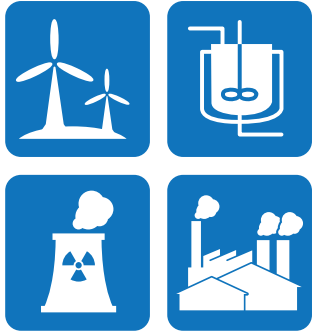


POST SHOW REPORT

2ND ANNUAL



CONNECTED PLANT CONFERENCE

Harnessing Digital Tools to Drive Success



2018 Conference Highlights:

- 269 attendees from 9 countries
 - 50% of attendees were either electricity providers or CPI owners/operators
- 40 industry speakers
- 14 conference sessions
- Plant Tour of Siemens Charlotte Energy Hub
- Duke Energy's Monitoring & Diagnostic Virtual Demonstration



Hosted by *POWER* and *Chemical Engineering*, the 2nd annual Connected Plant Conference was held Feb. 26-28 at the Marriott Charlotte Hotel in Charlotte, North Carolina. The conference provided attendees with the latest digital monitoring, diagnostic, analytics, Industrial Internet of Things, and decision-support technology for the power generation and chemical process industries (CPI).

Hosted by: **POWER**
BUSINESS & TECHNOLOGY FOR THE GLOBAL GENERATION INDUSTRY SINCE 1892

**CHEMICAL
ENGINEERING**
ESSENTIALS FOR THE CPI PROFESSIONAL

Host Utility: **DUKE
ENERGY**

Diamond Sponsor: **SIEMENS**
Ingenuity for life

*All onsite pictures courtesy of TO2 Photography

connectedplantconference.com

2018 ADVISORY COMMITTEE

- **Dr. Billy Bardin**
Global Operations Technology Director
The Dow Chemical Company
- **Kelly Borgen**
Performance Engineer
Westar
- **Jeff Brehm**
Marketing & Communications Manager
EPRI
- **Matt Burd**
Chief Industrial IOT Solutions Architect
Honeywell
- **Clinton Carter**
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ABB
- **Dr. Stephen Zitney**
Process Systems Engineering Research, Research & Innovation Center
DOE's National Energy Technology Lab

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SITE TOUR

SIEMENS CHARLOTTE ENERGY HUB PLANT TOUR

Attendees viewed products coming to life on Feb. 26 at the Siemens Charlotte Energy Hub, the company's worldwide manufacturing and service location for 60-Hz power generation equipment.

CONFERENCE SESSION HIGHLIGHTS

The conference program featured presentations on some of the latest digital tools being utilized in both the power generation and chemical processing industries. Case studies were presented by several end-users explaining how technology has been implemented by their companies, the challenges they faced, and how problems were overcome. They detailed the benefits realized through technological initiatives and offered tips for others interested in going down a similar path.

GENERAL SESSIONS

Welcome Keynote: Leveraging Layers of Analytics to Deliver Transformative Business Value

- Most attended General Session



"Operational data—time-series data—is not clean. There's massive amounts of it; terabytes generated every day. You've got anomalies. You've got data quality issues. You've got missing sensors. You've got different scan frequencies. [There are] a whole host of anomalies that are very difficult to solve in a traditional data lake environment."

Craig R. Harclerode, Business Development Executive – Global Oil and Gas, OSIsoft, Inc.

Emerging Connected Plant Technologies

- 100% of attendees said this session was Excellent or Good



Kay Harlow of Southern Company shared insights on how drones have been used for coal ash pond surveys. Lots of "ups and downs" along the way.



Selling the Case for Digital Improvements

- 89% of attendees said this session was Excellent or Good



David Gustafson of Emerson Automation Solutions discussed a handful of example applications that drove a measurable increase in operational performance and profitability and looked back at the business case justification.

Enhancing Efficiency with Mobile Apps & Training In Real-world Experiences

- 100% of attendees said this session was Excellent or Good



Randall Jones, P.E., CMRP of Southern Company discussed how to leverage mobile and data integration.

Keynote Address – IIoT Efforts and Deployment

- 100% of attendees said this session was Excellent or Good



Jeffrey Wehner of Duke Energy provided case studies to explain the importance of investing in digitalization to reduce costs and minimize impact of fleet failure rate.

