OVERVIEW

Battery Storage for Flexible Power Generation brings together experts on the opportunities, processes, and technological innovations involved with flexible generation. The training will showcase how battery storage can be incorporated into a fossil fuel plant to enable flexible power generation. There will be a focus on how to train staff for adaptability and safety. These presentations will be supported by case studies from Plant Managers from utility companies who can share their experiences in flexible power generation.

As technology creates new demands and methods for operating power generation plants, it is critical to keep the crew trained. Properly training a crew to adapt to a volatile power generation environment is a powerful tool in maintaining resilient plant operations.

In addition to creating a plant that effectively and resiliently responds to the demands of power generation, Battery Storage for Flexible Power Generation offers a focus on preparing your crew to safely handle new battery storage technology.

Join us in Denver this October to learn how you can successfully leverage battery technology to reliably provide energy under all conditions.

LEARNING OUTCOMES

- Discuss how to create value in existing peaker plants with battery storage technology
- Operationalize the costs of flexible generation
- Reduce minimum load on fossil fuel units so they can remain on line while producing less power
- Maintain plants better by assessing how hot, warm, and cold starts impact operations
- Assess the benefits of integrating battery storage into a natural gas plant
- Create an adaptable workforce who will be able to operate a power plant in unexpected ways
- Select battery technology that will reduce the pressure on your gas operations in handling peak and other flexible operations
- Develop guidelines to handle battery storage units safely
- Anticipate solutions to help your gas plant support increased grid reliance on renewable energy

WHO SHOULD ATTEND

- Plant Managers
- Maintenance Managers
- Engineering Managers
- Dispatch Operators
- Asset Managers
- Managers involved with power generation who oversee
  - Generation Strategy
  - Power System Integration
  - Energy Procurement
  - Energy Management
  - Energy Storage
  - Project Engineering

REGISTER TODAY! CALL 303-770-8800 OR VISIT WWW.EUCI.COM
AGENDA

TUESDAY, OCTOBER 17, 2017

8:00 - 8:30 am  Registration and Continental Breakfast

8:30 - 10:00 am  What is Flexible Power Generation?
As more renewable power sources are integrated in the grid, the need for flexible power generation is becoming more and more critical. Flexible power plants, capable of load following to help close the gaps when the intermittent renewables are not available, provide the necessary reliability and availability to enable more renewable growth.
• How fossil fuel plants can be responsive of the demands of the market
• Utilizing peaking to cover fluctuations in wind or solar
• Opportunities for building peaking facilities in green fields and brownfields
• How does operating a traditional base loaded plant in cycling mode effect the O&M, plant life, and emissions profile of the plant?
• How do warm starts, hot starts and cold starts impact a coal or gas plant working to fill in electricity gaps?

Dalia El Tawy, Director, Siemens

10:00 - 10:30 am  Networking Break

10:30 - 12:00 pm  Understanding the Challenges Utilities Face when Implementing Flexible Power Generation
Technology advancements associated with gas turbines and reciprocating engines support the rapid start-ups, ramp ups and downs, multiple starts per day, minimum turn-down and additional features essential for the required flexibility. Hybrid equipment that combines more than one technology of traditional proven prime movers along with innovative storage options provide a solution to the power puzzle. Advantages also include reducing fuel usage and cutting down on emissions. Such solutions are also capable of providing instantaneous response to ancillary service needs.
• Flexible power plant characteristics and associated operating experience in different regions
• Examples of hybrid power solutions and the associated technologies highlighting the associated pros and cons
• Actual case studies highlighting how these solutions have been developed and implemented in the US and internationally
• Load following where renewables aren’t available
• How to reduce minimum load on fossil fuel units so they can stay on line and produce less power
• How to minimize auxiliary power use at reduced loads
• How to start units faster so they can go from off to synchronized in a timely manner.
• How to ramp faster when you’re online and changing load up and down
• Technical challenges and opportunities for integrating renewables

Dalia El Tawy, Director, Siemens

12:00 - 1:00 pm  Group Luncheon
TUESDAY, OCTOBER 17, 2017 (CONTINUED)

1:00 - 2:30 pm  Utility Case Study: Hybrid Natural Gas/Battery Storage Plant
The Hybrid Enhanced Gas Turbine System (Hybrid EGT) created by Southern California Edison in partnership with General Electric and Wellhead Power Solutions is now fully operational at the Center Peaker Plant in Norwalk and Grapeland Peaker in Rancho Cucamonga. The Hybrid EGT combines a battery’s ability to immediately respond to the grid’s needs with the flexibility of a quick-start, fast-ramping gas turbine. The new system unlocks tremendous value in existing peaker plants by making the Hybrid EGT instantaneously available, providing spinning reserves even while the gas turbine is offline.

