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**Long Beach, California, USA
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Sunday, November 11

Sunday, November 11 12:00 - 2:00

HT1: Haynes Power Plant Tour 1

Room: Haynes

Tour of the Haynes Power Plant Long Beach for 20 to 30 people each tour. Transportation from the Best Western Golden Sails will be provided.

Note: There will be some dress code conditions for safety reasons.

Sunday, November 11 1:00 - 4:00

SGW: IEEE Smart Grid Standards Update

Prof. Sean Monemi, California State Polytechnic University

Room: Nautilus

This workshop describes an overall concept of the Smart Grid and the standards that are currently applicable to the smart grid. There are over 100 IEEE standards relevant to smart grid, including more than 20 IEEE standards named in the NIST framework and roadmap for Smart Grid interoperability standards. These standards explain a high-level reference model for the Smart Grid. Some of these standards, identify some existing standards that can be used now to support the smart grid design and development. In this workshop some concepts of major components that play a major role in a successful implementation of a smart grid are introduced such as: AMI, SCADA, GIS, GPS, AVL, CIS, etc. In addition, some important topics in smart grid will be discussed such as: The current condition of power grid, Sensing and Measurement, Cyber Security, Components and Subsystems, Interfaces and Decision Support tools.

Sunday, November 11 2:30 - 4:30

HT2: Haynes Power Plant Tour 2

Room: Haynes

Tour of the Haynes Power Plant Long Beach for 20 to 30 people each tour. Transportation from the Best Western Golden Sails will be provided.

Note: There will be some dress code conditions for safety reasons.

Sunday, November 11 3:00 - 6:00

PC: Student Poster Contest

Room: Ballroom

Display of entries for SusTech Student Poster Contest. Speak with student authors.
Judging from 5:30-6:00pm

Sunday, November 11 6:00 - 7:00

SR: Welcome Reception

Room: Ballroom

Cash bar. View Student Poster entries. Poster Contest winners will be announced.

Monday, November 12

Monday, November 12 8:00 - 8:20

MO: Opening / Introductions

Sevada Isayan, SusTech Chair
Kathleen Kramer, IEEE Region 6 Director

Room: Ballroom

Monday, November 12 8:20 - 9:20

MK1: Opening Keynote

RAPID: Robot Assisted Precision Irrigation Delivery
Stefano Carpin, University of California, Merced

Room: Ballroom

Agricultural irrigation consumes about 70% of the world's freshwater. Emerging sensing technologies such as UAVs equipped with heterogeneous sensors can provide farmers with detailed maps of water use and ground conditions. However, closing the sensing-actuation loop to adjust irrigation at the plant level remains an unsolved challenge. RAPID (Robot Assisted Precision Irrigation Delivery) explores an alternative approach whereby a team of humans and robots move through fields to adjust low-cost adjustable drip irrigation emitters. RAPID is designed for cost-conscious farm managers to be retrofit to existing irrigation systems and incrementally expanded to increase irrigation precision and reduce water usage. The project involves the design, development, and evaluation in the field of robust co-robotic systems compatible with existing drip irrigation infrastructure in vineyards and orchards.

Monday, November 12 9:20 - 9:40

MB1: Break

Room: Foyer

Monday, November 12 9:40 - 12:00

EE-I: Energy Efficiency I

Room: Nautilus

Chair: Sarkis Meguerdijian (California State University Northridge, USA)

9:40 Artificial Neural Network Based Short Term Power Demand Forecast for Smart Grid

Sonali N Kulkarni (Student, Rajiv Gandhi Institute of Technology, Versova, Mumbai, USA & University of Mumbai, India);
Prashant Shingare (Director of Renewable Energy, Vertiv Energy Pvt. Ltd, India)
pp. 1-7

10:00 Neuroevolution Based Optimization of Hybrid Transmission Shift Points

Justin Bower (California State University Los Angeles, USA); Masood Shahverdi (California State University, USA); David Blekhman (California State University Los Angeles, USA)
pp. 8-12

10:20 A Comparative Analysis of GridPIQ's Fossil Fuel Dispatch Algorithm

Emily L Barrett, Brandon Thayer, Sarah Newman, Seemita Pal and Karen Studarus (Pacific Northwest National Laboratory, USA)
pp. 13-20

10:40 Reliability Implications of Riverflow Variations in Planning Hydropower Systems