Duke Energy's Monitoring & Diagnostic Virtual Demonstration

- 100% of attendees said this session was Excellent or Good

This session virtually demonstrated how Duke Energy is adding distributed and virtual M&D capabilities to accelerate their industry-leading initiative to increase asset availability, reduce cost, and address workforce challenges.

POWER GENERATION TRACK

The **POWER GENERATION TRACK** focused exclusively on technology for the power generation sector. Conference sessions addressed all stages of digital adoption from project justification to implementation to integration with legacy systems.

Taking Wireless Connectivity to the Edge

- 88% of attendees said this session was Excellent or Good
- Most attended POWER GENERATION session



Chris Hill of Duke Energy shared a Case Study of a safety project for coal handling facilities at four power stations. Duke Energy created wireless networks at four of their coal yards so that they could connect to the business network and access cameras that were strategically placed around the coal yard.

Cybersecurity - Emerging Threats & Strategies to Address Them

- 100% of attendees said this session was Excellent or Good



David Badanes of AES Global Engineering & Construction discussed the vulnerability to cyber threats, which, though worrisome, can be effectively managed.

How Operators Use Data Analytics to Drive Plant Improvements

- 100% of attendees said this session was Excellent or Good



"No longer trying to guess and react to the schedules, we are predicting and projecting the set point. We were able to reduce 50 MWH per day in penalty."

Jon Towslee, Director, Marketing & Business Development, ABB

Building the Business Justification for Connected Plant

- 86% of attendees said this session was Excellent or Good

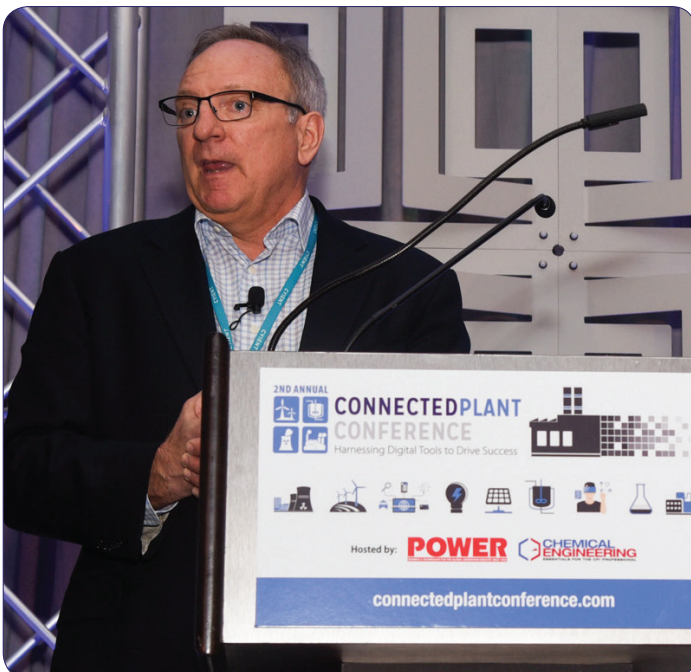


Crystal Bettinger, predictive maintenance supervisor for Westar Energy explained how reliability programs can be enhanced with smart data analytics.



"There were a lot of great technology discussions featuring case studies. We're able to take this information back to the plant and apply it into our daily lives. This was a great event. I'll definitely be coming back."

Julie Holstad, Engineering Manager - Data Acquisition and OT Cyber Security, Southern Company



CHEMICAL PROCESS INDUSTRIES TRACK

New for 2018, the **CHEMICAL PROCESS INDUSTRIES TRACK** was added to the conference program specifically for the chemical process industries (CPI). Advances in data analyses, simulation, modeling, smart sensors, virtual reality, mobile applications, computer networks, and predictive instrumentation are empowering companies in the CPI to make great strides both technologically and in their business models.

Safeguarding Critical Assets in an Era of Cyber Threats

- 100% of attendees said this session was Excellent or Good



Seth McDow of The Dow Chemical Company explained the importance of a talented young workforce. As each new generation is raised on the latest and greatest in technology, the subsequent younger work force will have drastic viewpoints on decision making, technological direction, and culture.

Simulation and Modeling for the CPI

- 100% of attendees said this session was Good



Yuris Fuentes of DuPont discussed how simulation can be used to test and assess planned control system changes or expansions, resulting in increased safety when the modifications are made to the live plant.



"I was really impressed with the conference. It was helpful to hear how everyone is pushing technology at their plant. Learning from their examples and how they overcame barriers and issues is something I can take back to my plant immediately."

