



# IETC 2018

NEW ORLEANS  
JUNE 12-14

The Fortieth Industrial Energy Technology Conference



The Fortieth Industrial Energy Technology Conference

# Final Program

*Hosted By:*



**ENERGY SYSTEMS LABORATORY**  
TEXAS A&M ENGINEERING EXPERIMENT STATION



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# WELCOME

On behalf of the hosts and sponsors of the Fortieth National Industrial Energy Technology Conference (IETC), welcome! Our program brings together nationally prominent experts from many areas of industrial energy management. This year's two-day conference consists of eleven technical sessions and panel discussions and over forty individual presentations. In addition, each day will be highlighted by outstanding corporate, industrial and government speakers.

The IETC staff and your hosts, Texas A&M University System's Energy Systems Laboratory and the Louisiana Department of Natural Resources, along with our many co-sponsors are committed to providing all attendees with a wealth of information that will help them improve the performance of their companies--something to take home and use immediately!

This year's 2018 Energy Managers' Workshop builds on its past successes and will again provide a great opportunity for you to expand your energy management proficiency through an event associated with the conference. Nine top energy managers and industry leaders present an impressive and extensive workshop agenda entitled: "Energy Management: Strategies and Successful Applications."

We are confident that you will profit from the experience and technical expertise of our presenters and panelists, and best of all, the interaction with so many energy professionals in one place.

James A. Eggebrecht, PE, Executive Director  
Industrial Energy Technology Conference

# MAJOR EVENTS

## **Technical Sessions**

The traditional technical sessions consist of 25-minute presentations followed by a 5-minute question and answer period after each presentation. There will be a 5-minute break between papers to permit movement of conferees between sessions.

## **Workshops**

The Pre-Conference Energy Managers Workshop continues for its twenty-sixth year, exploring the topic of “Energy Management: Strategies and Successful Applications.”

## **Reception**

The IETC reception is at 5:30 p.m. on Wednesday evening June 13.

## **Sponsored Coffee Breaks**

Wednesday's & Thursday's Breaks are sponsored by KBC Advanced Technologies.

## **Wednesday IETC Energy Award Luncheon**

The IETC Awards Luncheon features IETC Energy Awards presentations to Sharon Nolen, Eastman Chemical and TE Connectivity.

## **Thursday Keynote Speaker**

Features Valri Lightner, U. S. Department of Energy.

# KEYNOTE SPEAKER

## THURSDAY LUNCHEON SPEAKER



### **Valri Lightner, Acting Deputy Director, Office of Energy Efficiency and Renewable Energy's Advanced Manufacturing Office, U.S. Department of Energy**

For over 30 years, Ms. Valri Lightner has been a technology development manager for the federal government. Valri's team manages research, development and adoption of energy-related advanced manufacturing technologies and practices to drive U.S. economic competitiveness and energy productivity. The program is executed through collaborations of industry, academia, and government. In the Loan Programs Office, Valri's team provided the technical management of a portfolio including vehicle manufacturing, transmission, fossil, nuclear, efficiency and renewable energy projects. Valri previously led public-private research and development partnerships in biofuels, fuel cell for transportation, and pulp and paper energy efficiency.

Valri has a Bachelors Degree in Chemical Engineering from Villanova University.

# AWARDS LUNCHEON

## WEDNESDAY AWARDS LUNCHEON

### **TE Connectivity**

#### **2018 IETC Energy Award Winner**

**TE Connectivity** has made significant progress in energy efficiency over the past 8 years. In 2010 the company joined the DOE Better Plants program and met the program goal of a 25% improvement in energy intensity in just 4 years (2013 using a baseline year of 2009). The company then re-pledged in 2014 for another 25% energy intensity improvement in ten years with all 58 plants in the U.S., representing more than 8 million square feet of manufacturing space. The company decided to move from the program to the challenge level, whereby they engaged themselves to share data and participate in two case studies. Since then, the company has improved its energy intensity by approximately 10%. The company's first goal was achieved using an aggressive approach and a broad range of measures to decrease energy consumption. These measures included improving energy awareness across the corporation, energy metering, forming energy teams at multiple sites, conducting energy audits, upgrading lighting and compressed air systems, improving building structure, building utilities HVAC systems, changing production practices, upgrading outdated equipment and waste heat recovery. Since the start of the second pledge period, the company created an internal website called the Center of Excellence (COE), which includes a database of energy reduction projects that were implemented at other plants. A critical component of the company's success is the Center of Excellence that leverages innovation and teamwork to improve energy efficiency and deploy best practices across the enterprise. In addition, the company hosted a Better Plants In-Plant training on energy treasure hunt exchanges. Based on the knowledge gained from the training event, TE Connectivity's energy teams were able to conduct 9 energy treasure hunts at other TE plants in the first year following the DOE training. These events yielded average energy savings of 5.5% per plant and more than \$1.2 million in energy cost savings.

