



## Multiple market choices open door for robust discussion

*Photos and article by Jen Neville*

The next evolution of energy industry changes and market developments has arrived. Western Area Power Administration is using innovation and collaboration to address the impacts of the changing energy landscape.

During its second “Discussion on Markets” meeting, June 30, WAPA senior power marketing staff and other industry experts presented the latest updates on market studies, market strategies and industry changes to WAPA customers for consideration and focused conversation.

**“By far the most significant element shaping our approach to industry changes and how we will interact with energy markets is our work with our customers,” said WAPA Administrator and CEO Mark A. Gabriel. “Only by working together will we develop the best approach to navigating and powering the energy frontier.”**

With its expansive service territory and strong customer relationships, WAPA is uniquely positioned to collaborate with utility experts and its 681 customers about ongoing changes in the energy industry. Those innovative partnerships are working to balance the demand for reliable power to support our energy-dependent economy with the shifting makeup of energy resources and emerging technologies.

During the meeting, participants received updates outlining various market initiatives WAPA is exploring to ensure top-notch customer service and operational reliability.

Presentations demonstrated how WAPA is keeping an eye on the future, while also continuing to deliver on its federal mission to provide reliable low-cost energy.

Since the previous Discussion on Markets, in 2014, WAPA has made several significant advancements:

- Upper Great Plains joined the Southwest Power Pool in October 2015 after an extensive cost-benefit analysis was performed. First-year benefits are estimated to exceed the \$11.5 million initially estimated in that analysis.



Customers and industry experts pack the room to discuss updates related to industry changes and markets at WAPA's June 30 meeting, in Phoenix, Arizona. WAPA hosted the meeting to provide regional-based updates on its activities to continue best representing customer interests in an ever-changing electric industry.

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- Rocky Mountain and the Colorado River Storage Project Management Center partnered with six neighboring utilities to form the Mountain West Transmission Group – a diverse group of utilities that came together in an unprecedented way to look at regional solutions. MWTG is considering the potential net benefits of implementing a common transmission tariff across a multi-state footprint. It is also considering establishing or joining a full market. The MWTG issued a Request for Information for tariff administration and market operator services to several entities on May 6.
- Sierra Nevada actively participates in the California Independent System Operator market by delivering federal generation into the market, buying power in the CAISO, bidding ancillary services and working in partnership with the jointly owned California-Oregon Intertie Transmission Project.

- Desert Southwest is continuing efforts to work with other utilities and customers to evaluate potential costs and benefits of organized markets.

“We approach our market participation decisions on a region-by-region and case-by-case basis to ensure there is value to those who are involved,” said WAPA Power Marketing Advisor Rodney Bailey. “This meeting was another opportunity for customers from different areas to hear about the various activities being explored, and contribute to the discussion.”

By continuing the conversations, participating in regional forums and monitoring industry activities, WAPA remains well-positioned to leverage emerging trends, anticipate required changes and best represent customer interests in an ever-changing electric industry.



# Recap of WAPA's regional-based updates:

## SN provides hydropower, transmission in California

Sonja Anderson, WAPA's Sierra Nevada vice president of Power Marketing, highlighted SN's unique operations for serving renewable hydropower to WAPA customers within two California balancing authorities. Although WAPA's SN region is a member of the Balancing Authority of Northern California, it is a significant provider of energy in the CAISO market since 50 percent of SN's customer base is located within the CAISO's footprint. Specifically, SN schedules an average of 700,000 megawatt-hours into the CAISO day-ahead market and an average of 230,000 megawatt-hours of hydropower into the real-time CAISO market, annually.

SN regional staff continue to monitor and evaluate market participation options, while working closely with customers to ensure environmental impacts, regulatory requirements and customer agreements are addressed.

In fact, SN has several collaborative programs underway to:

- Enhance the value of hydropower in the CAISO through the Market Efficiency Enhancement Agreement, saving WAPA customers more than \$600,000 in energy costs since February 2016.
- Maximize hydropower generation by working in partnership with the Bureau of Reclamation to schedule releases around projected peak demand times. The arrangement provides about \$2.5 million in benefits every year.
- Use the displacement program to minimize delivery costs. The displacement program is a one-for-one trade to serve CAISO customers within WAPA's sub-balancing authority and vice versa. Since 2009, the program has avoided more than \$13 million in delivery costs.

