FINANCIAL TRANSMISSION, CONGESTION AND AUCTION REVENUE RIGHTS (FTRs/CRRs/TCRs/ARRs)

January 29 – 30, 2019
Royal Sonesta Harbor Court Baltimore
Baltimore, MD

EUCI is authorized by IACET to offer 1.4 CEUs for the conference and 0.6 CEUs for the workshop.

PRE-CONFERENCE WORKSHOP

FTR Trading Fundamentals & Tools
MONDAY, JANUARY 28, 2019

“"The best FTR conference, year after year.”
Managing Principal, Transmission Risk Analytics

SPONSORS

nodal
Cambridge Energy Solutions
A Provider of Information and Energy Solutions
OVERVIEW

Financial transmission (FTR)/congestion revenue rights (CRRs and TCRs) and auction revenue rights (ARRs) facilitate mandatory, competitive, open transmission access. While the use of these measures is a customary practice among physical market participants, it’s their use as financial instruments that seems to draw the most attention with regard to the efficient operation of the wholesale power marketplace.

Several market conditions are pushing FTR and ARR practices into more than just hedging tools. ISOs and RTOs, along with market participants, are constantly adjusting to ever-changing regulatory and oversight requirements associated with trading practices, credit and risk. In addition, competing perspectives are advocating adjustments to the ARR and FTR/CRR/TCR markets process, as weather, environmental regulations, accelerating renewable energy penetration and shifts in national energy policy influence how system operators deal with monetizing transmission congestion impacts.

This conference will discuss how these trends are affecting transmission congestion instruments operating in the wholesale electricity markets in 2018 and going forward. It will also consider what system operators, market economists and design consultants — as well as market participants — are doing to adjust their practices accordingly. And it will examine what’s under development now that could influence future market conditions and measures.

LEARNING OUTCOMES

• Review updates to processes and auctions in North American FTR/CRR/TCR markets
• Discuss FERC, CFTC and private compliance, surveillance agencies’ enforcement of their market manipulation and disruptive trading practice rules over the past year
• Examine the impact of ISO model building and outage selection practices on market participant FTR bidding strategies and revenue
• Compare FTRs with non-FTR congestion management measures
• Assess whether FTR markets would significantly benefit from re-design and, if so, in what form(s)
• Identify credit policies that could reduce vulnerabilities and undue risk exposure as lessons learned from the “GreenHat” case
• Evaluate the accuracy of auction right allocations and market administration
• Examine if technical or system limitations are reducing the efficiency or performance of the FTR auction(s)
• Assess if the day ahead market (DAM) products are functioning in a way so as to converge the DAM and RT markets

WHO SHOULD ATTEND

• FTR Market participants
  o Energy traders
  o Load
  o Generators
• Transmission owners and operators
• Credit
• Finance
• Asset and portfolio management
• Energy clearing and settlements
• Back office
• Operations accounting
• RTO/ISO accounting
• Market management
• Business controls
• Commercial operations
• Transaction accounting
• Power management and marketing
• Financial analysis

“EUCI did an amazing job and I wholeheartedly recommend them to all colleagues and associates as the ‘full package deal’ — a team who presented a conference full of cutting-edge talent, discussion and passion for FTRs and CRRs!”

Engineer, SPP
TESTIMONIALS FROM PAST ATTENDEES

“Insightful presentations and provocative, productive discussions. Efficient deep-dive into the key issues confronting the FTR markets.”

Chief Risk Officer, Nodal Exchange

“EUCI ran a terrific conference. Presentations were very technical — almost like a technical conference.”

Managing Director, Appian Way Energy Partners

“Realistic, frank update and dialogue on FTR/CRR/TCR matters impacting market participants.”

Lead – FTR & Pricing, Midcontinent ISO

“Great conference. The introduction panel was very helpful to someone with limited background like myself. The follow-up, in-depth panel discussions that delved into more specific issues was extremely enlightening.”

Commission Advisor, WV Public Service Commission

“I learned more about FTRs in 1 ½ days than I had in the past year or so.”

Market Operations Manager, EDP Renewables North America, LLC

“A unique and informative event for transmission traders, and a great way to stay current on topics important for transmission trading!”

FTR Trader, BioUrja

“Perfect avenue for nodal trading professionals for networking”

Senior Trader, EDF Trading

“Very helpful.”

Partner, Grenian Capital

“Great program for learning the function and the changing landscape of FTRs across the country.”

