



Mountain West Transmission Group Frequently Asked Questions Updated through September of 2017

This FAQ document was first provided in 2016 and has periodically been updated since that time. The document is current through September of 2017 and will no longer be updated. Its purpose is to provide foundation information on the Mountain West Transmission Group (Mountain West), the process by which it evaluated strategic options to adapt to a changing electric industry, and the analyses it performed to come to the decision to pursue Regional Transmission Organization (RTO) membership.

On September 22, 2017, the Mountain West participants announced they were beginning final negotiations with the Southwest Power Pool (SPP) for regional transmission organization (RTO) membership. This announcement initiated a formal SPP public stakeholder process beginning with public meetings on October 13th in Denver and October 16th in Little Rock. Concurrently, Western Area Power Administration (WAPA) is holding its own public process per an [October 12th Federal Register notice](#).

Information and updates on the status of Mountain West and SPP regarding RTO membership will be provided via the SPP public stakeholder process and available on [SPP's website](#). Additional information related to WAPA is available on [WAPA's website](#).¹

I. Background

A. What is the Mountain West Transmission Group?

Mountain West is an informal collaboration of electricity service providers that formed in early 2013 to evaluate an array of strategic options to adapt to the changing electric industry. Options evaluated ranged from a common transmission tariff to Regional Transmission Organization (RTO) membership.

B. Who are the Mountain West Transmission Group participants?

Mountain West includes two investor-owned utilities; two municipal electricity providers; two generation and transmission cooperatives; and two federal power marketing administration projects. The Mountain West participants are a subset of the WestConnect planning region and are members of the Colorado Coordinated Planning Group (CCPG).

1. Basin Electric Power Cooperative (BEPC)

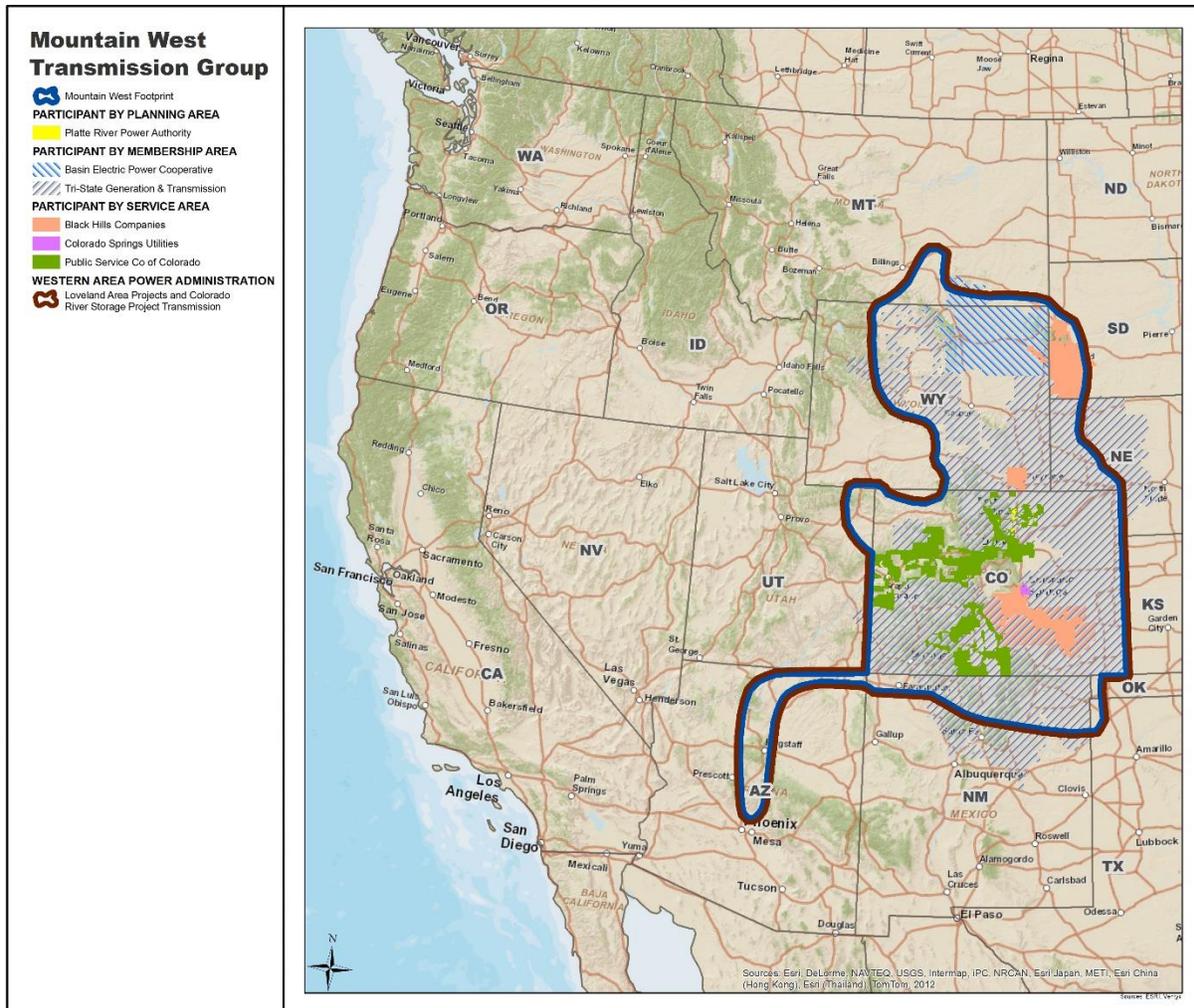
¹ Please note that WAPA has created a section on its website to share publicly available information regarding WAPA's involvement with the Mountain West Transmission Group. It is not a Mountain West website, and does not represent the views or actions of the other Mountain West participants individually or as a group.



