



# ENERGY INSTITUTE

Colorado State University

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POWERING A WORLD OF BETTER ENERGY.

OCTOBER 2015

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## Energy Institute in Numbers

### 5 AREAS OF FOCUS

#### Energy Devices & Systems

Developing technologies  
for energy production,  
and end use.

#### Access to Energy

Providing  
access  
to energy for the world's  
poorest citizens.

#### Energy & Water

Sustainable use of

## ENERGY INSTITUTE NEWS

### Introducing the Energy Institute Newsletter

#### Message from Bryan Willson, Executive Director of the Energy Institute



Welcome to the inaugural Energy Institute Newsletter! We're launching this publication to highlight the energy related happenings across the university. While there is a tremendous amount of great work being done in laboratories, classrooms, and spinoff companies, we want to elevate how we communicate this to the CSU community and beyond.

For those who don't know me, I am the Executive Director of the Energy Institute (EI), but spent the past 3 years "on loan" to the [Department of Energy](#), as Program Director at ARPA-E, the Advanced Research Projects Agency - Energy. In this role I spent most of each week working with my staff in DC or traveling to project sites around the country. During this time, leadership of the Institute was shared between myself, Dr. Ken Reardon, and Dr. Morgan DeFort; this was a very busy time as we transitioned from the Clean Energy Supercluster (CES) to the Energy Institute in 2013 and completed construction of the Powerhouse Energy Campus in 2014. Ken is now working to accelerate his research program, run a startup company, and has a special appointment with the Office of the Vice President - Research to help coalesce activities in Food / Energy / Water. Morgan is the CEO of [Factor\(E\)](#) Ventures, a CSU spinoff company focusing on access to energy in the developing world. Thanks to both of them for helping launch the Energy Institute!

Colorado State University is fortunate to have over 160 faculty members working on energy related research in all 8 colleges. The EI has several stakeholder groups and receives formal guidance from an External Advisory Board (EAB) and an Academic Council (AC). Our prior work in the EI and the [Clean Energy Supercluster \(CES\)](#) sought to elevate activities across all areas, but the EAB and AC have encouraged us to create a taxonomy of energy work on campus and to concentrate near-term efforts on a few areas where there is significant opportunity for acceleration.

To this end, we view CSU's energy community as working in five key areas:

energy & water.

## Energy Policy & Human Behavior

Leading the discussion on how the world interacts with energy technology.

## Environmental Impacts

Reducing the environmental impacts of energy production and use.

## 12 MEMBER CENTERS

Center for Energy & Behavior

Center for Energy Development & Health

Center for Energy Water Sustainability

Center for Laser Sensing & Diagnostics

Center for Next Generation Photovoltaics

Center for the New Energy Economy

Electric Power Systems Laboratory

Engines & Energy Conversion Laboratory

Industrial Assessment Center

Institute for the Built Environment

- Energy Devices and Systems
- Energy Access in the Developing World
- Energy, Policy and Human Behavior
- Interrelationship of Food, Energy, and Water
- Energy Impacts on the Environment, Climate, and Health

There are dynamic communities in each of these areas across campus and over the next months we will be working to convene these communities and explore ways in which the Institute can help elevate the scope and impact of work in these areas.

In the near term, we are working to build the EI team. I'd like to welcome Liz Witte as our new member of the Operations and Outreach team and we will soon release position descriptions for an Associate Director and for an Education Director - these will be posted on the [Energy Institute website](#).

As I am transitioning back to CSU I would like to learn about your research efforts related to energy. Please contact me directly at [Bryan.Willson@ColoState.edu](mailto:Bryan.Willson@ColoState.edu).

Let's work together to help CSU reach its full potential in exploring energy science and developing and deploying energy solutions!

## Energy Institute in the News: Fort Collins, A Place of Invention

The [Places of Invention](#) exhibit at the [Smithsonian American History Museum](#) opened on July 1, 2015. This exhibit celebrates the clean-energy innovations that have taken place in Fort Collins and at the Engines and Energy Conversion Lab.

Following the opening of the exhibition Rocky Mountain PBS and Colorado State University co-produced a documentary "How a Place Matters" which takes an in-depth look at "what can happen when the right mix of inventive people, available resources and inspiring surroundings come together and spark invention and innovation."

Colorado State University has played a large role in shaping the innovative community in Fort Collins. Bryan Willson, Executive Director for the Energy Institute is featured in the Places of Invention exhibit for his work founding the Engines and Energy Conversion Lab which has now grown into the Powerhouse Energy Campus.

[Click here to view the online exhibition.](#)

## Upcoming Events: Natural Gas Symposium

**Presented by The Energy Institute**

Rural Energy Center

Sustainable Biofuels  
Development Center



Colorado State University

The Energy Institute at Colorado State University is hosting the fifth annual [Natural Gas Symposium](#). Since 2011, CSU has built a reputation for hosting a balanced symposium addressing all sides of the issues around natural gas in Colorado and across the country while remaining an impartial broker of information and research

### We're Social

Like and Follow the Energy Institute on Facebook and Twitter.

We share photos of projects in action, stories about our research, and highlight upcoming events.



results.

As issues around natural gas continue to become more complex, CSU has a growing role in creating innovative, practical and affordable solutions while partnering with environmental organizations, community and industry.