Analyst, Portland General Electric

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

TUESDAY, JANUARY 29, 2019

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

8:30 – 8:45 am  Welcome and Overview

8:45 am – 12:00 pm  Updates and Upcoming Plans/Proposals from North American ISOs re: Their Transmission Congestion Auctions, Markets and Processes

North American transmission system operators will provide a synopsis of how its transmission congestion market adjusted its operations and what impacts this produced.

- California ISO (CAISO)
  Guillermo Alderete Bautista, Director – Market Analysis & Forecasting
- ERCOT
  Donald House, Supervisor – Congestion Revenue Rights
- ISO New England (ISO-NE)
  Kevin Seliga, Manager – Market Administration
- Midcontinent ISO (MISO)
  Yok Potts, Manager – FTR Market & Pricing
- New York ISO (NYISO)
  Robert Pike, Director – Market Structure and Product Management invited
- PJM Interconnection (PJM)
  Brian Chmielewski, Manager – Market Simulation, PJM Interconnection

12:00 – 1:00 pm  Group Luncheon

1:00 – 3:00 pm  FERC, CFTC and Private Compliance, Surveillance Enforcement Update

This discussion will address the agencies’ enforcement of their market manipulation and disruptive trading practice rules over the past year. Further, it will discuss the potential for additional liability through private enforcement actions brought under the antitrust laws. Topics will include:

- Summary of FERC and CFTC enforcement actions and open public investigations
- Discussion of potential future liability under the antitrust laws
- Possible changes to the agencies’ enforcement postures due to the new administration
- The increased need for proactive compliance programs and internal trade surveillance

Shaun Ledgerwood, Principal, The Brattle Group
Sean Collins, Director – Division of Analytics and Surveillance, Federal Energy Regulatory Commission (FERC)

“On topic and up to date.”
President, Cambridge Energy Solutions, LLC

“Good content and diverse attendees make this a great opportunity to learn more about FTRs.”
Director – Supply, Integrys Energy Services
### AGENDA

**TUESDAY, JANUARY 29, 2019 (CONTINUED)**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
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<tbody>
<tr>
<td>3:00 – 3:20 pm</td>
<td>Afternoon Break</td>
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| 3:20 – 5:15 pm | **Is There a Need for FTR Re-design? If So, What Type(s) of Overhaul and Why? How About:**  
|               | • Implementing long-term auctions that satisfy the 10-year requirement stipulated in FERC Order No. 681?  
|               | • Trading outside the electricity market construct on a separate exchange and/or clearinghouse?  
|               | • Following NYISO’s practice of allocating congestion costs incurred due to unplanned transmission outages back to the transmission owner?  
|               | • Following ERCOT’s practice that allows for the purchase of an FTR options contract at every path that is available for a traditional FTR contract?  
|               | • Considering the applicability of CAISO auction reforms to other congestion markets?  
|               | • With the Adoption of Order 844, did FERC get it right with regard to…  
|               |   o Uplift cost allocation practices?  
|               |   o Transmission constraint penalty factors?  
|               | **Howard Haas, Chief Economist, Monitoring Analytics**  
|               | **Guillermo Alderete Bautista, Director – Market Analysis & Forecasting, California Independent System Operator (CAISO)**  
|               | **Abram Klein, Managing Partner, Appian Way Energy Partners**  
| 5:15 - 6:15 pm | Networking Reception                                                     |

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**“Great mix of fundamentals and current market issues.”**  
Manager – Energy Analytics, Covanta

**“As an ISO representative, I enjoyed seeing the market updates and participating in the many networking opportunities.”**  
Engineer II, Southwest Power Pool