2. Black Hills Energy:
 - a. Black Hills Power (BHP)
 - b. Black Hills Colorado Electric Utility Company (BHCE)
 - c. Cheyenne Light Fuel & Power Company (CLFP)
3. Colorado Springs Utilities (CSU)
4. Platte River Power Authority (PRPA)
5. Public Service Company of Colorado (PSCo)
6. Tri-State Generation and Transmission Association (Tri-State)
7. Western Area Power Administration (WAPA)
 - a. Loveland Area Projects (LAP)
 - b. Colorado River Storage Project (CRSP)

C. What is the service territory of the Mountain West participants?

The Mountain West service territory is shown in the following map. It includes the WAPA Colorado Missouri Balancing Authority (WACM) and the PSCo Balancing Authority.





D. What is the tail that goes from the Four Corners area into Central Arizona?

The “tail” is a set of transmission lines owned by WAPA’s Colorado River Storage Project.

II. What options were evaluated?

Mountain West evaluated 1) a common transmission tariff without a wholesale market and 2) Regional Transmission Organization (RTO) membership.

Based on the results of extensive analyses, in late 2016 the group focused its attention on full RTO participation.

A. Common Tariff Option

What is a common transmission tariff?

Historically, each Mountain West participant had its own transmission tariff or tariffs. These tariffs set the terms, conditions and rates for providing transmission service to all transmission customers. This includes selling transmission service, performing transmission studies, interconnecting new generators, and many other wholesale electricity functions.

A common transmission tariff is a single tariff consisting of multiple transmission zones. Under a zonal design, the customers pay the transmission rate for the zone in which their loads are located and do not incur additional transmission charges for transporting energy across other zones in the footprint. Zonal rate design is used by all RTOs in the U.S. except the California Independent System Operator (CAISO) and the New York Independent System Operator (NYISO).

Why create a common tariff?

Common tariffs have the potential to provide multiple benefits including:

1. More efficient use of the existing transmission system by transitioning away from contract-path to flow-based transmission sales. This allows more optimal utilization of available transfer capability.
2. Elimination of transmission rate pancaking for grid use. “Rate pancaking” is a term used to describe the addition of delivery charges that occurs when wheeling energy across multiple transmission systems. Rate pancaking impedes the use of least-cost generation resources, including renewable resources, by increasing transaction costs.
3. Support of improved transmission planning and interconnection processes by increasing coordination between and across the systems. This helps avoid duplication of facility investments and may create additional siting opportunities for new resources.



B. Regional Transmission Organization (RTO) Option

What functions does an RTO perform?

