

# ENERGYTECH16

[www.energytech2016.com](http://www.energytech2016.com)

## SECURING OUR ENERGY FUTURE

Cleveland State University  
Wolstein Center Center  
November 28-30, 2016

## Key Sponsors



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**CITY OF CLEVELAND**

Mayor Frank G. Jackson



Greetings Energy Tech Conference Attendees!

On behalf of the citizens of our great city, welcome to Cleveland – a vibrant, 24hour city, with a hometown feeling. Our city prides itself on the outstanding services we provide to every neighborhood and all of the amenities we offer our residents and visitors alike.

From the famous Playhouse Square Theater District to the energy of our professional sports teams and the JACK Casino, Cleveland is full of exciting things to do. Tour the world's only Rock and Roll Hall of Fame and Museum or eat at one of our many award-winning restaurants downtown or in neighborhood hotspots like Tremont and Little Italy. While you are visiting any of our historic and culturally diverse neighborhoods, check out the West Side Market in Ohio City, Severance Hall in University Circle or any one of our world-renowned museums.

Cleveland is also home to the Huntington Cleveland Convention Center, the Global Center for Health Innovation, four world-class healthcare institutions, 80+ biomedical companies, leading manufacturers and professional services firms, four higher-education institutions and so much more.

We are a city connected to our greatest natural asset – Lake Erie – and its many recreational offerings. And with countless trails, parks and public spaces, you are certain to find something to love.

Once again, welcome! Enjoy all that we have to offer and share in the experiences that are uniquely Cleveland.

Sincerely,

Frank G. Jackson, Mayor

# Letter from the Chair



Welcome to Cleveland, and EnergyTech 2016, our annual conference addressing the broad challenge of "Securing our Energy Future". Now in its sixth year, with the help of our sponsors and collaborating entities, our conference series continues to gain momentum and recognition as the premier national conference examining the full spectrum of energy systems and critical infrastructure topics. The continuing dynamics and uncertainties of our modern

times, whether from the recent election aftershocks, or the relentless assaults from cyber-warfare and other threats, are important aspects of these topics.

The Energy sector is prominent among those areas that will surely be affected with ongoing uncertainty. What is the likely direction of national and global energy policy? What are the shifting priorities between fossil fuels vs alternative sources? What about risks from Cyber assaults? How will we protect our electrical grid, and the vast network of critical infrastructure? What about climate impacts? What role will technology play in helping to solve the conflicting challenges? And how will our leaders (present and future) deal rationally with the complex decisions confronting us?

These are some of the ponderous issues and questions that are in focus at EnergyTech, contributors will discuss these issues and seek rational methods and pathways for resolving problems and reducing risk in our complex infrastructures. The application of rigorous methods in Systems Engineering, coupled with the most advanced tools and methods, will inevitably be at the core of the solution roadmap.

On behalf of the EnergyTech planning committee, its sponsors and collaborators, and our conference co-chairs, my colleagues Ray Beach of NASA and Dr. Charles Alexander of CSU, we thank you for your participation and look forward to our long-term partnership.

Sincerely,

A handwritten signature in black ink, appearing to read "John Juhasz". The signature is fluid and cursive, with a long, sweeping underline that extends to the right.

John Juhasz

[illegible]

Visitors to Campus may pay for parking by the hour in Lot 22 (Student Center), South Garage (SG) and Prospect Garage (PG). Short-term metered parking is available on city streets. E. 24th Street and Lot 66. Meters accept U.S. quarters only.

Faculty, Staff and Students may purchase a prepaid parking hangtag via CampusNet for the campus core (Green) or perimeter parking (White). Daily parking is allowed with prepaid Green or White scratch-off permits purchased via CampusNet. Overnight parking is not included.

State of Ohio Disabled Parking Permit, either temporary or long term, is required for parking in areas designated for persons with disabilities. CSII has more than 160 spaces. Permits can be obtained from the Ohio BMV <http://bmvo.ohio.gov/>

Parking is offered based upon availability. Parking Fees and Policies are applicable at all times. The Parking Office is located in Euclid Commons. Parking lot use parameters are subject to change. Check [www.csuohio.edu/parking](http://www.csuohio.edu/parking) for updates.