**“A productive conference – As a young person in this industry, I found the networking opportunities very valuable.”**  
Energy Analyst, Edison Mission Marketing & Trading
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<tr>
<td>7:45 – 8:15 am</td>
<td>Continental Breakfast</td>
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<tr>
<td>8:15 – 10:00 am</td>
<td><strong>Credit Policies that May Reduce Vulnerabilities and Undue Risk Exposure</strong></td>
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<td>- Lessons learned from “GreenHat” default and other zero-cost position policies</td>
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<td>- More stringent capitalization standards?</td>
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<td>- Applicability of general commodity market credit rules</td>
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<td>- Adjustments to ISO/RTO governance and credit policies</td>
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<td>- Weighing internal clearing practices vs third-party clearinghouse</td>
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<td><strong>Demetri Karousos, Managing Director – Market Administration &amp; Surveillance and Chief Risk Officer, Nodal Exchange</strong></td>
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<td><strong>Andrew Stevens, Managing Director, DC Energy</strong></td>
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<td><strong>Brian Chmielewski, Manager – Market Simulation, PJM Interconnection</strong></td>
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<td><strong>Sharon Midgley, Senior Manager – Wholesale Market Development, Exelon</strong></td>
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<tr>
<td>10:00 – 10:20 am</td>
<td>Morning Break</td>
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<td>10:20 am – 12:00 pm</td>
<td><strong>Ensuring the Accuracy of Auction Right Allocations and Market Administration</strong></td>
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<td>- How frequently should (historical) resources be re-mapped to ensure appropriate auction revenue rights allocations?</td>
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<td>- How significant a role in congestion pricing is the lack of transparency regarding the scheduling of outages?</td>
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<td>- Should a consistent schedule be instituted for all of the RTOs/ISOs to release network model updates prior to FTR auctions?</td>
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<td>- Transmission modeling as it relates to FTR model</td>
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<td>- New equipment into service</td>
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<td>- Project slippage and scheduling uncertainty</td>
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<td>- Over-estimating congestion when it does come online</td>
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<td>- Criteria for outage selection in building the monthly model file (e.g., picking one set of outages to apply to whole)</td>
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<td><strong>Steve Lieberman, Director – PJM Regulatory Affairs, American Municipal Power</strong></td>
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<td><strong>Scott Harvey, Consultant, FTI Consulting</strong></td>
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<td><strong>Robert Pike, Director – Market Structure and Product Management, New York ISO (NYISO) invited</strong></td>
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<td>12:00 – 1:00 pm</td>
<td>Group Luncheon</td>
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“Lively discussions about PJM underfunding from industry experts were very helpful and stimulating.”

Analyst, Nodal Exchange
AGENDA

WEDNESDAY, JANUARY 30, 2019 (CONTINUED)

1:00 – 2:45 pm   Are Technical or System Limitations Reducing the Efficiency or Performance of the FTR auction(s)? If so, What Are Those Problems and How Can They Be Addressed?
• Software limitations?
• Hardware limitations?
• Dated algorithms?
• New clusters?
• DAM/RT model consistency
• Accounting for loop-flows across systems
• Impact on system performance and reliability
• Initial and operating expenses
• Perceived benefits

Assef Zobian, Founder & President, Cambridge Energy Solutions
Nicholas Shaffer, CTO, TPC Energy
Paul Sotkiewicz, President and Founder, E-Cubed Policy Associates
Donald House, Supervisor – Congestion Revenue Rights, ERCOT

2:45 – 3:00 pm   Afternoon Break

3:00 – 4:45 pm   Are the Day Ahead market (DAM) products – such as Point-to-Point and/or Up-To Congestion – functioning in a way so as to converge the DAM and RT markets?
• Is DAM providing appropriate price signals?
• Why is there divergence between day-ahead and real-time scheduling?
• Do the markets need an hourly FTR product?
• Converting monthly FTRs to daily FTRs

Howard Haas, Chief Economist, Monitoring Analytics
Sergio Brignone, FTR Senior Trader, Vitol
Noha Sidhom, CEO, TPC Energy
Scott Harvey, Consultant, FTI Consulting

4:45 pm   Conference Adjourns

“Great way to learn what is going on in the markets and also to network!”
Transmission Analyst, ACES

“It offered great insight into FTR markets and the electricity power market in general.”
Transmission Assoc, EDP Renewables

“EUCI conferences not only provide excellent speakers and content, but also attract a wide range of very interesting attendees, resulting in lively and informative discussions.”
Commodity Manager, Innogy SE
PRE-CONFERENCE WORKSHOP

FTR Trading Fundamentals & Tools
MONDAY, JANUARY 28, 2019

OVERVIEW

This workshop will explain the key concepts of nodal markets as they relate to FTRs, as well as provide a base of knowledge to make the ensuing FTR conference more understandable. The topic of FTRs will be introduced with a brief discussion of the motivation for nodal electricity markets and centralized dispatch. The purpose of FTRs within nodal markets and their financial form will be examined.

The auction process for buying and selling FTRs will be presented with an overview of how each of the different ISOs has a slightly different implementation (and a slightly different name) for FTRs and auctions. These fundamental FTR concepts will be reinforced by the presentation of historical scenarios from the perspective of both hedging and speculative market participants. Useful tools and techniques for building FTR valuations will be examined, as well as numerical illustrations of an FTR in the money and out of the money, an explanation of drivers behind each, and considering the objectives of these market participants: trading/financial cos, generators and load.