### **Sharon Nolen, Eastman Chemical**

#### **2018 IETC Energy Award Winner**

**Sharon Nolen** is currently the Manager of Global Natural Resource Management at Eastman Chemical Company. In 2010, Eastman's Corporate Energy Team was restructured and revitalized with Sharon being a key individual in the future success. With Sharon's help, three guiding principles were established – ensuring the accuracy of information, maximizing existing assets, and incorporating energy efficiency in capital investments. From these guiding principles, Sharon helped establish an energy strategy and program focused on five key components - energy awareness, measurable goals, knowledgeable resources, site wide initiatives, and energy efficiency projects. That same year - 2010, Eastman decided to pursue an inspirational goal to radically improve and reduce its energy intensity by 20 percent by 2020 with a 2008 baseline, through the U.S. Department of Energy's Better Buildings, Better Plants program. She has been instrumental in helping Eastman Chemical strategically partner with external programs such as the DOE's Better Plants program and EPA's Energy Star program. In 2011, Sharon convinced management that there was a clear need for a sizable capital budget for energy projects by quantifying the gap between the forecasted impact of current plans and the company's energy intensity goal. From a small initial investment, she has been able to demonstrate success of her program with proven results to the point that Eastman has grown her annual budget to be over \$8 million per year for capital energy projects. This amount has become a part of the company's base funding budget projections. From this fund, numerous energy efficiency projects (from lighting, to CHP systems upgrades, to leak-programs, to distillation process improvements) have been funded throughout the years to help Eastman save tens of millions company-wide. cost savings.

# INFORMATION

## How to contact us:

General conference information, presentations, speakers

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Other information, including registration:

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Get updated IETC information at  
<http://ietc.tamu.edu/>

## Proceedings

The IETC Proceedings are available at the IETC website:  
<http://ietc.tamu.edu/program>

## Call for Papers

Abstracts are now being accepted for the Forty-First Industrial Energy Technology Conference.  
Interested authors should submit one electronic abstract of not more than 400 words by October 1, 2018 to:

James A. Eggebrecht  
IETC Executive Director  
Energy Systems Laboratory

Phone: (979) 845-1508  
Email: [jegge@tamu.edu](mailto:jegge@tamu.edu)

## Continuing Education & Professional Development Credits

The Industrial Energy Technology Conference and the workshops meet the criteria for continuing education and professional development hours required by many state professional engineering boards.  
Check with Kimberly or Jim at the registration desk for information and a CEU form.



# EMWS SCHEDULE

## 26<sup>th</sup> Energy Managers Workshop Schedule Energy Management: Strategies and Successful Applications

### Tuesday, June 12

- 7:00 am - 8:00 am    Registration
- 7:00 am - 8:00 am    Continental Breakfast, Parish Hall, 10th Floor
- Workshop held in Louisiana Ballroom, 10th Floor**
- 8:15 am - 8:30 am    Opening Remarks – James Eggebrecht, Texas A&M University
- 8:30 am - 9:15 am    Efficiency 2.0: Energy Technologies, Markets and Policies for the New Tomorrow  
R. Neal Elliott, American Council for an Energy Efficient Economy
- 9:15 am - 10:00 am    Empowering Industrial Energy Efficiency: DOE Partnership Programs  
Bruce Lung, U.S. Department of Energy
- 30 minute break -
- 10:30 am - 11:00 am    Partnerships Enhance Energy Efficiency Efforts  
Sharon Nolen, Eastman Chemical Company
- 11:00 am - 11:45 am    Which Energy Management Standard is Best for Your Company  
Dave Arkell, 360 Energy
- 12:00 pm - 1:00 pm    Lunch in Feliciana Room, 10th Floor
- 1:00 pm - 1:45 pm    A Step by Step Method for Energy Analysis of Industrial Processes  
Mike Stowe, Advanced Energy
- 1:45 pm - 2:15 pm    Zero to Ten in Under Twelve Months  
Thomas Theising, Sustainable Energy Solutions
- 30 minute break -
- 2:45 pm - 3:30 pm    Energy Assessments and Treasure Hunts – Tricks of the Trade  
Walt Brockway, Brockway Consulting
- 3:30 pm - 4:30 pm    Energy Optimization Projects: Identification and Implementation  
Jimmy Kumana, Kumana & Associates
- 4:30 pm - 5:00 pm    Wrap-up, critiques & dismissal