Fang Fang and Rajesh Karki (University of Saskatchewan, Canada)

pp. 21-26

11:00 Investigation of Heat Transfer Through Multi Jet Heat Exchangers Utilizing Local Thermal Non-Equilibrium Model

Carlos Zing and [Shadi Mahjoob](#) (California State University Northridge, USA)

pp. 27-34

11:20 Residential Demand Response Program: Virtual Storage Model and Its Optimization

[Saurav Basnet](#) (1845 Fairmount St., USA); Ward Jewell (Wichita State University, USA)

pp. 35-42

11:40 Time-segmented Regression Analysis: An Approach in Designing More Effective DSM Scheme

Imran Khan (University of Otago, New Zealand)

pp. 43-44

IN-I: Invited Speakers

Room: Seafarer

Chair: Afshin Amini (California State University Northridge & Konnected Universe, USA)

9:40 Fabrication of Novel Porous Materials for the Removal of Mercury from Waste Water

Mohsen Manjili (University of Wisconsin Milwaukee & Water Technology Accelerator (WaTA), USA); Marcia Silva (University of Wisconsin Milwaukee, USA)

pp. 45-46

10:10 Advancing Systematic and Fundamental Changes in Agricultural Water Resources Management

Amir Kordijazi (University of Wisconsin Milwaukee & Water Technology Accelerator, USA); Marcia Silva (University of Wisconsin Milwaukee, USA)

pp. 47-48

IOT-EI-I: IOT / Elec I

Room: Pacific

Session Chair: Steve Agarwal

9:40 An Approximation Solution of the Swing Equation Using Particle Swarm Optimization

[Abdulhamid Zaidi](#) (Oklahoma State University - Stillwater, USA)

pp. 49-53

10:00 Pseudo-Node Attack on the Smart Grid

Sean S Monemi, [Rafi Meguerdijian](#), Tam Lam, Devon Marantz, Phat Lam, Eduardo Portillo, Cesar Flores and Tae Kim (California State Polytechnic University at Pomona, USA)

pp. 54-59

10:20 Improved Detection of False Data Injection Attacks in Smart Grids Using Long Short-Term Memory Units

Stefan Binna (Salzburg University of Applied Sciences, Austria); [Sanmukh Kuppannagari](#) (University of Southern California, USA); Dominik Engel (Salzburg University of Applied Sciences, Austria); Viktor K. Prasanna (University of Southern California, USA)

pp. 60-66

10:40 A Review of Single-Phase Single-Stage DC/AC Boost Inverter Topologies and Their Controllers

[Adam Stone](#) (Southeast Missouri State University, USA); Md. Rasheduzzaman (Southeast Missouri State University & Missouri S&T, IEEE, USA); Poria Fajri (University of Nevada, Reno, USA)

pp. 67-74

11:00 Sustainability Through Leveraging of Extraterrestrial Resources

[Alex Ellery](#) (Carleton University, Canada)

pp. 75-83

11:20 Visual Analytics to Support the Service Design for Sustainable Mobility

Didem Gürdür and Liridona Sopjani (KTH Royal Institute of Technology, Sweden)
pp. 84-89

11:40 YoMoPie: A User-Oriented Energy Monitor to Enhance Energy Efficiency in Households

Christoph Klemenjak, Stefan Jost and Wilfried Elmenreich (Alpen-Adria-Universität Klagenfurt, Austria)
pp. 90-96

Monday, November 12 9:40 - 10:40

REA-I: Renewable/Alternate Energy I

Room: Ballroom

Chair: David Gonzalez (IEEE, USA)

9:40 Design of a Modern Proton-Exchange Membrane Fuel Cell Module for Engineering Education

Jeremy Smith (Virginia Tech, USA)
pp. 97-102

10:00 Boosting DC/AC Ratio of PV Plant for BESS Integration on DC Side

Douglas Meneghel (Itajubá Federal University, Brazil & Enel Green Power, USA); Edson da Costa Bortoni (Itajubá Federal University, Brazil); Ali Karimi (Enel Green Power, USA)
pp. 103-106

10:20 Iterative Mechanism for Two-Sided Electricity Markets with Variable Renewable Energy Sources

Sreelatha Subramanyam and Xuewei Zhang (Texas A&M University-Kingsville, USA)
pp. 107-112

