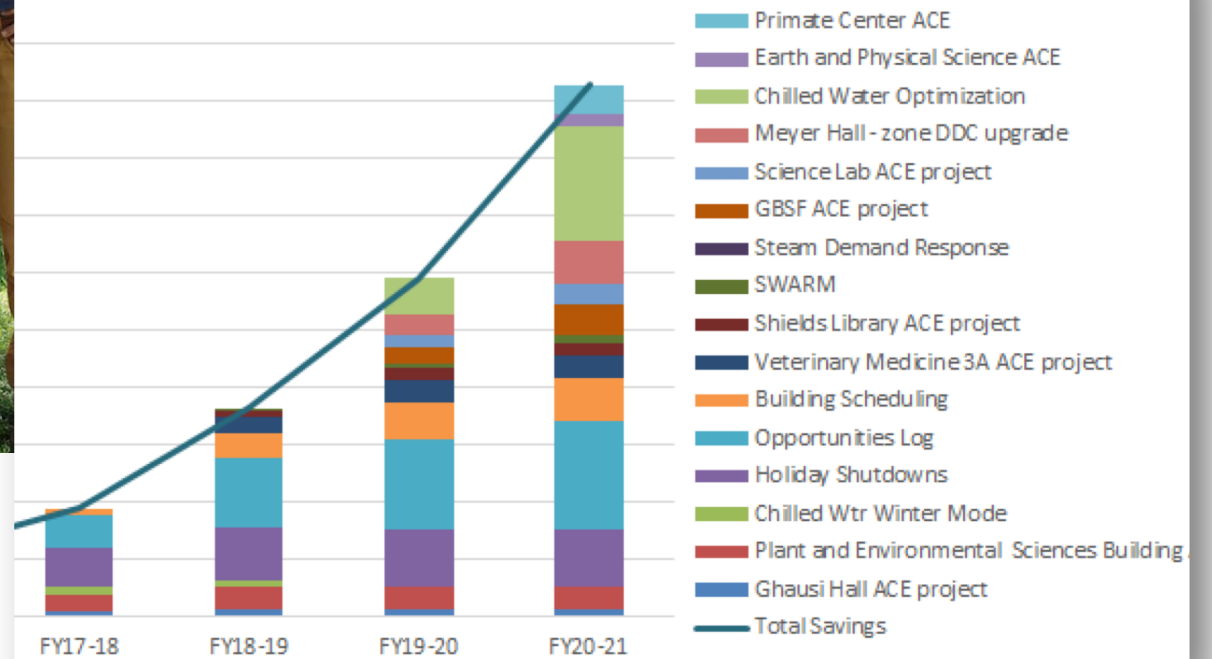
UC DAVIS



**ACTIVE COMMISSIONING
ENTERPRISE**



Energy Team Savings - Forecast





Too hot? Chilly? Perfect?
Your feedback helps us find energy
waste in your building!

Tell us how your room feels!

Not a part of UC Davis? [Continue as a guest.](#)

Have a critical issue to report? [Please submit a work order](#) through Facilities Management.

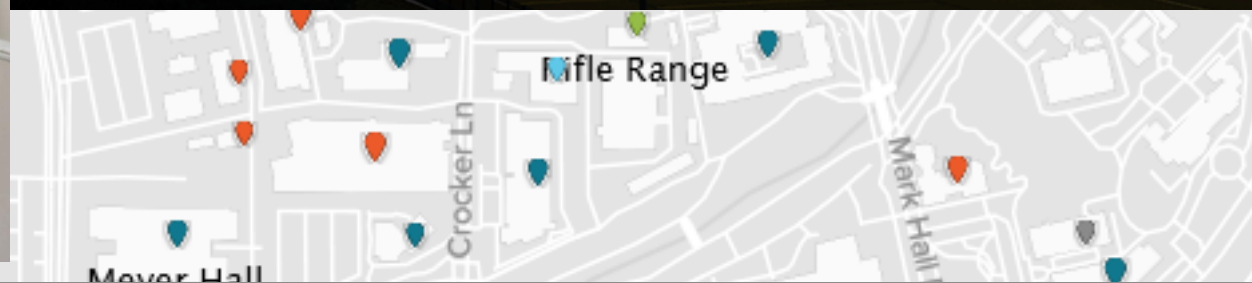
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Home & Biomedical
Sciences Facility



TRIM THE WASTE

with Joules the Cow



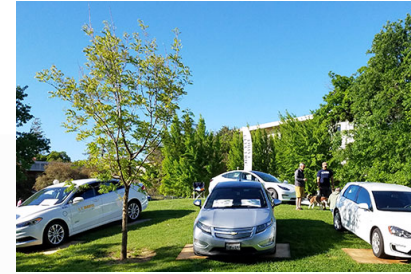
Research



California Lighting Technology Center

Established in 2004

The California Lighting Technology Center (CLTC) stimulates, facilitates, and accelerates the development and commercialization of next-generation, energy-efficient lighting and daylighting technologies.