Matt Peters, Manufacturing Engineer, 3M



Harnessing the Power of Data Analytics

- 100% of attendees said this session was Excellent or Good
- Most attended CPI session



Diving into big data analytics was the topic addressed by Yves Gorat Stommel, with Evonik Corp. Stommel presented the approach his company took, which involved starting with a predictive maintenance application. This, he explained, is seen as a learning process and entry point into advanced analytics, which can lead to bigger goals like process optimization.

Mobile Devices & Wearables for Enhanced Worker Safety

- 60% of attendees said this session was Excellent



Vince Ward of The Dow Chemical Company discussed how mobile devices can equip field staff with critical equipment, operational, and situational information that not only can make them more effective, but also safer.



2018 SPEAKERS

BEN AMABA, PHD, PE, CPIM, LEED AP

Worldwide Executive
IBM

DAVID BADANES

Cyber Program Director
The AES Corporation

CRYSTAL BETTINGER

Supervisor of Predictive
Maintenance
Westar Energy Jeffrey Energy
Center

MATT BUCK

Senior Technical Leader
EPRI Electric Power Research
Institute

KIRK BUECHER

Director Power Solutions
METTLER TOLEDO

DAVID FOOSE

Security Program Manager
Emerson Power & Water Solutions

YURIS FUENTES

Engineering Consultant
DuPont

STUART GILLEN

Senior Director of Business
Development, Customer Success &
Partnerships
SparkCognition

EITAN GOLDSTEIN

Director of Industrial Cyber Security
Siemens

PEGGY GULICK

Director Business Process
Improvement
AGCO Corporation

DAVID GUSTAFSON

Global Chemical Wireless
Applications Business Development
Emerson Automation Solutions

SREE HAMEED

Marketing Manager, Industry
Business: Power segment
Schneider Electric

CRAIG R. HARCLERODE

Business Development Executive Oil
and Gas and Petrochemicals
OSIsoft, Inc.

KAY HARLOW

Survey and Mapping Supervisor
Southern Company

CHRIS HILL

Project Manager
Duke Energy

JULIE HOLSTAD

Engineering Manager of Data
Acquisition and OT Cyber Security
Southern Company

RANDALL JONES, P.E., CMRP

Manager - CBM and Analytics
Southern Company

GREGORY LIVELLI

Head of Product Portfolio
Management
ABB

DON MACK

Alliance Manager
Siemens

PETER MARTIN

Vice President of Business
Innovation and Marketing
Schneider Electric

SETH MCDOW

Digital Operations Center Cyber
Security & Infrastructure Focal Point
The Dow Chemical Company

KELLY MCGINNIS

Senior Executive Finance: Power
Services
GE Power

JOSEPH MCMULLEN

Marketing Director
Schneider Electric

JONAS NORINDER

Chemical Industry Manager
Siemens

JUAN PANAMA

Global Business Development
Manager
Emerson

PAULO PEREIRA

Global Vice President of Utilities
and Industrial IoT
SparkCognition

JON PETERSON

Senior Vice President of Products
and Customers
Seeq

SUSAN PETERSON-STURM

Digital Lead
ABB Inc.

MICHAEL REID

General Manager of Technical
Programs
Duke Energy

MICHAEL SHALYT

Chief Executive Officer & Co-Founder
APERIO Systems

DR. YVES GORAT STOMMEL

Director of Business Development
and Innovation
Evonik Corporation

CARL TONER

Performance Improvement
Manager
Southern Company

JON TOWSLEE

Director of Marketing and Business
Development
ABB Inc.

RICHARD W. VESEL

Business Development Manager
ABB Inc.

ANNE-MARIE WALTERS

Global Marketing Director
Bentley Systems, Inc.

VINCE WARD

Site Logistics Innovation SME
The Dow Chemical Company

JEFFREY WEHNER

Vice President of Renewable
Operations
Duke Energy

BRYAN WILLIAMS

UAS Coordinator
Duke Energy

STEPHEN ZITNEY

Process Systems Engineering
Research
National Energy Technology
Laboratory

CONNECTEDPLANT

Game >>> Changers



We honored this year's innovative Game Changer Award Recipients who, through modern techniques associated with digitalization, have contributed to innovation, solved a problem or made improvements, as well as those who are fast risers or champions in the field.