Let 10	Donald White bought 8 White seeds off mail	Let 00	Walter Boshon bought 2000 seeds
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Lot 11	Prepaid White hangtag & White scratch-off permit	Lot R6	Visitors Parking (orders only) ** ⚡
Lot 19	Prepaid White hangtag & White scratch-off permit	Lot U6	Prepaid Green hangtag & Green scratch-off permit ⚡
Lot 20	Prepaid Green hangtag & Green scratch-off permit	Lot W6	Prepaid Green hangtag & Green scratch-off permit ⚡
Lot 21	Disabled parking ⚡		
Lot 22 (SG)	Visitors via PlayStation** ⚡		
Lot 40	Metered & Disabled parking ⚡		
Lot 50	Prepaid White hangtag & White scratch-off permit		
Lot 51	Prepaid White hangtag & White scratch-off permit		
Lot 54	Prepaid White hangtag & White scratch-off permit		
Lot 57	Prepaid White hangtag & White scratch-off permit		
Lot 61	Prepaid Green hangtag & Green scratch-off permit ⚡		
Lot 62	Prepaid Green hangtag & Green scratch-off permit		
Lot 80	Prepaid White hangtag & White scratch-off permit		
Lot 90	Prepaid Green hangtag & Green scratch-off permit		
Lot CG	3100 Chester Ave. – not shown on map ⚡		
Lot DG	Prepaid Green hangtag & Green scratch-off permit** ⚡		
Lot EG	Prepaid Green hangtag & Green scratch-off permit** ⚡		
Lot MG	Prepaid Green hangtag & Green scratch-off permit** ⚡		
Lot PG	PG hangtag, Visitors Parking (hourly rate) ⚡		
Lot SG	White & Green hangtags, Visitors Parking (hourly rate) ⚡		

**Parking Key:**  
 ⚡ Disabled parking spaces available  
 \* Garage parking  
 \*\* Under the building parking

**Alternatives to CSU Parking:**  
 1) Choose RFA, or use metered parking (managed by the City of Cleveland), 3) choose a neighborhood parking lot operated by a private parking company  
 4) borrow a Zipcar on campus 24/7!

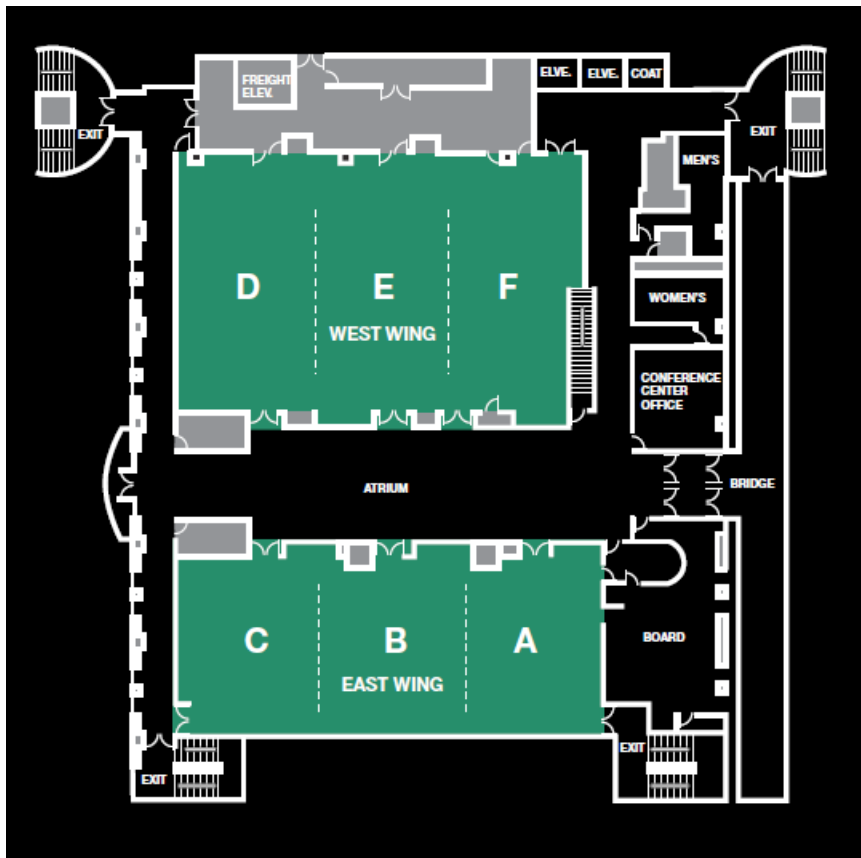
**WikingLoop Bus Service:**  
 Every 10 minutes, 7am–11 pm, M–F, Fall and Spring semesters. FREE - Show your CSU ID.