LEARNING OUTCOMES

- Identify and review the price formation mechanisms in nodal markets
- Review the purpose of financial transmission rights (FTRs) within nodal markets and their financial form
- Examine the causes of transmission congestion and the relationship to FTRs
- Sources of info and software to forecast LMP and congestion
- Discuss the modelling approaches and the tools available for FTR valuation
- Assess FTRs in the money and out of the money, and an explanation of drivers behind each

“A great way to stay up to date on the latest issues in FTR markets.”
Project Manager, Southern Co

“Great meeting — lively discussion on various topics.”
Senior Director, Apex Clean Energy
WORKSHOP AGENDA

MONDAY, JANUARY 28, 2019

7:45 – 8:15 am  Registration and Continental Breakfast

8:15 – 8:30 am  Overview and Introductions

8:45 – 11:45 am  Program Content
(includes 15 min morning break)
• Discuss the Fundamentals of Nodal Pricing
• Review the Elements of FTR Markets
  o Types
  o Period
  o Settlement
  o Etc.
• Brief Review of North American ISO/RTO Congestion Management Structures

11:45 am – 1:00 pm  Group Luncheon

1:00 – 4:45 pm  Program Content
(includes 15 min afternoon break)
• Transmission and Generation Modeling as it Relates to FTR model
  o Shift factors
  o Line outage distribution factors
  o Etc.
• Useful Tools and Techniques for Building FTR Valuation
• Sources of Information and Software to Forecast LMP and Congestion
• Impact on Congestion Pricing of Expected Market Changes
  o New generation
  o Retirements
  o New transmission
  o Changes in the fuel prices markets
  o Etc.
• Numerical Illustrations of an FTR in the Money and Out of the Money, and Explanation of Drivers Behind Each, and Considering These Market Participant Objectives
  o Trading/Financial cos
  o Generators
  o Load

4:45 pm  Workshop Adjournment
WORKSHOP INSTRUCTORS

Assef Zobian  
**Founder & President, Cambridge Energy Solutions, LLC**

Dr. Assef Zobian is Founder and President of Cambridge Energy Solutions, LLC, which provides information and software tools to assist market participants in analyzing the electricity markets on a locational basis, forecast and value transmission congestion, and to understand the fundamental drivers of short- and long-term prices. He is an electrical engineer with more than a dozen years’ experience in power systems technology, economics, and planning. Prior to founding CES-US, Dr. Zobian was Vice President of Tabors Caramanis & Associates (TCA), where he worked on some 30 different generation and transmission asset and rights valuations with a total value of more than $20 billion. He led the team to define the structure and tariff for the first for-profit Transmission System Operator (TransCo) in the US. Before joining TCA, Dr. Zobian was a consultant at Putnam, Hayes & Bartlett, where he worked on developing models for least-cost economic dispatch for secure and economic operation of electric power systems and methods to compute the associated marginal costs of real power. He earned his MS and Ph.D. from the Massachusetts Institute of Technology. He also has BS and ME degrees from the American University of Beirut.

Ron Coutu  
**Founder and Strategic Market Advisor, Strategic Market Design**

Ron Coutu is the founder and strategic market advisor of Strategic Market Design, a company he formed in 2018 upon retiring from ISO New England (ISO-NE). At the ISO, he was lead of the Business Architecture and Technology group. Mr. Coutu has more than 30 years’ experience in markets and software design and development, having been involved in Electricity Markets design and development since 1996. Over the years his responsibilities included development of market solutions, providing guidance in implementing those solutions and deciphering market designs to various stakeholders and outside entities. Just a few of his several landmark efforts are the creation of a ‘Standard Market Design’ in New England, patterned after the PJM market design of the time; implementation of ancillary services markets, which included a design for a forward reserve market; and development of a forward capacity market, featuring an aptly named pay-for-performance set of market rules. He also designed and conducted many of the training modules administered by ISO New England. Mr. Coutu’s degree is in Computer Science.
INSTRUCTIONAL METHODS

Case studies, PowerPoint presentations and group discussion will be used in this event.

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 1.4 CEUs for the conference and 0.6 CEUs for the workshop.

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.

EVENT LOCATION

A room block has been reserved at the Royal Sonesta Harbor Court Baltimore, 550 Light St, Baltimore, MD 21202 for the nights of January 27 - 29, 2019. Room rate is $129 plus applicable tax. Call 1-410-234-0550 or click here for reservations and mention the EUCI event to get the group rate. The cutoff date to receive the group rate is January 18, 2019 but as there are a limited number of rooms available at this rate, the room block may close sooner. Please make your reservations early.

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 manageable 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 Stephen Coury at scoury@euci.com or 720-988-1228 for more information.
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 December 28, 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. The cutoff date to receive the group rate is January 18, 2019 but as there are a limited number of rooms available at this rate, the room block may close sooner. Please make your reservations early.

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