10:40 Optimal Integration of PV Generation in Distribution Systems

Abdulmunim Guwaeder and Rama Ramakumar (Oklahoma State University, USA)
pp. 113-117

Monday, November 12 12:00 - 1:30

ML: Lunch & Keynote

Keynote: Entrepreneurship and Sustainable Technology: Differences, Challenges and Opportunities

Mark Werwath, Northwestern University

Room: Ballroom

Most of the latest thinking in entrepreneurship as documented by Steve Blank and Alex Osterwalder in the last ten years has caused the lean startup revolution. This revolution has been embraced by entrepreneurship schools and incubators around the world and even the NSF ICORPS have embraced this methodology in a comprehensive way. This talk will look at clean tech startups and clean tech entrepreneurship and explore where lean startup methodology applies well and where this methodology alone is not reflective of the clean tech industry realities. While lean startup is geared towards mostly digital startups, the question to ask is how are clean tech based startups substantially different from most digital startups and what do clean tech startups need to consider in order to succeed?

Monday, November 12 1:30 - 3:00

EE-II: Energy Efficiency II

Room: Nautilus

Chair: Sarkis Meguerdijian (California State University Northridge, USA)

1:30 Comparison of Energy Consumption of Fluorescent Vs LED Lighting System of an Academic Building

Daniel Fernando Espejel-Blanco, Jose Hoyo-Montano, Jorge Orrante-Sakanassi and Jorge Federico-Rivera (Instituto Tecnológico de Hermosillo, Mexico)
pp. 118-123

1:50 Predictive Analytics to Estimate Level of Residential Participation in Residential Demand Response Program

Saurav Basnet (1845 Fairmount St., USA); Ward Jewell (Wichita State University, USA)
pp. 124-131

2:10 Life Expectancy and Future Performance of SiR and EPDM Nonceramic Insulators Through FTIR Spectroscopy and Analytical Methods

Mohamad F. AlHajri (College of Technological Studies, The Public Authority for Applied Education and Training (PAAET), Kuwait)
pp. 132-139

2:30 A Hierarchical Control Strategy for the Modular Microgrid

Suchita Bhandari (California State University, Los Angeles, USA); Masood Shahverdi (California State University, USA); Arash Jamehbozorg (California State University Los Angeles, USA)
pp. 140-141

Monday, November 12 1:30 - 5:00

IOT-W: IOT Workshop

Hands-on Workshop: IoT of Facility Electrical Devices for Sustainability

Shahin Rokni & Sepehr Zarrabi, Schneider Electric

Room: Pacific

This workshop provides a hands-on experience to the participants on connecting a few electrical IoT devices (meters/circuit breaker trip units etc.) to a Schneider Electric EcoStruxure Power Monitoring Expert System. The information from the devices is displayed on the software system screens for user analysis. The internet-enabled system allows visibility of information anywhere on the network. The facility engineers use this information for troubleshooting, improving system reliability; and development of energy saving strategies. The information from the system assists in the LEED compliance and sustainability initiatives of the facilities.

Monday, November 12 1:30 - 3:00

REA-II: Renewable/Alternate Energy II

Room: Ballroom

Chair: David Gonzalez (IEEE, USA)

1:30 The Interplay of Transmission and Distribution Systems with a High Penetration of PV-based DERs

Gustavo Cuello (University of Puerto Rico at Mayagüez, Puerto Rico); Efraín O'Neill-Carrillo (University of Puerto Rico-Mayaguez, Puerto Rico)
pp. 142-147

1:50 Utility Models for Harmonic Analysis

Eduardo H. Enrique (RRC Companies, USA)
pp. 148-153

2:10 Effects of Environmental Influences on Active Thermography to Detect the Inner Structures of Wind Turbine Rotor Blades

Daniel Schwahlen and Uwe Handmann (University of Applied Sciences Ruhr West, Germany)
pp. 154-158

2:30 Techno-Economic Analysis of a Battery Energy Storage System with Combined Stationary and Mobile Applications

Hassan Hayajneh, Srikanth Bashetty, Muath Bani Salim and Xuewei Zhang (Texas A&M University-Kingsville, USA)
pp. 159-164

SIQ: Social Implications/QoL

Room: Seafarer

Chair: Kourosh Sedghisigarchi (California State University, Northridge (CSUN), USA)