For more information go to [www.naturalgas.colostate.edu](http://www.naturalgas.colostate.edu)

This event is free and open to the public. [All attendees are asked to register. To register for the 2015 Natural Gas Symposium click here.](#)

### CSU in the News: Measuring Methane

In late August the [New York Times](#) published an article based on the "Methane Emissions from United States Natural Gas Gathering and Processing" study conducted by researchers at Colorado State University.

The Energy Institute at Colorado State University is currently leading two national studies to measure the amount of methane loss across the nation's natural gas supply chain - from the time it is extracted until it reaches end users.

Funded by the [Environmental Defense Fund](#) and several natural gas companies CSU researchers are quantifying emissions from [gathering and processing plants](#) and [transmission and storage facilities](#).

[Click here to read to read more about the methane studies at the Energy Institute.](#)

### Vertical Axis Wind Turbines added to the Powerhouse Roof

As we undertook the restoration of the old Fort Collins power plant building in 2012, we knew that we wanted to accurately depict the form, features, and character of the property as it has appeared on North College since opening in 1936.

One of the iconic elements of the original building was the smoke stacks, and we knew that we wanted to reinstall the stacks to recreate the

### Energy & Environment Seminar Series

#### Hosted at the Powerhouse

Across the Colorado State University campus and throughout the Powerhouse, faculty members, companies and their teams are conducting important and exciting research that is impacting how we use energy across the globe.

This seminar series provides researchers a



Jessica Tryner and James Tillotson present on "Combustion Processes & Pollutant Emissions in Top-Lit Updraft Gasifier Cookstoves."

look of the original power plant.

Since we don't need smoke stacks - an element of the original coal-fired plant - we installed Vertical Axis Wind Turbines. Custom built to the exact parameters of the old stacks by Advanced Tank, a local company, these VAWT pay homage to the past but highlight the innovative clean energy research that's happening in the building - representing the transition from "old energy" to "new energy."

The stacks are 30' tall and together, generate power that we'll store in batteries and use during engine testing operations here at the Powerhouse.

**Brian Buss & the CSU Video Team created a video of the fabrication and installation of the turbines, [click here to view.](#)**

unique opportunity to share their findings with fellow researchers and the CSU community. Seminars will include presentations on a broad range of topics from technologies that improve the quality of energy to the poor to policies that improve the efficiency and reliability of the electricity grid.

This is your chance to find out what's going on at the Powerhouse! Don't miss it.

[Click here for more information about the seminar series.](#)



The new Vertical Axis Wind Turbines have been installed on the roof of the old Powerhouse.

## Recent Events: Understanding the EPA's Clean Power Plan

On September 30th, the Energy Institute, [Center for the New Energy Economy](#) & [School of Global and Energy Sustainability](#)

co-hosted an informational overview for the CSU community and the public, featuring Gov. Ritter and CNEE Senior Policy Advisors.

Colorado State University  
WEDNESDAY :: 2015  
1:30-3:30pm  
Lory Student Center Theater  
Free and open to the public  
Registration required

**BILL RITTER**  
Former Colorado Governor and currently the Director of the Center for New Energy Economy

**SEPT 30**

For more information and to register, visit <http://tinyurl.com/p4qzkt>

This workshop explores the technical, environmental and political implications of this landmark regulation.

The workshop, which was designed to explore the technical, environmental and political implications of this landmark regulation greeted over 200 guests from the community and across the university.

A Q&A session followed the presentations from Former Colorado Governor and Director of the Center for the New Energy Economy Bill Ritter, and CNEE Senior Policy Advisor Patrick Cummins. Diana Wall from the School of Global and Energy Sustainability, and Bryan Willson of the Energy Institute served as co-moderators and questions were submitted from the audience, tweets, and email during the live-streaming session.



Diana Wall, Bill Ritter, Bryan Willson and Patrick Cummins taking questions at the Clean Power Plan workshop.

## Recent Events: SWE, "Evening With Industry"

On September 30th, the Powerhouse Energy Campus at [Colorado State University](#) welcomed the students of the Society of Women Engineers to the "Evening With Industry" event. Held in the Powerhouse lobby, students were encouraged to take advantage of the networking and social hour to mingle with engineering faculty and potential employers in a casual setting.

The [CSU Society of Women Engineers](#) is a "nationwide non-profit that is devoted to establishing engineering as a desirable career aspiration for women." SWE allows students to network with their peers, professors and industry contacts.

If you are interested in joining SWE, or if you would like to attend SWE events please contact: [csuswe@gcsuemail.com](mailto:csuswe@gcsuemail.com).



SWE student representatives welcome engineering faculty and employers to the Evening with Industry event.

### ABOUT

Events  
Powerhouse Energy Campus

### RESEARCH

Funding Announcements  
Discovery Grants  
Measuring Methane  
SVM

### ENTERPRISE

Tech-to-Market  
Innosphere @ the Powerhouse  
Factor(E)  
The 4th Floor

### OUTREACH

K-12  
CSU Extension  
Natural Gas Symposium 2015

### MEMBER ORGANIZATIONS

#### CONNECT

For CSU Researchers  
For Students  
For Industry

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