EUCI is authorized by IACET to offer 1.1 CEUs for the conference and 0.3 CEUs for the workshop.

**BLOCKCHAIN TECHNOLOGY FOR THE ENERGY SECTOR**

May 8-9, 2018
Royal Sonesta Houston
Houston, TX

**PRE-CONFERENCE WORKSHOP**

Blockchain Technology Fundamentals
TUESDAY, MAY 8, 2018
OVERVIEW

A fundamental design concept behind the formation of blockchain technology is to provide an "unhackable" transaction process. The technology consists of a continuously growing list of 'blocks' — each containing a data record, timestamp, or data from a transaction — on a network chain that is distributed, public and encrypted. This design enables a system that allows for information to be digitally distributed, without being copied or vulnerable to modification by a hacker. The most famous implementation of blockchain is what enables bitcoin currency to function. But, the technology has much greater applications than just finance, with many experts believing it will be revolutionary for the energy sector.

This conference will dive into the fundamentals of blockchain technology and its core components, discussing the opportunities and applications for blockchain technology within the energy industry. It will discuss how blockchain could improve and/or replace existing systems and processes relevant to electric utilities, enable peer-to-peer “transactive” energy markets, and help lead the way in enabling a resilient, distributed energy grid of the future. The conference will evaluate sustainability aspects of blockchain — such as how blockchain could improve traceability for natural gas trading, and also the associated phenomenon of 'bitcoin mining' that requires a massive energy footprint.

LEARNING OUTCOMES

• Discuss the fundamental components and operational processes of blockchain technology
• Review elements of blockchain technology that enable secure, peer-to-peer transactions
• Describe the regulatory and legal considerations, as well as potential barriers challenging the adoption of blockchain technology
• Evaluate the different ways and opportunities for blockchain technology to be applied in the energy — power, oil and gas — industry
• Review opportunities that blockchain technology creates for automation, cost reduction, new business models, security and data optimization
• Discuss utility and industry use cases and pilot projects involving blockchain technology
• Evaluate how blockchain could provide management and balancing services to the electric grid
• Discuss the role of blockchain technology in enabling a transactive, distributed energy resource grid
• Examine energy requirements of ‘bitcoin mining’ and best management solutions for energy management
• Analyze business considerations for implementing blockchain and if the technology is appropriate

WHO SHOULD ATTEND

Those involved with:
• Information and technology management
• Information and technology strategy
• Distribution planning
• Distributed energy resource (DER) management
• Risk analysis
• Customer solutions
• Electricity market management
• Smart grid
• Asset management
• Business strategy
• Operations and reliability
• Supply chain management
• Energy trading
• Billing and payment
• State regulatory and commission staff
• Intra-hours operations analysis and modeling
• Renewable energy planning
• Forecasting and analysis
• Demand response planning
• Energy efficiency
• Generation and load planning
• Environmental and GHG planning
• Financial analysis
AGENDA

TUESDAY, MAY 8, 2018

12:30 – 1:00 pm  Registration

1:00 – 1:05 pm  Overview and Welcome

1:05 – 2:45 pm  Blockchain’s Growing Role: Energy Sector Opportunities & Regulatory Barriers

- State of the blockchain market and technology growth
- Key qualities of blockchain technology and their industry applications
- Overview of blockchain technology functions and processes
- Determining if blockchain is right for a specific business
- Legal and regulatory considerations surrounding blockchain implementation
  - Regional, political and jurisdictional complexities
  - Legal and regulatory barriers
- What are the applications of blockchain technology in the energy industry?
  - Crypto-currencies as a means for paying electricity bills
  - Trading energy via smart contracts
  - Oil and LNG tracking and trading
  - Transactive energy systems/peer-to-peer markets
  - Distributed energy resource management
  - Renewable energy credit (REC) and other sustainability certificates
  - Electric vehicle (EV) charging applications
  - Improving existing systems
    - Utility billing
    - Demand response programs
    - Wholesale energy trading

Moderator: Chris Peoples, Managing Partner, Peoples Partners and Associates, LLC
Jason Dispenza, Chief Executive Officer (CEO), EnLedger
Ryan Duffy, President & CEO, Blackstone Energy Services Inc.
Buck Endemann, Partner, K&L Gates
Ben Tejblum, Associate, K&L Gates

2:45 – 3:00 pm  Afternoon Break

3:00 – 4:00 pm  How Blockchain Can Enable the Utility of the Future

- ComEd’s vision for the “Utility of the Future”
- ComEd’s current focus areas for blockchain technology:
  - Transactive energy
  - Demand response
  - Electric vehicles (EVs)
- Working within the current regulatory framework to demonstrate blockchain’s value
- Utilizing blockchain to enable more transparent platforms and customer/third party engagement
- Preparing for increased DER penetration — integrating blockchain into existing platforms

Kristen Brown, Principal Business Technology Specialist – Utility of the Future, ComEd
AGENDA

TUESDAY, MAY 8, 2018 (CONTINUED)