1. Maintains a wide-area view and real-time situational awareness of the entire footprint to monitor and manage the reliability of the system.
2. Manages the operation of the transmission systems and generation resources of multiple electricity providers to optimize the utilization of the assets.
3. Serves as the centralized operator for a Day-2 Market for auction-based electricity products including varying combinations of energy, capacity, and ancillary services. The markets include day-ahead unit commitment, reliability unit commitment, and real-time dispatch.
4. Provides market monitoring oversight.
5. Facilitates transmission planning across multiple transmission systems and states.
6. Performs ongoing assessments to ensure that generation and transmission resource adequacy are in alignment with reliability, economic, and public policy requirements.
7. The RTO provides its grid access and wholesale electricity market services through a single transmission tariff.

Why consider an RTO?

As the rules and regulations associated with operating the system have evolved over time, it has become an increasingly complex task to optimize the efficiency of the system, while concurrently managing reliability. RTOs are able to use their wide-area view, real-time situational awareness, and ability to optimize market dispatch operations across a broader footprint. This can lead to enhanced coordination, increased reliability, greater efficiency, and more economic integration of renewable resources.

What are the benefits of RTO market participation?

Participation in an RTO has the potential to provide significant value for Mountain West. Other utilities participating in an RTO market have benefited from more efficient commitment and dispatch of generation, improved operating reserve procurement, and more efficient wind and solar resource integration.

For example, the Mid-Continent Independent System Operator (MISO)², the Southwest Power Pool (SPP)³, and PJM Interconnection (PJM)⁴ have recently released statements regarding the value their RTOs bring to their respective regions. The RTO's regional operational control permits more efficient grid use which results in daily operational cost savings and creates savings over time through reduced

² <https://www.misoenergy.org/WhatWeDo/ValueProposition/Pages/ValueProposition.aspx>

³ <https://www.spp.org/about-us/newsroom/total-savings-from-spp-s-markets-cross-the-1-billion-mark/>

⁴ <http://www.pjm.com/about-pjm/value-proposition.aspx>



regional infrastructure investments in response to growth in demand or changes in energy production resources.

III. What analyses were performed?

A. Transmission Cost Study

In 2013, the Mountain West participants engaged a consultant to evaluate potential common tariff transmission pricing structures, evaluate potential cost shifts, and develop a method to mitigate those cost shifts. The transmission cost study resulted in the following preliminary design proposal:

1. Divide the Mountain West footprint into multiple pricing zones.
2. Network customers pay the zonal rate in which their load sinks.
 - a. Owners in each zone retain revenue for zonal network load.
 - b. The majority of internal point to point (PTP) transmission agreements are eliminated.
3. Single Regional Through and Out Rate (RTOR) applied to PTP sales.
 - a. $RTOR = \frac{\text{Total Mountain West Annual Transmission Revenue Requirement (ATRR)}}{\text{Total Mountain West Load}}$
 - b. Revenues allocated based on ATRR and Megawatt-Mile split, after mitigation.
 - c. Cost shifts to be mitigated over seven years.

Following the 2013 consultant study, the Mountain West participants refined the methodologies for the transmission cost evaluation and cost shift mitigation; validated the model with 2015/2016 actual loads, revenues, and expenses; and updated the model with expected 2018 loads, revenues, and expenses.

B. Production Cost-Benefits Analysis

Mountain West initiated a production cost study in March 2016 with the Brattle Group, a consulting firm, to perform a detailed analysis of the potential production cost savings from 1) a common tariff and 2) a common tariff with full RTO market participation.

The study was conducted in two phases. Results of the analyses indicate that RTO membership has the potential to provide greater benefits than a common tariff alone. In anticipation of the greater level of benefits, Mountain West focused its efforts on further evaluating potential RTO membership.

The estimated aggregate production cost savings from the 2016 and 2024 studies for the Mountain West footprint are shown below in millions of dollars per year. The results assume current trends in load growth, natural gas prices, inflation, etc. Confidential individual entity results were prepared for each Mountain West participant.



Aggregate Production Cost Savings (millions per year)	Annual Benefits 2016	Annual Benefits 2024
Single Tariff/ Existing Bilateral Market	\$14 M	Not Studied
Single Tariff/ RTO “Day 2” Market	\$53 M	\$71 M

What additional potential savings are not represented in the production cost analysis?

Among other things, RTO markets bring additional savings for real-time dispatch optimization of energy and ancillary services, as well as potential planning reserve margin reductions. These savings are not reflected in the studies Mountain West commissioned.

C. DC Tie Evaluation

Four of the seven DC ties in the U.S. that connect the Eastern Interconnection and the Western Interconnection are owned and operated by Mountain West participants. The combined transfer capability of the Rapid City, Stegall, Sidney, and Lamar ties is 720 megawatts (MW).