"The CVP's future depends on our interactions with other players in the constantly changing energy market in the state of California," said Anderson. "We look to build upon our existing relationships and create new ones as we move forward in the energy frontier."

## DSW takes second-look at markets

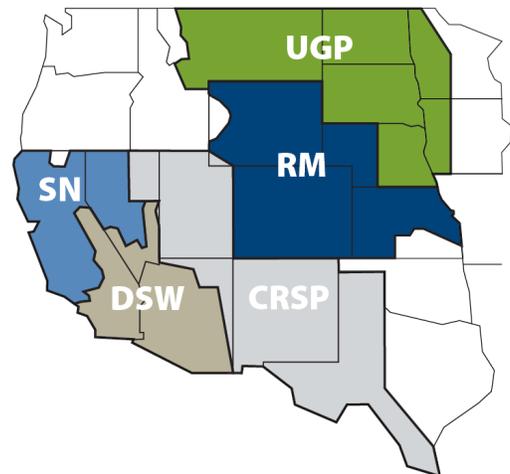
Jack Murray, WAPA's DSW vice president of Power Marketing, provided an update on the region's market evaluation activities. A 2013 Argonne National Laboratory study determined participation in the CAISO energy imbalance market was not a good fit economically. Since then, markets have continued to evolve in the DSW marketing footprint, providing the region a new opportunity to re-evaluate costs and benefits for future market participation.

Ultimately, DSW's objectives for evaluating market options include:

- Determining any customer benefits of an EIM or potential alternatives
- Weighing opportunities for market participation
- Evaluating operational benefits, including renewable integration
- Providing stakeholders and customers with thorough analysis of all options

"Whatever option is ultimately chosen will be based on WAPA's promise to continue delivering on its federal mission, and what provides the highest value and least risk for preference customers," said Murray.

WAPA Customer Service Territories

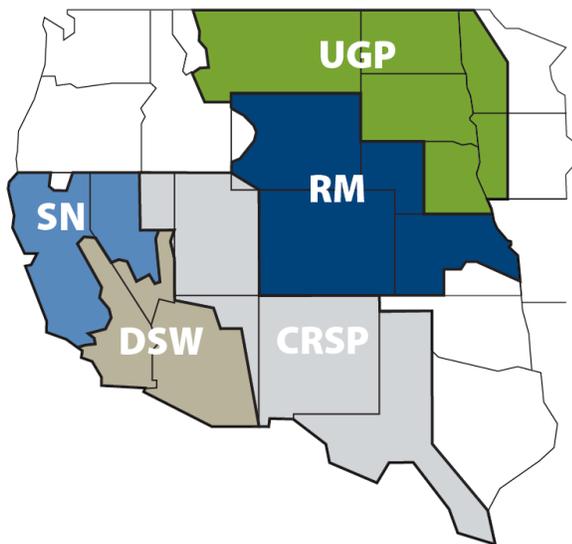


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## UGP joined SPP in 2015

One of the biggest industry changes for WAPA was joining the Southwest Power Pool in 2015. Jody Sundsted, WAPA's Upper Great Plains vice president of Power Marketing, discussed the region's hydropower resources, customer base and the integrated transmission system WAPA had historically built with Basin Electric Power Cooperative and Heartland Consumers Power District. These factors were part of the collaborative decision to move into the Southwest Power Pool. To ensure a smooth transition on Oct. 1, 2015, WAPA took many steps—including converting to SPP transmission service, registering generation and load with SPP, creating new interfaces with SPP, employee training and market trials—to prepare for operation under SPP's transmission tariff and energy market.

### WAPA Customer Service Territories



Today, as an SPP member, UGP's current operations require continued customer interaction for load service coordination and constant evaluation of market strategies, offering day-ahead hydropower bids and fulfilling hourly load obligations. Staff at UGP also reconcile and analyze market activity settlements, ensuring accurate and informative financial results of operations.