ALEXANDRA LEONPACHER

Royal Dutch Shell

First-of-its-kind behavioral training using virtual reality in the oil, gas, and chemical industries.

MICHAEL SOWELL

Evonik

Key architect in Project Lighthouse, which provided actionable data to decision-makers, and improved reliability, efficiency, and safety, while reducing maintenance and operational costs.

SUSAN PETERSON-STURM

ABB

Championed the adoption of a digital customer-engagement model that supports customer-led development of digital solutions and accelerates time to value for digital solutions.

RICARDO DASILVA

New York Power Authority

Oversaw the technological revolution that is transforming the New York Power Authority (NYPA), the largest state-owned utility in the nation.

BOB RICE, PHD

Control Station, Inc.

Led the introduction of multiple product innovations that allow manufacturers within the power generation and chemical process industries to enhance control of complex production processes. His innovations have been deployed globally and facilitated tangible performance improvements.

MATT PETERS

3M

Created a corporate strategic vision for wireless and integrated smart technologies. This strategic vision gained executive approval due to addressing the operational "gap" created by retiring field operators taking their experience with them. Using non-invasive sensing, wireless communications, and analytics, Matt helped implement a condition-based maintenance program.

DEON RAE

Chevron

Worked with "connected plant" equipment suppliers and solution providers to achieve seamless IIoT data connectivity and integration to solve real-world problems.

JAY MOORE & ROB LOUISY

EDF Energy Services

Helped create the EDF Energy Services platform, which delivers a digital, integrated service. It allows customers to contract with a single supplier, providing generation and demand response dispatch, optimization, and hedging of commodity, retail energy supply, and support services.

THOMAS J. BURKE

OPC Foundation

Collaborated with organizations to help model their information for multivendor interoperability. This technology changes the game in secure and reliable information integration, moving data and information from the sensors in industrial automation to the cloud.

SANDEEP SREEKUMAR

Henkel

Responsible for driving digital/Industry 4.0 initiatives for Henkel Adhesive plants globally. Mr. Sreekumar initiated the Smart Factory program in late 2013 with a vision to digitalize factories across the Asia Pacific territory. Later, he achieved the same for more than 10 plants in the region, achieving great operational performance results.