**Parking Key:**  
 Disabled parking spaces available  
 \* Garage parking  
 \*\* Under the building parking

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Every 10 minutes, 7 am-11 pm, M-F, Fall and Spring  
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# Room Map



- **Key Notes - WEST WING**
- **Exhibitors + Academic Posters - Room A**
- **Track 1 - ROOM D**
- **Track 2 - ROOM C**
- **Track 3 - ROOM E**
- **Track 4 - ROOM B**
- **Track 5 - ROOM F**

**NOTE: Academic Papers are presented on 5th Floor Loge**

# Monday Keynote - Blackout Wars



**Dr. Peter Vincent Pry is Chief of Staff of the Congressional Electromagnetic Pulse (EMP) Commission, and Executive Director of the Task Force on National and Homeland Security, a Congressional Advisory Board dedicated to achieving protection of the**

**United States from electromagnetic pulse (EMP), Cyber Warfare, mass destruction terrorism and other threats to civilian critical infrastructure. Dr. Pry also is Director of the United States Nuclear Strategy Forum, an advisory board to Congress on policies to counter Weapons of Mass Destruction. Dr. Pry's keynote is "Blackout Wars" about the unprecedented threat to our electronic civilization due to dependence on the electric power grid.**



## **Tuesday Keynote - Fixing Systems Engineering For Energy**



**Dr. Michael Griffin is CEO of Schafer Corporation and is a senior technology contributor and leader with extensive experience serving the national interest in government, industry, and academia. He served as the 11th Administrator of the Nation-**

**al Aeronautics and Space Administration (NASA), from April 2005 to January 2009. Dr. Griffin's keynote will focus upon the application of these ideas to the particular field of energy systems, the costs, benefits, and risks inherent to various technologies and approaches, and how energy and aerospace systems design might complement one another.**

# ***Schafer***



# Tuesday Night Banquet



“Tech Czar” Mike DeAloia will host a lively discussion for the EnergyTech banquet. Mike thrives on accomplishment and making immediate and profitable change happen. He has more than twenty-years of experience partnering with organizations to develop business and economic growth initiatives.

**Tuesday, November 29th at 6:00 pm**  
**CSU STUDENT CENTER Glasscock**  
**Ballroom**  
**2121 Euclid Avenue, 3rd Floor**

6:00 Reception

6:30 Welcome

6:40 Dinner

7:30 Special Guest Introductions

7:40 Tech Czar Presentation

8:30 Close

**Banquet tickets are available to conference participants for \$50 and \$75 for non-conference participants. Please**

**RSVP by purchasing at [www.energytech2016.com](http://www.energytech2016.com) or email to [energytechcle@gmail.com](mailto:energytechcle@gmail.com)**

Checks payable to Telepath Systems, Inc.

# Company Recognition

Our special thanks to employers helping make EnergyTech successful!