1:30 Reachability Analysis as a Design Tool for Stormwater Systems

Margaret Chapman (University of California, Berkeley, USA); Kevin Smith (Tufts University and OptiRTC, USA); Victoria Cheng (University of California, Berkeley, USA); David Freyberg (Stanford University, USA); Claire Tomlin (University of California, Berkeley, USA)
pp. 165-172

1:50 Priority Model for Public-Private Partnership Investment in Energy Projects

Emad Elwakil (Purdue University, USA); Mohamed Hegab (California State University Northridge, USA)
pp. 173-177

2:10 Risk Management for Power Purchase Agreements

Emad Elwakil (Purdue University, USA); Mohamed Hegab (California State University Northridge, USA)
pp. 178-183

Monday, November 12 3:00 - 3:20

MB2: Break

Room: Foyer

Monday, November 12 3:20 - 5:00

EE-III: Energy Efficiency III

Room: Nautilus

Chair: Sarkis Meguerdijian (California State University Northridge, USA)

3:20 Optimal Penetration of Combined Wind DG and VAR Compensation for Voltage Stability Improvement

Tarek Masaud, Jonathan Warner, Megan Bates, Tyler Vernick and Christopher Richards (Marshall University, USA)
pp. 184-188

3:40 Energy Efficiency in a Cardboard Manufacturing Plant - Technical and Economic Analysis

Marcos Roitman (Sami Shamoon College of Engineering, Israel); Roman Leschenko (Shamoon College of Engineering); Michael Iskhakov (Shamoon College of Engineering, Israel)
pp. 189-192

4:00 Shades of Green and Brown: Comparing Grid Carbon Intensity with Consumption for Households with PV Generation and Battery Storage

Niaz Chowdhury, Blaine A. Price, Andrew Smith, Daniel Gooch and Janet van der Linde (The Open University, United Kingdom (Great Britain))
pp. 193-200

4:20 A Simple Approach for Sustainable Transportation Systems in Smart Cities: A Graph Theory Model

Quinn Nelson and Donald Steffensmeier (University of Nebraska Omaha, USA); Sachin Pawaskar (University of Nebraska at Omaha, USA)
pp. 201-205

4:40 Evaluating and Improving the Energy Performance of School Buildings with a Proposed Real-Time Monitoring

System

Yaqing Chen (University of Alberta & The Association of Professional Engineers and Geoscientists of Alberta (APEGA), Canada); Xinming Li, Regina Celi Dias Ferreira, [Mustafa Gul](#), Ioanis Nikolaidis and Omid Ardakanian (University of Alberta, Canada)
pp. 206-213

Monday, November 12 3:20 - 4:00

El-II: Electronics II

Room: Seafarer

Chair: Kourosh Sedghisigarchi (California State University, Northridge (CSUN), USA)

3:20 Design of Autocrash Emergency Locator

[Mojisola Usikalu](#), Boluwatife Allen, Williams Ayara and Idowu Babarimisa (Covenant University, Nigeria)
pp. 214-217

3:40 Series Synchronous Capacitor-Clamped GaN Electrostatic Energy-Harvesting Power Stage

[Amy C Wilson](#) (Georgia Institute of Technology & Honeywell FM&T, USA); William Hunt and Garbiel Rincon-mora (Georgia Institute of Technology, USA)
pp. 218-224

Monday, November 12 3:20 - 5:00

W-W: Water / eWaste

Room: Ballroom

Chair: David Gonzalez (IEEE, USA)

3:20 Genetic Programming and Gaussian Process Regression Models for Groundwater Salinity Prediction: Machine Learning for Sustainable Water Resources Management

Alvin Lal and Bithin Datta (James Cook University, Australia)
pp. 225-231

3:40 Selection of Meta-models to Predict Saltwater Intrusion in Coastal Aquifers Using Entropy Weight Based Decision Theory

Dilip Roy and Bithin Datta (James Cook University, Australia)
pp. 232-237

4:00 Reliability Based Management of Coastal Aquifers Using Heterogeneous Ensemble of Meta-models

Dilip Roy and Bithin Datta (James Cook University, Australia)
pp. 238-242

4:20 Robotic Sorting of Used Button Cell Batteries: Utilizing Deep Learning

Adam Sanderson (Conestoga College & University of Waterloo, Canada); [Hamid Karbasi](#), Alireza Sharifi and Cristian Pop (Conestoga College, Canada)
pp. 243-248