Mountain West and SPP retained the Glarus Group to evaluate the potential benefits of using the DC ties in the market. The study compared the current scheduling process to an alternative process of optimizing scheduled DC tie flows through the market. Additionally, the report considered six scenarios to evaluate benefits under various conditions, specifically: low and high gas prices; low and high load; and low and high DC tie availability.

Mountain West and SPP scenario savings between base and alternative cases			
Net production cost savings (in millions)			
Input parameter	Low	Medium	High
Natural gas price	\$13.6	\$12.9	\$28.8
DC Tie availability	\$11.7	\$12.9	\$12.6
Weather-base load	\$14.2	\$12.9	\$13.2

The results of the study show a significant level of benefits of the SPP market scheduling flow for the four DC ties in the alternative case. If the combined Mountain West-SPP market optimized the scheduling of the DC ties, both Mountain West and SPP would see benefits ranging from \$11.7 million to \$28.8 million, depending upon the key variables.⁵

The combined production cost benefits to Mountain West from the Brattle Group analysis and the DC tie study range from \$25.7 million to \$99.8 million.

D. Request for Information on Tariff Administration and RTO Services

In May 2016, Mountain West issued a Request for Information (RFI) for an RTO to provide services ranging from common tariff administration to full RTO Market membership.

The RFI was delivered to four RTOs: the California Independent System Operator (CAISO), the Mid-Continent Independent System Operator (MISO), PJM Interconnection (PJM), and the Southwest Power Pool (SPP) RTO. Responses to the RFI were received in mid-July 2016. The range of RTO costs to provide tariff administration or full RTO membership are shown below.

RTO Costs (in millions)	Start-Up Cost from RTO	Annual Cost
Tariff Administration only	\$4-7 M	\$3-7 M
RTO Membership	NA ⁶	\$24-60 M

⁵ "Mountain West Transmission Group – Southwest Power Pool DC Intertie Value Study," available at <https://www.wapa.gov/About/keytopics/Pages/Mountain-West-Transmission-Group.aspx>

⁶ Start-up costs for the RTO to incorporate the Mountain West participants into the membership are included in the annual cost.



IV. What major milestones and decisions have occurred during the process?⁷

A. Letter of Understanding

After synthesizing the results of the transmission study, the production cost benefit analysis, the DC tie study, and the responses to the RFI from the four RTOs, the Mountain West participants determined that SPP RTO membership has the potential to provide significant benefits for customers due to combining reliability and markets. In January 2017, the group executed a non-binding letter of understanding to hold detailed discussions with SPP regarding potential membership. This was not a decision to join the RTO but rather an agreement to have more in-depth discussions to determine if mutually agreeable terms could be developed to enable Mountain West membership in SPP.

B. Decision to proceed to formal negotiations with SPP for full RTO membership

On September 22, 2017, the Mountain West participants announced they were beginning formal negotiations with SPP for RTO membership. This announcement initiated a formal SPP public stakeholder process beginning with public meetings on October 13th in Denver and October 16th in Little Rock.

V. What approvals will be required for Mountain West to join SPP?

The process of transferring functional control of transmission and generation assets to an RTO entails significant authorizations and approvals which vary by type of entity. Mountain West is comprised of four different types of electricity service providers including two investor-owned utilities; two municipal electricity providers; two generation and transmission cooperatives; and two federal power marketing administration projects.

Each participating entity will have a multi-step approval process involving some combination of executive, board of director, customer, city, state, and federal approvals. Ultimately, approval from the Federal Energy Regulatory Commission (FERC) will be required.

⁷ As noted in the introduction, this FAQ document was first provided in 2016 and has periodically been updated since that time. The document is current through September of 2017 and will no longer be updated. Information and updates on the status of Mountain West and SPP regarding RTO membership will be provided via the SPP public stakeholder process and available on [SPP's website](#). Additionally, information including reports, presentations, and news releases are available on [WAPA's website](#).



