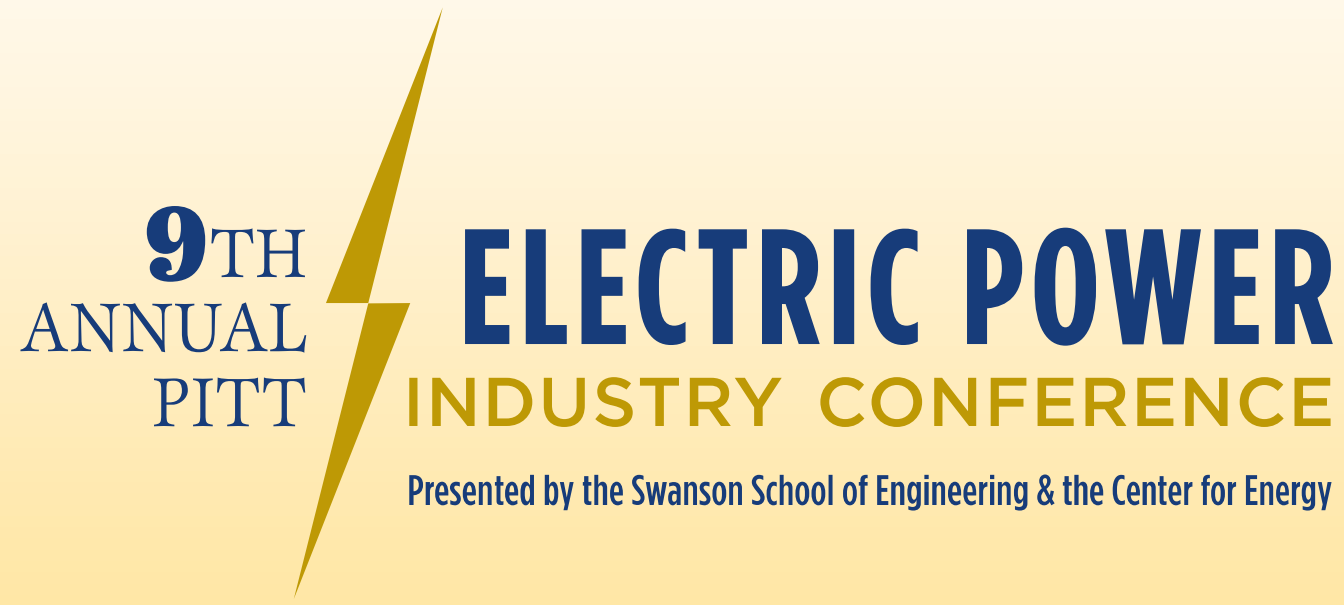


THE 9th ANNUAL | UNIVERSITY OF PITTSBURGH

# Electric Power Industry Conference

November 17 & 18, 2014

# WELCOME !!



Presented by the Swanson School of Engineering & the Center for Energy

**University Club – Pittsburgh, PA**  
**November 17 and 18, 2014**

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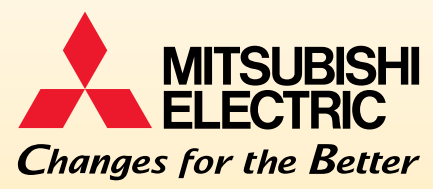


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**ENERGY**



Science & Engineering Ambassadors  
 A Program of the National Academy of Sciences  
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# Conference Committee

## Danielle Ilchuk

- Registration, and Corporate Sponsors
- Overall Conference Planning and Coordination Activities

## Monica Bell

- Conference Coordination and Support

## Paul Kovach

- Marketing, Communications, and PR

## Brandon Grainger

- Technical Programs and Panels, Graduate Student Research Symposium and Poster Sessions