4 Star	NASA
ABB Inc.	Northrop Grumman Mission Systems
Aerospace Corporation	Office of Naval Research
Air Force Research Laboratory	Ohio Aerospace Institute
APLICACIONES EN INFORMÁTICA AVANZADA, S.L.	Ohio Homeland Security
Battelle	Ohio University
Baycor	OMICRON
BCT LLC	Paradigm Shift International
Bechtel	PC Krause and Associates, Inc.
Case Western Reserve University	Prime Solutions Group, Inc.
CEBE Knowledge Management	PTC
CERT - Software Engineering Institute	Qualitrol
City of Cleveland	Reasonable.Tech Services
Cleveland Division of Water	ReliabilityFirst
Cleveland State University	RoviSys
Cornell University	Safran
Critical Path Solutions, Inc.	Schneider Electric
Cummins Inc	Shell
Federal Bureau of Investigation	SPEC Innovations
FirstEnergy Corporation	Strategy Integration, LLC
Foundation for Resilient Societies	The University of Akron
Gridquant Technologies Inc.	University of Michigan
ICTT System Sciences	University of Texas Center for Electromechanics
Indianapolis Power and Light	US Department of Homeland Security
InterCAX LLC	Vantage Partners
KDM Analytics	VPL
Leidy Engineering Sales, Inc.	Worcester Polytechnic Institute
Massachusetts Institute of Technology	Wright Patterson Air Force Base
ML Heil Consulting LLC	



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The NASA Glenn Research Center in Cleveland, Ohio, is the driving force in air and space propulsion, communications and power systems. In almost every aircraft or spacecraft you will find that Glenn technology is inside. Their work expands the reach of human and robotic explorers and inspires the next generation. More than 3,400 people form a highly skilled, diverse workforce of scientists, engineers, technicians and administrative and support personnel. They have a decades-long tradition of excellence in aeronautics and spaceflight, making significant contributions to the research, design, development and testing of technology. They partner with local and national businesses, colleges and universities.

Glenn is an integral contributor to the economy of the region and is active in the community. Located near Cleveland Hopkins International Airport, Glenn's main campus, Lewis Field, is situated on 350 acres of land and con-

tains more than 150 buildings. The world-class facilities at Lewis Field include wind tunnels, drop towers, vacuum chambers and an aircraft hangar. Glenn's Plum Brook Station is located in Sandusky, Ohio, on 6,400 acres of land. Plum Brook Station has large, unique facilities that simulate the environment of space. NASA Glenn's decades of experience are complemented by an enthusiasm for new challenges.

The expertise of the workforce is matched by its passion and commitment. Whether pioneering the next generation of aerospace technology or educating the next generation of aerospace pioneers, NASA Glenn dreams big.



Day/Time	Activity/Sessions			
		Track 1 Model-based Engineering of Complex Systems	Track 2 Power System: Smart Grid/Autonomous/ Intelligent Control	Track 3 Ma Resiliency Critical Infr
		Monday November 28		
8:00 AM		Keynote Speaker: Dr. Peter Vincent Pry		
9:00 AM	A	Introduction to MBSE	SmartGrid of the Future	Threats to Sector: A N
10:50 AM	B	Adoption of MBSE in an Organization	Autonomous/Intelligent Space Power Systems 1	Industrial C and SCADA Heel of Ene Infrastruct
12:20 PM		Lunch (served in Atrium)		
1:30 PM	C	Innovative Techniques in MBSE for Energy	Advanced Aircraft Power Systems 1	Coping with Out" scena
3:10 PM	D	Track 1 Workshop - Facilitated Discussion	Track 2 Workshop - Facilitated Discussion	Track 3 Wo Facilitated
		Tuesday November 29		
8:00 AM		Keynote Speaker: Michael Griffin		
9:00 AM	E	MBSE Use in Critical Infrastructure	Smart Grid of the Future Part 2	Repairing A Advanced t Reduce Vu
10:50 AM	F	MBSE: Advancements and Evolution	Autonomous/Intelligent Space Power Systems 2	"Whole of Involvement County and Governanc
12:20 PM		Lunch (served in Atrium)		
1:30 PM	G	Bridging the Digital Divide	Advanced Aircraft Power systems 2	The Nation Framework
3:20 PM	H	What's Missing in MBSE?	Workshop Outbrief	Workshop
		Wednesday November 30		
8:30 AM		Joint Workshop Session (Tracks 1, 3, & 5)		
11:30 AM		Lunch (served in Atrium)		
12:30 PM			HELM Tutorial	Lights Out - Status rep
1:00 PM		Special Event: Table-top Planning Exercise based on "Lights-out" scen		