# CONFERENCE SESSIONS

## Wednesday Morning, June 13

- 7:00 am - 5:00 pm** Registration, **Parish Hall, 10th Floor**
- 7:15 am - 7:50 am** Breakfast for Wednesday's and Thursday's Authors and Session Chairs  
**Felician Room, 10th Floor, sponsored by ICF**  
For all other attendees in **Parish Hall, 10th Floor** Registration Area
- 8:00 am - 8:15 am** **Welcoming Remarks:** James Eggebrecht, Executive Director, IETC and Edward O'Brien Director  
Energy, Louisiana Department of Natural Resources  
**Louisiana Ballroom, 10th Floor**
- 8:15 am - 8:30 am** **American Chemistry Council** Recognition of Energy Awards Recognition of Responsible Care  
Care Energy Awards, Lloyd Webb, Olin Corporation
- 8:30 am - 9:00 am** **Plenary Address by Jay Zoellner, Edison Energy**
- 9:10 am - 11:50 am** **Sessions 1 - 4**

## **Session 1 - Enterprise Energy Optimization Through Smart Manufacturing (Panel Discussion)**

Session Chair: Dean Schneider, Clean Energy Smart Manufacturing Innovation Institute  
**Felician East Room, 10th Floor**

- 9:10 am - 9:40 am** "Introduction to Smart Manufacturing and the Smart Manufacturing Platform™," **Dean Schneider, Southern Regional Manufacturing Center, CESMII.**
- 9:45 am - 10:15 am** "The Process of Smart Manufacturing," **Scott Miller, South Central, Southern Regional Manufacturing Center, CESMII.**
- 10:15 am - 10:40 am** **Coffee Break and Exhibits – Parish Hall, 10th Floor**
- 10:40 am - 11:10 am** "CESMII Technology Development Program," **Scott Miller, Southern Regional Manufacturing Center, CESMII.**

## **Session 2 - Combined Heat & Power**

Session Chair: Tarla T. Toomer, Ph.D., U. S. Department of Energy  
**Felician West Room, 10th Floor**

- 9:10 am - 9:40 am** "Overview of DOE CHP Program Activities," **Tarla Toomer, U. S. Department of Energy.**
- 9:45 am - 10:15 am** "Combined Heat and Power as a Facility Resiliency Option," **Marina Badoian-Kriticos, Texas PACE Authority and Isaac Panzarella, Southeast CHP TAP.**
- 10:15 am - 10:40 am** **Coffee Break and Exhibits – Parish Hall, 10th Floor**
- 10:40 am - 11:10 am** "CHP Partnership Case Studies: Marietta and Calvert City," **Doug Cash, DTE Energy.**
- 11:15 am - 11:45 am** "Efficiency and Profitability Improvement of a Cogeneration Plant Using Advanced Controls,"  
**Benoit Janvier, Enero Solutions Inc.**

## Session 3 - Renewables and New Technologies

Session Chair: Sharon Nolen, Eastman Chemical

**St. Landry Room, 9th Floor**

- 9:10 am - 9:40 am "Ready for Action: A Partnership of Energy and Wastewater Utilities," **Leila Saber Gaughran, DNV GL Energy Services.**
- 9:45 am - 10:15 am "Unlocking the Value of Behind the Meter Energy Storage," **Doug Staker, EnerNoc.**
- 10:15 am - 10:40 am **Coffee Break and Exhibits – Parish Hall, 10th Floor**
- 10:40 am - 11:10 am "Confidence in Energy and Renewable Investment – A Portfolio Approach to Decision Making," **Daniel Weeden, Edison Energy.**
- 11:15 am - 11:45 am "Offsite Renewable Energy Power Purchase Agreements – How to Make Sustainability Goals a Valuable Financial Decision," **Charlie Daum, Edison Energy.**