## Wayne Honath

- Corporate Exhibits and GTC Industry Program

## Kenny Doty

- IT and Technical Support

## Leslie Karon-Oswalt

- Program and Artistic Design

## Matt Manzo

- Web Site Development

## Stephanie Aaronson

- Conference Planning and Materials



## Monday Morning Program – November 17

- 10:00 AM            Welcome:  
**Conference Chair – Gregory Reed, PhD**
- 10:05 AM            Conference Keynote Address:  
**Morgan O’ Brien – Peoples Natural Gas Co.  
and Allegheny Conference**
- 11:00 AM            Graduate Student Research Symposium:  
Moderator:  
**Brandon Grainger, Ph.D. – University of Pittsburgh**
- 12:15 PM            Swanson School of Engineering Update:  
**William Stanchina, PhD – University of Pittsburgh**
- 12:30 PM            Lunch



## **Conference Keynote Address**

**Morgan O' Brien**

**President and CEO,  
People Gas**

**Chair, Allegheny Conference  
on Community Development**





# Morgan O'Brien

## Conference Keynote Address





# **Graduate Student Research Symposium**

**Dr. Brandon Grainger**

**Research Assistant Professor,  
ECE Department  
Electric Power Systems Laboratory**





## **Swanson School of Engineering Up-Date**

**Dr. William Stanchina**

**Professor and Chair,  
Electrical & Computer  
Engineering Department**







## **Monday Afternoon Program – November 17**

1:30 PM

### **Technical Session Tracks**

Session 1 – War of the Currents II: DC Architecture and Microgrids  
Ballroom B, 2<sup>nd</sup> Floor

Moderator: **Ty Gourley – Hillman Family Foundations**

Session 2 – Power Electronics: The Future Grid  
Gold Room, 2<sup>nd</sup> Floor

Moderator: **Brandon Grainger, PhD – Univ. of Pittsburgh**

Session 3 – Intelligent Power System Solutions  
Conference Room A, 3<sup>rd</sup> Floor

Moderator: **David Loucks, PE – Eaton**

4:00 PM

### **Research Poster Session**

University Club Library

### **Electric Power Systems Laboratory Tours**

Benedum Hall – 8<sup>th</sup> Floor

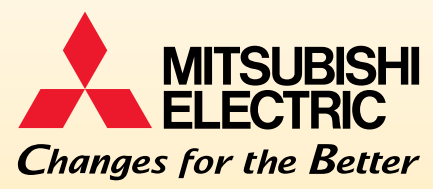


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## **Monday Evening Program – November 17**

6:00 PM

**Evening Session Keynote Address**  
**Ballroom B, 2<sup>nd</sup> Floor**

**Dr. John Swanson**

- Founder, ANSYS Inc.**
- Member, National Academy of Engineering**

7:00 PM

**Student–Industry Networking Reception and Exhibits**  
**Ballroom A, 1<sup>st</sup> Floor**



## Monday Evening Program – November 17

### List of Exhibitors

Allegheny Conference	IEEE Power & Energy Society	Siemens
ANSYS, Inc.	Measurement Instruments	The Land Art Generator Initiative
Curtiss Wright	Mitsubishi	Tollgrade
Dominion	METCON Smart Grid & Efficiency	Typhoon HIL, Inc.
Duquesne Light	National Institute of Standards and Technology	Universal Electric Corporation
Eaton	Nupharo Technological Park	University of Pittsburgh, Center for Energy
Emerson	Opal-RT Technologies	University of Pittsburgh, Distance Learning Programs
Elliott Group	OSIsoft, Inc	University of Pittsburgh, Electrical & Computer Engineering
EnerNex	Peoples Gas	University of Pittsburgh, Office of Technology Management
Electric Power Research Institute	Princeton Power Systems	
First Energy	S&C Electric	Westinghouse
Generac		



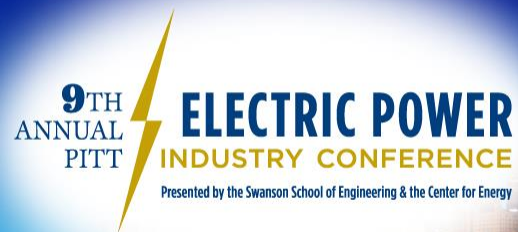
## **Evening Session Keynote:**

**Dr. John Swanson**

**Founder,  
ANSYS, Inc.**

**Member,  
National Academy of Engineering**





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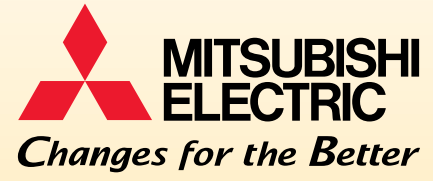