VI. What is the estimated Mountain West timeline?

Ongoing:	Customer, regulator, and industry stakeholder meetings
January 2017:	Mountain West reached consensus to pursue additional discussions with SPP
Mid to late 2017:	In-depth discussions with SPP
September 2017:	Mountain West announced its decision to proceed to formal negotiations with SPP
October 2017:	SPP stakeholder kickoff meetings October 13 th in Denver and October 16 th in Little Rock
October 2017:	WAPA concurrently initiates its public stakeholder process with the publication of a Federal Register Notice
Mid 2017 to Mid 2018:	Stakeholder processes; federal, state, and other regulatory body approvals
October 2019:	Implementation

VII. Additional questions received since commencement of discussions with SPP in January 2017

A. Is Mountain West Planning to form a standalone Regional Transmission Organization (RTO) or join the Southwest Power Pool?

Mountain West has made a formal commitment, to pursue formal discussions with SPP. Its current focus is on negotiating acceptable terms with the SPP that would result in Mountain West members joining SPP. The Mountain West’s does not contemplate forming a standalone RTO, though if negotiations with SPP are unsuccessful the group may evaluate other options.

B. Will any elements of SPP’s governance structure be adopted, such as the use of an advisory Members Committee consisting of stakeholders that include owners and customers?

If negotiations with SPP are successful, it is entirely possible that significant portions of SPP’s existing stakeholder process will be adopted. Some committees and working groups may have “west-side” specific groups formed and others may use a single committee. Those details are will be discussed and negotiated with SPP Members and stakeholders.



C. If Mountain West joins SPP, will there be a separate stakeholder process for Mountain West participants or will it be part of the existing process?

In broad terms, the “SPP stakeholder process” will be a single stakeholder process, culminating in a decision by the SPP Board. Some committees and working groups may be specific to the Mountain West (or “west side”) territory, while others may focus on both east and west side issues and concerns.

D. Will there be an office located more central to Mountain West’s footprint for purposes of stakeholder meetings and administration of issues specific to Mountain West?

All SPP offices and staff are located in Little Rock, Arkansas. It is worth noting that SPP’s current territory spans from the Canadian border to the southern edge of New Mexico, so many current SPP members do not have SPP facilities proximate to their location. Many SPP meetings are hosted throughout SPP’s territory or in other locations like Dallas or Denver. If Mountain West joins SPP, the participants anticipate some of the SPP meetings will be held in locations central to the new participants.

E. When would elimination of internal point to point transmission agreements occur and what would the transition period look like?

When a transmission provider joins a RTO, the transmission provider’s transmission service agreements entered into after the effective date of its Open Access Transmission Tariff (OATT) receiving FERC approval, typically roll under the OATT of the RTO as of the effective date of that utility’s entrance into the RTO. If a transmission customer holds an agreement that pre-dates the effective date of the transmission provider’s OATT, the customer may be able to identify that agreement as a “grandfathered agreement.” Typically RTOs work through an integration process with transmission owners and transmission customers to address questions associated with existing agreements.

While detailed discussions have not taken place, referencing other RTO integrations in the nation, it is also common for new entrants to have both grandfathered agreements and agreements that roll fully into the RTO structure. The determination is made on a case-by-case basis. Some issues (such as those involving transactions across the DC ties) present novel or unique issues that will be addressed.

F. Would existing network transmission agreements automatically become agreements with SPP after the transition occurs?

It is expected that a network transmission agreement with a transmission provider that joins SPP would transition to become a network transmission agreement with SPP.



G. Will existing rights associated with point-to-point and network deliveries be preserved, particularly on constrained facilities?

Each RTO has its own process for dealing with existing transmission rights. In SPP, both grandfathered agreements and agreements under the RTO OATT are covered through the SPP congestion management process. Generation assets will be committed and dispatched through security constrained economic commitment and dispatch systems and congestion costs are hedged through the SPP congestion management process.

H. Upon joining SPP, would each Mountain West member have its own Annual Transmission Revenue Requirement (ATRR) formula rate or stated rate, or would Mountain West's members have some form of joint revenue requirement and/or rate to the extent there are jointly-owned facilities?

In SPP, each transmission owning member has its own formula or stated rate. To the extent multiple transmission owners exist in a zone, those rates are combined into a single zonal rate with a load divisor that comprises the total zonal load. For transmission facilities jointly-owned by two or more SPP members, each owner would capture its portion of the jointly-owned transmission facility in its own transmission rate.

I. If Mountain West joins SPP, in which SPP zone(s) would Mountain West's members' revenue requirements be placed? Our understanding is that the closest scrutiny of, and stiffest opposition to, SPP taking on a new member tends to come from those existing SPP members located in the same SPP zone proposed for the new member.