4:40 EcoPrinting: Investigation of Solar Powered Plastic Recycling and Additive Manufacturing for Enhanced Waste Management and Sustainable Manufacturing

[Mazher Mohammed](#), Dan Wilson, Eli Gomez-Kervin, Lucas Rosson and Johannes Long (Deakin University, Australia)
pp. 249-254

Monday, November 12 4:00 - 5:00

IN-II: Invited Speakers II

Room: Seafarer

Chair: Kourosh Sedghisgarchi (California State University, Northridge (CSUN), USA)

Five Myths about Nuclear Power

Van Snyder

Solar PV system for Sustainable Community Development

RP Singh, Department of Energy in UNIDO

Monday, November 12 5:00 - 6:00

MR: Reception

Room: Ballroom

Monday, November 12 6:00 - 7:30

MD: Dinner & Keynote

Keynote: Photovoltaic Solar Power Generation Problems, Issues and Solutions

Dr. Peter Gevorkian, Vector delta Design Group

Room: Ballroom

The presentation will cover some of the most fundamental issues associated with solar power generation issues and technology solutions which have been developed, however, as of yet not been marketed.

Tuesday, November 13

Tuesday, November 13 8:00 - 8:10

TO: Opening / Introductions

Room: Ballroom

Tuesday, November 13 8:10 - 8:50

TK1: Tuesday Keynote

Growing Atmospheric Pollution in Asian Countries: Threat to Environment Sustainability

Ramesh P. Singh, Ph.D., Chapman University

Room: Ballroom

One third of the world population lives in Asian countries, population is still on increase. With the growing population, migration from rural areas to urban areas is going on and that has increased energy, water and food demand which impact air quality and atmospheric pollution - a threat to human health and has raised question of sustainability. In the Developed countries, various kinds of earth observing systems are placed on land and ocean that provide real time data, in contrast such observing systems are limited in Asian countries and data are not freely available. Ground and satellite observations provide valuable data at local, regional and global scale that have helped scientists to alert people for impending natural hazards on timely basis, but such forecasts are lacking in the Developing countries. An overview of sources of pollution in Asian countries and greenhouse emissions impacting air quality and climate during winter, summer and spring seasons will be presented. Different kinds of natural hazards in Asian countries associated with land, ocean and atmosphere and their short and long term impacts on Earth's environment will be discussed. There is need of dense network of ground sensors combined with satellite data for timely forecasts for alerting population in Developing countries to save lives and to make sustainable environment for future generation.

Tuesday, November 13 8:50 - 9:40

PWP: Panel: Water Policy

Room: Ballroom

Moderator: Gora Datta, CAL2CAL Corporation

Panelists:

Diane Gatz, P.E, Water Replenishment District of Southern California
Russ Lefevre, Metropolitan Water District (MWD) Board of Directors

Tuesday, November 13 9:40 - 10:00

TB1: Break

Room: Foyer

Tuesday, November 13 10:00 - 11:20

EE-IV: Energy Efficiency IV

Room: Nautilus

Chair: Edward G Perkins (Self-employed, USA)

10:00 Network Elements of a Telecommunication Service Provider in Nigeria

Mojisola Usikalu and Reuben Ilesanmi (Covenant University, Nigeria)
pp. 255-258

10:20 A Small Scale Real World like Model of a Smart Grid

Sean S Monemi, David Brown, Nicolas Bautista, Emmanuel Bautista-Dizon, Katya Casasola, Gustavo Gonzalez and Thomas Morris (California State Polytechnic University at Pomona, USA)
pp. 259-264

Tuesday, November 13 10:00 - 12:20

IN-III: Invited Speakers III

Room: Seafarer

Chair: Gora Datta (CAL2CAL, USA)

Empowering Communities with Low Cost Air Quality Monitoring

Dominic Massetti

Renewable Hydrogen Liquid Carrier to Compete with Fossil Fuels

Barton Norton (KONTAK, Inc., USA)

Tuesday, November 13 10:00 - 11:20

ITS: Intelligent Transportation Systems

Room: Ballroom

Chair: Sevada Isayan (CSUN/GCC/IEEE, USA)