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## **Tuesday Program – November 18**

- 9:00 AM Welcome and Day 1 Conference Re-Cap:  
**Conference Chair – Gregory Reed, PhD**
- 9:10 AM Grid Academy Workshop: A program collaboration of the Allegheny Conference on Community Development and the National Academies of Science & Engineering  
**The Intelligent Grid: Innovating for Efficiency and Reliability**  
**Moderator – Steve Bossart, U.S. Dept. of Energy**
- 12:00 PM Lunch
- 1:00 PM Panel Session on Regional Energy Strategies:  
**Energy Development Strategies: Why Region's Matter**  
**Moderator – Court Gould, Sustainable Pittsburgh**
- 2:30 PM University of Pittsburgh Center for Energy and Power Programs
- 3:00 PM **Post-Conference Happy Hour and Networking !!**





# Grid ACADEMY

© America Revealed



NATIONAL ACADEMY  
OF SCIENCES  
Science & Engineering Ambassadors



NATIONAL ACADEMY  
OF ENGINEERING



Allegheny Conference  
on Community Development

# Wrap-Up



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## 2014 Center for Energy Highlights

### Research Activities

- **America Makes, NSF, RAMP: \$3.7-M – Advanced Manufacturing (A. To, et. al. )**
- **DOE VTO: \$1.25-M – Lithium Sulfur Batteries Development (Kumta)**
- **DOE NEUP: \$1.1-M – Fiber Optic Sensors for Gas Flow Measurements (Chen)**
- **Hillman Foundation : \$800-K – DC Power (Reed, Stanchina / Bidanda, Camillus)**

### Educational Activities

- **Second Year of RK Mellon Graduate Student Research Fellowships – 7 Recipients**
- **Over 4,500 enrollments and approx. 500 certificates awarded in energy educational programs (electric power, nuclear, mining) since 2007**
- **Undergraduate student projects: Eaton, Westinghouse, Curtiss Wright, John Swanson**

### Facilities

- **Center for Energy offices and labs – 8<sup>th</sup> Floor Benedum Hall ( ‘The Energy Floor’ )**
- **Off-campus laboratories for energy related expansion (power, storage, materials, ...)**

### Other Activities

- **Community Programs – Energy Ambassadors, Pitt ScienceOutreach, NEF, GLC, STEM**
- **Second RK Mellon Faculty Fellow in Energy – Alexis Kwasinski, ECE Dept.**



## **2014 Electric Power Program Highlights**

### **Research Program Activities**

- **New and extended research partnerships in 2014:**
  - Henry L. Hillman Foundation, EPRI, Mitsubishi Electric, FirstEnergy
- **Continuing/on-going funded research programs:**
  - ABB, Eaton, BFTDA, Pitt-Ohio Express, Siemens, U.S. DOE (OE, EERE, NETL)

### **Educational Program Developments**

- **Electric Power Engineering Graduate/Post-Bacc Certificate Program**
- **Introduction of Laboratory Components to Undergraduate Curriculum**
- **New Graduate Program Courses**
- **IEEE PES Electric Power Scholarship Plus Award Recipients – 5 Pitt U/G Students**

### **Laboratory Facilities**

- **Electric Power Systems Lab (Eaton-sponsored) – dedicated January 2014**
- **Electric Power Technologies / Micro-Energy Lab – proposed off-campus facility**

### **Outreach Activities**

- **National Academies of Science & Engineering – Energy Ambassador Program**
- **K-12 STEM course development on “Introduction to Energy & Electricity”**
- **Pitt Science Outreach – Sciencepalooza 2014; Science Rocks Program**



## The Pitt Electric Power Systems Lab (Eaton-sponsored facility)

- Micro-Grid / Smart Grid environment; AC/DC hybrid systems;
- Custom-designed Workbenches; Power Electronics technologies;
- Other features – advanced control, communications, relaying, M-G sets, UPS, datacenter, harmonics, loads, surge/sag equip., etc.