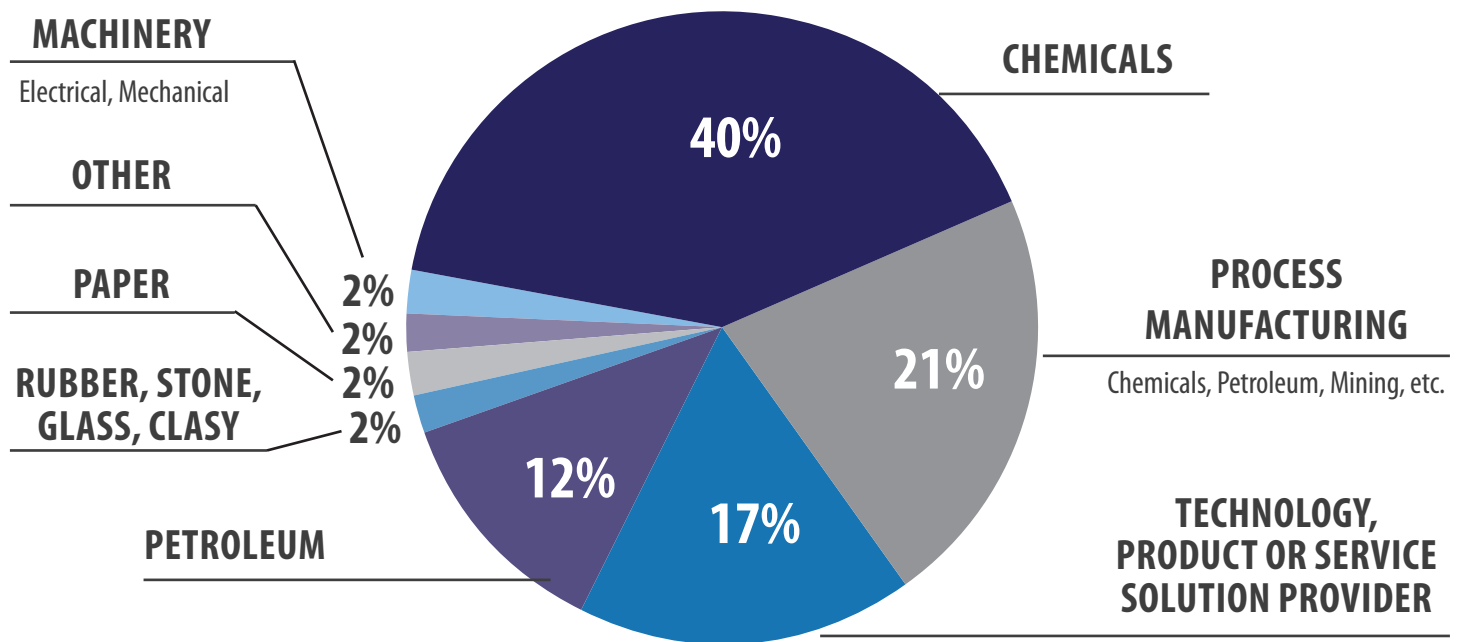
ERIC ROTVOLD

Emerson Automation Solutions

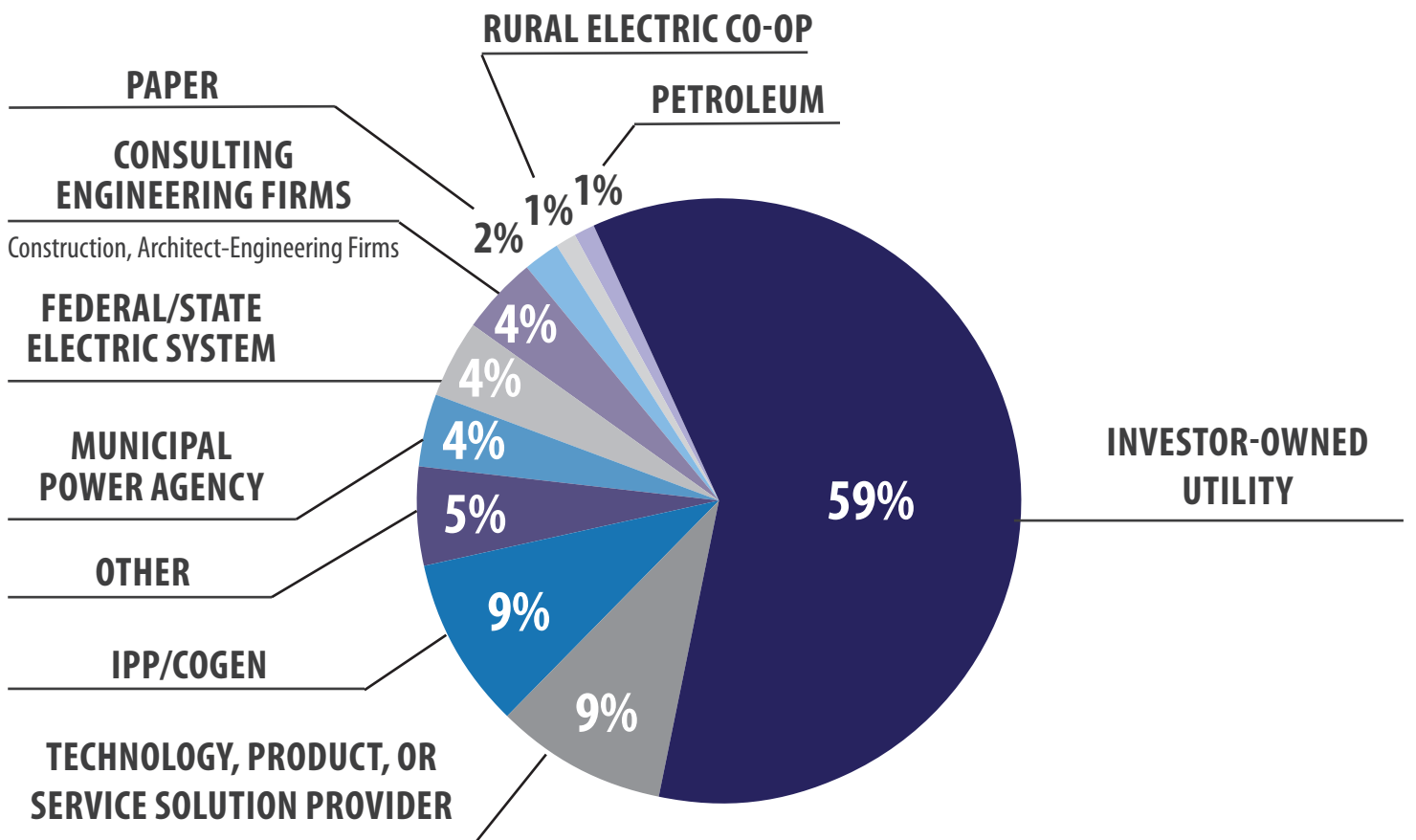
In his role as project manager and system architect, Rotvold was instrumental in not only establishing WirelessHART as an international standard, but also proving the concept of industrial wireless transmitters and networks as a viable solution.