Sundsted summarized that UGP's membership in SPP provides greater flexibility by creating more options for buying and selling, reducing constraints in delivering power and keeping costs low for customers. UGP expects to receive more than the \$11.5 million in first year savings and avoided costs anticipated in the Alternate Operations Study completed in 2013.

### Decision-making process for evaluating MWTG

Dave Neumayer, WAPA's Rocky Mountain vice president of Power Marketing, distilled the Mountain West Transmission Group's numerous market options down to three key decisions in his presentation. Highlighting the collaborative effort of the MWTG, Neumayer explained the group's process for analyzing those questions. The seven MWTG entities have a memorandum of understanding in place to document agreement so far and have agreed to continue the effort toward, hopefully, a single recommendation to consider further.

The MWTG conducted a detailed analysis of the potential benefits of a regional tariff, as well as adding an organized energy market to the regional tariff footprint. Continuing analysis will consider the single tariff and additional scenarios to evaluate different levels of generation dispatch coordination, including possible incorporation of the MWTG parties into a regional transmission organization market structure. The study is in an early phase now, with study results expected by the end of 2016.

## CRSP Management Center explores participation options

WAPA Power Marketing Advisor Rodney Bailey provided participants a brief update on market options in which the CRSP MC has engaged. Originally part of the Argonne National Laboratory study regarding CAISO EIM participation, CRSP MC continues to review the available options by participating in the MWTG.

"As CRSP MC continues participation in the MWTG discussions," said Bailey, "we are committed to providing quality service, meeting our statutory obligations and ensuring maximum benefits while minimizing impacts to our firm electric service customers."

## North American Independent System Operators (ISO) Regional Transmission Organizations (RTO)\*



\*Source: Southwest Power Pool

## Other industry updates

Representatives from several market organizations throughout the nation provided updates concerning unique regional developments in market participation and structure. Here are some summarized insights from their presentations.

### Southwest Power Pool update

Carl Monroe, executive vice president and chief operating officer of Southwest Power Pool, provided an overview of SPP's market model and its 95 members, which include investor-owned utilities, rural electric cooperatives, municipalities, public power entities, independent generators, transmission entities, state agencies and WAPA, the first federal power marketing agency to join an RTO. SPP facilitates the sale of transmission service over its members systems, operates a full day-ahead energy and ancillary services market, and a real-time EIM for dispatching power needed to reliably meet its members' real-time loads.

Additionally, Monroe shared SPP's recent integrated marketplace enhancements, as well as other initiatives. Those other initiatives include looking at interface pricing between balancing authority seams,

potential expansion to include the MWTG entities, coordinating market design across RTOs and responding to FERC-proposed rulemaking.

### Midcontinent ISO update

Todd Ramey, MISO vice president of System Operations and Market Services, explained the formation of the RTO to provide a wholesale energy market where reliability and market operations are mutually reinforcing. Ramey also explained how MISO's role continues to evolve as the industry's requirements change.

MISO is the RTO with the largest footprint. MISO estimates the value of running the MISO region through a central RTO versus traditional methods at \$16 billion since 2007 through participation in the market.

### PJM interconnection update

Adrien Ford, PJM director of Member Relations, detailed the development history of PJM into the RTO it is today. PJM builds its service around a focus

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on keeping the lights on, planning for the future and facilitating efficient electricity trading. Ford also provided insight into the organization's current stakeholder discussions and attention to FERC orders that impact markets.

### CAISO's EIM update

Don Fuller, CAISO's director of Strategic Alliances, updated participants on the CAISO EIM, its public process to establish long-term structure for EIM governance and the data-driven effort to avoid curtailing wind and solar energy during those times when there is more energy on the system than what customers need. PacifiCorp and NV Energy joined the CAISO's EIM to help balance the variable renewable energy resources throughout its footprint.