Managing Risk & For Energy and Infrastructure	Track 4 Advanced Technology in Power & Energy	Track 5 Energy, Environment & Policy
the Energy Transition at Risk	State of Technologies for Improving Energy & Power Density	Cleveland: A national sample for the intersection of federal, state and local climate and energy policy?
Control Systems: The Achilles Heel and Critical Infrastructure	Managing Grid Power Quality/Stability with Renewables	Energy and the Built Environment
on the "Lights-Out" Scenario	Advances in Power Electronics	Smart, Energy Efficient Transportation Systems
Workshop - Discussion	Track 4 Workshop - Facilitated Discussion	Track 5 Workshop - Facilitated Discussion
achilles' Heel -- Methods to Increase Resilibility	Utility Asset Management	Energy-Water-Gas Nexus: Interconnections
Community" -- The role of Local Government	Megawatt Scale Generation Solutions	Applied System Engineering for Energy and Critical Infrastructure
al Response Strategies	Energy Storage Solutions	Academic Papers Presentation
Outbrief	Workshop Outbrief	Millennials Focused Panel Discussion
Joint Workshop Session (Tracks 2 & 4)		
on the Ukraine - Report & Findings		
Scenario		

# Distinguished Presenters and Collaborators

Ajay Misra	Eric Woychik	Linda Rae	Robert Stuart
Alex Snyder	Fang Luo	Linda Taylor	Rodger Dyson
Allen Morinec	Francis Davies	Lorry Wagner	Scott Coombe
Anand Natarajan	Gavin Jurecko	Mahan Mansouri	Shannon Strank
Andrew Mayher	George Baker	Marija Ilic	Shawn Hanegan
Andrew Stefanik	HongXing Ye	Mark Walker	Siri Varadan
Anne McNelis	Ian Hiskens	Matt Hause	Steve Pappas
Benjamin Schiltgen	Jack Pressman	Matthew Gray	Steven Dam
Bob Hodanbosi	Jeff Csank	Matthew Sease	Steven Iden
Brian Fast	Jeff Lang	Maxwell Reisinger	Teejay Momoh
Brian Hallett	Jeff Rolff	Michael Ahern	Tim Graham
Casey Shull	Jeremy Frank	Michael Heil	Tom Miller
CG Cantemir	Jeremy Mio	Michael Sutton	Vadim Lvovich
Charles Alexander	Jim Soeder	Mike Benz	Valerie Ney
Chelsey Tiellard	Jin Wang	Mike Pafford	Walter Topp
Cheryl Bowman	Joe Marvin	Mingguo Hong	Will Knapke
Claude Baudoin	Joe Walogorski	Myron Hecht	William Harris
Craig Gordon	John Hoag	Neil Garrigan	Xianyong Feng
Dave Sadey	John Juhasz	Pat Loyselle	
Dave Smrdel	John Tylko	Patrick O'Connor	
Dennis Rohn	Jose Luis	Phil Scolieri	
Di Zhang	Josh Sparber	Ralph Jansen	
Dirk Zwemer	Ken Loparo	Ray Beach	
Djenana Campara	Kevin Yost	Rebecca Petrilli	
Edward Greitzer	Kiruba Haran	Rick Dove	
Eric Kline	Laura Bruckman	Rick Nicklas	
Eric Walters	Lelia Marinescu	Rick Sykora	

# TRACK 1 - Model Based Engineering of Complex Systems

MON	Title		Speaker
Session A: 9 AM	Introduction to Model-Based Systems Engineering (MBSE)		Matthew Hause, Mark Walker, Mike Pafford
Session B: 10:50 AM	Adoption of MBSE in an Organization		Teejay Momoh, Mike Pafford, Tim Graham
LUNCH 12:20 - 1:30 (served in Atrium)			
Session C: 1:30 PM	Innovative Techniques in MBSE for Energy		Steve Dam, Matt Sease, Myron Hecht
Session D: 3:10 PM	Workshop / Facilitated discussion & knowledge capture		William Schindel
TUE	Title		Speaker
Session E: 9 AM	MBSE Use in Critical Infrastructure		Josh Sparber, Claude Baudoin, Djenana Campara
Session F: 10:50	MBSE: Advancements and Evolution		Casey Shull, Rick Dove, Joe Marvin
LUNCH 12:20 - 1:30 (served in Atrium)			
Session G: 1:30 PM	Bridging the Digital Divide		Matthew Hause, Shawn Hanegan, Dirk Zwemer
Session H: 3:20 PM	What's Missing in MBSE?		Matthew Hause