ATTENDEE DEMOGRAPHICS

CPI COMPANY TYPES

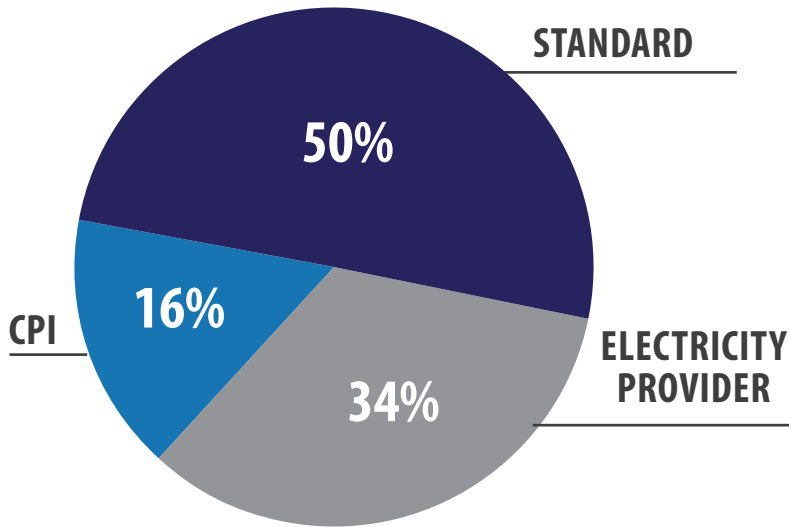


ELECTRICITY PROVIDER COMPANY TYPES



ATTENDEE DEMOGRAPHICS

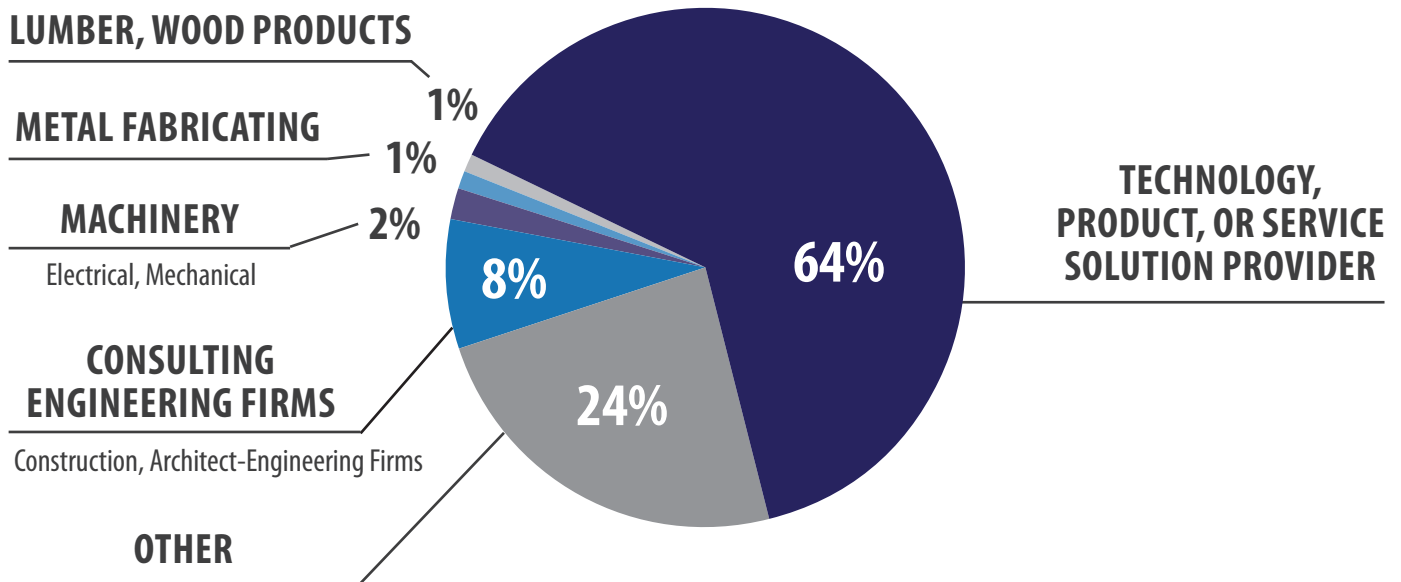
ATTENDEE CATEGORIES



"The networking and quality of people we have met are top notch. These are the people that want answers. They're the ones on-site doing what they need to do. That's who we need to talk to in order to better our product and better our understanding of the solution."

Darren Leet, Product Development, Smart Connect/Certified Safety, Inc.

STANDARD COMPANY TYPES



COUNTRIES REPRESENTED

269 ATTENDEES FROM 9 COUNTRIES

Belgium, Canada, China, Germany, Italy, Mexico, South Korea, Spain, and United States

STATES REPRESENTED

94% OF ATTENDEES FROM THE U.S. REPRESENTING 32 STATES

Alabama, Arizona, California, Colorado, Connecticut, Delaware, District of Columbia, Florida, Georgia, Illinois, Indiana, Iowa, Kansas, Maryland, Massachusetts, Michigan, Minnesota, Missouri, New Jersey, New York, North Carolina, Ohio, Oklahoma, Oregon, Pennsylvania, South Carolina, Tennessee, Texas, Virginia, Washington, West Virginia, Wisconsin

2018 SAMPLE ATTENDEE LIST

- 3M, Manufacturing Engineer
- ABB, Vice President Sales & Marketing – Power Generation
- ABB Power Generation and Water, Digital Lead
- AC Power Colver, Plant Engineer
- AdvanSix, Chief Information Officer
- AdvanSix, Director of Enterprise Applications
- Air Products, Engineer
- Alliant Energy, Manager of Infrastructure, Networks and Telecom
- Allnex, Engineering Manager
- Ameren Missouri, Director of Innovation & IT Projects
- Ameren Missouri, Manager Innovation Projects
- Ameren Missouri, Operating Supervisor
- American Electric Power, Monitoring and Diagnostic Center Analyst Sr.
- BASF, Productivity Manager
- Bentley Systems, Inc., Sr. Director
- Bentley Systems, Inc., Global Marketing Director, Product Management
- Black & Veatch, Vice President
- Buckman North America, Director of Memphis Manufacturing
- Buckman North America, Process Engineer
- Buckman North America, Business Systems Manager