Plug in Hybrid and Electric Vehicle Center



Center for Water-Energy Efficiency

Established in 2011

The Center for Water-Energy Efficiency (CWEE) researches, develops, and disseminates efficient technologies and system-based policies for the integrated conservation of water and energy resources.



Western Cooling Efficiency Center

Established in 2007

The Western Cooling Efficiency Center (WCEC) accelerates development and commercialization of efficient heating, cooling, and energy distribution solutions through stakeholder engagement, innovation, R&D, education, and outreach.

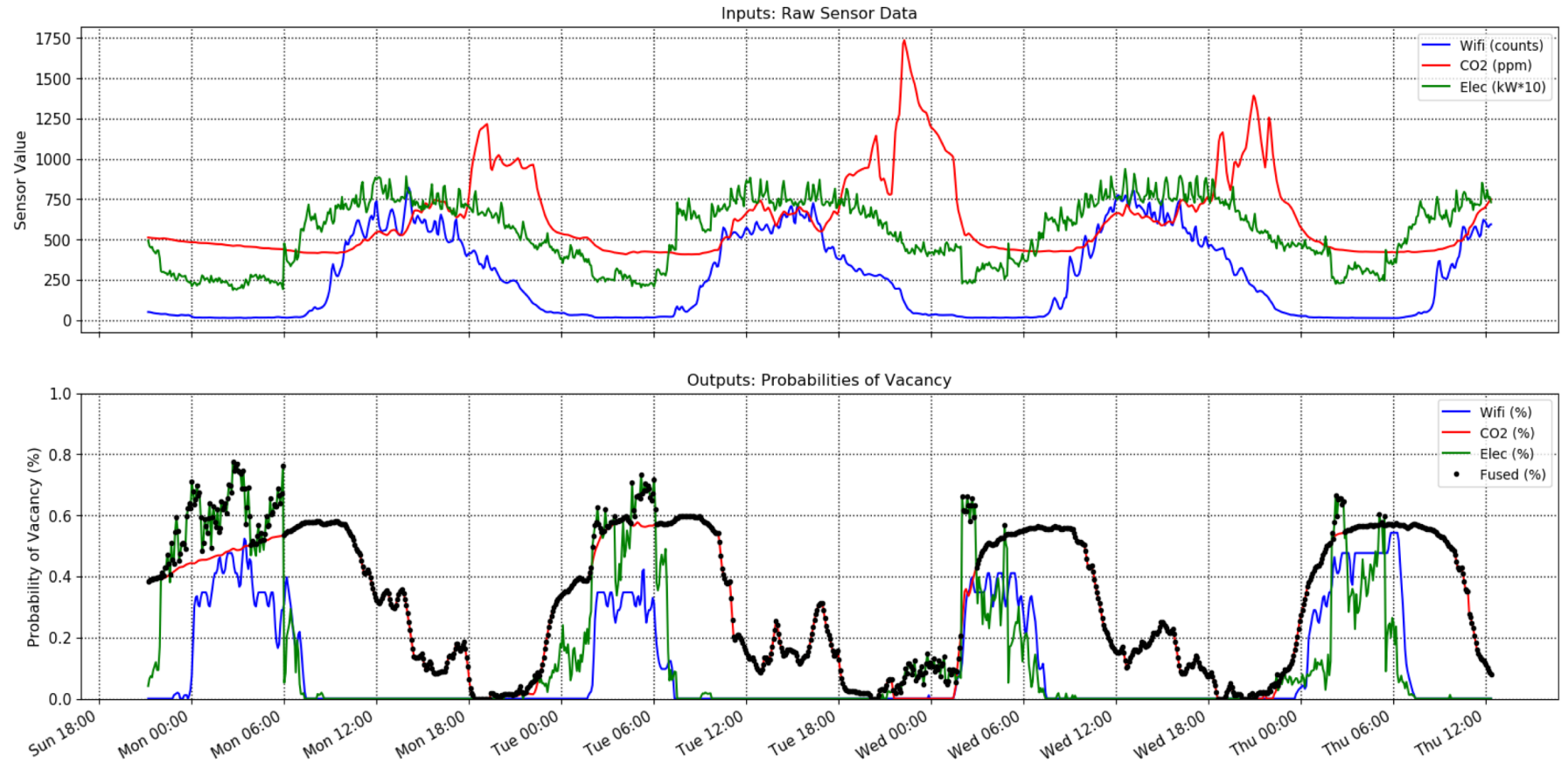
 **UCDAVIS**
Energy and Efficiency Institute



UCDAVIS

Putting Vacant Buildings to Sleep

Comparison of Inputs and Outputs



Education



ABT 212 - PATH TO ZERO NET ENERGY

A Hands-On Approach



- Energy Graduate Group
- Project-based courses

Impact

Global Campus Energy Manager's Workshop

October 22 – 24

UC Davis Conference Center

- **70 participants**
- **40 campuses**
- **5 US states**
- **7 countries (US, Denmark, Taiwan, Germany, Mexico, Spain, Canada)**
- **5 industry sponsors**





Questions?

Thank you!

UCDAVIS