4:00 – 5:00 pm  Smart Contract Opportunities in the Energy Industry
• “Industry Blockchain Steering Committee” overview
  o Mission and vision
  o Energy companies collaborating to develop blockchain pilot projects
  o Collaborating with IT, business development, energy traders and producers
• Smart contract applications in the energy supply chain
  Automation of energy and natural gas settlements
  *Ryan Duffy, President & CEO, Blackstone Energy Services*

5:00 – 6:00 pm  Networking Reception

WEDNESDAY, MAY 9, 2018

7:45 – 8:15 am  Continental Breakfast

8:15 – 9:00 am  Solar + Storage Virtual Power Plant: The Role of Blockchain Technology
The Power.House pilot – launched by Alectra Utilities in Ontario – is a 20-home solar and storage deployment that launched in early 2016. Operating off blockchain technology, the pilot allows Alectra to treat the 20 homes as a single, virtual power plant (VPP) and provide demand response or electricity when outages occur. This session will give an overview of the Power.House project and how blockchain technology optimizes the performance of the VPP, discussing:
• Alectra’s “Virtual Power Plant” blockchain pilot
  o Aggregated residential solar + storage customers
  o Managing multiple participants on a mini exchange
  o Managing market services with real-time contract settlement
• “Tokenizing” energy transactions on a distributed ledger
  o “Buy-in” of tokens based on value of Canadian dollar
  o Opportunities for merchant buy-in to manage energy trading in real time
  o Cashing out
*Vikram Singh, Manager – Emerging Technologies, Alectra Utilities*

9:00 – 9:45 am  The Rise of Community Market Places Powered by Blockchain
This session will discuss different projects that feature distributed grid solutions that bring together people, technology and energy. It will discuss international projects in Australia and Germany, the famed Brooklyn blockchain microgrid project, and new blockchain initiatives in the works for the U.S.
*Scott Kessler, Director - Business Development, LO3 Energy*

9:45 – 10:00 am  Morning Break
WEDNESDAY, MAY 9, 2018 (CONTINUED)

10:00 – 11:15 am  Panel: Blockchain & Distributed Energy Resource (DER) Management
This panel will explore how blockchain technologies can optimize distributed energy resources (DER) on the grid, evaluating how blockchain’s role may grow as DERs increasingly penetrate the electric grid. Specifically, it will discuss blockchain in relation to:

• Distributed energy resource (DER) development and control
• Automation and machine learning of DERs
• System data access, transparency and utilization
• Asset tokenization and transactive energy
• DER technology opportunities:
  o Electric vehicles (EVs)
  o Microgrids
  o Solar PV
  o Battery storage

Moderator: Buck Endemann, Partner, K&L Gates
Kristen Brown, Principal Business Technology Specialist – Utility of the Future, ComEd
Vikram Singh, Manager – Emerging Technologies, Alelectra Utilities
Scott Kessler, Director - Business Development, LO3 Energy

11:15 am – 12:15 pm  A Blockchain Debate: Is The Technology Worth the Hype?
• Evaluating the benefits of implementing blockchain technology
• Blockchain opportunities in transactive energy
• A Case Study: when blockchain is NOT the best solution for a specific platform
• What are the limitations of blockchain technology?
  o Intensive computer capacity needed to compute logarithms
  o Security issues – blockchain is not “unhackable”
  o Challenges with democratization of problem-solving and disputes on the ledger
  o Scenarios where blockchain can create new issues instead of preventing them
  o Immediate transactive benefits from energy purchases — not necessarily possible

Benjamin Gerber, Executive Director, Midwest Renewable Energy Tracking System (M-RETS)
Alex Anich, Manager – Renewable Market Intelligence, NRG Renewables – Risk

12:15 – 1:15 pm  Group Luncheon

1:15 – 2:45 pm  Blockchain Energy Trading Platforms, Transactions, & Risk Management
Blockchain is being looked at increasingly as a flexible trading solution that can improve and optimize current energy trading and transaction platforms and processes. This session will discuss the opportunities — and limitations of — blockchain technology in this sense, evaluating:

• Opportunities for energy trading and purchasing platforms
• Developing meaningful blockchain solutions
• Protection of investors in blockchain technology
• Securitization of assets

Girard Newkirk, CEO & Founder, KWHCoin
Tetyana Colosivchi, Director – Strategy, Business Development & Partnerships, ConsenSys Energy
Robert Trinnear, Managing Director, The Energy Authority (TEA)
AGENDA

WEDNESDAY, MAY 9, 2018 (CONTINUED)

2:45 – 3:00 pm  Afternoon Break

3:00 – 3:45 pm  Enabling Transparency & Sustainability in the Supply Chain through Blockchain
• Opportunities for transparency, security and convenience
• Future business models in supply chain management
• Blockchain opportunities for sustainability in the energy industry
  o Traceability, sustainable certificates in the supply chain
  o Responsible purchasing in the natural gas supply chain
  o Tracking upstream methane emissions