- Chevron, Gas Turbine Fleet Reliability Engineer
- Chevron Energy Technology Company, Sr. Advisor, Process Automation
- Chevron Power & Energy Management Co., Principal Engineer
- China Huadian Corporation Zhangqiu Power LTD, Deputy Director
- China Huadian Corporation Zibo Power LTD, Deputy Director
- Cogentrix, Vice President of Engineering
- Cogentrix, Reliability Engineer
- Corning, Process Engineer
- Day & Zimmerman, Director, Business Development
- Dominion Energy, Nuclear Technology & Innovation Consultant
- Draeger, Sr. Staff Software Engineer
- Duke Energy, Vice President Renewables Operations
- Duke Energy, Vice President Nuclear Engineering
- Duke Energy, Director of Technology Development
- Duke Energy, Technical Manager, M&D Performance Center
- Duke Energy, IT Director
- Duke Energy, Supervisor, Renewable Control Center
- Duke Energy, Lead M&D Analysts
- Duke Energy, M&D Analysts
- DuPont, Engineering Consultant
- EDF Energy Services, Vice President of Generation Services
- Electric Power Research Institute (EPRI), Sr. Technical Leader
- Electric Power Research Institute (EPRI), Principle Program Manager
- Elkem, Engineering Manager
- Elkem Silicones USA Corp, Information System and Information Technology Manager
- Emerson, Global Business Development Manager
- Emerson, Security Program Manager
- Emerson Automation Solutions, Director Global Chemical Industry Solutions
- Emerson Automation Solutions, Global Chemical Wireless Applications Business Development
- Evonik Corporation, Director Business Development and Innovation
- Flint Hills Resources, Corporate Reliability Director
- Florida Power and Light, IT Technology Director
- GE, Technical Leader, Fleet Services M&D
- GE Power, General Manager – Global O&M
- Georgia Power Company, Planning Team Leader
- Georgia Power Company, Maintenance Manager
- Georgia Power Company, CBM Team Leader
- GP Strategies Corporation, President
- Grupo Energeticos, Chief Executive Officer
- Grupo Energeticos, Operations Manager
- Grupo Energeticos, Plant Manager
- Hydro East, Inc., Director
- IBM, Industrial Sector Blockchain, Technical Lead