- Identifying the need for flexible generation, the duck curve
- Reducing the number of times the gas turbine is started by half
- Lowering both operating costs and costs to energy consumers
- Reducing greenhouse gas and particulate emissions by as much as 60 percent
- Extending the life of plant equipment
- Assessing the benefits of integrating battery storage into a natural gas plant
- Review of various wholesale markets - value streams associated with increased operational flexibility
- Potential future applications for hybrid power plants

_Vibhu Kaushik, Principal Manager, Asset Management & Generation Strategy, Southern California Edison_

2:30 - 3:00 pm  Networking Break

3:00 - 4:30 pm  Unlocking System Value with Battery Hybrid Technology Electric Gas Turbines
GE’s development of the world’s first Hybrid Electric Gas Turbine was born from listening to owner-operators of our gas turbines and their requirements for meeting the emerging grid’s operational needs

- Hybrid technology overview
- Increasing machine performance leads to energy market optimization & opportunities
- Optimizing the grid dispatch stack
  - Vertically integrated utility, transmission system operators, load serving entities
  - Merchant perspective - Capturing additional revenue and reducing maintenance costs
- Developing hybrid architecture for future proof deployments

_Joe Heinzmann, Senior Product Manager, Battery Hybrid Electric Gas Turbines, GE Power Services_

4:30 pm  Day One Adjourns

REGISTER TODAY! CALL 303-770-8800 OR VISIT WWW.EUCI.COM
AGENDA

WEDNESDAY, OCTOBER 18, 2017

8:00 - 8:30 am  Continental Breakfast

8:30 - 10:00 am  **Training Staff – Creating a Workforce that can Adapt to Changing Processes Found in Flexible Plant Generation**

While operators, engineers, and tend have to focus on equipment performance when upgrading plants, reliability gains are often made by addressing the human component.

- Managing the dynamic environment of a flexible power generation plant
- Basics of resilience engineering and highly reliable organizing for variable power generation processes
- Approaching staff training in a manner that recognizes the inherent variability in power plant operations and how that increases with flexible generation
- Nine characteristics of highly reliable and resilient teams
- Practices and tools to increase staff adaptability when handling different tools and changing start-up operations

*Elizabeth Lay, Resilience Engineering, Human Performance, Applied Resilience LLC*

10:00 - 10:30 am  Networking Break

10:30 - 12:00 pm  **Safety Concerns when Using a Battery Storage Unit in a Hybrid Plant**

- Installation standards and guidelines
- Standard Operating Procedures (SOP) development
- Hazard awareness and assessment
- First responder interaction
- Emergency response procedures
- Business continuity planning
- Battery system failure (BESS)
- Shock hazard awareness
- Fire control

*Ronald Butler, CEO, ESSPI*

12:00 pm  Course Adjourns
INSTRUCTORS

Dalia El Tawy
Director, Siemens

Dalia El Tawy is the Director of Thermal Power Solutions at the Distributed Energy Systems Center of Competence in Siemens based out of Orlando, Florida. She is responsible for leading the development of Siemens’ portfolio of thermal power solutions for the distributed energy market. DES thermal power solutions comprise and incorporate applications such as cogeneration, trigeneration, and prime/standby power utilizing Siemens leading technology portfolio of gas turbines, reciprocating engines, steam turbines, advanced control systems, energy storage, and electrical BOP into comprehensive solutions for DES customers tailored to key market verticals.

Dalia has more than 14 years of experience in the power generation and oil and gas markets.

Vibhu Kaushik
Principal Manager, Asset Management & Generation Strategy, Southern California Edison

As the Principal Manager of Asset Management and Generation Strategy group at SCE, Vibhu is responsible for driving the major maintenance and capital investment decisions and maximize the returns for company’s hydroelectric, natural gas, and solar power plants; performance benchmarking & asset optimization, water planning, asset condition monitoring, engineering and risk analysis; plant engineering; central work management program; central outage planning and scheduling; documents and records management for all of SCE’s generation assets.

Vibhu was previously Principal Manager for Resource Planning & Optimization where he managed supply and demand bidding strategies, overall utilization of SCE’s contracted and utility owned generation portfolio (20,000 MW+) in California ISO markets through preparation of daily resource plans and quantifying the short-term risk of serving SCE’s bundled customer load.

Prior to joining SCE in 2011, Vibhu was section head for generation operations planning group at Manitoba Hydro’s system control center in Canada, where he lead the team responsible for generation reliability, generation modeling and optimal utilization, and outage management functions.

Vibhu earned a bachelor’s degree in mechanical engineering from Indian Institute of Technology, Delhi, India, and a master’s degree in mechanical engineering from University of Manitoba, Canada. He is also a registered professional engineer. He is currently pursuing an executive MBA from UCLA Anderson.