# TRACK 2 - Power Systems: Smart Grid, Intelligent Control

MON	Title	Speakers
Session A: 9 AM	SmartGrid of the Future	Dr Ken Loparo, Dr Jose Luis, Dr Jin Wang
Session B: 10:50 AM	Autonomous/Intelligent space power systems 1	Ms Anne McNelis, Mr Francis Davies, Mahan Mansouri/ Bob Stuart
LUNCH 12:20 - 1:30 (served in Atrium)		
Session C: 1:30 PM	Advanced aircraft power systems 1	Mr David Sadey, Dr Roger Dyson, Dr Sanja Cvijic
Session D: 3:10 PM	Workshop	Neil Garrigan (GE), Dave Smrdel (Rovisys)l, Dr Gerry Brown (GRC), Dr Feng Lou (OSU)
TUE	Title	Speakers
Session E: 9 AM..	Smart Grid of the future part 2 (+recap of Day 1)	Dr. Jeff Lang , Mark Carbone
Session F: 10:50	Autonomous/Intelligent space power systems 2	Dr Eric Walters, Mr Jeremy Frank, Mr Francis Davies
LUNCH 12:20 - 1:30 (served in Atrium)		
Session G: 1:30 PM	Advanced aircraft power systems 2	Mr Eric Kline, Mr Kevin Yost, Dr Jin Wang
Session H: 3:20	Workshop	Mr Jeff Rolf



# TRACK 3 - Critical Infrastructure Risk & Resiliency

MON	Title		Speakers
Session A: 9 AM	Threats to the Energy Sector: A Nation at Risk	Dr. George Baker, Mike Ahern, Steve Pappas	
Session B: 10:50 AM	Industrial Control Systems and SCADA	Valerie Ney, Claude Badouin, Rick Sykora	
LUNCH 12:20 - 1:30 (served in Atrium)			
Session C: 1:30 PM	Coping with the "Lights-Out" scenario	Bill Harris, Jack Pressman, Dominic Vitale	
Session D: 3:20 PM	Workshop		
TUE	Title		Speakers
Session E: 9 AM	Advanced methods to reduce vulnerability	Rick Dove, Matthew Hause, Myron Hecht, Djenan Campara	
Session F: 10:50 AM	"Whole of Community" Involvement The role of County and Local Governance	Walter Topp, Andrew Stefanik, Peggy Littleton	
LUNCH 12:20 - 1:30 (served in Atrium)			
Session G: 1:30 PM	The National Response Frameworks	Steve Pappas, Michael Sutton, Gavin Jurecko, Phil Scolieri	
Session H: 3:20PM	Workshop		

# TRACK 4 - Advanced Technology in Power & Energy

MON	Title	Speaker
Session A: 9 AM	State of Technologies for improving Energy & Power Density	Scott Coombe, Steve Iden, Cheryl Bowman, Hernel Guerrero
Session B: 10:50 AM	Managing Grid Power Quality/ Stability with Renewables	Dr. Hongxing Ye, Dr. Mingguo Hong, Dr. Xian-yong Feng
LUNCH 12:20 - 1:30 (served in Atrium)		
Session C: 1:30 PM	Advances in Power Electronics	Rick Nicklas, Di Zhang, Dr. Kiruba Haran
Session D: 3:10 PM	Workshop	
TUE	Title	Speaker
Session E: 9 AM	Utility Asset Management	William Knappek, Linda Rae, Donald Morrison, Siri Varadan
Session F: 10:50	Megawatt Scale Generation Solutions	Joe Beno, Dr. CG Cantemir
LUNCH 12:20 - 1:30 (served in Atrium)		
Session G: 1:30 PM	Energy Storage Solutions	Pat Loyselle, Tom Miller, Dr. Vadim Lvovich
Session H: 3:20 PM	Workshop outbrief	Joe Beno / Ray Beach

