

# Renewables and Wholesale Electricity Markets

September 23 - 24, 2020 | Digital Access

## September 23, 2020

8:20-8:30 am PT Introduction and Opening Remarks

### 8:30-9:05 am **Session 1: Overview of U.S. Wholesale Power Markets**

This session will provide insights into the activities and major trends within the various U.S. power markets, pointing out the key differences and key distinctions between them from the perspective of those looking to develop or trade renewable energy in these regions.

- Total trading picture: activity, how much traded now vs years ago, how much generation built, etc.
- Origins and evolution of structured markets
- Current status
- Why some are still utility dominated (bi-lateral) vs competitive?
- Strategies for extracting value from a centralized market

**Lee Van Atta**, *Managing Director, Energy and Infrastructure Consulting*, LEIDOS

9:05-9:20 am *Live Q&A*

9:20-9:30 am *Break/Transition*

### 9:30-10:00 am **Session 2: Regulatory and Policy Issues Affecting Wholesale Power Markets**

This session will provide a brief update on the key regulatory and market policy issues that are creating uncertainty and potential opportunities to extract value in markets going forward. It will look at current trends at the federal, regional and state levels and their potential impacts, and how that can affect thinking going forward.

- FERC and State Policy Initiatives – what ongoing?
- Federal and State Carbon Actions
- RPS and REC markets

**Brian Armstrong**, *Director*, LEIDOS

10:00-10:15 am *Live Q&A*

10:15-10:25 am *Break/Transition*

10:25 – 11:00 am

### **Session 3: Natural Gas Market's Impact on Wholesale Power Markets**

Natural gas generation has traditionally set the marginal price in most wholesale power markets, and much of that is determined by the fuel cost. This session will discuss how gas gets priced into wholesale markets.

- Supply and Demand Fundamentals
- Role of Forwards
- Scenario Analysis
- How the addition of renewables and energy storage may affect long-term gas pricing

**Lee Van Atta**, *Managing Director, Energy and Infrastructure Consulting*, LEIDOS

11:00 – 11:15 am

*Live Q&A*

11:15 – 11:55 am

*Lunch*

11:55 am – 1:05 pm

### **Session 4: Impact of Renewables on Wholesale Power Markets**

This session will discuss some of the challenges and risks faced today by renewables in wholesale power markets, and discuss the pros and cons of various mitigation methods.

- Impact of high penetration of wind and solar on power pricing
- Issues for renewable projects:
  - Transmission constraint/basis risks
  - Volatility
  - Variability around output
- Risks and challenges, shape risk and hedges

**Lee Van Atta**, *Managing Director, Energy and Infrastructure Consulting*, LEIDOS

1:05 – 1:20 pm

*Live Q&A*

1:20 – 1:30 pm

*Break/Transition*

1:30 – 2:30 pm

### **Session 5: Impact of Energy Storage on Wholesale Power Markets**

Storage has the potential of being a game changer in many markets. This session will discuss the potential roles, impacts and monetization strategies for energy storage systems, including:

- Long, medium and short duration storage: what products can they offer?
  - Roles (Use Cases) for batteries in wholesale markets
  - Regulation: what it is, and what drives the pricing of that?
- Impacts of battery storage in areas with high penetration of wind and solar

- how effect wholesale pricing
- How do you value the battery operating in hybrid projects?
- Issues with maintaining firm capacity value
- Modeling of batteries in wholesale markets
- Risks and challenges

**Lee Van Atta**, *Managing Director, Energy and Infrastructure Consulting, LEIDOS*

2:30 – 2:45 pm

*Live Q&A/End of Day One*

## **September 24, 2020**

*Day two will provide insights and assessments of how best to extract value out of renewables in various regional markets. Each session will provide an introduction to the market structures utilized in each RTO/ISO, and the key issues being faced in each. The session will then delve into the fundamentals in play in each, including the capacity mix, generation mix, what the dispatch stack looks like, and the prospects for new capacity additions. Finally, the individual factors that can contribute to the forming successful strategies to extract value will be identified.*

8:30-9:10 am PT

### **Session 6: Assessment of the ERCOT Market**

The only U.S. structured wholesale power market without a capacity market has been able to integrate large amounts of wind, and developers are shifting to solar. How will energy prices evolve as solar and potentially batteries are added to the ERCOT grid? Will California style “duck curve” issues emerge?