Key features of the EIM include a scalable approach that uses CAISO's existing market structure and can add other participants at any time. The EIM dispatches least-cost resources automatically every five minutes to resolve imbalances. The market uses a number of rules to ensure that participants have sufficient resources available to meet their obligations. During his presentation, Fuller shared that CAISO began track-

ing wind and solar avoided curtailments in April 2015 and when NV Energy joined in November, the avoided curtailments for wind and solar energy increased significantly based on the larger geographical area.

### MWTG update

Joe Taylor, Xcel Energy manager of Transmission Access, discussed the history behind the MWTG collaboration, a group of seven utilities. Taylor explained their collective work to design a single multi-company transmission tariff that would eliminate pancaked transmission charges and explore "Day 2" market alternatives. Taylor shared the proposed rate design and the discussions the group is having to address cost-shift issues.

In addition, the group is conducting a market study and requested information to gauge available RTO options. The request for information is one of multiple sources of information to assist the group in consideration of a path forward.

Outreach is ongoing with WAPA customers, the other entities' constituents, FERC, as well as RTOs and other interested parties.

## Studies evaluate benefits, cost

Several groups continue to study and evaluate the cost-benefit analysis of various marketing options and arrangements. Studies currently underway were shared at the recent discussion on markets, including:

- **Balancing Authority of Northern California's study:** BANC General Manager Jim Shetler articulated the group's 2016 third-party evaluation of joining the CAISO including employee training and lessons learned sessions throughout the evaluation process.
- **Brattle's study:** Brattle Group Principal Judy Chang shared a phased approach to looking at near-term and long-term analyses for studying scenarios for the Mountain West Transmission Group. Brattle has completed the near-term analysis and provided initial results to the MWTG group. Work on the long-term analysis is continuing.

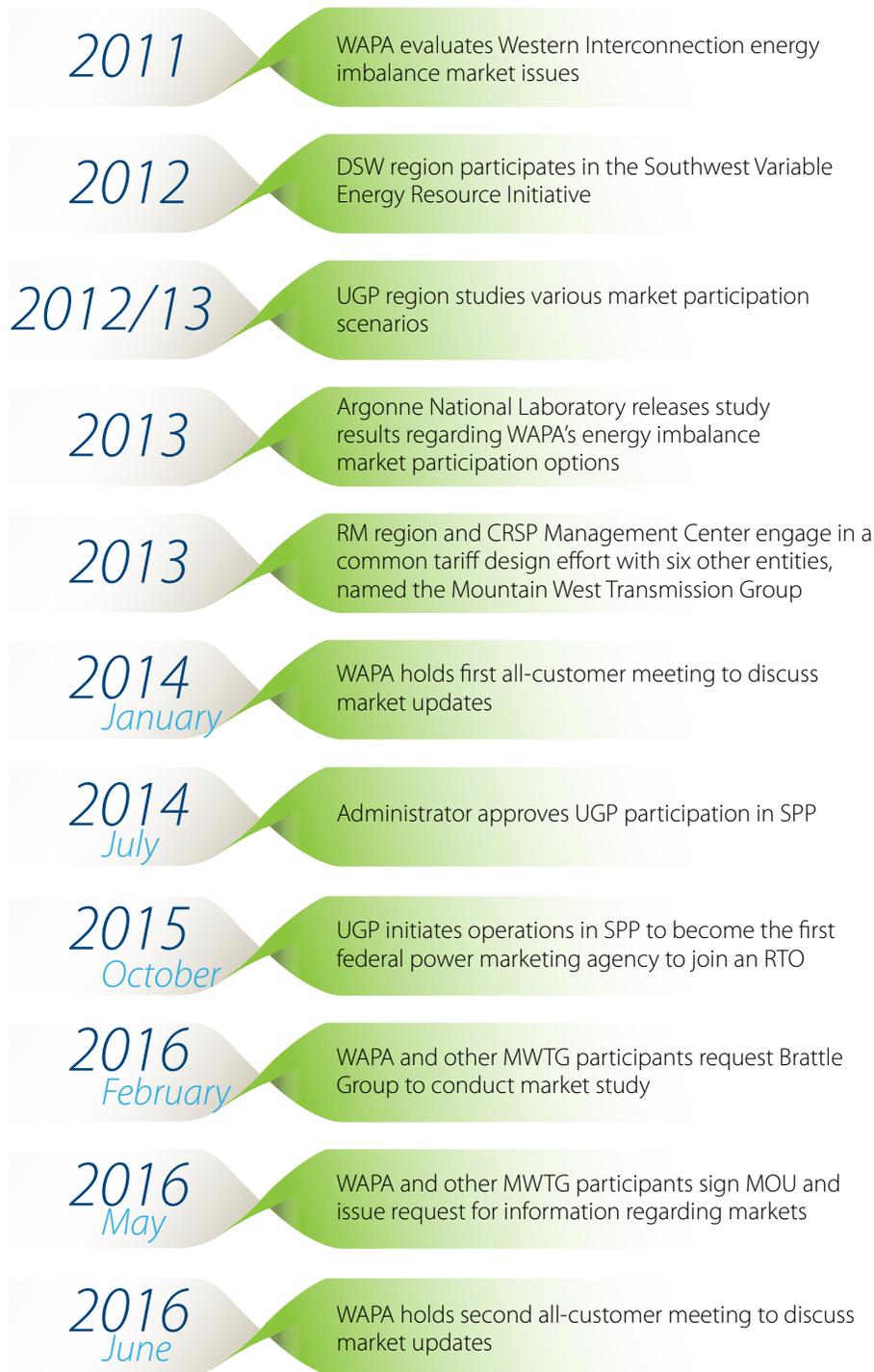
- **Argonne's markets evaluation:** Argonne National Laboratory is conducting an update to its 2013 study regarding the CAISO energy imbalance market evaluation. Additionally, Argonne is providing WAPA modeling structures for Brattle's study regarding MWTG.