## Session 4 - Water Usage and Energy Issues

Session Chair: Bruce Lung, U. S. Department of Energy

**St. Tammany Room, 9th Floor**

- 9:10 am - 9:40 am "Case Studies on Energy Efficiency at Waste Water Treatment Plants," **Mike Stowe, Advanced Energy.**
- 9:45 am - 10:15 am "Energy for Clean Water – A Review of Energy Savings Opportunities in Desalinization and Manufacturing," **Joe Cresko, U.S. Department of Energy, Sachin Nimbalkar, Oak Ridge National Laboratory, Prakash Rao, Lawrence Berkeley National Laboratory, and Sabine Brueske, Energetics**
- 10:15 am - 10:40 am **Coffee Break and Exhibits – Parish Hall, 10th Floor**
- 10:40 am - 11:10 am "Technical Challenges, Practical Solutions, and Scientific Findings from Energy Performance Analysis for 24 Wastewater Plants." **Wei Guo, Tom Wenning, Kiram Thirumaran and Sachin Nimbalkar, Oak Ridge National Laboratory.**
- 11:15 am - 11:45 am **Sachin Nimbalkar** will demonstrate the Plant Water Profiler Tool.

**12:00 pm - 1:30 pm IETC Energy Awards Luncheon  
Louisiana Ballroom, 10th Floor**



# PROGRAM AT A GLANCE

Tuesday, June 12 – Energy Managers Workhop				
7:00 am – 5:00 pm	Registration and Information			
8:00 am – 5:00 pm	Energy Managers Workshop			
12:00 pm – 1:00 pm	Energy Managers Workshop Lunch			
Wednesday, June 13 – Day 1 of Conference				
7:00 am – 5:00 pm	Registration and Information			
7:15 am – 7:50 am	Conference Authors/Presenters Breakfast			
8:00 am – 8:15 am	Opening Welcome			
8:15 am – 8:30 am	American Chemistry Council Recognition of Energy Awards			
8:30 am – 9:00 am	Plenary Address by Jay Zoellner, Edison Energy			
<b>Technical Sessions 1 - 4</b>	<b>Feliciana East Room 10th Floor</b>	<b>Feliciana West Room 10th Floor</b>	<b>St. Landry Room 9th Floor</b>	<b>St. Tammany Room 9th Floor</b>
9:10 am – 11:45 am	1 – Enterprise Energy Optimization through Smart Manufacturing (Panel Discussion)	2 – Combined Heat & Power	3 – Renewables & New Technologies	4 – Water & Energy Issues
10:20 am – 10:50 am	Break Time Sponsored by KBC Advanced Technologies			
12:00 pm – 1:30 pm	<b>IETC Energy Award Luncheon</b>			
<b>Technical Sessions 5 - 7</b>	<b>Feliciana East Room 10th Floor</b>	<b>Feliciana West Room 10th Floor</b>	<b>St. Landry Room 9th Floor</b>	
1:45 pm – 5:00 pm	5 – American Chemistry Council Award Winners 1	6 – Steam Plants & Equipment	7 – Developing Industrial Programs	
2:50 pm – 3:20 pm	Break Time Sponsored by KBC Advanced Technologies			
5:30 pm – 7:30 pm	Reception			
Thursday, June 14 – Day 2 of Conference				
8:00 am – 12:00 pm	Registration and Information			
8:00 am - 8:30 am	Break Time Sponsored by KBC Advanced Technologies			
<b>Technical Sessions 8 - 11</b>	<b>Feliciana East Room 10th Floor</b>	<b>Feliciana West Room 10th Floor</b>	<b>St. Landry Room 9th Floor</b>	<b>St. Tammany Room 9th Floor</b>
8:30 am – 12:00 pm	8 – American Chemistry Council Award Winners 2	9 – Compressed Air	10 – Data Analysis Methods	11 – Strategic Energy Management & ISO 50001
9:35 am – 10:10 am	Break Time Sponsored by KBC Advanced Technologies			
11:50 am – 1:30 pm	<b>Luncheon &amp; Keynote Address</b>			

## Wednesday Afternoon, June 13

1:45 pm - 5:00 pm      Sessions 5 – 7

### **Session 5 - American Chemistry Council Energy Award Winners 1**

Session Chair: Lloyd Webb, Olin Corporation

**Feliciano East Room, 10th Floor**

- 1:45 pm - 2:15 pm      “Baytown Olefins Plant Train 5 Auxiliary Burner Installation” **Marina Barta, ExxonMobil Chemical Company.**
- 2:20 pm - 2:50 pm      “Gas Turbine Rotor Replacement,” **Donald Bodman, Olin Corporation.**
- 2:50 pm - 3:20 pm      Coffee Break and Exhibits – **Parish Hall, 10th Floor**
- 3:20 pm - 3:50 pm      “Freeport Power 6 475# Steam Optimization Project,” **Will Bosshart, Olin Corporation.**