# TRACK 5 - Energy, Environment & Policy

MON	Title	Speaker
Session A: 9 AM	Cleveland: A national sample for the intersection of federal, state and local climate and energy policy?	Dr. Eric Woychik, Mathew Gray, Bob Hodanbosi
Session B: 10:50 AM	Energy and the Built Environment	Cynthia Cicigoi, Marc Divis, Joe Paterniti
LUNCH 12:20 - 1:30 (served in Atrium)		
Session C: 1:30 PM	Smart Connected Cities - The emerging role of Microgrids	Lorry Wagner, Ryan May, Dr. Xianyong Feng
Session D: 3:10 PM	Panel discussion involving representatives from Industry, Academia, Government	Dr. Eric Woychik
TUE	Title	Speaker
Session E: 9 AM	Energy-Water-Gas Nexus: Interconnections	Brian Hallett, Andrew Stefanik, Lelia Marinescu
Session F: 10:50..	Applied System Engineering for Energy and Critical Infrastructure	Mark Walker, Mike Delamare, Stephen Dam
LUNCH 12:20 - 1:30 (served in Atrium)		
Session G: 1:30 PM	Academic Papers Presentation	Dr. Charles Alexander
Session H: 3:20 PM	Millennials focused panel discussion	Brian Fast, PhD

# Academic Papers & Posters

## Monday Morning

- ◇ Paper Presentations (5th floor)

## Monday Afternoon

- ◇ Poster Presentations (Floor 4 - Room A)

## Tuesday Morning

- ◇ Paper Presentations (5th floor)

## Tuesday Afternoon

- ◇ Poster Presentations (Floor 4 - Room A)

NOTE: See details in Conference At-A-Glance



## **Wednesday Conference Workshops**

### **Morning Workshop (8:30-11:30)**

- Tracks 1, 3 and 5 Joint Workshop
- Tracks 2 and 4 Joint Workshop

### **Afternoon Workshop**

- Holomorphic Embedding Load-flow Method (HELM) Tutorial presented by Dr. Antonio Trias

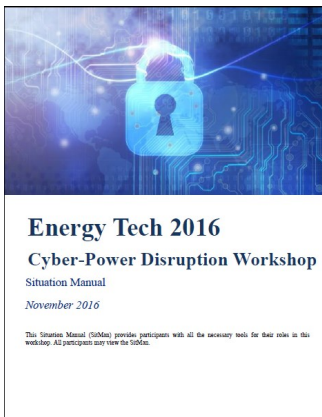


# Cyber-Power Disruption Workshop

This special workshop will bring together representatives from local, county, state and federal governments along with non-government organizations to improve understanding between all parties.

The workshop is based on the HSEEP (Homeland Security Exercise & Evaluation Program).

Time	Activity
12:00	Welcome & Opening Remarks
12:15 -12:45 PM	Lights Out in the Ukraine – Andrew Mayher, FBI
12:50 PM	Energy Tech scenario based workshop briefing and SITMAN overview
1:00 PM	Module One – Incident Onset & Questions
1:10 – 1:45 PM	Break out group discussion and report out
2:00 PM	Module Two - Response
2:10 – 2:50 PM	Break out group discussion and report out
3:10 PM	Module Three - Recovery
3:15 – 3:45 PM	Break out group discussion and report out
3:50 PM	Hot Wash and Closing Remarks



# See You Next Year...

# energytech

*lighting the way to a brighter future*

Where: Cleveland

Planned Time: October

Hosted by: Telepath Systems Inc.



IEEE is the world's largest organization of technical professionals with more than 420,000 members across 160 countries. The IEEE student chapter at Cleveland State University follows in the larger professional society's footsteps by being the largest student organization on campus with over 200 members. They host a variety of events on campus throughout the year including – but not limited to – the VEX Robotics Competition in the spring, various Student Professional Awareness Experience (SPAx) presentations and workshops, and the IEEEExtreme 24-hour coding competition in the fall. In addition to hosting events, student members here at Cleveland State also compete in the IEEE Region 2 Student Activities Conference (SAC) every spring and recently hosted the conference in 2016.



# A WORLD IN **MOTION**

**Systems Engineering Vision • 2025**



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