Southern California Edison (SCE), the largest subsidiary of Edison International (NYSE: EIX), is the primary electricity supply company for much of Southern California, USA. It provides 14 million people with electricity across a service territory of approximately 50,000 square miles.

Joseph R Heinzmann
Senior Product Manager, 0Battery Hybrid Electric Gas Turbine Systems, GE Power Services

Joe Heinzmann is the Senior Product Manager for General Electric’s Power Services Business. In this role, Joe is responsible for developing cost effective technical solutions for GE’s customers around the world that maximizes the sustainability, economics and efficiency of our customer’s and utilities energy systems.

Joe has led directly to the placement of large scale Battery Energy Storage Systems in various applications such as: Hybrid Electric Gas Turbines, Balancing areas, load management for Industrial customers, and renewable integration applications worldwide.

Joe holds a Mechanical Engineering Degree from the California Maritime Academy.
INSTRUCTORS

Elizabeth Lay
Resilience Engineering, Human Performance, Applied Resilience LLC

An experienced leader who develops resilient, reliable organizations by redesigning how safety is created. Four years experience as Director of Human Performance at Calpine Corp – an owner / operator of 80+ electric utility power plants. Seven years experience as the leader of Siemens Energy Field Service Risk Management team. A Practitioner in Resilience Engineering & Highly Reliable Organizing communities for 10+ years. She is a mechanical engineer with graduate work in cognitive science. She has worked with companies such as NASA, ThyssenKrupp, Siemens, Calpine, and contributed to development of EU crisis management guidelines through the Darwin project.

Areas of Expertise Include: Resilience Engineering (RE), Highly Reliable Organizing (HRO), Safety 2, Human Performance (HP), Operational Risk Management

Ronald Butler
Chief Executive Officer, ESSPI

Ronald M. Butler holds a Master’s degree in Instructional Systems Design from Wayne State. He has served as a consultant on numerous battery fire safety and training contracts (Ford Motor Co., Volkswagen, University of Michigan, etc.) and possesses 15+ years of training and organizational development experience. Ron’s certifications include: Fire Inspector I (NFPA), Professional Continuity Practitioner (FEMA), Business Continuity Planner (NFPA 1600), Disaster Response and Recovery, Emergency Planning (State of Michigan), Pipeline Emergencies Response, Professional Emergency Manager Cert (State of Michigan), Emergency Exercise Planning (State of Michigan and FEMA), contract negotiations, hazardous materials (response and operations), evacuation planning (NFPA), radiological awareness, response and operations, rapid intervention, confined space (operations), marine firefighting (response and operations), Lithium-Ion battery fire response training for Aircraft Rescue Fire Fighting (ARFF), process design (battery fire response SOP’s), and many more. Ron has active partnerships with NFPA and Underwriters Laboratories. He has designed, and delivers, battery/xEV safety and emergency response training for both organizations and assisted in the development of NFPA’s Energy Storage Response training for first responders. Ron founded Energy Storage Safety Products International (ESSPI) which is involved in the design and development of next-generation fire suppression and containment systems for battery operations and logistics. He chairs the Michigan Aerospace Manufacturers Association’s Battery Logistics Development Group which has defined a group of organizations that seek to develop solutions for the safe shipment and storage of battery tech.

SPONSORSHIP OPPORTUNITIES

Do you want to drive new business through this event’s powerful audience? Becoming a sponsor or exhibitor is an excellent opportunity to raise your profile before a manageably sized group of executives who make the key purchasing decisions for their businesses. There is a wide range of sponsorship opportunities available that can be customized to fit your budget and marketing objectives, including:

- Platinum, gold, or VIP sponsor
- Reception host
- Networking break host
- Tabletop exhibit
- Workshop sponsor
- Lanyard sponsor
- Luncheon host and Breakfast host

Please contact Dave Hoffman at dhoffman@euci.com or 720-642-9751 for more information.
INSTRUCTIONAL METHODS

Case studies and power point presentations will be used at this symposium

REQUIREMENTS FOR SUCCESSFUL COMPLETION

Participants must sign in/out each day and be in attendance for a minimum of four hours to be eligible for any continuing education credit.

IACET CREDITS

EUCI has been accredited as an Authorized Provider by the International Association for Continuing Education and Training (IACET). In obtaining this accreditation, EUCI has demonstrated that it complies with the ANSI/IACET Standard which is recognized internationally as a standard of good practice. As a result of their Authorized Provider status, EUCI is authorized to offer IACET CEUs for its programs that qualify under the ANSI/IACET Standard.