### **Session 6 - Steam Plants & Equipment**

Session Chair: Thomas Theising, Sustainable Energy Solutions LLC

**Feliciano West Room, 10th Floor**

- 1:45 pm - 2:15 pm      “Steam System Optimization and Risk Mitigation Begins with Design!” **James R. Risko, TLV Corporation.**
- 2:20 pm - 2:50 pm      “Energy Cost Optimization in a Sugar Industry,” **Ven V. Venkatesan, VGA Engineering Consultants, Inc.**
- 2:50 pm - 3:20 pm      Coffee Break and Exhibits – **Parish Hall, 10th Floor**
- 3:20 pm - 3:50 pm      “Industrial Projects Energy Efficiency,” **Mana M. Owaidh and Solomon Oji, Saudi Aramco.**
- 3:55 pm - 4:25 pm      “Conserving Steam Through Steam Leak and Steam Trap Surveys and Insulation Surveys,” **James Nipper Petro Chemical Energy.**
- 4:30 pm - 5:00 pm      “Save Energy – Optimize Your Pipe/Tank Heating Systems,” **D. J. Cipriano, Controls Southeast Inc.**

## Session 7 - Developing Industrial Programs

Session Chair: Walt Brockway, Brockway Consulting  
St. Landry Room, 9th Floor

- 1:45 pm - 2:15 pm**      “TX-PACE: Capitalizing on Operational Savings to Create Resilient Industrial Properties,”  
**Marina Badoian-Kriticos, Texas PACE Authority.**
- 2:20 pm - 2:50 pm**      “Trade Allies: Check. Customers: Check. Market Influencers: Who?” **Karen Germain, DNV GL  
Energy Services.**
- 2:50 pm - 3:20 pm**      Coffee Break and Exhibits – **Parish Hall, 10th Floor**
- 3:20 pm - 3:50 pm**      “Midstream Programs – A Utility’s Best Tool to Engage Industrial Customers in Energy Efficiency,”  
**Brady McNall, DNV GL Energy Services.**
- 3:55 pm - 4:25 pm**      “The Duck Curve: Can Rebate Programs Change Its Anatomy,” **Ed Walsh and Namir Saman, DNV  
GL Energy Services.**
- 4:30 pm - 5:00 pm**      “Industrial Assessment Centers are Helping Rural Economies by Helping Rural Manufacturers,”  
**Jill Ferguson and Ethan A. Rogers, American Council for an Energy Efficient Economy.**

**5:30 pm - 7:30 pm Reception  
Parish Hall, 10th Floor**

## **Thursday Morning, June 14**

- 8:00 am - 12:00 pm**      Registration for New Arrivals, **Parish Hall, 10th Floor**
- 8:00 - 8:30 am**              **Coffee & Breakfast Snack Break - Parish Hall, 10th Floor**
- 8:30 am - 11:50 am**      **Session 8-11**

## **Session 8 - American Chemistry Council Award Winners 2**

Session Chair: Vince Torres, Texas Industries of the Future  
**Feliciano East Room, 10th Floor**

- 8:30 am - 9:00 am**              “Waste Heat Recovery Boiler,” **John Zylks, Occidental Chemical Corporation.**
- 9:05 am - 9:35 am**              “Pyrolysis Furnace Efficiency Improvement” **Musab Tayelkarim, Olin Corporation.**

## **Session 9 - Compressed Air**

Session Chair: Thomas Theising, Sustainable Energy Solutions LLC  
**Feliciano West Room, 10th Floor**

- 8:30 am - 9:00 am**              “Understanding the Needs of Your Compressed Air System,” **Thomas Theising, Sustainable Solutions, LLC.**
- 9:05 am - 9:35 am**              “Balancing Supply and Demand: Finding Energy Efficiency in Compressed Air Systems” **Gerard Zolkowski, DNV GL Energy Services.**
- 9:35 am - 10:05 am**              **Coffee Break and Exhibits – Parish Hall, 10th Floor**
- 10:10 am - 10:40 am**              “Understanding Controls for Multiple Centrifugal Air Compressor Systems,” **Tim Dugan, Compression Engineering Corporation.**
- 10:45 am - 11:15 am**              “Sizing VFD Compressors for Multiple Air Compressor Systems,” **Tim Dugan, Compression Engineering Corporation.**
- 11:20 am - 11:50 am**              **Panel Discussion – Talk with the Presenters About Specifics of Your System**