The Mountain West transmission-owning utilities continue working through the question of zonal make-up. However, all facilities within the Mountain West footprint and owned by Mountain West transmission owners are expected to be placed in new zones, not those of existing SPP members.

J. Will load in Mountain West be responsible for region-wide costs of existing transmission facilities in the RTO?

Mountain West does not anticipate sharing in costs of existing or future "east-side" SPP facilities. Likewise, Mountain West does not anticipate SPP's current members sharing in any costs of existing or future "west-side" AC facilities.

Much of the discussion regarding the implementation of an RTO has been the potential cost savings that will be achieved. However, according to the American Public Power Association, *Electric Rates in Deregulated and Regulated States: 2015 Update*, those states located in regions run by RTOs have seen higher rate increases, on average, since 1997, than those states that have traditional rate regulation.

K. How will the cost savings envisioned will be achieved and how those cost savings will be realized by rural electric and Public Power consumers?

Savings from operating in a RTO market typically come from the economy of scale in centralized generation unit commitment and energy dispatch. Rather than multiple



individual utilities optimizing generation dispatch across their disparate systems, generation dispatch is optimized for the entire system as if it were a single utility system. The cited APPA report compares rates in states with so-called “deregulated” rate constructs to rates in states with “regulated” constructs. RTO markets operate in both deregulated and regulated states. The Mountain West states (as well as the states that are currently members of SPP) all have “traditional” regulation; this regulatory model does not have to change upon membership in a RTO and the Mountain West utilities do not anticipate this regulatory model changing.

L. What options exist for customers and interested stakeholders to plug into the Mountain West process and learn more?

Mountain West has been in regular and frequent contact with stakeholders, customers, industry groups, and regulators about the development of Mountain West. We plan to continue providing updates as available and are happy to talk with any group who wishes to ask questions or simply receive an update on progress and plans going forward.

M. Will the initial market structure be an energy imbalance market, a Day 2 locational marginal price-based market, or neither?

Should negotiations with SPP be successful and all necessary approvals be secured, Mountain West anticipates the initial market structure will be a Day 2 locational marginal price-based market, which includes a transmission congestion rights market, an operating reserve market, a five-minute real-time balancing market, and a reliability unit commitment process.

N. When does Mountain West plan to have its market active?

Discussions to date have focused on a market go-live in October 2019.

O. Is it the intent of Mountain West to have its market be similar to that of SPP or will it be designed based on specifics of the Mountain West footprint?

Mountain West’s current intent is to adopt SPP’s Integrated Marketplace (IM) structure. The SPP IM has the flexibility to manage the specific operational characteristics and constraints of the Mountain West and the existing SPP market policies currently operate and work well in a traditionally-regulated structure consistent with Mountain West.

P. How will the AC/DC ties be integrated into the proposed market design? If additional AC/DC ties are needed, will Mountain West be solely responsible for those costs?

Mountain West and SPP have explored the ability to dispatch both the “east side” and “west side” assets simultaneously, using the AC/DC ties within that dispatch to optimize the entire footprint as a single market. Mountain West anticipates the cost of future ties would be subject to the SPP planning process and the requirement that the costs of new facilities be allocated to customers on a basis at least roughly commensurate with anticipated benefits.



Q. What additional steps does the Mountain West anticipate for the RTO implementation?

1. SPP's public stakeholder and committee processes and subsequent Board approval.
2. WAPA's public process.
3. FERC approval of tariff changes.
4. State approvals for Mountain West members subject to state-level jurisdiction.
5. Member and customer implementation of necessary infrastructure to participate in the market.
6. SPP certification as a Reliability Coordinator, Balancing Authority, Transmission Service Provider, and other NERC registered functions in the Western Interconnection.

R. How realistic is a start date in late 2019 (as has been publicly discussed), given the number of steps that must be completed?

While 2019 is an aggressive timeline, based on discussions with SPP, the Mountain West participants believe it is achievable. SPP has significant experience integrating new members and recently completed the integration of Basin, WAPA, and Nebraska, large system integration with many impacted customers and new members.

S. If Mountain West decides to join SPP, does Mountain West plan to integrate in a single phase or would multiple integration phases be considered?

The precise timeline in which membership, the applicability of the transmission planning process, and other membership-like activities take place is still under development. It is possible that the start of certain membership-like activities (such as transmission planning and RC services) could occur somewhat in advance of full RTO integration.