10:00 MPC-Based Power Management Strategy to Reduce Power Loss in Energy Storage System of HEV - Improved Model

Morgan Cook (California State University Los Angeles, USA); Masood Shahverdi (California State University, USA); David Blekman (California State University Los Angeles, USA); Bamdad Falahati (SEL, USA)

pp. 265-271

10:20 Design of an Inflight Power Generation and Storage System for Use in UAVs

Kevin Anderson (California State Polytechnic University at Pomona & Solar Thermal Alternative Renewable Energy Lab, USA); Zhen Yu, Steven Dobbs, Jonathan Franco, Alexander Deravanessian, Albert Lin and Andrew Ahn (California State Polytechnic University at Pomona, USA)

pp. 272-279

10:40 Loss of Load Probability of Power Systems Considering the High PHEV Penetration Rates

Bamdad Falahati (SEL, USA); Masood Shahverdi (California State University, USA); Poria Fajri (University of Nevada, Reno, USA); Amin Kargarian (Louisiana State University, USA)

pp. 280-284

11:00 Improved Range Prediction for Electric Vehicles by a Smart Tire Pressure Monitoring System

Heiko Fechtner and Benedikt Schmuelling (University of Wuppertal, Germany)

pp. 285-292

Tuesday, November 13 10:00 - 12:20

SG: Smart Grid

Room: Pacific

Chair: Bishnu P. Bhattarai (Pacific Northwest National Laboratory, USA)

10:00 Event Detection from PMU Generated Big Data Using R Programming

Vishawjit Roy, Subrina Noureen, Stephen Bayne, Argenis Bilbao and Michael Giesselmann (Texas Tech University, USA)

pp. 293-298

10:20 Integration of Statistical Models of Residential HVAC Loads with a Commercial Smart Thermostat

Jeewon Choi, Andrea Mammoli and Matthew Robinson (University of New Mexico, USA)

pp. 299-306

10:40 Definition of Market Performance Metrics to Enable Design and Valuation of Retail Transactive Energy System Markets

Bishnu P. Bhattarai, Donald Hammerstrom and Peng Wang (Pacific Northwest National Laboratory, USA)

pp. 307-314

11:00 Minimizing Cost of Load Matching in Multiple Micro-Grids Using MESS

Athanasios Rompokos, Sanmukh Kuppannagari, Rajgopal Kannan and Viktor K. Prasanna (University of Southern California, USA)

pp. 315-321

11:20 A Highly Efficient GaN E-HEMT/SiC Schottky Diode Power Device Based DC-DC ZETA Converter

Ali M. S. Al-bayati and Mohammad Matin (University of Denver, USA)

pp. 322-326

11:40 Enhancing Distribution System Hosting Capacity Through Active Network Management

Salman Kahrobaee (SCE, USA); Chad Abbey, Hugo Gil and Chris Linn (SGS, USA)

pp. 327-332

12:00 GIS Role in Smart Grid

Lavanya Gnanasekaran (California State Polytechnic University, USA); Sean S Monemi (California State Polytechnic University at Pomona, USA)

pp. 333-337

Tuesday, November 13 11:20 - 12:20

TF: Open

Room: Nautilus

Tuesday, November 13 12:30 - 2:00

TL: Lunch & Keynote

Keynote: Introducing the Grid Project Impacts Quantification Web Calculator (GridPIQ)

Karen Studarus, Pacific Northwest National Laboratory

Room: Ballroom

The Grid Project Impacts Quantification (GridPIQ) web screening tool, funded by OE's Advanced Grid Research division, allows users to explore how technologies impact the grid (e.g., peak power, emissions, etc.) under different scenarios. It brings together publicly available data to make it easy for anyone - utilities, product vendors, policy makers, regulators, advocates - to quickly visualize how grid technologies perform, quantify project benefits, and uncover unintended consequences. GridPIQ aims to incorporate enough detail about specific grid technology and objectives, coupled with enough detail about the power system to yield insight. The focus is on transparency, modularity, ease of use, and versatility rather than precision. The tool allows users to sift through the impacts of diverse ideas quickly and with confidence, importing specifics when known and drawing on clear, relevant suggestions when not. This talk will dive into how to use GridPIQ as well as the methodologies that drive the calculator engine by stepping through some examples.

Tuesday, November 13 2:00 - 3:00

CLS: Closing & Networking

Room: Ballroom