**Brattle Group Principal Judy Chang and WAPA Rocky Mountain Power Marketing Vice President Dave Neumayer discuss the methods of market studies during the Discussion on Markets meeting, June 30.**

# History of WAPA's market collaborations

WAPA has continued to track, monitor, evaluate and engage in market discussions for several years. Working with customers, WAPA continues to seek market participation opportunities that would ensure it is fulfilling its promise to customers by delivering on its federal mission. Here is a brief overview of some of the market studies, collaborations and decisions in which WAPA has engaged since 2011.



## What's next?

"Customer engagement is critical," said Gabriel. "How we manage transmission, how we view the expanding geographic scope of markets, and how we manage increasing limitations on trading partners all influence our marketing decisions.

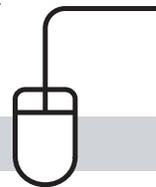
"Changes like these are happening now and will continue to happen," he continued. "Only by building mutually beneficial partnerships that enhance trust, operational effectiveness and business opportunities for all will we best position ourselves for the future."

WAPA, along with other industry experts, continues evaluating market participation on a case-by-case basis. Follow-up meetings and discussions about specific initiatives take priority as WAPA continues

to closely collaborate with customers regarding its efforts. Customers and stakeholders interested in learning more about industry activities, RTOs, and market strategies in their areas can contact their local WAPA Vice President of Power Marketing on any of these topics.

### June 30 meeting materials

If you missed the meeting, or would like more information about individual presentations, visit **Presentations & Speeches** section of **The Source on wapa.gov**



## Related articles

If you're interested in more information about markets and related WAPA activities in response to the evolving energy industry, check out all the June 30 presentation materials on The Source, or read some of WAPA's previous articles and announcements.

- Market discussions:
  - WAPA, customers discuss market strategies, June 2016
  - WAPA engages changing industry, June 2016
  - Markets update in Customer Circuit (PDF pg. 15), January 2016
  - Understanding Markets, January 2014
  - WAPA watches Markets, November 2013
- Sierra Nevada specific:
  - Increasing value of hydropower stock in California, December 2015
- Upper Great Plains specific:
  - WAPA, Basin, Heartland join Southwest Power Pool, October 2015
  - WAPA Administrator approves regional transmission organization membership, July 2014
  - WAPA pursues regional transmission organization membership, January 2014
  - Upper Great Plains Region proposes to join Southwest Power Pool, November 2013