2018 SAMPLE ATTENDEE LIST

- IMI CCI, Applications Engineer
- Ingersoll Rand, Product Manager, System Optimization and Controls
- Intel, Process Engineer
- International Paper, Manager, Innovative Solutions
- International Paper, Engineer
- John Crane, Director Digital Products
- Kansas City Power & Light, Results Foreman
- Korea Electric Power Corporation, Director
- Korea Electric Power Corporation, Sr. Researcher
- LyondellBasell, Technical Manager
- Mettler Toledo, Director Power Solutions
- Mitsubishi Hitachi Power Systems Americas, Sr. Project Manager, Digital Solutions
- NAES Corporation, Director, Fleet Services
- NAES Corporation, Chief Engineer
- National Energy Technology Laboratory, Process Systems Engineering Research
- Northern Star Generation Services Company, Asset Manager
- Ontario Power Generation, Director, Performance & Testing
- Ontario Power Generation, Engineer, Performance & Testing
- Oseco, Director of Marketing
- Oseco, Chemical Process Segment Engineer
- OSIsoft, Business Development Executive O&G and Petrochemicals
- PDE Technologies, LLC, Chief Technology Officer
- Phoenix Contact, Business Development Manager
- PIC Group, Inc., President and Chief Executive Officer
- Portland General Electric, Project Electrical Engineer
- Salt River Project, Engineering Supervisor
- Schneider Electric, Sr. Manager, Global Device Integration
- Seeq Corporation, Sr. Vice President, Products & Customers
- Shell Downstream Incorporated, Manager, Manufacturing Learning Global Portfolios and Innovation
- Siemens, Chemical Industry Manager
- Siemens, Director of Industrial Cyber Security
- SmartConnect powered by Certified Safety, Vice President, Technical Services
- Southern Company, Engineering Manager – Data Acquisition and OT Cyber Security
- Southern Company, I&C Support General Manager
- Southern Company, Manager – CBM & Analytics
- Southern Company, Performance Improvement Manager
- Southern Company, IT Manager – Plant and Corporate Support
- Southern Company, Cyber Security Manager
- SparkCognition, Global Vice President, Utilities and Industrial IoT
- STS Gmbh, Chief Financial Officer
- STS Gmbh, Head of Engineering Department
- Systran, Inc., President and Chief Executive Officer
- Tecnatom, Digital Transformation Director
- The AES Corp, Cyber Program Director
- The AES Corp, Director, Risk Engineering
- The Babcock & Wilcox Company, Innovation Leader/Customer Solutions Consultant
- The Boeing Company, Chief Engineer
- The Dow Chemical Company, Digital Operations Center Cyber Security & Infrastructure Focal Point
- The Dow Chemical Company, Site Logistics Innovation SME
- U.S. Water, Director of Digital Solutions
- UL, Sr. Cybersecurity Advisor
- Veolia, Sr. Vice President, Information Systems and Technologies
- Veolia, Director of Enterprise Data Management
- Westar Energy, Supervisor, Predictive Maintenance
- Westar Energy, Engineer
- Xcel Energy, Wind Farm Engineer

3RD ANNUAL



CONNECTED PLANT CONFERENCE

Harnessing Digital Tools to Drive Success

February 19-21, 2019 | Sheraton Charlotte Hotel | Charlotte, NC

Hosted by:



Next year's Connected Plant Conference is scheduled for February 19-21 in Charlotte, North Carolina. The 2019 conference program will be designed for professionals who are leading digital adoption at all stages.

The advisory committee will solicit key presentations from industry leaders this summer. If you are interested in speaking opportunities, please contact Kim Arellano at karellano@accessintel.com or 713-343-1879.

For sponsorship and creative display opportunities, please contact Jamie Reesby at jreesby@accessintel.com or 713-343-1874.

We hope you will join us in Charlotte!

connectedplantconference.com

Don't miss these events hosted by POWER



CONFERENCE + EXHIBITION
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FORUMS



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