

Markets in the West Workshop

April 9-10, 2019

Understanding Market Constructs for Utilities At-a-Glance

INTRODUCTION

Today, in the Western Interconnection, the electricity industry is dominated by bi-lateral transactions among vertically integrated utilities. This has been how the Western Interconnection has operated since it was constructed but this way of doing business is beginning to change as the landscape of the utility industry continues to change in the West.

This meeting is being held so that the Western Area Power Administration can have a candid conversation amongst its customers and stakeholders to discuss what the future of the Western Interconnection might look like in regards to market operations. To help in this discussion, a brief overview of the three typical market constructs in the U.S. is provided below.

- **Reasons markets are being discussed:** With the advent of renewable generation and the decrease in coal generation, and the continual changes in the regulatory environment, many utilities in the West are looking at markets to determine what benefits they might be able to provide.
- **Potential benefits of markets:** It is generally believed that a well-structured market will allow greater load and resource diversification across the market footprint, allow for greater variable energy integration, and increase cost transparency and efficiency.

MARKET CONSTRUCTS OVERVIEW

Bi-lateral Markets	Energy Imbalance Markets	Fully Integrated Markets
<p>A bi-lateral market is the purchasing and selling of energy and transmission between two (or more) parties through contracts.</p>	<p>A real-time energy market that dispatches the least cost resources to resolve real-time differences between supply and demand using an automated Security Constrained Economic Dispatch (SCED) and helps to maintain system reliability.</p>	<p>An integrated marketplace where participants buy and sell wholesale electricity and ancillary services in day-ahead and real-time.</p>
<p>Features:</p> <ul style="list-style-type: none">• Transmission transactions: 'Contract path' (legal) vs. 'flow-based' (physics)• Transmission operations: Controlled within smaller 'footprints' (i.e. Balancing Authorities, or BAs)• No central market clearing entity• Reliability function: Each BA must balance loads and resources within its borders• Energy contracts: Between a discrete number of parties (usually two)	<p>Features:</p> <ul style="list-style-type: none">• Market transactions: Centrally managed using flow-based economic solutions for a diverse pool of resources• Transmission operations: Leverages bi-lateral market, and excess transmission capacity is made available via the EIM• Generation is dispatched at 5 and 15 minute increments• Reliability function: The market dispatches resources across BAs to balance energy; optimizes regulating reserves• Energy contracts: Leverages existing bi-lateral market's discrete contracts, plus the option of participation in the EIM real-time market	<p>Features:</p> <ul style="list-style-type: none">• Market transactions: Optimally managed for both reliability and economics by neutral entity that doesn't own assets• Transmission operations: Centrally managed and coordinated with the BA balancing solutions by neutral entity that doesn't own assets• Operator has visibility and control over the transmission and generation assets to mitigate constraints in the most reliable, efficient, and economic solution• Reliability function: Centralized for using the integrated market• Market pricing is publicly available in both day-ahead and real-time