### Lab Capacity:

**480-V, 200-A, 30 kW  
with PV Solar and Gas-Fired  
Generation Integrated  
(u-Wind in the future)**

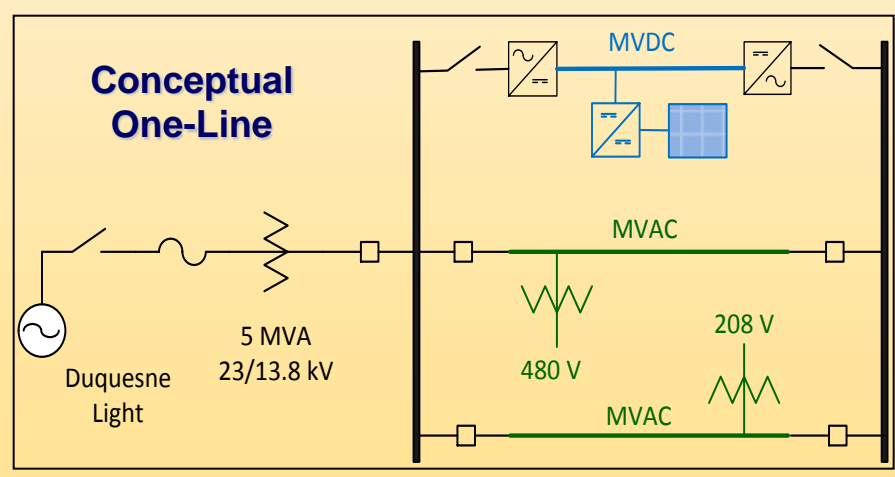
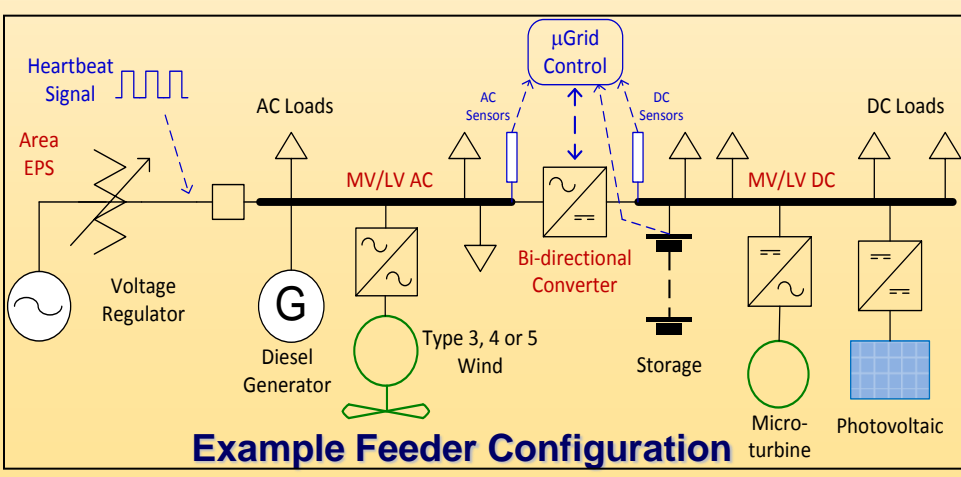
**8<sup>th</sup> Floor, Benedum Hall**