EUCI is authorized by IACET to offer 0.9 CEUs for the symposium

EVENT LOCATION

EUCI Office Building Conference Center
4601 DTC Blvd, B-100
Denver, CO 80237

NEARBY HOTELS

Hyatt Regency Denver Tech Center
7800 E. Tufts Ave
Denver, CO 80237
Phone: 303-779-1234
0.3 miles away

Hilton Garden Inn Denver Tech Center
7675 E. Union Ave
Denver, CO 80237
Phone: 303-770-4200
0.6 miles away

Denver Marriott Tech Center
4900 S. Syracuse St
Denver, CO 80237
Phone: 303-779-1100
0.7 miles away

Hyatt Place Denver Tech Center
8300 E. Crescent Parkway
Greenwood Village, CO 80111
Phone: 303-804-0700
0.9 miles away

REGISTER 3, SEND THE 4TH FREE

Any organization wishing to send multiple attendees to this event may send 1 FREE for every 3 delegates registered. Please note that all registrations must be made at the same time to qualify.

REGISTER TODAY! CALL 303-770-8800 OR VISIT WWW.EUCI.COM
REGISTRATION INFORMATION

Mail Directly To:
Electric Utility Consultants, Inc. (EUCI)
4601 DTC Blvd., Ste. 800, Denver, CO 80237
OR, scan and email to: conferences@euci.com

WWW.EUCI.COM
p: 303-770-8800
f: 303-741-0849

EUCI Office Building Conference Center
4601 DTC Blvd, B-100
Denver, CO 80237

See nearby hotels on page 8

Please Register

Battery Storage for Flexible Power Generation Symposium: October 17 - 18, 2017: US $1395
Early bird on or before September 29, 2017: US $1195

I’m sorry I cannot attend, but please email me a link to the conference proceedings for US $295

How did you hear about this event? (direct e-mail, colleague, speaker(s), etc.)

Print Name

Job Title

Company

What name do you prefer on your name badge?

Address

City

State/Province

Zip/Postal Code

Country

Phone

Email

List any dietary or accessibility needs here

Credit Card Information

Name on Card

Account Number

Exp. Date

OR Enclosed is a check for $_______ to cover _________ registrations.

Billing Address

Billing City

Billing Zip Code/Postal Code

Security Code (last 3 digits on the back of Visa and MC or 4 digits on front of AmEx)

EUCI reserves the right to alter this program without prior notice.

Substitutions & Cancellations

Your registration may be transferred to a member of your organization up to 24 hours in advance of the event. Cancellations must be received on or before September 15, 2017 in order to be refunded and will be subject to a US $195.00 processing fee per registrant. No refunds will be made after this date. Cancellations received after this date will create a credit of the tuition (less processing fee) good toward any other EUCI event. This credit will be good for six months from the cancellation date. In the event of non-attendance, all registration fees will be forfeited. In case of course cancellation, EUCI’s liability is limited to refund of the event registration fee only. For more information regarding administrative policies, such as complaints and refunds, please contact our offices at 303-770-8800.

EUCI’s Energize Weekly e-mail newsletter compiles and reports on the latest news and trends in the energy industry. Newsletter recipients also receive a different, complimentary course presentation every week on a relevant industry topic. The presentations are selected from a massive library of more than 1,000 current presentations that EUCI has gathered during its 30 years organizing courses.

Sign me up for Energize Weekly

Downloadable CEUs

EUCI offers downloadable CEUs that provide flexibility to learn at your own pace and at your convenience. A great way to stay current with industry trends and fulfill continuing education requirements, these CEUs are available worldwide and can be accessed on any device with an internet connection.

Energize Weekly

EUCI's Energize Weekly e-mail newsletter compiles and reports on the latest news and trends in the energy industry. Newsletter recipients also receive a different, complimentary course presentation every week on a relevant industry topic. The presentations are selected from a massive library of more than 1,000 current presentations that EUCI has gathered during its 30 years organizing courses.

Sign me up for Energize Weekly

Downloadable CEUs

EUCI offers downloadable CEUs that provide flexibility to learn at your own pace and at your convenience. A great way to stay current with industry trends and fulfill continuing education requirements, these CEUs are available worldwide and can be accessed on any device with an internet connection.

Energize Weekly

EUCI's Energize Weekly e-mail newsletter compiles and reports on the latest news and trends in the energy industry. Newsletter recipients also receive a different, complimentary course presentation every week on a relevant industry topic. The presentations are selected from a massive library of more than 1,000 current presentations that EUCI has gathered during its 30 years organizing courses.

Sign me up for Energize Weekly

Downloadable CEUs

EUCI offers downloadable CEUs that provide flexibility to learn at your own pace and at your convenience. A great way to stay current with industry trends and fulfill continuing education requirements, these CEUs are available worldwide and can be accessed on any device with an internet connection.