Scott Macmurdo, Sustainability Specialist, NRG

3:45 – 5:00 pm  Realizing the Value of Utility Data Through Blockchain and Artificial Intelligence
This session will discuss how energy companies can realize the value of their data with paired implementation of Artificial Intelligence (AI) and blockchain. It will focus on two specific applications:
• Predictive failure for at risk utility assets
• Streamlining compliance filing with FERC

Colin Gounden, President & CEO, VIA Science

5:00 pm  Conference Adjourns
PRE-CONFERENCE WORKSHOP

Blockchain Technology Fundamentals

TUESDAY, MAY 8, 2018

8:00 – 8:30 am  Registration & Continental Breakfast
8:30 – 11:45 am  Workshop Timing

OVERVIEW

Blockchain technology consists of a continuously growing list of ‘blocks’ — each containing a data record, timestamp, or data from a transaction — on a network chain that is distributed, public and encrypted. This design enables a system that allows for information to be digitally distributed without being copied or vulnerable to modification by a hacker.

This workshop will provide a deep dive on blockchain technology. It will define blockchain and discuss its core functions and features, focusing on components and qualities that are most relevant to the energy — both power and oil and gas — sector.

LEARNING OUTCOMES

• Define the fundamental components and operational processes of blockchain technology
• Review the state of the blockchain market, current industry uses, and future opportunities
• Identify key features and uses of blockchain most relevant to energy industry

WORKSHOP AGENDA

• What is a Blockchain?
  o Blockchain vs. cryptocurrency
• Industry Applications & Opportunities with Blockchain Technology
• Key Features of Blockchain Technology
  o Transaction security
  o Data storage & sharing
  o Identity management
  o Community trust
  o Decentralized applications
• Blockchain Technology Core Components & Functions
  o Peer-to-peer ("P2P") network architecture
  o Consensus mechanisms
  o Shared ledger/database
  o Verification and validation
  o “Tokenization”
• Smart Contracts
  o Basic examples
  o Common smart contract use cases
  o Working in conjunction with blockchain technology
  o Enforceability
TUESDAY, MAY 8, 2018 (CONTINUED)

• Types of Blockchain Ledger Technologies
  o Differences between various distributed ledger technologies
  o Public vs. private networks
• Blockchain as a Data Prioritization Tool
  o How will blockchain interconnect with
    - Grid-level AI optimization
    - Cross-industry deep data-mining
    - In the new “Big Data” global supercomputing network of the future
• State of Blockchain in the Energy Market

WORKSHOP INSTRUCTOR

Ryan Molecke
Chief Technology Officer (CTO)/ Enledger

Ryan Molecke, Chief Technology Officer (CTO) of EnLedger, is a highly multi-disciplinary academic computational science researcher, who transitioned into the world of finance technology and trading systems. He started working with blockchain startups based in Europe and the USA after finishing post-doctoral project in computational research science in 2014. He worked for Monetas and Shapeshift as a senior developer / project lead, before co-founding bridge21 currency exchange (now remittance platform) which was accepted into the Boulder Techstars 2016 class, which he describes as an amazing experience and life-changing business opportunity. Dr. Molecke advises Trustless.AI, as lead blockchain architect, and also does work in blockchain energy technology and algorithmic trading systems. Mr. Molecke spoke alongside Andreas Antonopoulos and Ripple co-founder Chris Odom in a forum called “Moving Beyond Mt Gox” at the first Texas Bitcoin Conference in Austin 2014, and attended conferences internationally in London and Singapore in 2015, speaking again in at the Blockchain NYC 2016 conference on a forum of prestigious speakers, with the topic of “Assets & Tokenization of Value on the Blockchain”. More recently, he wrote one of the most popular articles on “How to Learn Solidity”, published at BlockGeeks, for Ethereum smart-contract developers, and led a group meeting at the Boulder Ethereum Meetup group on development tools and techniques. Dr. Molecke publishes ERC20 contracts, hosts videos and AMAs about blockchain, and teaches short-courses on wallets/trading/ICOs and development.
INSTRUCTIONAL METHODS

PowerPoint presentations and case studies will be used in program.

REQUIREMENTS FOR SUCCESSFUL COMPLETION

Participants must sign in/out each day and be in attendance for the entirety of the conference to be eligible for 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 1.1 CEUs for the conference and 0.3 CEUs for the workshop.

EVENT LOCATION

A room block has been reserved at the Royal Sonesta Houston, 2222 West Loop S, Houston, TX 77027, for the nights of May 7-8, 2018. Room rates are $159 plus applicable tax. Call 1-855-463-3091 or click here for reservations and mention the EUCI event to get the group rate. The cutoff date to receive the group rate is April 16, 2018 but as there are a limited number of rooms available at this rate, the room block may close sooner. Please make your reservations early.

REGISTER 3, SEND THE 4TH FREE

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

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 Maggie Field at mfield@euci.com or 720-988-1250 for more information.
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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 conference 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 31 years organizing conferences.

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

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Company

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OR Enclosed is a check for $ to cover registrations.

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 April 6, 2018 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 conference 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 reserves the right to alter this program without prior notice.