- Price Formation and role of scarcity
- Policy Developments – Impacts of ORDC rules and other market structure issues
- Outlook for Renewable Growth and Value

**Brian Armstrong**, *Director, LEIDOS*

9:10-9:25 am

*Live Q&A*

9:25-9:35 am

*Break/Transition*

9:35-10:40 am

### **Session 7: Assessment of the “Merchant” Eastern U.S. Markets (PJM, NYISO, ISO-NE)**

Development queues in PJM, NYISO, and ISO-NE are shifting sharply to renewable projects and energy storage. All three markets have huge offshore wind potential while at the same time expecting growth in solar. Can the traditional “merchant” power markets continue to support and integrate increasing quantities of renewables? How will state policy objectives for renewables be reconciled with FERC views of subsidies and the impact on administered capacity markets?

- Capacity Market Design and Capacity Auction Process
- Policy Developments
- Outlook for Renewable Growth and Value

**Brian Armstrong**, *Director, LEIDOS*

10:40-10:55 am	<i>Live Q&amp;A</i>
10:55 -11:35 am	<i>Lunch</i>
11:35 am-12:30pm	<p><b>Session 8: Assessment of the Western U.S. Markets (CAISO and non-ISO WECC)</b></p> <p>California and other western states are moving aggressively to a low carbon future. Can the current market structures in the western U.S. support the state renewable policy objectives? How will the duck curve evolve as solar penetration and battery additions continue in CA?</p> <ul style="list-style-type: none"> <li>• Resource Adequacy and Reliability</li> <li>• Policy Developments</li> <li>• Outlook for Renewable Growth and Value</li> </ul> <p><b>Lee Van Atta</b>, <i>Managing Director, Energy and Infrastructure Consulting</i>, LEIDOS</p>
12:30 – 12:45 pm	<i>Live Q&amp;A</i>
12:45-12:55 pm	<i>Break/Transition</i>
12:55-1:30 pm	<p><b>Session 9: Assessment of the Central U.S. Markets (MISO and SPP)</b></p> <p>MISO and SPP have some of the best wind resources in the U.S. and wind penetration is already very high during certain times of the year. How much additional wind can be supported in these regions and where are opportunities best for solar and energy storage in these markets?</p> <ul style="list-style-type: none"> <li>• Co-existence of bi-lateral capacity market and voluntary auctions</li> <li>• Policy Developments</li> <li>• Outlook for Renewable Growth and Value</li> </ul> <p><b>Brian Armstrong</b>, <i>Director</i>, LEIDOS</p>
1:30-1:45 pm	<i>Live Q&amp;A</i>
1:45-1:55 pm	<i>Break/Transition</i>
1:55-2:35 pm	<p><b>Session 10: Assessment of the Non-ISO Eastern Markets (SERC, TVA, Florida)</b></p> <p>The power markets in the Southeast US. are primarily bi-lateral in nature and heavily dominated by the major utilities in each region. Where can renewable developers find opportunities in these regions? How will utility avoided cost regulation evolve and what are the implications for off-take contracts?</p> <ul style="list-style-type: none"> <li>• Price Formation</li> <li>• Capacity Value and Reliability</li> <li>• Policy Developments</li> <li>• Outlook for Renewable Growth and Value</li> </ul> <p><b>Brian Armstrong</b>, <i>Director</i>, LEIDOS</p>
2:35-3:00 pm	Q&A and Closing Remarks