## Session 10 - Data Analysis Methods

Session Chair: Jim Robinson, DES Global LLC

St. Landry Room, 10th Floor

- 8:30 am - 9:00 am "Big Data Stand Aside: Small Data Maximizes Profitability for Energy Performance," **David Arkell, 360 Energy.**
- 9:05 am - 9:35 am "Use of Automation to Quantify the Benefits of Energy Efficiency" **Ethan A. Rogers, Eric Junga, and Jill Ferguson, American Council for an Energy Efficient Economy.**
- 9:35 am - 10:05 am **Coffee Break and Exhibits – Parish Hall, 10th Floor**
- 10:10 am - 10:40 am "Industrial Internet of Things," **Andrew Scheaffer, APTIM.**
- 10:45 am - 11:15 am "Benchmarking Energy Use with the Energy Star Energy Performance Indicator: Examples from Fertilizer and Steel Mini-mills," **Matthew Doolin, Duke University.**
- 11:20 am - 11:50 am "Online Monitoring and Optimization of the Energy System at Motiva Port Arthur Refinery" **Raul Adarme, Motiva, and Pablo Montagna, KBC Advanced Technologies**

## Session 11 - Strategic Energy Management and ISO 50001

Session Chair: Vern Martin, FlowCARE Engineering Inc.

St. Tammany Room, 9th Floor

- 8:30 am - 9:00 am "The DOE 50001 Ready Program: A Case Study in Progress," **Michael Stowe, Advanced Energy.**
- 9:05 am - 9:35 am "The Strategic Energy Management Continuum: Something for Everyone," **Mike Stowe, Advanced Energy.**
- 9:35 am - 10:05 am **Coffee Break and Exhibits – Parish Hall, 10th Floor**
- 10:10 am - 10:40 am "BASF Corporation's Transition to ISO 50001," **Jeanine Gordon, BASF.**
- 10:45 am - 11:15 am "Maximize Profitability with a Holistic Approach to Energy Performance," **David Arkell, 360 Energy.**
- 11:20 am - 11:50 am "Right-Sizing Strategic Energy Management: What is the Value to Your Utility and Your Customers," **Mohammad Shahini and Mary Ann Sheehan, DNV GL Energy Services.**

**11:50 am - 1:30 pm Keynote Luncheon  
Louisiana Ballroom, 10th Floor**

## **IETC Staff**

**James A. Eggebrecht**, Executive Director

**Kimberly Greer**, Conference Manager

## **Advisory Board**

Joe Almaguer

Walter Brockway, Brockway Consulting

Neil Davies, Spirax Sarco, Inc.

R. Neal Elliott, American Council for an Energy Efficient Economy

Peter Garforth, Garforth International llc

Scott Harrison, Vistra Energy

Dave Lauterbach, DowDuPont

R. Bruce Lung, U. S. Department of Energy

Michaela Martin, ICF International

Vern Martin, Flowcare Engineering Inc.

Cynthia Mascone, Chemical Engineering Progress

Paul Miller, Louisiana Department of Natural Resources

Sharon Nolen, Eastman Chemical Company

Bryan Rasmussen, Texas A&M University

James Robinson, DES Global, LLC

Scott Rouse, Energy @ Work

Steve Schultz, 3M Company

Eric Soucy, Natural Resources Canada

Mike Stowe, Advanced Energy

Thomas R. Theising, Sustainable Energy Solutions, LLC

Vince Torres, Texas Industries of the Future

Eddy Trevino, Texas State Energy Conservation Office

Kirtan K. Trivedi, ExxonMobil Research and Engineering Company

Vestal Tutterow, Lawrence Berkeley National Laboratory

Thomas Wenning, Oak Ridge National Laboratory

Jay Wrobel, US Department of Energy

Jay Zoellner, Edison Energy

## **Hosts**

Louisiana Department of Natural Resources

Energy Systems Laboratory, Texas A&M University

## **Sponsors**

American Chemistry Council

ICF International

KBC Advanced Technologies

Louisiana Department of Natural Resources

MP2 Energy

Spirax Sarco, Inc.

Texas A&M Engineering Experiment Station Energy Systems Laboratory

Texas State Energy Conservation Office

TLV Corporation

US Department of Energy, Advanced Manufacturing Office

## **Exhibitors**

Enero Solutions Inc.

KBC Advanced Technologies

Louisiana Department of Natural Resources

MP2 Energy

Spirax Sarco, Inc.

TLV Corporation

US Department of Energy Advanced Manufacturing Office