**Tours available this afternoon  
upon request**



## Proposed Electric Power Technologies and Micro-Energy Lab

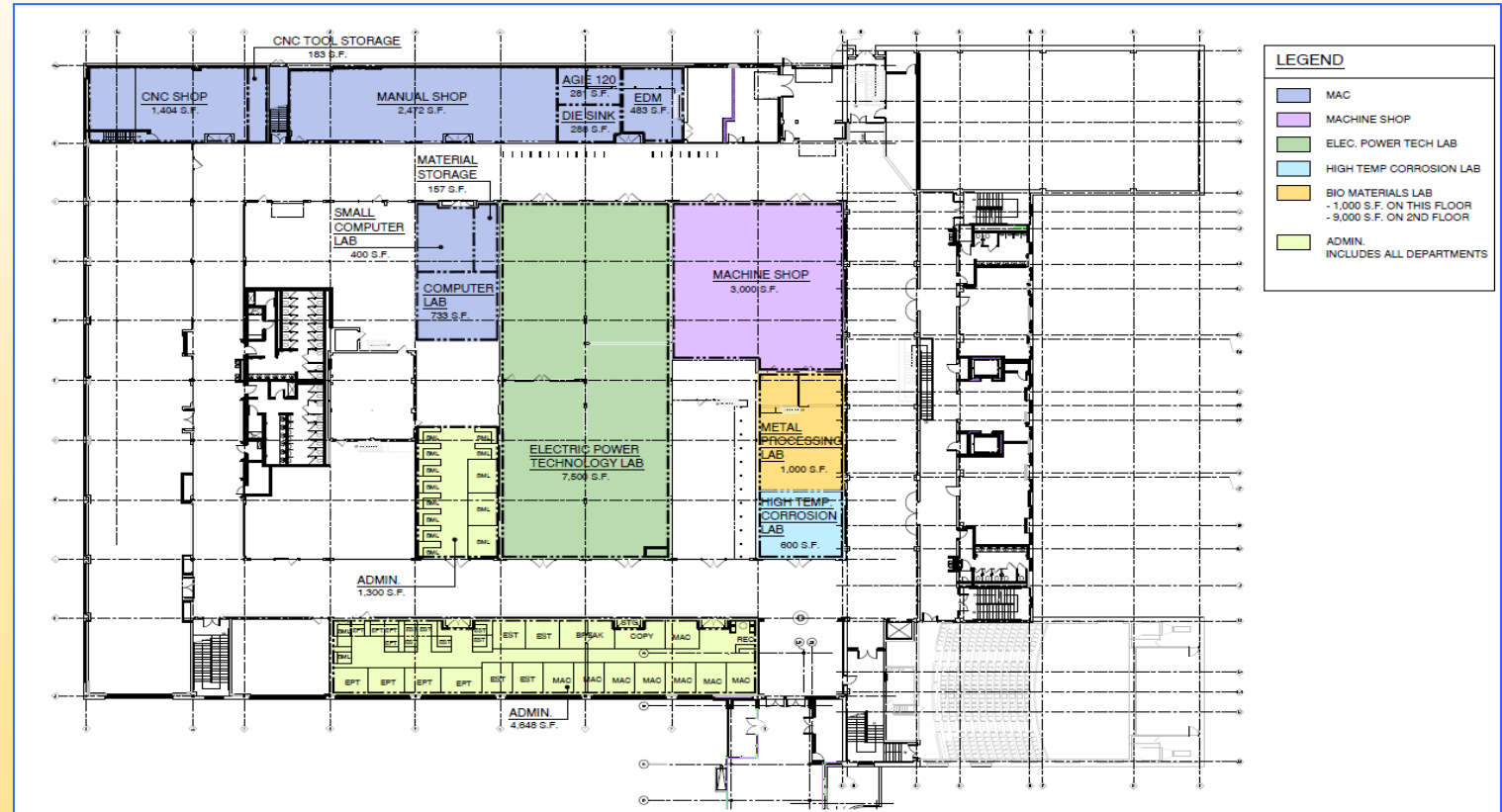
- Off-Campus Facility; Micro-Energy/Micro-Grid Environment
- Utility Distribution Capacity (15-kVac, 5 MVA / 1-kVdc, 1 MVA)
- University/Government R&D -and- Independent Industry Activities
- AC and DC networks, RTDS, SCADA, DG, Relaying, Automation, Control, Power Electronics, Modeling and Simulation, Prototyping and Testing





# Proposed Electric Power Technologies and Micro-Energy Lab

## • Energy Innovation Center – Pittsburgh Gateways





# Electric Power Engineering Program Partners

